Methods for Stress Management

Methods for Stress Management

ALLEN URICH

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CHAPTER 1: STRESS

Chapter 1 Learning Objectives

Learning Objectives

By the end of Chapter 1 you will be able to:

1. Define stress and your body's response to stress
2. Explain how stress can be a positive force in your life
3. Describe how stress levels have changed in the US during the past five years.
4. Describe how the body responds to the Flight or Fight response.
5. Identify and define the three stages of the adaption syndrome.

What is Stress?

Stress is a feeling you get when faced with a challenge. In small doses, stress can be good for you because it makes you more alert and gives you a burst of energy. For instance, if you start to cross the street and see a car about to run you over, that jolt you feel helps you to jump out of the way before you get hit. But feeling stressed for a long time can take a toll on your mental and physical health. Even though it may seem hard to find ways to de-stress with all the things you have to do, it's important to find those ways. Your health depends on it.

Causes of Stress/Potential Factors

Everyone feels stressed from time to time. Not all stress is bad. All animals have a stress response, and it can be life-saving. But chronic stress can cause both physical and mental harm.

There are at least three different types of stress:

- Routine stress related to the pressures of work, family, and other daily responsibilities
- Stress brought about by a sudden negative change, such as losing a job, divorce, or illness
- Traumatic stress, which happens when you are in danger of being seriously hurt or killed. Examples include a major accident, war, assault, or a natural disaster. This type of stress can cause post-traumatic stress disorder (PTSD).

Different people may feel stress in different ways. Some people experience digestive symptoms. Others may have headaches, sleeplessness, depressed mood, anger, and irritability. People under chronic stress get more frequent and severe viral infections, such as the flu or common cold. Vaccines, such as the flu shot, are less effective for them.

Some people cope with stress more effectively than others. It's important to know your limits when it comes to stress, so you can avoid more serious health effects.

Test your knowledge

Source: https://www.womenshealth.gov/a-z-topics/stress-and-your-health The Office on Women's Health is grateful for the additional reviews by: Catherine Roca, M.D., Office for Special Populations,

Good Stress?

Although stress carries a negative connotation, at times it may be of some benefit. Stress can motivate us to do things in our best interests, such as study for exams, visit the doctor regularly, exercise, and perform to the best of our ability at work. Indeed, Selye (1974) pointed out that not all stress is harmful. He argued that stress can sometimes be a positive, motivating force that can improve the quality of our lives. This kind of stress, which Selye called eustress (from the Greek *eu* = "good"), is a good kind of stress associated with positive feelings, optimal health, and performance. A moderate amount of stress can be beneficial in challenging situations. For example, athletes may be motivated and energized by pregame stress, and students may experience similar beneficial stress before a major exam. Indeed, research shows that moderate stress can enhance both immediate and delayed recall of educational material. Male participants in one study who memorized a scientific text passage showed improved memory of the passage immediately after exposure to a mild stressor as well as one day following exposure to the stressor (Hupbach & Fieman, 2012).

Increasing one's level of stress will cause performance to change in a predictable way. As shown in Figure 3.0, as stress increases, so do performance and general well-being (eustress); when stress levels reach an optimal level (the highest point of the curve), performance reaches its peak. A person at this stress level is colloquially at the top of his game, meaning he feels fully energized, focused, and can work with minimal effort and maximum efficiency. But when stress exceeds this optimal level, it is no longer a positive force—it becomes excessive and debilitating, or what Selye termed distress (from the Latin *dis* = "bad"). People who reach this level of stress feel burned out; they are fatigued, exhausted, and their performance begins to decline. If the stress remains excessive, health may begin to erode as well (Everly & Lating, 2002).

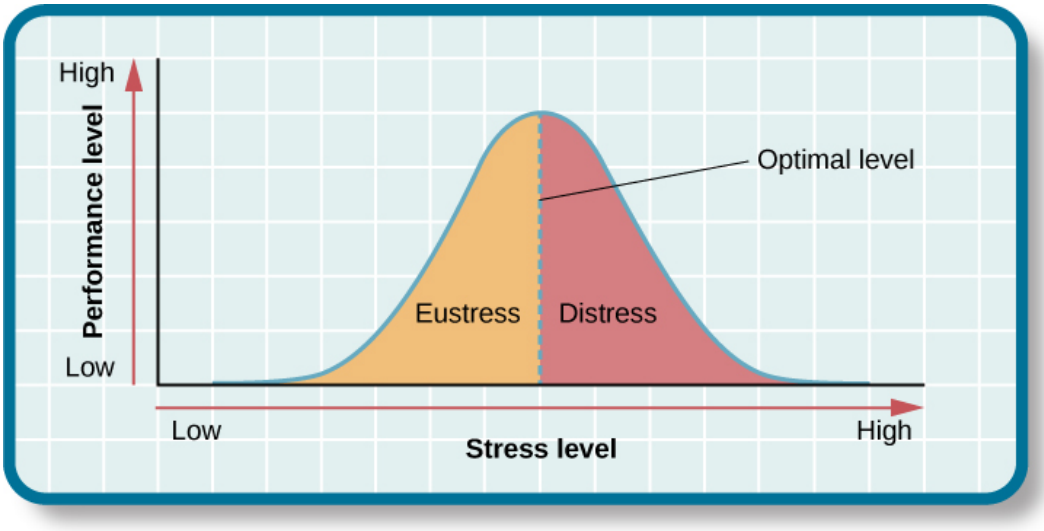


Figure 3: *As the stress level increases from low to moderate, so does performance (eustress). At the optimal level (the peak of the curve), performance has reached its peak. If stress exceeds the optimal level, it will reach the distress region, where it will become excessive and debilitating, and performance will decline (Everly & Lating, 2002).*

Test your knowledge

The Prevalence of Stress

Stress is everywhere and, as shown in Figure 4, it has been on the rise over the last several years. Each of us is acquainted with stress—some are more familiar than others. In many ways, stress feels like a load you just can't carry—a feeling you experience when, for example, you have to drive somewhere in a crippling blizzard, when you wake up late the morning of an important job interview, when you run out of money before the next pay period, and before taking an important exam for which you realize you are not fully prepared.

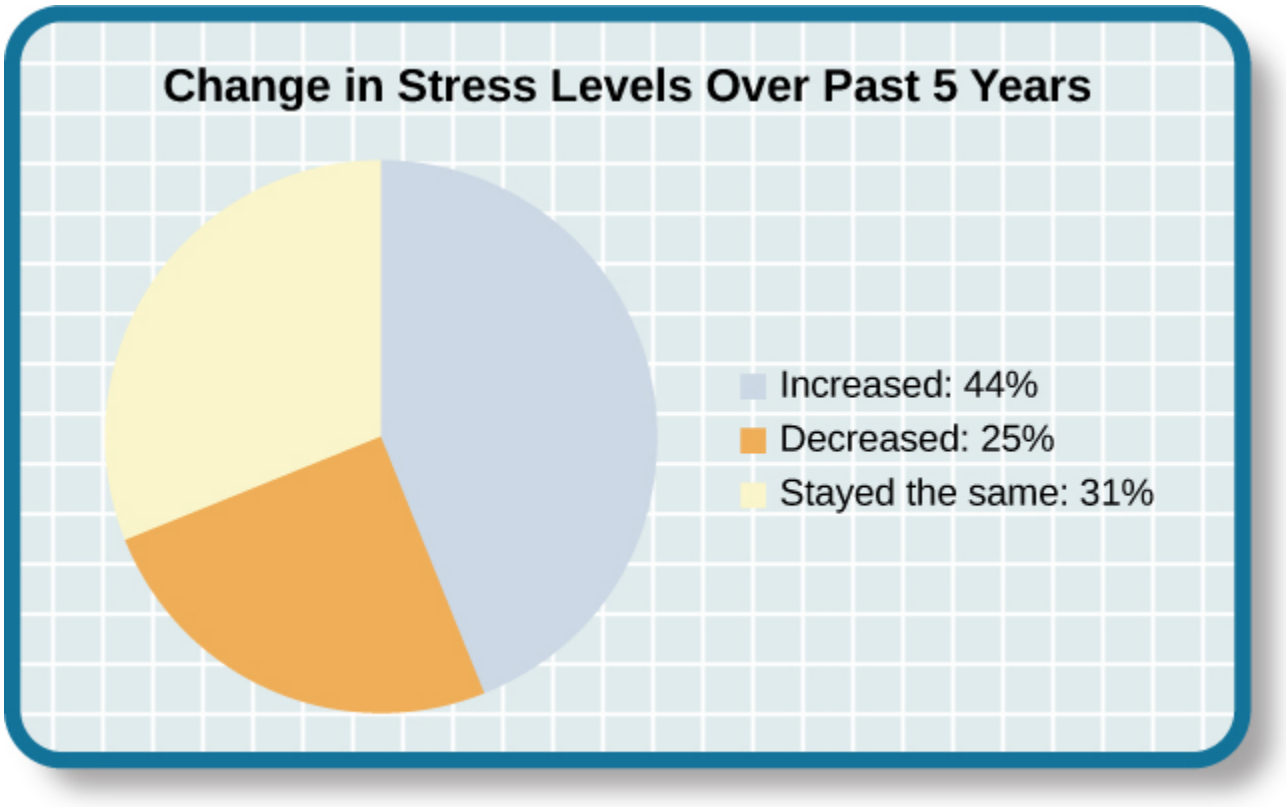


Figure 4: Nearly half of U.S. adults indicated that their stress levels have increased over the last five years (Neelakantan,2013).

Stress is an experience that evokes a variety of responses, including those that are physiological (e.g., accelerated heart rate, headaches, or gastrointestinal problems), cognitive (e.g., difficulty concentrating or making decisions), and behavioral (e.g., drinking alcohol, smoking, or taking actions directed at eliminating the cause of the stress). Although stress can be positive at times, it can have deleterious health implications, contributing to the onset and progression of a variety of physical illnesses and diseases (Cohen & Herbert, 1996).

The scientific study of how stress and other psychological factors impact health falls within the realm of health psychology, a subfield of psychology devoted to understanding the importance

of psychological influences on health, illness, and how people respond when they become ill (Taylor, 1999). Health psychology emerged as a discipline in the 1970s, a time during which there was increasing awareness of the role behavioral and lifestyle factors play in the development of illnesses and diseases (Straub, 2007). In addition to studying the connection between stress and illness, health psychologists investigate issues such as why people make certain lifestyle choices (e.g., smoking or eating unhealthy food despite knowing the potential adverse health implications of such behaviors). Health psychologists also design and investigate the effectiveness of interventions aimed at changing unhealthy behaviors. Perhaps one of the more fundamental tasks of health psychologists is to identify which groups of people are especially at risk for negative health outcomes, based on psychological or behavioral factors. For example, measuring differences in stress levels among demographic groups and how these levels change over time can help identify populations who may have an increased risk for illness or disease.

Figure 5 depicts the results of three national surveys in which several thousand individuals from different demographic groups completed a brief stress questionnaire; the surveys were administered in 1983, 2006, and 2009 (Cohen & Janicki-Deverts, 2012). All three surveys demonstrated higher stress in women than in men. Unemployed individuals reported high levels of stress in all three surveys, as did those with less education and income; retired persons reported the lowest stress levels. However, from 2006 to 2009 the greatest increase in stress levels occurred among men, Whites, people aged 45–64, college graduates, and those with full-time employment. One interpretation of these findings is that concerns surrounding the 2008–2009 economic downturn (e.g., threat of or actual job loss and substantial loss of retirement savings) may have been especially stressful to White, college-educated, employed men with limited time remaining in their working careers.

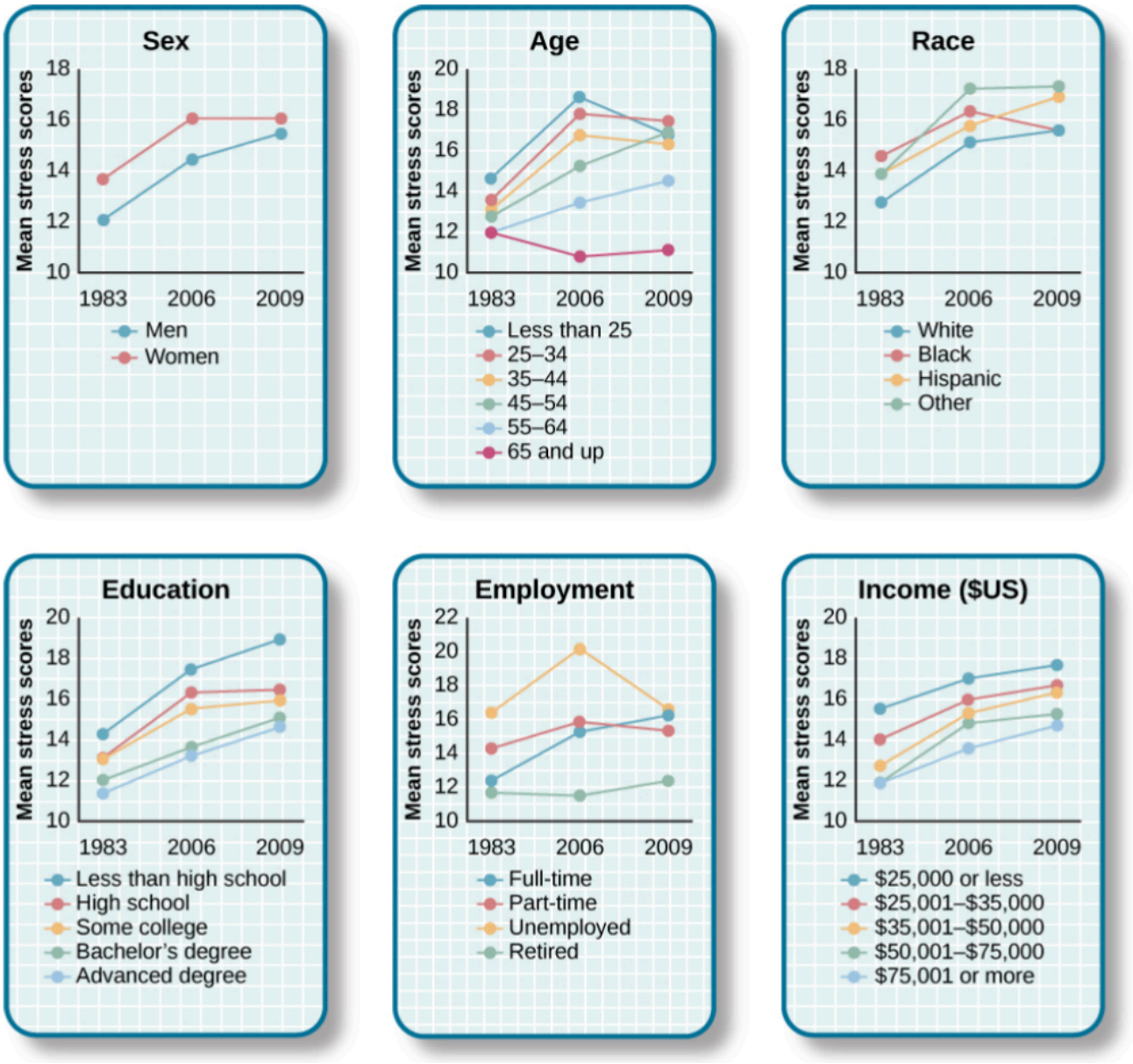


Figure 5: The charts above, adapted from Cohen & Janicki-Deverts (2012), depict the mean stress level scores among different demographic groups during the years 1983, 2006, and 2009. Across categories of sex, age, race, education level, employment status, and income, stress levels generally show a marked increase over this quarter-century time span.

Test your knowledge

Early Contributions To The Study of Stress

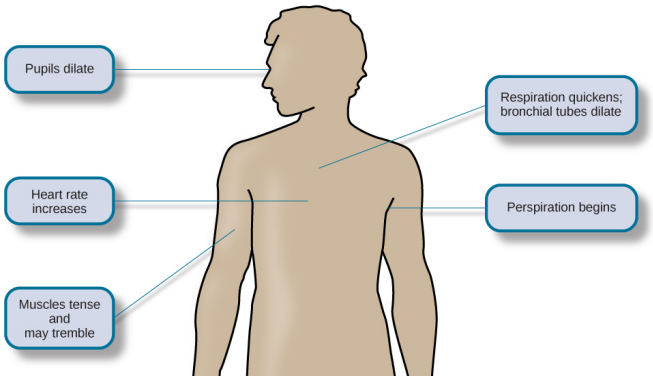
One of the early pioneers in the study of stress was Walter Cannon, an eminent American physiologist at Harvard Medical School. In the early part of the 20th century, Cannon was the first to identify the body's physiological reactions to stress.

Cannon and the Fight-or-Flight Response

Harvard physiologist Walter Cannon first articulated and named the fight-or-flight response, the nervous system's sympathetic response to a significant stressor.

Imagine that you are hiking in the beautiful mountains of Colorado on a warm and sunny spring day. At one point during your hike, a large, frightening-looking black bear appears from behind a stand of trees and sits about 50 yards from you. The bear notices you, sits up, and begins to lumber in your direction. In addition to thinking, "This is definitely not good," a constellation of physiological reactions begins to take place inside you. Prompted by a deluge of epinephrine (adrenaline) and norepinephrine (noradrenaline) from your adrenal glands, your pupils begin to dilate. Your heart starts to pound and speeds up, you begin to breathe heavily and perspire, you get butterflies in your stomach, and your muscles become tense, preparing you to take some kind of direct action. Cannon proposed that this reaction, which he called the fight-or-flight response, occurs when a person experiences very strong emotions—especially those associated with a perceived threat (Cannon, 1932). During the fight-or-flight response, the body is rapidly aroused by activation of both the sympathetic nervous system and the endocrine system. This arousal helps prepare the person to either fight or flee from a perceived threat.

According to Cannon, the fight-or-flight response is a built-in mechanism that assists in maintaining homeostasis—an internal environment in which physiological variables such as blood pressure, respiration, digestion, and temperature are stabilized at levels optimal for survival. Thus, Cannon viewed the fight-or-flight response as adaptive because it enables us to adjust internally and externally to changes in our surroundings, which is helpful in species survival.



Fight or flight is a physiological response to a stressor.

Test your knowledge

Selye and the General Adaptation Syndrome

Another important early contributor to the stress field was Hans Selye, mentioned earlier. He would eventually become one of the world's foremost experts in the study of stress. As a young assistant in the biochemistry department at McGill University in the 1930s, Selye was engaged in research involving sex hormones in rats. Although he was unable to find an answer for what he was initially researching, he incidentally discovered that when exposed to prolonged negative stimulation (stressors)—such as extreme cold, surgical injury, excessive muscular exercise, and shock—the rats showed signs of adrenal enlargement, thymus and lymph node shrinkage, and stomach ulceration. Selye realized that these responses were triggered by a coordinated series of physiological reactions that unfold over time during continued exposure to a stressor. These physiological reactions were nonspecific, which means that regardless of the type of stressor, the same pattern of reactions would occur. What Selye discovered was the general adaptation syndrome, the body's nonspecific physiological response to stress.

The general adaptation syndrome, shown in Figure 9, consists of three stages: (1) alarm reaction, (2) stage of resistance, and (3) stage of exhaustion (Selye, 1936; 1976). Alarm reaction describes the body's immediate reaction upon facing a threatening situation or emergency, and it is roughly analogous to the fight-or-flight response described by Cannon. During an alarm reaction, you are alerted to a stressor, and your body alarms you with a cascade of physiological reactions that provide you with the energy to manage the situation. A person who wakes up in the middle of the night to discover her house is on fire, for example, is experiencing an alarm reaction.

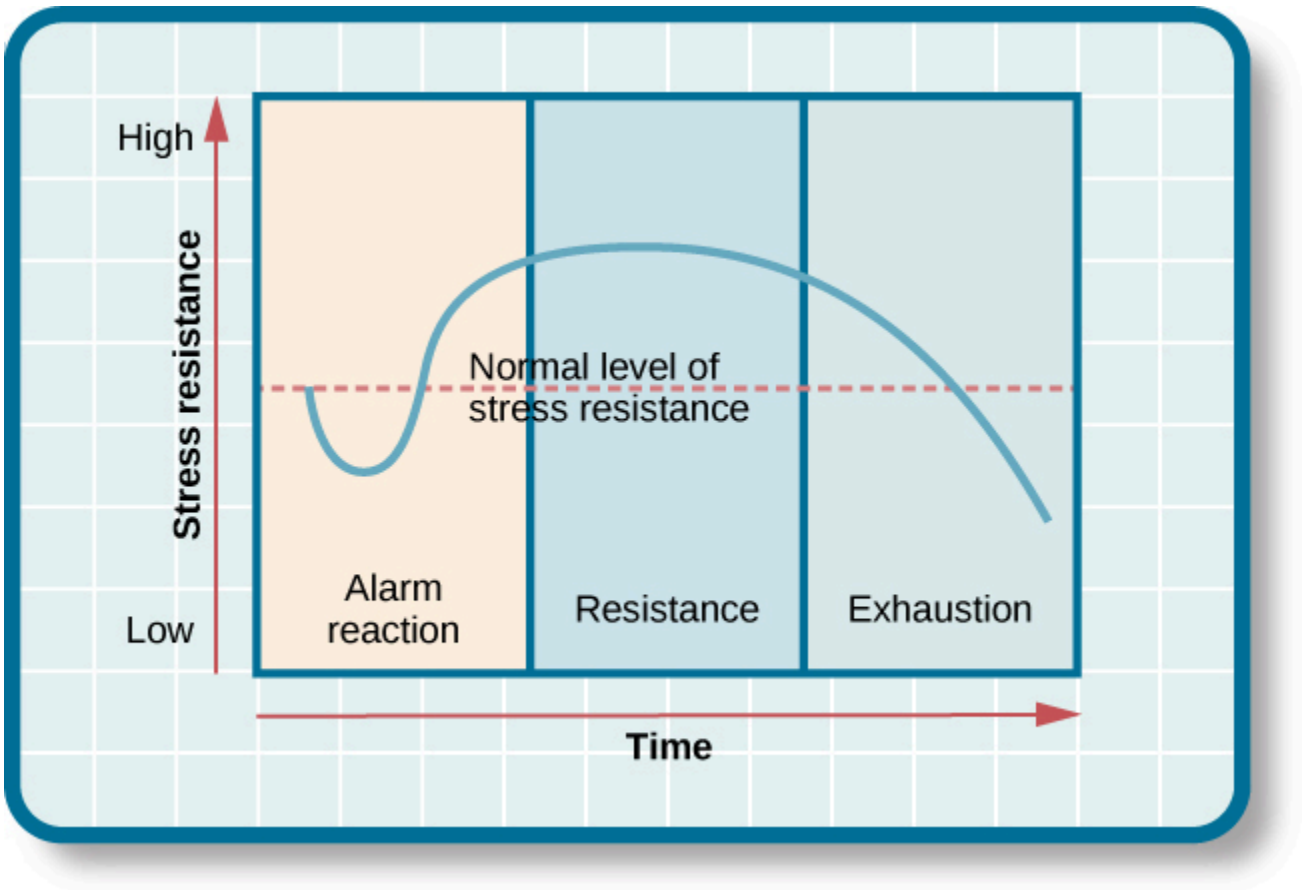


Figure 9 *The three stages of Selye's general adaptation syndrome are shown in this graph. Prolonged stress ultimately results in exhaustion.*

Test your knowledge

The Physiological Basis Of Stress

What goes on inside our bodies when we experience stress? The physiological mechanisms of stress are extremely complex, but they generally involve the work of two systems—the sympathetic nervous system and the hypothalamic-pituitary-adrenal (HPA) axis. When a person first perceives something as stressful (Selye's alarm reaction), the sympathetic nervous system triggers arousal via the release of adrenaline from the adrenal glands. Release of these hormones activates the fight-or-flight responses to stress, such as accelerated heart rate and respiration. At the same time, the HPA axis, which is primarily endocrine in nature, becomes especially active, although it works much more slowly than the sympathetic nervous system. In response to stress, the hypothalamus (one of the limbic structures in the brain) releases corticotrophin-releasing factor, a hormone that causes the pituitary gland to release adrenocorticotropic hormone (ACTH). The ACTH then activates the adrenal glands to secrete a number of hormones into the bloodstream; an important one is cortisol, which can affect virtually every organ within the body. Cortisol is commonly known as a stress hormone and helps provide that boost of energy when we first encounter a stressor, preparing us to run away or fight. However, sustained elevated levels of cortisol weaken the immune system.

In short bursts, this process can have some favorable effects, such as providing extra energy, improving immune system functioning temporarily, and decreasing pain sensitivity. However, extended release of cortisol—as would happen with prolonged or chronic stress—often comes at a high price. High levels of cortisol have been shown to produce a number of harmful effects. For example, increases in cortisol can significantly weaken our immune system (Glaser & Kiecolt-Glaser, 2005), and high levels are frequently observed among depressed individuals (Geoffroy, Hertzman, Li, & Power, 2013). In summary, a stressful event causes a variety of physiological reactions that activate the adrenal glands, which in turn release epinephrine, norepinephrine, and cortisol. These hormones affect a number of bodily processes in ways that prepare the stressed person to take direct action, but also in ways that may heighten the potential for illness.

When stress is extreme or chronic, it can have profoundly negative consequences. For example, stress often contributes to the development of certain psychological disorders, including post-traumatic stress disorder, major depressive disorder, and other serious psychiatric conditions. Additionally, we noted earlier that stress is linked to the development and progression of a variety of physical illnesses and diseases. For example, researchers in one study found that people injured during the September 11, 2001, World Trade Center disaster or who developed post-traumatic stress symptoms afterward later suffered significantly elevated rates of heart disease (Jordan, Miller-Archie, Cone, Morabia, & Stellman, 2011). Another investigation yielded that self-reported stress symptoms among aging and retired Finnish food industry workers were associated with morbidity 11 years later. This study also predicted the onset of musculoskeletal, nervous system, and endocrine and metabolic disorders (Salonen, Arola, Nygård, & Huhtala, 2008). Another study reported that male South Korean manufacturing employees who reported high levels of work-related stress were more likely to catch the common cold over the next several months than were

those employees who reported lower work-related stress levels (Park et al., 2011). Later, you will explore the mechanisms through which stress can produce physical illness and disease.

Summary

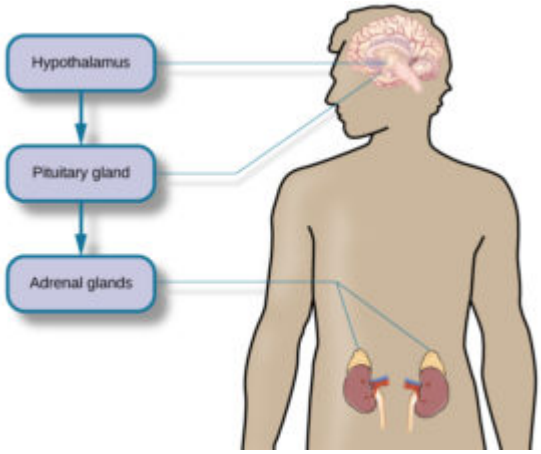


Figure 10 *This diagram shows the functioning of the hypothalamic-pituitary-adrenal (HPA) axis. The hypothalamus activates the pituitary gland, which in turn activates the adrenal glands, increasing their secretion of cortisol.*

Stress is a process whereby an individual perceives and responds to events appraised as overwhelming or threatening to one's well-being. The scientific study of how stress and emotional factors impact health and well-being is called health psychology, a field devoted to studying the general impact of psychological factors on health. The body's primary physiological response during stress, the fight-or-flight response, was first identified in the early 20th century by Walter Cannon. The fight-or-flight response involves the coordinated activity of both the sympathetic nervous system and the hypothalamic-pituitary-adrenal (HPA) axis. Hans Selye, a noted endocrinologist, referred to these physiological reactions to stress as part of general adaptation syndrome, which occurs in three stages: alarm reaction (fight-or-flight reactions begin), resistance (the body begins to adapt to continuing stress), and exhaustion (adaptive energy is depleted, and stress begins to take a physical toll).

Test your knowledge

Glossary

alarm reaction

first stage of the general adaptation syndrome; characterized as the body's immediate physiological reaction to a threatening situation or some other emergency; analogous to the fight-or-flight response

cortisol

stress hormone released by the adrenal glands when encountering a stressor; helps to provide a boost of energy, thereby preparing the individual to take action

distress

bad form of stress; usually high in intensity; often leads to exhaustion, fatigue, feeling burned out; associated with erosions in performance and healthe

eustress

good form of stress; low to moderate in intensity; associated with positive feelings, as well as optimal health and performance

fight-or-flight response

set of physiological reactions (increases in blood pressure, heart rate, respiration rate, and sweat) that occur when an individual encounters a perceived threat; these reactions are produced by activation of the sympathetic nervous system and the endocrine system

general adaptation syndrome

Hans Selye's three-stage model of the body's physiological reactions to stress and the process of stress adaptation: alarm reaction, stage of resistance, and stage of exhaustion

health psychology

subfield of psychology devoted to studying psychological influences on health, illness, and how people respond when they become ill

hypothalamic-pituitary-adrenal (HPA) axis

set of structures found in both the limbic system (hypothalamus) and the endocrine system (pituitary gland and adrenal glands) that regulate many of the body's physiological reactions to stress through the release of hormones

primary appraisal

judgment about the degree of potential harm or threat to well-being that a stressor might entail

secondary appraisal

judgment of options available to cope with a stressor and their potential effectiveness

stage of exhaustion

third stage of the general adaptation syndrome; the body's ability to resist stress becomes depleted; illness, disease, and even death may occur

stage of resistance

second stage of the general adaptation syndrome; the body adapts to a stressor for a period of time

stress

process whereby an individual perceives and responds to events that one appraises as overwhelming or threatening to one's well-being

stressors

environmental events that may be judged as threatening or demanding; stimuli that initiate the stress process

Chapter 1 Review Questions

Review Questions

Critical Thinking Questions

Example Answers

1. One example is divorce. People may perceive a divorce as a threat if they believe it will result in loneliness, change of lifestyle (due to loss of additional income), or humiliation in the eyes of their family. However, divorce may be perceived as a challenge if they view it as an opportunity to find somebody more compatible, and if they consider the process of finding a new partner a pleasant one, perhaps involving mystery and excitement.
2. One example is when somebody's spouse dies or is unexpectedly diagnosed with a fatal disease. In both cases, the stress experienced by the surviving spouse would be intense, continuous, and—according the general adaptation syndrome—would eventually increase vulnerability to illness or disease (exhaustion stage).

Personal Application Question

Think of a time in which you and others you know (family members, friends, and classmates) experienced an event that some viewed as threatening and others viewed as challenging. What were some of the differences in the reactions of those who experienced the event as threatening compared to those who viewed the event as challenging? Why do you think there were differences in how these individuals judged the same event?

Chapter 1 References

Book Cover Image

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Chapter 1 Title Image

Stress, Anxiety, Depression, Unhappy TheDigitalArtist. Made available under Creative Commons CC1 1.0 Universal Public Domain Dedication https://pixabay.com/en/stress-anxiety-depression-unhappy-2902537/

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CHAPTER 2: MANAGING STRESS

Chapter 2 Learning Objectives

Learning Objectives

By the end of Chapter 2 you will be able to:

1. Identify the body's short term and long term reactions to stress
2. Define the Health Belief Model
3. Define Social Cognitive Theory
4. Describe Acute Stress Disorder using the DSM-5 Diagnostic Criteria
5. Identify symptoms of chronic stress
6. Identify strategies for managing stress

The Body's Reaction to Stress

The body reacts to stress in different ways.

In the short term you can notice some of the following:

- mind becomes alert
- quick reactions
- dry mouth
- tension in neck and shoulders
- faster breathing
- faster heart rate
- high blood pressure
- sweaty palms
- diarrhea
- butterflies in the stomach
- lump in throat
- nervous laughter
- bursting into tears
- fidgeting
- nail biting

If the stress continues and you do not do anything to cope with it here are some of the long term effects it can have on the body:

- headaches
- dizziness
- ulcers
- blurred vision
- forgetfulness
- indigestion
- disturbed sleep
- muscle aches
- tension
- fear
- irritability
- nervousness

- loss of confidence
- depression
- anxiety
- nightmares
- drug dependence
- excessive drinking
- heart trouble
- loss of appetite
- mental breakdown

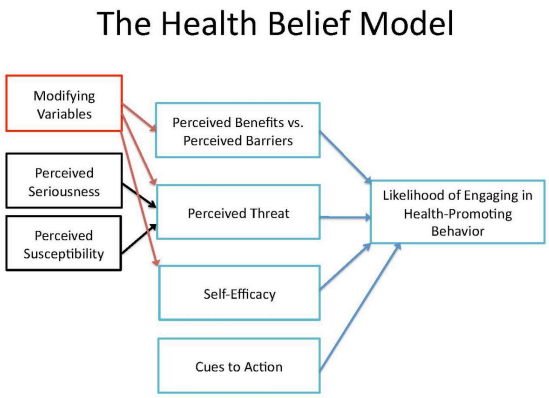
Test your knowledge

The Health Belief Model

The **health belief model** (**HBM**) is a psychological health behavior change model developed to explain and predict health-related behaviors, particularly in regard to the uptake of health services. The health belief model was developed in the 1950s by social psychologists at the U.S. Public Health Service and remains one of the best known and most widely used theories in health behavior research.

The health belief model suggests that people's beliefs about health problems, perceived benefits of action and barriers to action, and self-efficacy explain engagement (or lack of engagement) in health-promoting behavior. A stimulus, or cue to action, must also be present in order to trigger the health-promoting behavior.

History



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One of the first theories of health behavior, the health belief model was developed in the 1950s by social psychologists Irwin M. Rosenstock, Godfrey M. Hochbaum, S. Stephen Kegeles, and Howard Leventhal at the U.S. Public Health Service to better understand the widespread failure of screening programs for tuberculosis. The health belief model has been applied to predict a wide variety of health-related behaviors such as being screened for the early detection of asymptomatic diseases and receiving immunizations. More recently, the model has been applied to understand patients' responses to symptoms of disease,[2] compliance with medical regimens, lifestyle behaviors (e.g., sexual risk behaviors), and behaviors related to chronic illnesses, which may require long-term behavior maintenance in addition to initial behavior change.

Amendments to the model were made as late as 1988 to incorporate emerging evidence within the field of psychology about the role of self-efficacy in decision-making and behavior.

Theoretical Constructs

The following constructs of the health belief model are proposed to vary between individuals and predict engagement in health-related behaviors (e.g., getting vaccinated, getting screened for asymptomatic diseases, exercising).

(base score for smoking behavior)

Health belief model chart (smoking as an example)								
Modifying Variables (age, gender, race, economy, characteristics)		**Perceived Severity** + Perceived Susceptibility	+	**perceived benefit** – perceived barriers	+	**Cues to Action**	=	**taking action (or not)**
(base score for this person's health)		**(base score as to the belief that smoking will harm one's health)**						

Perceived Severity

Perceived severity refers to the subjective assessment of the severity of a health problem and its potential consequences. The health belief model proposes that individuals who perceive a given health problem as serious are more likely to engage in behaviors to prevent the health problem from occurring (or reduce its severity). Perceived seriousness encompasses beliefs about the disease itself (e.g., whether it is life-threatening or may cause disability or pain) as well as broader impacts of the disease on functioning in work and social roles. For instance, an individual may perceive that influenza is not medically serious, but if he or she perceives that there would be serious financial consequences as a result of being absent from work for several days, then he or she may perceive influenza to be a particularly serious condition.

Perceived Susceptibility

Perceived susceptibility refers to subjective assessment of risk of developing a health problem. The health belief model predicts that individuals who perceive that they are susceptible to a particular health problem will engage in behaviors to reduce their risk of developing the health problem. Individuals with low perceived susceptibility may deny that they are at risk for contracting a particular illness. Others may acknowledge the possibility that they could develop the illness, but believe it is unlikely. Individuals who believe they are at low risk of developing an illness are more likely to engage in unhealthy, or risky, behaviors. Individuals who perceive a high risk that they will be personally affected by a particular health problem are more likely to engage in behaviors to decrease their risk of developing the condition.

The combination of perceived severity and perceived susceptibility is referred to as perceived threat. Perceived severity and perceived susceptibility to a given health condition depend on knowledge about the condition. The health belief model predicts that higher perceived threat leads to higher likelihood of engagement in health-promoting behaviors.

Perceived Benefits

Health-related behaviors are also influenced by the perceived benefits of taking action. Perceived benefits refer to an individual's assessment of the value or efficacy of engaging in a health-promoting behavior to decrease risk of disease. If an individual believes that a particular action will reduce susceptibility to a health problem or decrease its seriousness, then he or she is likely to engage in that behavior regardless of objective facts regarding the effectiveness of the action. For example, individuals who believe that wearing sunscreen prevents skin cancer are more likely to wear sunscreen than individuals who believe that wearing sunscreen will not prevent the occurrence of skin cancer.

Perceived Barriers

Health-related behaviors are also a function of perceived barriers to taking action. Perceived barriers refer to an individual's assessment of the obstacles to behavior change. Even if an individual perceives a health condition as threatening and believes that a particular action will effectively reduce the threat, barriers may prevent engagement in the health-promoting behavior. In other words, the perceived benefits must outweigh the perceived barriers in order for behavior change to occur. Perceived barriers to taking action include the perceived inconvenience, expense, danger (e.g., side effects of a medical procedure) and discomfort (e.g., pain, emotional upset) involved in engaging in the behavior. For instance, lack of access to affordable health care and the perception that a flu vaccine shot will cause significant pain may act as barriers to receiving the flu vaccine.

Modifying Variables

Individual characteristics, including demographic, psychosocial, and structural variables, can affect perceptions (i.e., perceived seriousness, susceptibility, benefits, and barriers) of health-related behaviors. Demographic variables include age, sex, race, ethnicity, and education, among others. Psychosocial variables include personality, social class, and peer and reference group pressure, among others. Structural variables include knowledge about a given disease and prior contact with the disease, among other factors. The health belief model suggests that modifying variables affect health-related behaviors indirectly by affecting perceived seriousness, susceptibility, benefits, and barriers.

Cues to Action

The health belief model posits that a cue, or trigger, is necessary for prompting engagement in health-promoting behaviors. Cues to action can be internal or external. Physiological cues (e.g., pain, symptoms) are an example of internal cues to action. External cues include events or information from close others, the media, or health care providers promoting engagement in health-related behaviors. Examples of cues to action include a reminder postcard from a dentist, the illness of a friend or family member, and product health warning labels. The intensity of cues needed to prompt action varies between individuals by perceived susceptibility, seriousness, benefits, and barriers. For example, individuals who believe they are at high risk for a serious illness and who have an established relationship with a primary care doctor may be easily persuaded to get screened for the illness after seeing a public service announcement, whereas individuals who believe they are at low risk for the same illness and also do not have reliable access to health care may require more intense external cues in order to get screened.

Self-Efficacy

Self-efficacy was added to the four components of the health belief model (i.e., perceived susceptibility, seriousness, benefits, and barriers) in 1988. Self-efficacy refers to an individual's perception of his or her competence to successfully perform a behavior. Self-efficacy was added to the health belief model in an attempt to better explain individual differences in health behaviors. The model was originally developed in order to explain engagement in one-time health-related behaviors such as being screened for cancer or receiving an immunization. Eventually, the health belief model was applied to more substantial, long-term behavior change such as diet modification, exercise, and smoking. Developers of the model recognized that confidence in one's ability to effect change in outcomes (i.e., self-efficacy) was a key component of health behavior change.

Empirical Support

The health belief model has gained substantial empirical support since its development in the 1950s. It remains one of the most widely used and well-tested models for explaining and predicting health-related behavior. A 1984 review of 18 prospective and 28 retrospective studies suggests that the evidence for each component of the health belief model is strong. The review reports that empirical support for the health belief model is particularly notable given the diverse populations, health conditions, and health-related behaviors examined and the various study designs and assessment strategies used to evaluate the model. A more recent meta-analysis found strong support for perceived benefits and perceived barriers predicting health-related behaviors, but

weak evidence for the predictive power of perceived seriousness and perceived susceptibility. The authors of the meta-analysis suggest that examination of potential moderated and mediated relationships between components of the model is warranted.

Applications

The health belief model has been used to develop effective interventions to change health-related behaviors by targeting various aspects of the model's key constructs. Interventions based on the health belief model may aim to increase perceived susceptibility to and perceived seriousness of a health condition by providing education about prevalence and incidence of disease, individualized estimates of risk, and information about the consequences of disease (e.g., medical, financial, and social consequences). Interventions may also aim to alter the cost-benefit analysis of engaging in a health-promoting behavior (i.e., increasing perceived benefits and decreasing perceived barriers) by providing information about the efficacy of various behaviors to reduce risk of disease, identifying common perceived barriers, providing incentives to engage in health-promoting behaviors, and engaging social support or other resources to encourage health-promoting behaviors. Furthermore, interventions based on the health belief model may provide cues to action to remind and encourage individuals to engage in health-promoting behaviors. Interventions may also aim to boost self-efficacy by providing training in specific health-promoting behaviors, particularly for complex lifestyle changes (e.g., changing diet or physical activity, adhering to a complicated medication regimen). Interventions can be aimed at the individual level (i.e., working one-on-one with individuals to increase engagement in health-related behaviors) or the societal level (e.g., through legislation, changes to the physical environment).

Limitations

The health belief model attempts to predict health-related behaviors by accounting for individual differences in beliefs and attitudes. However, it does not account for other factors that influence health behaviors. For instance, habitual health-related behaviors (e.g., smoking, seatbelt buckling) may become relatively independent of conscious health-related decision making processes. Additionally, individuals engage in some health-related behaviors for reasons unrelated to health (e.g., exercising for aesthetic reasons). Environmental factors outside an individual's control may prevent engagement in desired behaviors. For example, an individual living in a dangerous neighborhood may be unable to go for a jog outdoors due to safety concerns. Furthermore, the health belief model does not consider the impact of emotions on health-related behavior. Evidence suggests that fear may be a key factor in predicting health-related behavior.

The theoretical constructs that constitute the health belief model are broadly defined. Furthermore, the health belief model does not specify how constructs of the model interact with

one another. Therefore, different operationalizations of the theoretical constructs may not be strictly comparable across studies.

Research assessing the contribution of cues to action in predicting health-related behaviors is limited. Cues to action are often difficult to assess, limiting research in this area. For instance, individuals may not accurately report cues that prompted behavior change. Cues such as a public service announcement on television or on a billboard may be fleeting and individuals may not be aware of their significance in prompting them to engage in a health-related behavior. Interpersonal influences are also particularly difficult to measure as cues.

Test your knowledge

Social Cognitive Theory

Social cognitive theory (**SCT**), used in psychology, education, and communication, holds that portions of an individual's knowledge acquisition can be directly related to observing others within the context of social interactions, experiences, and outside media influences. The theory states that when people observe a model performing a behavior and the consequences of that behavior, they remember the sequence of events and use this information to guide subsequent behaviors. Observing a model can also prompt the viewer to engage in behavior they already learned. In other words, people do not learn new behaviors solely by trying them and either succeeding or failing, but rather, the survival of humanity is dependent upon the replication of the actions of others. Depending on whether people are rewarded or punished for their behavior and the outcome of the behavior, the observer may choose to replicate behavior modeled. Media provides models for a vast array of people in many different environmental settings.

History

The conceptual roots for social cognitive theory come from Edwin B. Holt and Harold Chapman Brown's 1931 book theorizing that all animal action is based on fulfilling the psychological needs of "feeling, emotion, and desire". The most notable component of this theory is that it predicted a person cannot learn to imitate until they are imitated.

In 1941, Neal E. Miller and John Dollard presented their book with a revision of Holt's social learning and imitation theory. They argued four factors contribute to learning: drives, cues, responses, and rewards. One driver is social motivation, which includes imitativeness, the process of matching an act to an appropriate cue of where and when to perform the act. A behavior is imitated depending on whether the model receives a positive or negative response consequences. Miller and Dollard argued that if one were motivated to learn a particular behavior, then that particular behavior would be learned through clear observations. By imitating these observed actions the individual observer would solidify that learned action and would be rewarded with positive reinforcement.

The proposition of social learning was expanded upon and theorized by Canadian psychologist Albert Bandura. Bandura, along with his students and colleagues conducted a series of studies, known as the Bobo doll experiment, in 1961 and 1963 to find out why and when children display aggressive behaviors. These studies demonstrated the value of modeling for acquiring novel behaviors. These studies helped Bandura publish his seminal article and book in 1977 that expanded on the idea of how behavior is acquired, and thus built from Miller and Dollard's research. In Bandura's 1977 article, he claimed that Social Learning Theory shows a direct correlation between a person's perceived self-efficacy and behavioral change. Self-efficacy comes from four sources: "performance accomplishments, vicarious experience, verbal persuasion, and physiological states".

In 1986, Bandura published his second book, which expanded and renamed his original theory. He called the new theory *social cognitive theory*. Bandura changed the name to emphasize the major role cognition plays in encoding and performing behaviors. In this book, Bandura argued that human behavior is caused by personal, behavioral, and environmental influences.

In 2001, Bandura brought SCT to mass communication in his journal article that stated the theory could be used to analyze how "symbolic communication influences human thought, affect and action". The theory shows how new behavior diffuses through society by psychosocial factors governing acquisition and adoption of the behavior.

In 2011, Bandura published a book chapter — *The Social and Policy Impact of Social Cognitive Theory*—to extend SCT'S application in health promotion and urgent global issues, which provides insight into addressing global problems through a macro social lens, aiming at improving equality of individuals' lives under the umbrellas of SCT.

SCT has been applied to many areas of human functioning such as career choice and organizational behavior as well as in understanding classroom motivation, learning, and achievement.

Current Status

Social Cognitive Theory originated in psychology but based on an unofficial November 2013 Google Scholar search only 2 percent of articles published on SCT are in the pure psychology field. About 20 percent of articles are from Education and 16 percent from Business. The majority of publications using SCT, 56 percent, come from the field of Applied Health Psychology. The majority of current research in Health Psychology focuses on testing SCT in behavioral change campaigns as opposed to expanding on the theory. Campaign topics include: increasing fruit and vegetable intake, increasing physical activity , HIV education, and breastfeeding.

Born 1925, Bandura is still influencing the world with expansions of SCT. His recent work, published May 2011, focuses on how SCT impacts areas of both health and population effects in relation to climate change. He proposes that these problems could be solved through television serial dramas that show models similar to viewers performing the desired behavior. Specifically on Health, Bandura writes that currently there is little incentive for doctors to write prescriptions for healthy behavior, but he believes the cost of fixing health problems start to outweigh the benefits of being healthy. Bandura argues that we are on the cusp of moving from a disease model (focusing on people with problems) to a health model (focusing on people being healthy) and SCT is the theory that should be used to further a healthy society. Specifically on Population, Bandura states population growth is a global crisis because of its correlation with depletion and degradation of our planet's resources. Bandura argues that SCT should be used to get people to use birth control, reduce gender inequality through education, and to model environmental conservation to improve the state of the planet.

Overview

Social cognitive theory is a learning theory based on the idea that people learn by observing others. These learned behaviors can be central to one's personality. While social psychologists agree that the environment one grows up in contributes to behavior, the individual person (and therefore cognition) is just as important. People learn by observing others, with the environment, behavior, and cognition all as the chief factors in influencing development in a reciprocal triadic relationship. For example, each behavior witnessed can change a person's way of thinking (cognition). Similarly, the environment one is raised in may influence later behaviors, just as a father's mindset (also cognition) determines the environment in which his children are raised.

The core concepts of this theory can be explained by Bandura's schematization of triadic reciprocal causation in his book chapter, The schema shows how the reproduction of an observed behavior is influenced by the interaction of the following three determinants:

1. Personal: Whether the individual has high or low self-efficacy toward the behavior (i.e. Get the learner to believe in his or her personal abilities to correctly complete a behavior).
2. Behavioral: The response an individual receives after they perform a behavior (i.e. Provide chances for the learner to experience successful learning as a result of performing the behavior correctly).
3. Environmental: Aspects of the environment or setting that influence the individual's ability to successfully complete a behavior (i.e. Make environmental conditions conducive for improved self-efficacy by providing appropriate support and materials).

It is important to note that learning can occur without a change in behavior. According to J.E. Ormrod's general principles of social learning, while a visible change in behavior is the most common proof of learning, it is not absolutely necessary. Social learning theorists say that because people can learn through observation alone, their learning may not necessarily be shown in their performance.

Theoretical Foundations

Human Agency

Social cognitive theory is proposed in an agentic perspective, which suggested that, instead of being just shaped by environments or inner forces, individuals are self-developing, self-regulating, self-reflecting and proactive. Specifically, human agency operates within three modes:

- Individual Agency: A person's own influence on the environment;

- Proxy Agency: Another person's effort on securing the individual's interests;
- Collective Agency: A group of people work together to achieve the common benefits.

Human agency has four core properties:

- Intentionality: Individuals' active decision on engaging in certain activities;
- Forethought: Individuals' ability to anticipate the outcome of certain actions;
- Self-reactiveness: Individuals' ability to construct and regulate appropriate behaviors;
- Self-reflectiveness: Individuals' ability to reflect and evaluate the soundness of their cognitions and behaviors.

Human Capability

Evolving over time, human beings are featured with advanced neutral systems, which enable individuals to acquire knowledge and skills by both direct and symbolic terms. Four primary capabilities are addressed as important foundations of social cognitive theory: symbolizing capability, self-regulation capability, self-reflective capability, and vicarious capability.

1. Symbolizing Capability: People are affected not only by direct experience but also indirect events. Instead of merely learning through laborious trial-and-error process, human beings are able to symbolically perceive events conveyed in messages, construct possible solutions, and evaluate the anticipated outcomes.
2. Self-regulation Capability: Individuals can regulate their own intentions and behaviors by themselves. Self-regulation lies on both negative and positive feedback systems, in which discrepancy reduction and discrepancy production are involved. That is, individuals proactively motivate and guide their actions by setting challenging goals and them making effort to fulfill them. In doing so, individuals gain skills, resources, self-efficacy and beyond.
3. Self-reflective Capability: Human beings can evaluate their thoughts and actions by themselves, which is identified as another distinct feature of human beings. By verifying the adequacy and soundness of their thoughts through enactive, various, social, or logical manner, individuals can generate new ideas, adjust their thoughts, and take actions accordingly.
4. Vicarious Capability: One critical ability human being featured is to adopt skills and knowledge from information communicated through a wide array of mediums. By vicariously observing others' actions and its consequences, individuals can gain insights into their own activities. Vicarious capability is of great value to human beings' cognitive development in nowadays, in which most of our information encountered in our lives derives from the mass media than trial-and-error process.

Theoretical Components

Modeling

Social cognitive theory revolves around the process of knowledge acquisition or learning directly correlated to the observation of models. The models can be those of an interpersonal imitation or media sources. Effective modeling teaches general rules and strategies for dealing with different situations.

To illustrate that people learn from watching others, Albert Bandura and his colleagues constructed a series of experiments using a Bobo doll. In the first experiment, children were exposed to either an aggressive or non-aggressive model of either the same sex or opposite sex as the child. There was also a control group. The aggressive models played with the Bobo doll in an aggressive manner, while the non-aggressive models played with other toys. They found that children who were exposed to the aggressive models performed more aggressive actions toward the Bobo doll afterward, and that boys were more likely to do so than girls.

Following that study, Albert Bandura tested whether the same was true for models presented through media by constructing an experiment he called *Bobo Doll Behavior: A Study of Aggression*. In this experiment Bandura exposed a group of children to a video featuring violent and aggressive actions. After the video he then placed the children in a room with a Bobo doll to see how they behaved with it. Through this experiment, Bandura discovered that children who had watched the violent video subjected the dolls to more aggressive and violent behavior, while children not exposed to the video did not. This experiment displays the social cognitive theory because it depicts how people reenact behaviors they see in the media. In this case, the children in this experiment reenacted the model of violence they directly learned from the video.

Observations should include:

- *Attention* Observers selectively give attention to specific social behavior depending on accessibility, relevance, complexity, functional value of the behavior or some observer's personal attributes such as cognitive capability, value preference, preconceptions.
- *Retention* Observe a behavior and subsequent consequences, then convert that observation to a symbol that can be accessed for future reenactments of the behavior. Note: When a *positive behavior* is shown a positive reinforcement should follow, this parallel is similar for *negative behavior*.
- *Production* refers to the symbolic representation of the original behavior being translated into action through reproduction of the observed behavior in seemingly appropriate contexts. During reproduction of the behavior, a person receives feedback from others and can adjust their representation for future references.
- *Motivational process* reenacts a behavior depending on responses and consequences the observer receives when reenacting that behavior.

Modeling does not limit to only live demonstrations but also verbal and written behavior can

act as indirect forms of modeling. Modeling not only allows students to learn behavior that they should repeat but also to inhibit certain behaviors. For instance, if a teacher glares at one student who is talking out of turn, other students may suppress this behavior to avoid a similar reaction. Teachers model both material objectives and underlying curriculum of virtuous living. Teachers should also be dedicated to the building of high self-efficacy levels in their students by recognizing their accomplishments.

Outcome Expectancies

To learn a particular behavior, people must understand what the potential outcome is if they repeat that behavior. The observer does not expect the actual rewards or punishments incurred by the model, but anticipates similar outcomes when imitating the behavior (called *outcome expectancies*), which is why modeling impacts cognition and behavior. These expectancies are heavily influenced by the environment that the observer grows up in; for example, the expected consequences for a DUI in the United States of America are a fine, with possible jail time, whereas the same charge in another country might lead to the infliction of the death penalty.

For example, in the case of a student, the instructions the teacher provides help students see what outcome a particular behavior leads to. It is the duty of the teacher to teach a student that when a behavior is successfully learned, the outcomes are meaningful and valuable to the students.

Self-Efficacy

Social cognitive theory posits that learning most likely occurs if there is a close identification between the observer and the model and if the observer also has a good deal of self-efficacy. Self–efficacy is the extent to which an individual believes that they can master a particular skill. Self-efficacy beliefs function as an important set of proximal determinants of human motivation, affect, and action—which operate on action through motivational, cognitive, and affective intervening processes.

According to Bandura, self-efficacy is "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations".Bandura and other researchers have found an individual's self-efficacy plays a major role in how goals, tasks, and challenges are approached. Individuals with high self-efficacy are more likely to believe they can master challenging problems and they can recover quickly from setbacks and disappointments. Individuals with low self-efficacy tend to be less confident and don't believe they can perform well, which leads them to avoid challenging tasks. Therefore, self-efficacy plays a central role in behavior performance. Observers who have high level of self-efficacy are more likely to adopt observational learning behaviors.

Self-efficacy can be developed or increased by:

- **Mastery experience**, which is a process that helps an individual achieve simple tasks that lead to more complex objectives.
- **Social modeling** provides an identifiable model that shows the processes that accomplish a behavior.
- **Improving physical and emotional states** refers to ensuring a person is rested and relaxed prior to attempting a new behavior. The less relaxed, the less patient, the more likely they won't attain the goal behavior.
- **Verbal persuasion** is providing encouragement for a person to complete a task or achieve a certain behavior.

For example, students become more effortful, active, pay attention, highly motivated and better learners when they perceive that they have mastered a particular task. It is the duty of the teacher to allow student to perceive in their efficacy by providing feedback to understand their level of proficiency. Teachers should ensure that the students have the knowledge and strategies they need to complete the tasks.

Self-efficacy has also been used to predict behavior in various health related situations such as weight loss, quitting smoking, and recovery from heart attack. In relation to exercise science, self-efficacy has produced some of the most consistent results revealing an increase in participation in exercise.

Identification

Identification allows the observer to feel a one-to-one similarity with the model, and can thus lead to a higher chance of the observer following through with the modeled action. People are more likely to follow behaviors modeled by someone with whom they can identify with. The more commonalities or emotional attachments perceived between the observer and the model, the more likely the observer learns and reenact the modeled behavior.

Applications

Mass Communication

Media contents studies

Social cognitive theory is often applied as a theoretical framework of studies pertained to media representation regarding race, gender, age and beyond. Social cognitive theory suggested heavily

repeated images presented in mass media can be potentially processed and encoded by the viewers (Bandura, 2011). Media content analytic studies examine the substratum of media messages that viewers are exposed to, which could provide an opportunity to uncover the social values attached to these media representations. Although media contents studies cannot directly test the cognitive process, findings can offer an avenue to predict potential media effects from modeling certain contents, which provides evidence and guidelines for designing subsequent empirical work.

Media Effects Studies

Social cognitive theory is pervasively employed in studies examining attitude or behavior changes triggered by the mass media. As Bandura suggested, people can learn how to perform behaviors through media modeling. SCT has been widely applied in media studies pertained to sports, health, education and beyond. For instance, Hardin and Greer in 2009 examined the gender-typing of sports within the theoretical framework of social cognitive theory, suggesting that sports media consumption and gender-role socialization significantly related with gender perception of sports in American college students.

In health communication, social cognitive theory has been applied in research related to smoking quit, HIV prevention, safe sex behaviors, and so on. For example, Martino, Collins, Kanouse, Elliott, and Berry in 2005 examined the relationship between the exposure to television's sexual content and adolescents' sexual behavior through the lens of social cognitive theory, confirming the significant relationship between the two variables among white and African American groups; however, no significant correlation was found between the two variables in the ethic group of Hispanics, indicating that peer norm could possibly serve as a mediator of the two examined variables.

Public Health

Miller's 2005 study found that choosing the proper gender, age, and ethnicity for models ensured the success of an AIDS campaign to inner city teenagers. This occurred because participants could identify with a recognizable peer, have a greater sense of self-efficacy, and then imitate the actions to learn the proper preventions and actions. A study by Azza Ahmed in 2009 looked to see if there would be an increase in breastfeeding by mothers of preterm infants when exposed to a breastfeeding educational program guided by SCT. Sixty mothers were randomly assigned to either participate in the program or they were given routine care. The program consisted of SCT strategies that touched on all three SCT determinants: personal – showing models performing breastfeeding correctly to improve self-efficacy, behavioral –weekly check-ins for three months reinforced participants' skills, environmental – mothers were given an observational checklist to make sure they successfully completed the behavior. The author found that mothers exposed to

the program showed significant improvement in their breastfeeding skills, were more likely to exclusively breastfeed, and had fewer problems then the mothers who were not exposed to the educational program.

Morality

Social cognitive theory emphasizes a large difference between an individual's ability to be morally competent and morally performing. Moral competence involves having the ability to perform a moral behavior, whereas moral performance indicates actually following one's idea of moral behavior in a specific situation. Moral competencies include:

- what an individual is capable of
- what an individual knows
- what an individual's skills are
- an individual's awareness of moral rules and regulations
- an individual's cognitive ability to construct behaviors

As far as an individual's development is concerned, moral competence is the growth of cognitive-sensory processes; simply put, being aware of what is considered right and wrong. By comparison, moral performance is influenced by the possible rewards and incentives to act a certain way. For example, a person's moral competence might tell them that stealing is wrong and frowned upon by society; however, if the reward for stealing is a substantial sum, their moral performance might indicate a different line of thought. Therein lies the core of social cognitive theory.

For the most part, social cognitive theory remains the same for various cultures. Since the concepts of moral behavior did not vary much between cultures (as crimes like murder, theft, and unwarranted violence are illegal in virtually every society), there is not much room for people to have different views on what is morally right or wrong. The main reason that social cognitive theory applies to all nations is because it does not say what is moral and immoral; it simply states that we can acknowledge these two concepts. Our actions in real-life scenarios are based on whether we believe the action is moral and whether the reward for violating our morals is significant enough, and nothing else.

Limitations

In series TV programming, according to social cognitive theory, the awarded behaviors of liked characters are supposed to be followed by viewers, while punished behaviors are supposed to be avoided by media consumers. However, in most cases, protagonists in TV shows are less likely to experience the long-term suffering and negative consequences caused by their risky behaviors, which could potentially undermine the punishments conveyed by the media, leading to a modeling

of the risky behaviors. Nabi and Clark conducted experiments about individual's attitudes and intentions consuming various portrayals of one-night stand sex– unsafe and risky sexual behavior, finding that individuals who had not previously experience one night stand sex, consuming media portrayals of this behavior could significantly increase their expectations of having an one night stand sex in the future, although negative outcomes were represented in TV shows.

Test your knowledge

Acute Stress Disorder

Acute Stress Disorder is a caused by trauma (traumatic stress) and lasts at least 3 days. The DSM-5 manual states that stressful events which do not include severe and traumatic components do not lead to Acute Stress Disorder; Adjustment Disorder may be an appropriate diagnosis.

Acute Stress Disorder explained

Acute Stress Disorder develops after exposure to one or more traumatic events, e.g., exposure to war (both civilians and military personnel), rape or sexual violence, physical attack, mugging, childhood physical or sexual violence, kidnapping or being taken hostage, terrorist attacks, torture, nature disasters and severe accidents. Many other causes of trauma are possible.

Note: The International Classification of Diseases refers to Acute Stress Reaction, which is slightly different and results from an "exceptionally stressful life event" or "continous trauma", and typically lasts between a few hours and a few days. Both Acute Stress Disorder and Acute Stress Reaction have symptoms which are similar to Posttraumatic Stress Disorder.

Acute Stress Disorder DSM-5 Diagnostic Criteria

A. Exposure to actual or threatened death, serious injury, or sexual violation in one (or more) of the following ways:

- Directly experiencing the traumatic event(s).
- Witnessing, in person, the events(s) as it occurred to others.
- Learning that the traumatic events(s) occurred to a close family member or close friend.
  Note: In cases of actual or threatened by death of a family member or friend, the events(s) must have been violent or accidental.
- Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse).
  Note: This does not apply to exposure through electronic media, television, movies, or pictures unless this exposure is work related.

B. Presence of nine (or more) of the following symptoms from any of the five categories of

intrusion, negative mood, dissociation, avoidance, and arousal, beginning or worsening after the traumatic event(s) occurred:

- Intrusion symptoms
- Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s). Note: In children, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.
- Recurrent distressing dreams in which the content and/or affect of the dream are related to the events(s). Note: In children older than 6, there may be frightening dreams without recognizable content.
- Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings). Note: In children, trauma-specific reenactment may occur in play.
- Intense or prolonged psychological distress or marked physiological reactions in response to internal or external cues that symbolize or resemble an aspect of the traumatic events.
- Negative Mood
- Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).
- Dissociative Symptoms
- An altered sense of the reality of one's surroundings or oneself (e.g., seeing oneself from another's perspective, being in a daze, time slowing.)
- Inability to remember an important aspect of the traumatic events(s) (typically due to dissociative amnesia and not to other factors such as head injury, alcohol, or drugs).
- Avoidance symptoms
- Efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
- Efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
- Arousal symptoms
- Sleep disturbance (e.g., difficulty falling or staying asleep, restless sleep)
- Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects.
- Hypervigilance
- Problems with concentration
- Exaggerated startle response

C. The duration of the disturbance (symptoms in Criterion B) is 3 days to 1 month after trauma exposure. Note: Symptoms typically begin immediately after the trauma, but persistence for at least 3 days and up to a month is needed to meet disorder criteria.

D. The disturbance causes clinically significant distress or impairment in social, occupational, or

other important areas of functioning.

E. The disturbance is not attributable to the physiological effects of a substance (e.g., medication or aocohol) or other medical condition (e.g., mild traumatic brain injury) and is not better explained by brief psychotic disorder."

"Acute Stress Reaction refers to the development of transient emotional, cognitive and behavioural symptoms in response to an exceptional stressor such as an overwhelming traumatic experience involving serious threat to the security or physical integrity of the individual or of a loved person(s) (e.g. natural catastrophe, accident, battle, criminal assault, rape), or an unusually sudden and threatening change in the social position and/or network of the individual, such as the loss of one's family in a natural disaster. The symptoms are considered to be within the normal range of reactions given the extreme severity of the stressor. The symptoms usually appear within hours to days of the impact of the stressful stimulus or event, and typically begin to subside within a week after the event or following removal from the threatening situation."

Test your knowledge

Chronic Stress

Chronic stress is the response to emotional pressure suffered for a prolonged period of time in which an individual perceives he or she has little or no control. It involves an endocrine system response in which corticosteroids are released. While the immediate effects of stress hormones are beneficial in a particular short-term situation, long-term exposure to stress creates a high level of these hormones. This may lead to high blood pressure (and subsequently heart disease), damage to muscle tissue, inhibition of growth, suppression of the immune system, and damage to mental health.

Animals exposed to distressing events over which they have no control respond by releasing corticosteroids. The sympathetic branch of the nervous system is activated, also releasing epinephrine and norepinephrine.

Stress has a role in humans as a method of reacting to difficult and possibly dangerous situations. The "fight or flight" response when one perceives a threat helps the body exert energy to fight or run away to live another day. This response is noticeable when the adrenal glands release epinephrine, causing the blood vessels to constrict and heart rate to increase. In addition, cortisol is another hormone that is released under stress and its purpose is to raise the glucose level in the blood. Glucose is the main energy source for human cells and its increase during time of stress is for the purpose of having energy readily available for over active cells.

Chronic stress is also known to be associated with an accelerated loss of telomeres in most but not all studies.

Different types of stressors, the timing (duration) of the stressors, and personal characteristics all influence the response of the hypothalamic–pituitary–adrenal axis to stressful situations.

Resilience in chronic stress is defined as the ability to deal and cope with stresses in a healthy manner.There are six categories of resources that affect an individual's coping resources:

- Personality (Empathy/Sympathy, Commitment, Optimism)
- Ego-related traits (Self-esteem, Self-confidence, Self-control)
- Social Connectivity (Social network, Available support)
- Cultural Views (Religious beliefs, Moral beliefs)
- Behavioral Skills (Social Skills, Emotion management)
- Other (Socioeconomic status, General Health)

Symptoms

Symptoms of chronic stress can vary from anxiety, depression, social isolation, headache, abdominal pain or lack of sleep to back pain and difficulty concentrating. Other symptoms include panic attacks or a panic disorder. Chronic stress can increase an individual's risk for psychiatric disorders and some physical disorders, especially cardiovascular diseases.

Test your knowledge

Expectations and Stress

Managing stress is about making a plan to be able to cope effectively with daily pressures. The ultimate goal is to strike a balance between life, work, relationships, relaxation and fun. By doing this you are more able to deal with daily stress triggers and meet these challenges head on.

Some strategies that can help you look after your mind and body, and in turn help you to better control behaviors that result from too much stress include:

Internal causes of stress (self-generated)

- Inability to accept uncertainty
- Doubt
- Negative self-talk
- Unrealistic expectations
- Perfectionism
- Lack of assertiveness.

Your body

- Know your stress triggers
- Recognise early warning signs and symptoms and act on them to reduce stress
- Practise relaxation techniques or meditation
- Eat a well-balanced, healthy diet
- Exercise regularly—aim for at least 30 minutes every day
- Get enough sleep—aim for around 8 hours every night.

Your thinking

- Try to worry less about things you can't control, and make plans for dealing with the things you can control
- Set small, manageable and achievable goals
- Apply problem-solving techniques—identifying the problem, clarifying its nature and map out options for dealing with it
- Choose to have a positive attitude

- Think positively about yourself and your achievements
- Take time out to visualize a calm and peaceful place
- Compete against yourself, not those around you and aim for your personal best
- Develop, keep and use your sense of humor.

Your behaviors

- Plan and organize ahead to allow enough time to get tasks done
- Use 'to do' lists and set priorities to help you achieve your goals
- Be open and honest with people, rather than hiding your thoughts and feelings
- Seek guidance and support when you are feeling stressed
- Create a balanced lifestyle for yourself and allow time for recreation and relaxation
- Reward yourself when you reach your achievements and goals
- Limit your intake of alcohol, caffeine and other drugs.

Test your knowledge

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CHAPTER 3: RELAXATION

Chapter 3 Learning Objectives

Learning Objectives

By the end of Chapter 3 you will be able to:

1. Define relaxation
2. Describe the relaxation response
3. Identify the states of sleep
4. Name three sleep disorders
5. Explain the flight or fight response
6. Choose the relaxation technique that works the best for you and describe why you chose it.

What is Relaxation?

Relaxation is the emotional state of a living being, of low tension, in which there is an absence of arousal that could come from sources such as anger, anxiety, or fear. According to the Oxford dictionary relaxation is when the body and mind are free from tension and anxiety. Relaxation is a form of mild ecstasy coming from the frontal lobe of the brain in which the backward cortex sends signals to the frontal cortex via a mild sedative. Relaxation can be achieved through meditation, autogenics, and progressive muscle relaxation. Relaxation helps improve coping with stress. When we are stressed, the sympathetic nervous system is activated because we are in a fight-or-flight response mode; over time, this could have negative effects on a human body.

Test your knowledge

What is the Relaxation Response?

When stress overwhelms your nervous system your body is flooded with chemicals that prepare you for "fight or flight." While the stress response can be lifesaving in emergency situations where you need to act quickly, it wears your body down when constantly activated by the stresses of everyday life.

No one can avoid all stress, but you can counteract it by learning how to produce the *relaxation response*, a state of deep rest that is the polar opposite of the stress response. The relaxation response puts the brakes on stress and brings your body and mind back into a state of equilibrium. The goal is to be both physically relaxed and mentally alert at the same time.

When the relaxation response is activated:

- Your heart rate slows down
- Breathing becomes slower and deeper
- Blood pressure drops or stabilizes
- Your muscles relax
- Blood flow to the brain increases

In addition to its calming physical effects, the relaxation response also increases energy and focus, combats illness, relieves aches and pains, heightens problem-solving abilities, and boosts motivation and productivity. Best of all, anyone can reap these benefits with regular practice.

Passive relaxing does not produce the relaxation response

The relaxation response is a mentally active process best done when you're awake, and strengthened by practice. Simply laying on the couch, reading, or watching TV—while possibly relaxing—aren't going to produce the physical and psychological benefits of the relaxation response.

For that, you'll need to practice a relaxation technique. Those whose stress-busting benefits have been widely studied include deep breathing, progressive muscle relaxation, meditation, visualization, rhythmic exercise, yoga, and tai chi.

Test your knowledge

Sleep

Sleep is a behavioral state that is a natural part of every individual's life. We spend about one-third of our lives asleep. Nonetheless, people generally know little about the importance of this essential activity. Sleep is not just something to fill time when a person is inactive. Sleep is a required activity, not an option. Even though the precise functions of sleep remain a mystery, sleep is important for normal motor and cognitive function. We all recognize and feel the need to sleep. After sleeping, we recognize changes that have occurred, as we feel rested and more alert.

Sleep is not a passive event, but rather an active process involving characteristic physiological changes in the organs of the body. Scientists study sleep by measuring the electrical changes in the brain using **electroencephalograms (EEGs)**.

Typically, electrodes are placed on the scalp in a symmetrical pattern. The electrodes measure very small voltages that scientists think are caused by synchronized activity in very large numbers of synapses (nerve connections) in the brain's outer layers (cerebral cortex). EEG data are represented by curves that are classified according to their frequencies. The wavy lines of the EEG are called brain waves.

An **electrooculogram (EOG)** uses electrodes on the skin near the eye to measure changes in voltage as the eye rotates in its socket. Scientists also measure the electrical activity associated with active muscles by using **electromyograms (EMGs)**.

In this technique, electrodes are placed on the skin overlaying a muscle. In humans, the electrodes are placed under the chin because muscles in this area demonstrate very dramatic changes during the various stages of sleep.

In practice, EEGs, EOGs, and EMGs are recorded simultaneously on continuously moving chart paper or digitized by a computer and displayed on a high-resolution monitor. This allows the relationships among the three measurements to be seen immediately. The patterns of activity in these three systems provide the basis for classifying the different types of sleep.

States of Sleep

Studying these events has led to the identification of two basic stages, or states, of sleep: non rapid eye movement (**NREM**) and rapid eye movement (**REM**).

Sleep is a highly organized sequence of events that follows a regular, cyclic program each night. Thus, the EEG, EMG, and EOG patterns change in predictable ways several times during a single sleep period. NREM sleep is divided into four stages according to the **amplitude** and **frequency** of brain wave activity. In general, the EEG pattern of NREM sleep is slower, often more regular, and usually of higher voltage than that of wakefulness. As sleep gets deeper, the brain waves get slower and have greater amplitude. NREM Stage 1 is very light sleep; NREM Stage 2 has special brain waves called **sleep spindles** and **K complexes**; NREM Stages 3 and 4 show increasingly more high-voltage slow waves. In NREM Stage 4, it is extremely hard to be awakened by external stimuli. The muscle activity of NREM sleep is low, but the muscles retain their ability to function.

Eye movements normally do not occur during NREM sleep, except for very slow eye movements, usually at the beginning. The body's general physiology during these stages is fairly similar to the wake state.

The EEG recorded during REM sleep shows very fast and desynchronized activity that is more random than that recorded during NREM sleep. It actually looks similar to the EEG (low voltage with a faster mix of frequencies) from when we are awake. REM sleep is characterized by bursts of rapid eye movements. The eyes are not constantly moving, but they dart back and forth or up and down. They also stop for a while and then jerk back and forth again. Always, and just like waking eye movements, both eyes move together in the same direction. Some scientists believe that the eye movements of REM sleep relate to the visual images of dreams, but why they exist and what function they serve, if any, remain unknown. Additionally, while muscle tone is normal in NREM sleep, we are almost completely paralyzed in REM sleep. Although the muscles that move our bodies go limp, other important muscles continue to function in REM sleep. These include the heart, diaphragm, eye muscles, and smooth muscles such as those of the intestines and blood vessels. The paralysis of muscles in the arms and legs and under the chin show electrical silence in REM sleep. On an EMG, the recording produces a flat line. Small twitches can break through this paralysis and look like tiny blips on the flat line.

Sleep is a cyclical process. During sleep, people experience repeated cycles of NREM and REM sleep, beginning with an NREM phase. This cycle lasts approximately 90 to 110 minutes and is repeated four to six times per night. As the night progresses, however, the amount of deep NREM sleep decreases and the amount of REM sleep increases.

Sleep Disorders

Problems with sleep can be due to lifestyle choices and can result in problem sleepiness—that is, feeling sleepy at inappropriate times. Environmental noise, temperature changes, changes in sleeping surroundings, and other factors may affect our ability to get sufficient restful sleep. Short-term problem sleepiness may be corrected by getting additional sleep to overcome the sleep deficit. In other cases, problem sleepiness may indicate a sleep disorder requiring medical intervention. Alcohol abuse can cause or exacerbate sleep disorders by disrupting the sequence and duration of sleep states. Alcohol does not promote good sleep, and consuming alcohol in the evening can also exacerbate sleep apnea problems.

More than 70 sleep disorders have been described, the most common of which are:

- **Insomnia**, the most prevalent sleep disorder, is characterized by an inability to fall asleep and/or by waking up during the night and having difficulty going back to sleep. Primary insomnia is more common in women than men and tends to increase with age. Short-term or transient insomnia may be caused by emotional or physical discomfort, stress, environmental noise, extreme temperatures, or jet lag, or may be the side effect of medication. Secondary insomnia may result from a combination of physical or mental disorders, undiagnosed or uncontrolled sleep disorders (that is, sleep apnea, restless legs syndrome, narcolepsy, and circadian rhythm disorders), and effects of prescription or

nonprescription medications. Treatment will differ for primary and secondary causes of insomnia. Treatment may include behavioral aspects, such as following a specific nighttime routine, improving sleep environment, reducing caffeine and alcohol intake, or reducing afternoon napping. Pharmacological treatments may alleviate symptoms in specific cases. Some individuals try to overcome the problem of insomnia by drinking alcoholic beverages. Alcohol inhibits REM sleep and the deeper, restorative stages of sleep, and therefore does not promote good, restful sleep.

- **Obstructive sleep apnea (OSA)** is a potentially life-threatening disorder in which breathing is interrupted during sleep. An estimated 12 million Americans have OSA. This condition may be associated with bony or soft tissue that limits airway dimensions and is made worse in the presence of excess fatty tissue. Repetitive episodes of no effective breath, very shallow breaths, or adequate breaths but with high airway resistance can occur 20 to 30 times per hour or more. These episodes cause temporary drops in blood oxygen and increases in carbon dioxide levels, which lead to frequent partial arousals from sleep. Limitations in upper-airway dimensions are typically associated with chronic loud snoring. The frequent arousals result in ineffective sleep and account for the chronic sleep deprivation and the resultant excessive daytime sleepiness that is a major hallmark of this condition. Additional effects include morning headaches, high blood pressure, heart attacks, heart-rhythm disorders, stroke, and decreased life expectancy. OSA also occurs in children and is generally related to enlarged tonsils or adenoids. It occurs equally often in boys and girls and is most common in preschool-age children. Because many of the factors contributing to OSA appear to have significant genetic influences (such as bony dimensions of upper airways), genetic risk factors are likely important in the occurrence of OSA. Treatment for adult OSA can include behavioral therapy (losing weight, changing sleeping positions, and avoiding alcohol, tobacco, and sleeping pills), use of mechanical devices (continuous positive airway pressure to force air through the nasal passages, or dental appliances that reposition the lower jaw and tongue), and surgery to increase the size of the airway.

- **Restless legs syndrome (RLS)** is a neurologic movement disorder that is often associated with a sleep complaint. People with RLS have unpleasant leg sensations and an almost irresistible urge to move the legs. Symptoms are worse during inactivity and often interfere with sleep. RLS sufferers report experiencing creeping, crawling, pulling, or tingling sensations in the legs (or sometimes the arms) that are relieved by moving or rubbing them. Sitting still for long periods becomes difficult; symptoms are usually worse in the evening and night and less severe in the morning. Periodic leg movements, which often coexist with restless legs syndrome, are characterized by repetitive, stereotyped limb movements during sleep. Periodic limb movement disorder can be detected by monitoring patients during sleep. Some people with mild cases of RLS can be treated by exercise, leg massages, and eliminating alcohol and caffeine from the diet. Others require pharmacological treatment, and it may take some time to determine the right medication or combination of medications for the individual. Estimates suggest that RLS may affect between 10 and 15 percent of the population.
- **Narcolepsy** is a chronic sleep disorder that usually becomes evident during adolescence or young adulthood and can affect both men and women. In the United States, it affects as

many as 250,000 people, although fewer than half are diagnosed. The main characteristic of narcolepsy is excessive and overwhelming daytime sleepiness (even after adequate nighttime sleep). A person with narcolepsy is likely to become drowsy or to fall asleep at inappropriate times and places. Daytime sleep attacks may occur with or without warning and may be irresistible. In addition, nighttime sleep may also be fragmented. Three other classic symptoms, which may not occur in all people with narcolepsy, are **cataplexy** (sudden muscle weakness often triggered by emotions such as anger, surprise, laughter, and exhilaration), **sleep paralysis** (temporary inability to talk or move when falling asleep or waking up), and **hypnagogic hallucinations** (dreamlike experiences that occur while dozing or falling asleep). People with narcolepsy have difficulty staying awake, and in extreme conditions, narcoleptic episodes can occur during periods of activity. Narcolepsy is not the same as simply becoming tired or dozing in front of the TV after a day's work.

REM sleep in people with narcolepsy frequently occurs at sleep onset instead of after a period of NREM sleep. Consequently, researchers believe that the symptoms of narcolepsy result from a malfunction in some aspect of REM sleep initiation. Some scientists believe that the immune system causes narcolepsy by attacking the nervous system (that is, an autoimmune response). In this view, exposure to an unknown environmental factor results in an immune response against nerve cells in the brain circuits that control arousal and muscle tone. The discovery of a narcolepsy gene in dogs indicates that genetic risk factors for narcolepsy may also be pertinent in humans. Studies of narcoleptic dogs suggest that altered receptors for a specific neurotransmitter in the hypothalamus can cause cataplexy and the other symptoms of narcolepsy. Many individuals with narcolepsy appear to have a deficiency of this hypothalamic transmitter. There is no definitive cure for narcolepsy, but several treatment options alleviate various symptoms. Treatment is individualized depending on the severity of the symptoms, and it may take weeks or months for the optimal regimen to be worked out. Treatment is primarily by medications, but lifestyle changes are also important.

- **Parasomnias** are sleep disorders that involve a range of behaviors that occur during sleep. These include sleepwalking, sleep talking, **enuresis** (bed-wetting), and sleep terrors, which are NREM disorders that occur early in the night. Many of the parasomnias (including sleepwalking, sleep talking, and sleep terrors) are more common in children. Children generally have no memory of such events, usually do not require treatment, and usually outgrow the disorder. Enuresis may respond to drug treatment, and like other parasomnias in children, generally resolves as the child becomes older.

REM sleep behavior disorder is a parasomnia that occurs later in the night than NREM disorders. It differs from the parasomnias discussed previously because it usually affects middle-aged or elderly individuals. Frequently, sufferers will also have a neurological disorder. The temporary muscle paralysis that normally occurs during REM sleep does not occur in this disorder. Because the muscles are not paralyzed, individuals may act out potentially violent behaviors during sleep and cause injuries to themselves or their bed partners.

Test your knowledge

Finding the Right Relaxation Technique for You

There is no single relaxation technique that is best for everyone. When choosing a relaxation technique, consider your specific needs, preferences, fitness, and the way you tend to react to stress. The right relaxation technique is the one that resonates with you and fits your lifestyle. If and is able to focus your mind and interrupt your everyday thoughts in order to elicit the relaxation response. In many cases, you may find that alternating or combining different techniques will keep you motivated and provide you with the best results.

How you react to stress may influence the relaxation technique that works best for you:

The "fight" response. If you tend to become angry, agitated, or keyed up under stress, you will respond best to stress relief activities that quiet you down, such as meditation, progressive muscle relaxation, deep breathing, or guided imagery.

The "flight" response. If you tend to become depressed, withdrawn, or spaced out under stress, you will respond best to stress relief activities that are stimulating and energize your nervous system, such as rhythmic exercise, massage, mindfulness, or power yoga.

The immobilization response. If you've experienced some type of trauma and tend to "freeze" or become "stuck" under stress, your challenge is to first rouse your nervous system to a fight or flight response (above) so you can employ the applicable stress relief techniques. To do this, choose physical activity that engages both your arms and legs, such as running, dancing, or tai chi, and perform it mindfully, focusing on the sensations in your limbs as you move.

Do you need alone time or social stimulation?If you crave solitude, solo relaxation techniques such as meditation or progressive muscle relaxation will give you the to quiet your mind and recharge your batteries. If you crave social interaction, a class setting will give you the stimulation and support you're looking for. Practicing with others may also help you stay motivated.

Test your knowledge

Starting a Regular Relaxation Practice

Learning the basics of these relaxation techniques isn't difficult. But it takes practice to truly harness their stress-relieving power: daily practice, in fact. Most stress experts recommend setting aside at least 10 to 20 minutes a day for your relaxation practice. If you'd like to maximize the benefits, aim for 30 minutes to an hour.

Tips for making relaxation techniques part of your life

- **Set aside time in your daily schedule.** If possible, schedule a set time either once or twice a day for your practice. You may find that it's easier to stick with your practice if you do it first thing in the morning, before other tasks and responsibilities get in the way.
- **Don't practice when you're sleepy.** These techniques are so relaxing that they can make you very sleepy. However, you will get the most benefit if you practice when you're fully awake and alert. Avoid practicing close to bedtime, after a heavy meal, or when you've been drinking.
- **Expect ups and downs.** Don't be discouraged if you skip a few days or even a few weeks. It happens. Just get started again and slowly build up to your old momentum.
- **If you exercise, improve the relaxation benefits by adopting mindfulness.** Instead of zoning out or staring at a TV as you exercise, try focusing your attention on your body. If you're resistance training, for example, focus on coordinating your breathing with your movements and pay attention to how your body feels as you raise and lower the weights.

Don't think you have time for a daily practice? If you feel like your schedule is already too packed for anything else, remember that many relaxation techniques can be practiced while you're doing other things. Meditate while commuting to work on a bus or train, for example, or waiting for an appointment. Try deep breathing during your break at work or when you're winding down for bed. Take a yoga or tai chi break in your office or in the park at lunchtime. Practice mindful walking while exercising your dog, walking to your car, or taking a neighborhood stroll.

Deep Breathing

Deep Breathing

With its focus on full, cleansing breaths, deep breathing is a simple yet powerful relaxation technique. It's easy to learn, can be practiced almost anywhere, and provides a quick way to get your stress levels in check. Deep breathing is the cornerstone of many other relaxation practices, too, and can be combined with other relaxing elements such as aromatherapy and music. All you really need is a few minutes and a place to stretch out.

The key to deep breathing is to breathe deeply from the abdomen, getting as much fresh air as possible in your lungs. When you take deep breaths from the abdomen, rather than shallow breaths from your upper chest, you inhale more oxygen. The more oxygen you get, the less tense, short of breath, and anxious you feel.

Steps for Practicing Deep Breathing

- Sit comfortably with your back straight. Put one hand on your chest and the other on your stomach.
- Breathe in through your nose. The hand on your stomach should rise. The hand on your chest should move very little.
- Exhale through your mouth, pushing out as much air as you can while contracting your abdominal muscles. The hand on your stomach should move in as you exhale, but your other hand should move very little.
- Continue to breathe in through your nose and out through your mouth. Try to inhale enough so that your lower abdomen rises and falls. Count slowly as you exhale.

If you find it difficult breathing from your abdomen while sitting up, try lying on the floor. Put a small book on your stomach, and try to breathe so that the book rises as you inhale and falls as you exhale. Breathing techniques can be practiced almost anywhere and can be combined with other relaxation exercises, such as aromatherapy and music. All you really need is a few minutes and a place to stretch out.

Progressive Muscle Relaxation

Progressive muscle relaxation is a two-step process in which you systematically tense and relax different muscle groups in the body. With regular practice, progressive muscle relaxation gives you an intimate familiarity with what tension—as well as complete relaxation—feels like in different parts of the body. This awareness helps you spot and counteract the first signs of the muscular tension that accompanies stress. And as your body relaxes, so will your mind.

You can combine deep breathing with progressive muscle relaxation for an additional level of stress relief.

Practicing progressive muscle relaxation

Most progressive muscle relaxation practitioners start at the feet and work their way up to the face.

- Loosen your clothing, take off your shoes, and get comfortable.
- Take a few minutes to relax, breathing in and out in slow, deep breaths.
- When you're relaxed and ready to start, shift your attention to your right foot. Take a moment to focus on the way it feels.
- Slowly tense the muscles in your right foot, squeezing as tightly as you can. Hold for a count of 10.
- Relax your right foot. Focus on the tension flowing away and the way your foot feels as it becomes limp and loose.
- Stay in this relaxed state for a moment, breathing deeply and slowly.
- When you're ready, shift your attention to your left foot. Follow the same sequence of muscle tension and release.
- Move slowly up through your body, contracting and relaxing the muscle groups as you go.It may take some practice at first, but try not to tense muscles other than those intended.

Before practicing progressive muscle relaxation, consult with your doctor if you have a history of muscle spasms, back problems, or other serious injuries that may be aggravated by tensing muscles.

1. Progressive muscle relaxation sequence:
2. Right foot, then left foot
3. Right calf, then left calf
4. Right thigh, then left thigh
5. Hips and buttocks Stomach
6. Chest Back
7. Right arm and hand, then left arm and hand

8. Neck and shoulders
9. Face

Body Scan Meditation

Body scanning is a type of meditation that cultivates mindfulness by focusing your attention on various parts of your body. Like progressive muscle relaxation, you start with your feet and work your way up. However, instead of tensing and relaxing your muscles, you simply focus on the way each part of your body feels without labeling the sensations as either "good" or "bad".

Practicing Body Scan Meditation

Lie on your back, legs uncrossed, arms relaxed at your sides, eyes open or closed. Focus on your breathing, allowing your stomach to rise as you inhale and fall as you exhale. Breathe deeply for about two minutes, until you start to feel comfortable and relaxed.

Turn your focus to the toes of your right foot. Notice any sensations you feel while continuing to also focus on your breathing. Imagine each deep breath flowing to your toes. Remain focused on this area for one to two minutes.

Move your focus to the sole of your right foot. Tune in to any sensations you feel in that part of your body and imagine each breath flowing from the sole of your foot. After one or two minutes, move your focus to your right ankle and repeat. Move to your calf, knee, thigh, hip, and then repeat the sequence for your left leg. From there, move up the torso, through the lower back and abdomen, the upper back and chest, and the shoulders. Pay close attention to any area of the body that causes you pain or discomfort.

Move your focus to the fingers on your right hand and then move up to the wrist, forearm, elbow, upper arm, and shoulder. Repeat for your left arm. Then move through the neck and throat, and finally all the regions of your face, the back of the head, and the top of the head. Pay close attention to your jaw, chin, lips, tongue, nose, cheeks, eyes, forehead, temples and scalp. When you reach the very top of your head, let your breath reach out beyond your body and imagine hovering above yourself.

After completing the body scan, relax for a while in silence and stillness, noting how your body feels. Then open your eyes slowly. Take a moment to stretch, if necessary.

Rhythmic Movement and Mindful Exercise

The idea of exercising may not sound particularly soothing, but rhythmic exercise that gets you into a flow of repetitive movement can be very relaxing. Examples include:

Running
Walking
Swimming
Dancing
Rowing
Climbing

For maximum stress relief, add mindfulness to your workout While simply engaging in rhythmic exercise will help you relieve stress, if you add a mindfulness component on top, you'll get even more benefit.

As with meditation, mindful exercise requires being fully engaged in the present moment—paying attention to how your body feels right now, rather than your daily worries or concerns. In order to "turn off" your thoughts, focus on the sensations in your limbs and how your breathing complements your movement.

If you're walking or running, for example, focus on the physicality of each step—the sensation of your feet touching the ground, the rhythm of your breath while moving, and the feeling of the wind against your face. If your mind wanders to other thoughts, gently return to focusing on your breathing and movement.

Visualization

Visualization, or guided imagery, is a variation on traditional meditation that uses the power of your imagination to reach a deep state of relaxation and emotional calm. When used as a relaxation technique, visualization involves imagining a scene in which you feel at peace, free to let go of all tension and anxiety. Choose whatever setting is most calming to you, whether it's a tropical beach, a favorite childhood spot, or a quiet wooded glen.

You can practice visualization on your own or with a therapist (or an audio recording of a therapist) guiding you through the imagery. You can also choose to do your visualization in silence or use listening aids, such as soothing music or a sound machine or recording that matches your chosen setting—the sound of ocean waves if you've chosen a beach, for example.

Practicing Visualization

Close your eyes and let your worries drift away. Imagine your restful place. Picture it as vividly as you can—everything you can see, hear, smell, taste, and feel. Just "looking" at it like you would a photograph is not enough. Visualization works best if you incorporate as many sensory details as possible.

For example, if you are thinking about a dock on a quiet lake:the sun setting over the water

Hear the birds singing

Smell the pine trees

Feel the cool water on your bare feet

Taste the fresh, clean air

Enjoy the feeling of deep relaxation that envelopes you as you slowly explore your restful place. When you are ready, gently open your eyes and come back to the present.

Don't worry if you sometimes zone out or lose track of where you are during a visualization session. This is normal. You may also experience feelings of heaviness in your limbs, muscle twitches, or yawning. Again, these are normal responses.

Yoga and Tai Chi

Yoga and Tai Chi involves a series of both moving and stationary poses, combined with deep breathing. As well as reducing anxiety and stress, yoga can also improve flexibility, strength, balance, and stamina. Practiced regularly, it can also strengthen the relaxation response in your daily life. Since injuries can happen when yoga is practiced incorrectly, it's best to learn by attending group classes, hiring a private teacher, or at least following video instructions. Once you've learned the basics, you can practice alone or with others, tailoring your practice as you see fit.

What type of yoga is best for stress?Although almost all yoga classes end in a relaxation pose, classes that emphasize slow, steady movement, deep breathing, and gentle stretching are best for stress relief.Satyananda is a traditional form of yoga. It features gentle poses, deep relaxation, and meditation, making it suitable for beginners as well as anyone primarily looking for stress reduction. Hatha yoga is also reasonably gentle way to relieve stress and is suitable for beginners. Alternately, look for labels like gentle, for stress relief, or for beginners when selecting a yoga class.Power yoga, with its intense poses and focus on fitness, is better suited to those looking for stimulation as well as relaxation. If you're unsure whether a specific yoga class is appropriate for stress relief, call the studio or ask the teacher.

Tai Chi

If you've ever seen a group of people in the park slowly moving in synch, you've probably witnessed tai chi. Tai chi is a self-paced, non-competitive series of slow, flowing body movements. These movements emphasize concentration, relaxation, and the conscious circulation of vital energy throughout the body. Though tai chi has its roots in martial arts, today it is primarily practiced as a way of calming the mind, conditioning the body, and reducing stress. As in meditation, tai chi practitioners focus on their breathing and keeping their attention in the present moment. Tai chi is a safe, low-impact option for people of all ages and fitness levels, including older adults and those recovering from injuries. As with yoga, tai chi is best learned in a class or from a private instructor. Tai chi classes are often offered in community centers, senior centers, or local community colleges. Once you've learned the basics of tai chi or qi gong, you can practice alone or with others, tailoring your sessions as you see fit.

Self-Massage

You're probably already aware how much a professional massage at a spa or health club can help reduce stress, relieve pain, and ease muscle tension. What you may not be aware of is that you can experience many of the same benefits at home or work by practicing self-massage—or trading massages with a loved one.

Try taking a few minutes to massage yourself at your desk between tasks, on the couch at the end of a hectic day, or in bed to help you unwind before sleep. To enhance relaxation, you can use aromatic oil, scented lotion, or combine self-message with mindfulness or deep breathing techniques.

A Five-Minute Self-Massage to Relieve Stress

- A combination of strokes works well to relieve muscle tension. Try gentle chops with the edge of your hands or tapping with fingers or cupped palms. Put fingertip pressure on muscle knots. Knead across muscles, and try long, light, gliding strokes. You can apply these strokes to any part of the body that falls easily within your reach. For a short session like this, try focusing on your neck and head:
- Start by kneading the muscles at the back of your neck and shoulders. Make a loose fist and drum swiftly up and down the sides and back of your neck. Next, use your thumbs to work tiny circles around the base of your skull. Slowly massage the rest of your scalp with your fingertips. Then tap your fingers against your scalp, moving from the front to the back and then over the sides.
- Now massage your face. Make a series of tiny circles with your thumbs or fingertips. Pay particular attention to your temples, forehead, and jaw muscles. Use your middle fingers to massage the bridge of your nose and work outward over your eyebrows to your temples.
- Finally, close your eyes. Cup your hands loosely over your face and inhale and exhale easily for a short while.

Yogic Breathing or Pranayama

Prāṇāyāma is a Sanskrit word alternatively translated as "extension of the *prāṇa* (breath or life force)" or "breath control." The word is composed from two Sanskrit words: *prana* meaning life force (noted particularly as the breath), and either *yama* (to restrain or control the prana, implying a set of breathing techniques where the breath is intentionally altered in order to produce specific results) or the negative form *ayāma*, meaning to extend or draw out (as in extension of the life force). It is a yogic discipline with origins in ancient India.

Medical

Several researchers have reported that pranayama techniques are beneficial in treating a range of stress-related disorders. A Cochrane systematic review on the symptomatic relief of asthma by breathing exercises did not find a statistically significant improvement but did find that there was a statistically significant increase in the dose of histamine needed to provoke a 20% reduction in FEV1 (PD20) during pranayama breathing but not with the placebo device.

Safety

Authoritative texts on Yoga state that, in order to avoid injuries and unwanted side effects, pranayama should only be undertaken when one has a firmly established yoga practice and then only under the guidance of an experienced Guru. Although relatively safe, Hatha Yoga is not risk free. Sensible precautions can usefully be taken such as beginners should avoid advanced moves if they have any physical health related issue. It can get dangerous if someone is trying to pose tough exercise which requires extreme flexibility and good shapes of bones. Hatha Yoga should not be combined with psychoactive drug use, and competitive Hatha Yoga should be avoided. Person should inform the teacher or trainer of their physical limitations and concerns before getting involved themselves for extreme pose positions. Functional limitations should be taken into consideration. Modifications can then be made using props, altering the duration or poses.

According to at least one study, pranayama was the yoga practice leading to most injuries, with four injuries in a study of 76 practitioners. There have been limited reports of adverse effects including haematoma and pneumothorax, though the connections are not always well established.

Most of us think that breathing is an involuntary act and that there is no right or wrong way to do it. But there is, and most of us do it wrong. Pranayama is a yoga breathing exercise that is used to prepare participants for meditation and to help them on their spiritual journey. It teaches us that we should take note of our breathing, and that we should use the full extent of our lungs. Basically it teaches us how to breathe properly.

The Pranayama exercise that yoga beginners tend to learn first is called the Three Part Breath

or Dirga Pranayama. In ancient traditions it was thought best to perform the exercise lying down. This way the participants can really feel their breath flowing through their body, but it is not essential to feel the full effects of the exercise. It is called the three part breath because it is performed in three stages, first using the bottom of the lungs, then the middle and lastly the top. This means that the full capacity of the lungs is being used instead of the 20% that most of us scrape by on.

When we are young we naturally breathe this way, deeply and using all of our lungs. But as our lives become stressful due to work, financial pressures and kids our breathing tends to become fast and shallow. This means that our lungs do not fill up with enough oxygen and are therefore unable to distribute the optimum amount around our body. Many health problems ranging from heart disease to sleep disorders may in fact be due to what is known as oxygen starvation. We all know that our body needs oxygen to function properly. Our brain and muscles feed on it making us feel more alert and energized. Our lymphatic system, which is the system that rids the body of toxins, is controlled by the simple motion of breathing deeply.

The great thing about this type of deep Pranayama breathing is that it can be performed almost anywhere. It will help keep your mind calm and clear in any situation and done regularly it can give you an amazing sense of euphoria. This is because deep breathing is our built in defense against stress. It lowers your heart rate and blood pressure while easing muscle tension. So next time life seems to be getting on top of you just stop, take a step back, breathe deeply and try to use your lungs' full capacity. You will be amazed by the results.

Yoga

Yoga is a group of physical, mental, and spiritual practices or disciplines which originated in ancient India. There is a broad variety of Yoga schools, practices, and goals in Hinduism, Buddhism, and Jainism. Among the most well-known types of yoga are Hatha yoga and Rāja yoga.

The origins of yoga have been speculated to date back to pre-Vedic Indian traditions, it is mentioned in the Rigveda, but most likely developed around the sixth and fifth centuries BCE, in ancient India's ascetic and śramaṇa movements. The chronology of earliest texts describing yoga-practices is unclear, varyingly credited to Hindu Upanishads. The *Yoga Sutras of Patanjali* date from the first half of the 1st millennium CE, but only gained prominence in the West in the 20th century. Hatha yoga texts emerged around the 11th century with origins in tantra.

History of Yoga

The origins of yoga are a matter of debate. There is no consensus on its chronology or specific origin other than that yoga developed in ancient India. Suggested origins are the Indus Valley Civilization (3300–1900 BCE) and pre-Vedic Eastern states of India, the Vedic period (1500–500 BCE), and the śramaṇa movement.

Pre-philosophical speculations of yoga begin to emerge in the texts of c. 500–200 BCE. Between 200 BCE–500 CE philosophical schools of Hinduism, Buddhism and Jainism were taking form and a coherent philosophical system of yoga began to emerge. The Middle Ages saw the development of many satellite traditions of yoga. Yoga came to the attention of an educated western public in the mid 19th century along with other topics of Indian philosophy.

Ashtanga Vinyasa Yoga

Ashtanga Vinyasa Yoga is a style of yoga codified and popularized by K. Pattabhi Jois during the 20th century which is often promoted as a modern-day form of classical Indian yoga. Ashtanga means eight limbs or branches, of which asana or physical yoga posture is merely one branch, breath or pranayama is another. Both Pattabhi Jois and Sharath Jois, his grandson, encourage practice of Ashtanga Yoga – all eight limbs. The first two limbs – Yamas and Niyamas – are given special emphasis to be practiced in conjunction with the 3rd and 4th limbs (asana and pranayama).

Sri K. Pattabhi Jois began his yoga studies in 1927 at the age of 12, and by 1948 had established the Ashtanga Yoga Research Institute for teaching the specific yoga practice known as Ashtanga (Sanskrit for "eight-limbed") Yoga. Ashtanga Yoga is named after the eight limbs of yoga mentioned in the *Yoga Sutras of Patanjali.*

"Power yoga" is a generic term that may refer to any type of aerobically vigorous yoga exercise derived from Ashtanga yoga.

Chakra

In Hinduism, Jainism and Buddhism, a **chakra** (Sanskrit: *Cakra*, Pali : *Cakka*) is thought to be an energy point or node in the subtle body. Chakras are believed to be part of the subtle body, not the physical body, and as such, are the meeting points of the subtle (non-physical) energy channels called Nadi. Nadi are believed to be channels in the subtle body through which the life force (prana) (non-physical) or vital energy (non-physical) moves. Various scriptural texts and teachings present a different number of chakras. It's believed that there are many chakras in the subtle human body, according to the tantric texts, but there are seven chakras that are considered to be the most important ones.

Transcendental Mediation

Transcendental Meditation (**TM**) refers to a specific form of mantra meditation called the Transcendental Meditation technique, and less commonly to the organizations that constitute the Transcendental Meditation movement. Maharishi Mahesh Yogi (1918–2008) introduced the TM technique and TM movement in India, in the mid-1950s.

The Maharishi taught thousands of people during a series of world tours from 1958 to 1965, expressing his teachings in spiritual and religious terms. TM became more popular in the 1960s and 1970s, as the Maharishi shifted to a more technical presentation, and his meditation technique was practiced by celebrities. At this time, he began training TM teachers and created specialized organizations to present TM to specific segments of the population such as business people and students. By the early 2000s, TM had been taught to millions of people, and the worldwide TM organization had grown to include educational programs, health products, and related services.

The TM technique involves the use of a sound or mantra, and is practiced for 15–20 minutes twice per day. It is taught by certified teachers through a standard course of instruction, which costs a fee that varies by country. According to the Transcendental Meditation movement, it is a method for relaxation, stress reduction, and self-development. Varying views on whether the technique is religious or non-religious have been expressed including by sociologists, scholars, and a New Jersey court.

TM is one of the most widely practiced and researched meditation techniques. It is impossible to say whether or not it has any effect on health, as the research to date is of poor quality.

Technique

The meditation practice involves the use of a mantra for 15–20 minutes twice per day while sitting with the eyes closed. It is reported to be one of the most widely practiced, and among the most widely researched, meditation techniques, with hundreds of published research studies. The technique is made available worldwide by certified TM teachers in a seven-step course, and fees vary from country to country. Beginning in 1965, the Transcendental Meditation technique has been incorporated into selected schools, universities, corporations, and prison programs in the US, Latin America, Europe, and India. In 1977 a US district court ruled that a curriculum in TM and the Science of Creative Intelligence (SCI) being taught in some New Jersey schools was religious in nature and in violation of the First Amendment of the United States Constitution. The technique has since been included in a number of educational and social programs around the world.

The Transcendental Meditation technique has been described as both religious and non-religious, as an aspect of a new religious movement, as rooted in Hinduism, and as a non-religious practice for self-development. The public presentation of the TM technique over its 50-year history has been praised for its high visibility in the mass media and effective global propagation, and criticized for using celebrity and scientific endorsements as a marketing tool. Advanced

courses supplement the TM technique and include an advanced meditation program called the TM-Sidhi program.

Biofeedback

Overview

Biofeedback is a technique you can use to learn to control your body's functions, such as your heart rate. With biofeedback, you're connected to electrical sensors that help you receive information (feedback) about your body (bio).

This feedback helps you focus on making subtle changes in your body, such as relaxing certain muscles, to achieve the results you want, such as reducing pain. In essence, biofeedback gives you the power to use your thoughts to control your body, often to improve a health condition or physical performance.

Types of biofeedback

Your therapist might use several different biofeedback methods. Determining the method that's right for you depends on your health problems and goals. Biofeedback methods include:

- **Brainwave.** This type of method uses scalp sensors to monitor your brain waves using an electroencephalograph (EEG).
- **Breathing.** During respiratory biofeedback, bands are placed around your abdomen and chest to monitor your breathing pattern and respiration rate.
- **Heart rate.** This type of biofeedback uses finger or earlobe sensors with a device called a photoplethysmograph or sensors placed on your chest, lower torso or wrists using an electrocardiograph (ECG) to measure your heart rate and heart rate variability.
- **Muscle.** This method of biofeedback involves placing sensors over your skeletal muscles with an electromyography (EMG) to monitor the electrical activity that causes muscle contraction.
- **Sweat glands.** Sensors attached around your fingers or on your palm or wrist with an electrodermograph (EDG) measure the activity of your sweat glands and the amount of

perspiration on your skin, alerting you to anxiety.
- **Temperature.** Sensors attached to your fingers or feet measure your blood flow to your skin. Because your temperature often drops when you're under stress, a low reading can prompt you to begin relaxation techniques.

Biofeedback devices

You can receive biofeedback training in physical therapy clinics, medical centers and hospitals. A growing number of biofeedback devices and programs are also being marketed for home use, including:

- **Interactive computer or mobile device programs.** Some types of biofeedback devices measure physiological changes in your body, such as your heart rate activity and skin changes, by using one or more sensors attached to your fingers or your ear. The sensors plug into your computer.Using computer graphics and prompts, the devices then help you master stress by pacing your breathing, relaxing your muscles and thinking positive thoughts. Studies show that these types of devices might be effective in improving responses during moments of stress, and inducing feelings of calm and well-being.Another type of biofeedback therapy involves wearing a headband that monitors your brain activity while you meditate. It uses sounds to let you know when your mind is calm and when it's active to help you learn how to control your stress response. The information from each session can then be stored to your computer or mobile device.
- **Wearable devices.** One type of wearable device involves wearing a sensor on your waist that monitors your breathing and tracks your breathing patterns using a downloadable app. The app can alert you if you're experiencing prolonged tension, and it offers guided breathing activities to help restore your calm.

The Food and Drug Administration has approved a biofeedback device, Resperate, for reducing stress and lowering blood pressure. Resperate is a portable electronic device that promotes slow, deep breathing.

However, many biofeedback devices marketed for home use aren't regulated by the Food and Drug Administration. Before trying biofeedback therapy at home, discuss the different types of devices with your doctor to find the best fit.

Be aware that some products might be falsely marketed as biofeedback devices, and that not all biofeedback practitioners are reputable. If a manufacturer or biofeedback practitioner claims that a biofeedback device can assess your organs for disease, find impurities in your blood, cure your condition or send signals into your body, check with your doctor before using it, as it might not be legitimate.

Progressive Muscle Relaxation

When you have anxiety or stress in your life, one of the ways your body responds is with muscle tension. Learn how to relax your body through progressive muscle relaxation (PMR) where you create tension and then release the different muscle groups of your body. This technique allows your full body to reach a state of complete relaxation and reduce anxiety and stress.

What is progressive muscle relaxation?

PMR is a technique that involves tensing specific muscle groups and then relaxing them to create awareness of tension and relaxation. It is termed progressive because it proceeds through all major muscle groups, relaxing them one at a time, and eventually leads to total muscle relaxation.

Why try progressive muscle relaxation?

PMR can reduce anxiety, stress and muscle tension. In addition, it may help you if you have trouble falling asleep or even ease headaches by focusing on the muscles of the head, neck and jaw. As you learn how tense muscles feel compared to relaxed muscles you will find a new awareness of your body and will be able to tell when you need to relax.

How do you do progressive muscle relaxation?

Follow this audio recording by Dr. Iris Torchalla which will guide you through the process. Choose a place where you won't be interrupted and set aside about 15 minutes to complete this exercise. We recommend doing this exercise once a day for the next week or two to get the hang of it. After you have learned how to tense and relax each muscle group, you can practice tensing and relaxing specific muscle groups without going through the whole routine.

If you find that you are really getting the hang of this technique or just don't care for audio guidance, check out the downloadable how-to document here.

Note: Be careful not to tense your muscles too hard. You should not feel any pain or cramping while completing this exercise. If you have any medical issues that impede your physical activity such as pulled muscles or broken bones please consult your doctor before trying this exercise.

Autogenic Training

Autogenic training (AT) is a technique that teaches your body to respond to your verbal commands. These commands "tell" your body to relax and control breathing, blood pressure, heartbeat, and body temperature. The goal of AT is to achieve deep relaxation and reduce stress. After you learn the technique, you can use it whenever you need or want relief from symptoms of stress, or you can practice it regularly to enjoy the benefits of deep relaxation and prevent the effects of chronic stress.

Autogenic training consists of six standard exercises that make the body feel warm, heavy, and relaxed. For each exercise, you get into a simple posture (sitting in a comfortable chair or reclining), concentrate without any goal, and then use visual imagination and verbal cues to relax your body in some specific way.

You learn each exercise by reading about it or watching a teacher, then practicing it for a few minutes several times a day. Learning the exercises, either from an instructor or on your own, usually moves at a slow, steady pace, taking 4 to 6 months to master all six exercises.

Without regular practice, autogenic training is not likely to have an effect. For this reason, only those people who are motivated and committed to learning it are likely to get any benefit from AT. But for those who master the technique, it works, and it can be an effective treatment for chronic stress.

The way AT works is not fully understood, but its effects on the body are measurable. Experts believe that AT works in ways that are similar to hypnosis and biofeedback. The exercises allow communication between the mind and the body, allowing you to influence body reactions that cannot normally be controlled, such as blood pressure, heartbeat, and body temperature.

What is autogenic training used for?

Most people use autogenic training (AT) to relieve the symptoms of stress. It can also be helpful with problems such as generalized anxiety, fatigue, and irritability. Some people use it to manage pain, reduce sleeping disorders such as insomnia, and increase their resistance to stress.

Also, AT has been shown to help treat:

- Hyperventilation (breathing that is deeper and more rapid than normal).
- Asthma (inflammation in the tubes that carry air to the lungs, resulting in periodic episodes of difficulty breathing as well as wheezing, chest tightness, and coughing).
- Constipation and diarrhea.
- Gastritis and stomach spasms.
- Ulcers (sores on the skin or on a mucous membrane, such as inside the mouth, stomach, or intestines).

- Racing heart and irregular heartbeat.
- High blood pressure.
- Cold hands or feet.
- Headaches.
- Thyroid problems, such as an overactive thyroid (hyperthyroidism).

Is autogenic training safe?

Autogenic training (AT) is safe for most people. Before beginning a program to learn AT, see your doctor for a physical exam and discuss what physiological effects AT might have on you. If you have a serious disease such as diabetes or a heart condition, learn and use AT only under the supervision of your doctor.

Some people have a sharp increase or decrease in their blood pressure when they do AT exercises. If you have high or low blood pressure, have your doctor or nurse check to see whether AT is bringing your blood pressure closer to normal.

If you use AT to help control any disease, including all heart and circulatory problems, do not use it to replace any conventional treatments, such as medicines.

AT is not recommended for:

- Children younger than age 5.
- People with severe mental or emotional disorders.

If you feel very anxious or restless during or after doing the exercises, stop AT or continue only under the supervision of a professional AT instructor.

Always tell your doctor if you are using an alternative therapy or if you are thinking about combining an alternative therapy with your conventional medical treatment. It may not be safe to forgo your conventional medical treatment and rely only on an alternative therapy.

Visual Imagery

Have you ever been in the middle of a stressful situation and wished you could be somewhere else—like lying on a tropical beach? Guided imagery helps you use your imagination to take you to a calm, peaceful place.

- Because of the way the mind and body are connected, guided imagery can make you feel like you are experiencing something just by imagining it.
- You can do guided imagery with audio recordings, an instructor, or a script (a set of written instructions) to lead you through the process.
- You use all of your senses in guided imagery. For example, if you want a tropical setting, you can imagine the warm breeze on your skin, the bright blue of the water, the sound of the surf, the sweet scent of tropical flowers, and the taste of coconut so that you actually feel like you are there.
- Imagining yourself in a calm, peaceful setting can help you relax and relieve stress.

How do you do guided imagery?

To give guided imagery a try, follow these steps:

1. Find a comfortable place to sit or lie down. Close your eyes.
2. Start by just taking a few deep breaths to help you relax.
3. Picture a setting that is calm and peaceful. This could be a beach, a mountain setting, a meadow, or a scene that you choose.
4. Imagine your scene, and try to add some detail. For example, is there a breeze? How does it feel? What do you smell? What does the sky look like? Is it clear, or are there clouds?
5. It often helps to add a path to your scene. For example, as you enter the meadow, imagine a path leading you through the meadow to the trees on the other side. As you follow the path farther into the meadow you feel more and more relaxed.
6. When you are deep into your scene and are feeling relaxed, take a few minutes to breathe slowly and feel the calm.
7. Think of a simple word or sound that you can use in the future to help you return to this place. Then, when you are ready, slowly take yourself out of the scene and back to the present. Tell yourself that you will feel relaxed and refreshed and will bring your sense of calm with you.
8. Count to 3, and open your eyes. Notice how you feel right now.

It may help to have an instructor or audio recording to follow. You can also use a script (a set of written instructions), but hearing the instructions may be a better way to relax into the process.

Self Hypnosis

Self-hypnosis or **autohypnosis** is a form, process or result of hypnosis which is self-induced, and normally makes use of self-suggestion.

Self-hypnosis is used extensively in modern hypnotherapy. It can take the form of hypnosis carried out by means of a learned routine. Hypnosis may help pain management, anxiety, depression, sleep disorders, obesity, asthma, and skin conditions. When this practice is mastered, it can improve concentration, recall, enhance problem solving, alleviate headaches and even improve one's control of emotions.

Steps commonly used for self-hypnosis

Self-hypnosis requires four distinct steps.

1. ***Motivation***. Without proper motivation, an individual will find it very difficult to practice self-hypnosis
2. ***Relaxation***: The individual must be thoroughly relaxed and must set aside time to perform this act. Additionally, distractions should be eliminated as full attention is needed.
3. ***Concentration***: the individual needs to concentrate completely as progress is made each time the mind focuses on a single image.
4. ***Directing***: This is an option used only when the individual wants to work on a specific goal. The individual must direct their concentration on visualizing the desired result.

Patients who are stressed and/or lack self-esteem can be taught self-hypnotic techniques which can induce relaxation and/or strengthen their self-esteem. Specifically, once the patient is in a self-hypnotic state the therapist can communicate messages to the patient, allowing the relaxation and strengthening process to occur.

When teaching self-hypnosis, a word or phrase should be stated to the patient for them to repeat. This will not work unless the patient deliberately uses the word or phrase to hypnotize themselves.

In addition, since stress prevents well-functioning of the immune system, researchers from the Ohio State University came to a conclusion that self hypnosis to prevent stress can also help in protecting the immune system against the negative effects of it. They proved this by showing that students who performed self-hypnosis during stressful exam weeks showed a stronger immune system when compared to those who did not learn the technique of this phenomenon.

Humor, Stress, and Relaxation

Stress relief from laughter

A good sense of humor can't cure all ailments, but data is mounting about the positive things laughter can do.

Short-term benefits

A good laugh has great short-term effects. When you start to laugh, it doesn't just lighten your load mentally, it actually induces physical changes in your body. Laughter can:

- **Stimulate many organs.** Laughter enhances your intake of oxygen-rich air, stimulates your heart, lungs and muscles, and increases the endorphins that are released by your brain.
- **Activate and relieve your stress response.** A rollicking laugh fires up and then cools down your stress response, and it can increase your heart rate and blood pressure. The result? A good, relaxed feeling.
- **Soothe tension.** Laughter can also stimulate circulation and aid muscle relaxation, both of which can help reduce some of the physical symptoms of stress.

Long-term effects

Laughter isn't just a quick pick-me-up, though. It's also good for you over the long term. Laughter may:

- **Improve your immune system.** Negative thoughts manifest into chemical reactions that can affect your body by bringing more stress into your system and decreasing your immunity. In contrast, positive thoughts can actually release neuropeptides that help fight stress and potentially more-serious illnesses.
- **Relieve pain.** Laughter may ease pain by causing the body to produce its own natural painkillers.
- **Increase personal satisfaction.** Laughter can also make it easier to cope with difficult situations. It also helps you connect with other people.
- **Improve your mood.** Many people experience depression, sometimes due to chronic illnesses. Laughter can help lessen your depression and anxiety and may make you feel

happier.

Improve your sense of humor

Are you afraid you have an underdeveloped — or nonexistent — sense of humor? No problem. Humor can be learned. In fact, developing or refining your sense of humor may be easier than you think.

- **Put humor on your horizon.** Find a few simple items, such as photos, greeting cards or comic strips, that make you chuckle. Then hang them up at home or in your office. Keep funny movies, books or comedy albums on hand for when you need an added humor boost. Look online at joke websites. Go to a comedy club.
- **Laugh and the world laughs with you.** Find a way to laugh about your own situations and watch your stress begin to fade away. Even if it feels forced at first, practice laughing. It does your body good.Consider trying laughter yoga. In laughter yoga, people practice laughter as a group. Laughter is forced at first, but it can soon turn into spontaneous laughter.
- **Share a laugh.** Make it a habit to spend time with friends who make you laugh. And then return the favor by sharing funny stories or jokes with those around you.
- **Knock, knock.** Browse through your local bookstore or library's selection of joke books and get a few rib ticklers in your repertoire that you can share with friends.
- **Know what isn't funny.** Don't laugh at the expense of others. Some forms of humor aren't appropriate. Use your best judgment to discern a good joke from a bad, or hurtful, one.

Laughter is the best medicine

Go ahead and give it a try. Turn the corners of your mouth up into a smile and then give a laugh, even if it feels a little forced. Once you've had your chuckle, take stock of how you're feeling. Are your muscles a little less tense? Do you feel more relaxed or buoyant? That's the natural wonder of laughing at work.

Mindfulness meditation

Mindfulness is the quality of being fully engaged in the present moment, without analyzing or otherwise "over-thinking" the experience. Rather than worrying about the future or dwelling on the past, mindfulness meditation switches the focus to what's happening right now.

Meditations that cultivate mindfulness have long been used to reduce stress, anxiety, depression, and other negative emotions. Some of these meditations bring you into the present by focusing your attention on a single repetitive action, such as your breathing, a few repeated words, or the flickering light of a candle. Other forms of mindfulness meditation encourage you to follow and then release internal thoughts or sensations. Mindfulness can also be applied to activities such as walking, exercising, or eating.

A basic mindfulness exercise:

- Sit on a straight-backed chair or cross-legged on the floor.
- Focus on an aspect of your breathing, such as the sensations of air flowing into your nostrils and out of your mouth, or your belly rising and falling as you inhale and exhale.
- Once you've narrowed your concentration in this way, begin to widen your focus. Become aware of sounds, sensations, and your ideas.
- Embrace and consider each thought or sensation without judging it good or bad. If your mind starts to race, return your focus to your breathing. Then expand your awareness again.

Practicing mindfulness meditation

To practice mindfulness meditation, you'll need:

- **A quiet environment.** Choose a secluded place in your home, office, or outdoors where you can relax without distractions or interruptions.
- **A comfortable position.** Get comfortable, but avoid lying down as this may lead to you falling asleep. Sit up with your spine straight, either in a chair or on the floor. You can also try a cross-legged or lotus position.
- **A point of focus.** You can meditate with your eyes closed or open so this point can be internal—a feeling or imaginary scene—or external—a flame, an option in your surroundings, or a meaningful word or phrase that you repeat throughout the meditation.
- **An observant, noncritical attitude.** Don't worry about distracting thoughts that go through your mind or about how well you're doing. If thoughts intrude during your relaxation session, don't fight them, just gently turn your attention back to your point of focus.

Finding the Right Relaxation Technique for You (Part 2)

Test your knowledge

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Chapter 3 Cover Image

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CHAPTER 4: COMMUNICATION

Chapter 4 Learning Objectives

Learning Objectives

By the end of Chapter 4 you will be able to:

1. Define communication
2. Describe common barriers to effective communication
3. Explain how to improve communication skills
4. Identify the eight essential components of communication
5. Describe the differences between the transactional model of communication and the constructivist model of communication
6. Identify the five aspects of emotional intelligence
7. Describe the characteristics of each of the following communication styles: passive, assertive, and aggressive.

Defining Communication

Many theories have been proposed to describe, predict, and understand the behaviors and phenomena of which communication consists. When it comes to communicating in business, we are often less interested in theory than in making sure our communications generate the desired results. But in order to achieve results, it can be valuable to understand what communication is and how it works.

The root of the word "communication" in Latin is *communicare*, which means to share, or to make common (Weekley, 1967). Communication is defined as the process of understanding and sharing meaning (Pearson & Nelson, 2000).

At the center of our study of communication is the relationship that involves interaction between participants. This definition serves us well with its emphasis on the process, which we'll examine in depth across this text, of coming to understand and share another's point of view effectively.

The first key word in this definition is process. A process is a dynamic activity that is hard to describe because it changes (Pearson & Nelson, 2000). Imagine you are alone in your kitchen thinking. Someone you know (say, your mother) enters the kitchen and you talk briefly. What has changed? Now, imagine that your mother is joined by someone else, someone you haven't met before—and this stranger listens intently as you speak, almost as if you were giving a speech. What has changed? Your perspective might change, and you might watch your words more closely. The feedback or response from your mother and the stranger (who are, in essence, your audience) may cause you to reevaluate what you are saying. When we interact, all these factors—and many more—influence the process of communication.

The second key word is understanding: "To understand is to perceive, to interpret, and to relate our perception and interpretation to what we already know." (McLean, 2003) If a friend tells you a story about falling off a bike, what image comes to mind? Now your friend points out the window and you see a motorcycle lying on the ground. Understanding the words and the concepts or objects they refer to is an important part of the communication process.

Next comes the word sharing. Sharing means doing something together with one or more people. You may share a joint activity, as when you share in compiling a report; or you may benefit jointly from a resource, as when you and several coworkers share a pizza. In communication, sharing occurs when you convey thoughts, feelings, ideas, or insights to others. You can also share with yourself (a process called intrapersonal communication) when you bring ideas to consciousness, ponder how you feel about something, or figure out the solution to a problem and have a classic "Aha!" moment when something becomes clear.

Finally, meaning is what we share through communication. The word "bike" represents both a bicycle and a short name for a motorcycle. By looking at the context the word is used in and by asking questions, we can discover the shared meaning of the word and understand the message.

The Process of Communication

It sounds so simple: say what you mean. But all too often, what we try to communicate gets lost in translation despite our best intentions. We say one thing, the other person hears something else, and misunderstandings, frustration, and conflicts ensue.

Fortunately, you can learn how to communicate more clearly and effectively. Whether you're trying to improve communication with your spouse, kids, boss, or coworkers, you can improve the communication skills that enable you to effectively connect with others, build trust and respect, and feel heard and understood.

What is effective communication?

Communication is about more than just exchanging information. It's about understanding the emotion and intentions behind the information. Effective communication is also a two-way street. It's not only how you convey a message so that it is received and understood by someone in exactly the way you intended, it's also how you listen to gain the full meaning of what's being said and to make the other person feel heard and understood.

More than just the words you use, effective communication combines a set of skills including nonverbal communication, engaged listening, managing stress in the moment, the ability to communicate assertively, and the capacity to recognize and understand your own emotions and those of the person you're communicating with.

Effective communication is the glue that helps you deepen your connections to others and improve teamwork, decision making, and problem solving. It enables you to communicate even negative or difficult messages without creating conflict or destroying trust.

While effective communication is a learned skill, it is more effective when it's spontaneous rather than formulaic. A speech that is read, for example, rarely has the same impact as a speech that's delivered (or appears to be delivered) spontaneously. Of course, it takes time and effort to develop these skills and become an effective communicator. The more effort and practice you put in, the more instinctive and spontaneous your communication skills will become.

Barriers to effective interpersonal communication

- **Stress and out-of-control emotion.** When you're stressed or emotionally overwhelmed, you're more likely to misread other people, send confusing or off-putting nonverbal signals, and lapse into unhealthy knee-jerk patterns of behavior. Take a moment to calm down before continuing a conversation.
- **Lack of focus.** You can't communicate effectively when you're multitasking. If you're

planning what you're going to say next, daydreaming, checking text messages, or thinking about something else, you're almost certain to miss nonverbal cues in the conversation. You need to stay focused on the moment-to-moment experience.

- **Inconsistent body language.** Nonverbal communication should reinforce what is being said, not contradict it. If you say one thing, but your body language says something else, your listener will likely feel you're being dishonest. For example, you can't say "yes" while shaking your head no.
- **Negative body language.** If you disagree with or dislike what's being said, you may use negative body language to rebuff the other person's message, such as crossing your arms, avoiding eye contact, or tapping your feet. You don't have to agree, or even like what's being said, but to communicate effectively without making the other person defensive, it's important to avoid sending negative signals.

Improving communication skills

1: Become an engaged listener

People often focus on what they should say, but effective communication is less about talking and more about listening. Listening well means not just understanding the words or the information being communicated, but also understanding the emotions the speaker is trying to communicate.

There's a big difference between engaged listening and simply hearing. When you really listen—when you're engaged with what's being said—you'll hear the subtle intonations in someone's voice that tell you how that person is feeling and the emotions they're trying to communicate. When you're an engaged listener, not only will you better understand the other person, you'll also make that person feel heard and understood, which can help build a stronger, deeper connection between you.

By communicating in this way, you'll also experience a process that lowers stress and supports physical and emotional well-being. If the person you're talking to is calm, for example, listening in an engaged way will help to calm you, too. Similarly, if the person is agitated, you can help calm them by listening in an attentive way and making the person feel understood.

How do you become an engaged listener?

If your goal is to fully understand and connect with the other person, listening in an engaged way

will often come naturally. If it doesn't, try the following tips. The more you practice them, the more satisfying and rewarding your interactions with others will become.

- **Focus fully on the speaker**, his or her body language, tone of voice, and other nonverbal cues. Tone of voice conveys emotion, so if you're thinking about other things, checking text messages or doodling, you're almost certain to miss the nonverbal cues and the emotional content behind the words being spoken. And if the person talking is similarly distracted, you'll be able to quickly pick up on it. If you find it hard to concentrate on some speakers, try repeating their words over in your head—it'll reinforce their message and help you stay focused.
- **Favor your right ear.** The left side of the brain contains the primary processing centers for both speech comprehension and emotions. Since the left side of the brain is connected to the right side of the body, favoring your right ear can help you better detect the emotional nuances of what someone is saying. Try keeping your posture straight, your chin down, and tilting your right ear towards the speaker—this will make it easier to pick up on the higher frequencies of human speech that contain the emotional content of what's being said.
- **Avoid interrupting or trying to redirect the conversation to your concerns**, by saying something like, "If you think that's bad, let me tell you what happened to me." Listening is not the same as waiting for your turn to talk. You can't concentrate on what someone's saying if you're forming what you're going to say next. Often, the speaker can read your facial expressions and know that your mind's elsewhere.
- **Show your interest in what's being said.** Nod occasionally, smile at the person, and make sure your posture is open and inviting. Encourage the speaker to continue with small verbal comments like "yes" or "uh huh."
- **Try to set aside judgment.** In order to communicate effectively with someone, you don't have to like them or agree with their ideas, values, or opinions. However, you do need to set aside your judgment and withhold blame and criticism in order to fully understand a person. The most difficult communication, when successfully executed, can lead to the most unlikely and profound connection with someone.
- **Provide feedback.** If there seems to be a disconnect, reflect what has been said by paraphrasing. "What I'm hearing is," or "Sounds like you are saying," are great ways to reflect back. Don't simply repeat what the speaker has said verbatim, though—you'll sound insincere or unintelligent. Instead, express what the speaker's words mean to you. Ask questions to clarify certain points: "What do you mean when you say…" or "Is this what you mean?"

Hear the emotion behind the words by exercising your middle ear muscles

By increasing the muscle tone of the tiny middle ear muscles (the smallest in the body), you'll be able to detect the higher frequencies of human speech that impart emotion and be better able to understand what others are really saying. As well as by focusing fully on what someone is saying,

you can exercise these tiny muscles by singing, playing a wind instrument, and listening to certain types of music (high-frequency Mozart violin concertos and symphonies, for example, rather than low-frequency rock or rap music).

Test your knowledge

Eight Essential Components of Communication

In order to better understand the communication process, we can break it down into a series of eight essential components:

1. Source
2. Message
3. Channel
4. Receiver
5. Feedback
6. Environment
7. Context
8. Interference

Each of these eight components serves an integral function in the overall process. Let's explore them one by one.

Source

The source imagines, creates, and sends the message. In a public speaking situation, the source is the person giving the speech. He or she conveys the message by sharing new information with the audience. The speaker also conveys a message through his or her tone of voice, body language, and choice of clothing. The speaker begins by first determining the message—what to say and how to say it. The second step involves encoding the message by choosing just the right order or the perfect words to convey the intended meaning. The third step is to present or send the information to the receiver or audience. Finally, by watching for the audience's reaction, the source perceives how well they received the message and responds with clarification or supporting information.

Message

The message is the stimulus or meaning produced by the source for the receiver or audience." (McLean, 2005) When you plan to give a speech or write a report, your message may seem to be only the words you choose that will convey your meaning. But that is just the beginning. The words are brought together with grammar and organization. You may choose to save your most important point for last. The message also consists of the way you say it—in a speech, with your tone of voice, your body language, and your appearance—and in a report, with your writing style, punctuation, and the headings and formatting you choose. In addition, part of the message may be the environment or context you present it in and the noise that might make your message hard to hear or see.

Imagine, for example, that you are addressing a large audience of sales reps and are aware there is a World Series game tonight. Your audience might have a hard time settling down, but you may choose to open with, "I understand there is an important game tonight." In this way, by expressing verbally something that most people in your audience are aware of and interested in, you might grasp and focus their attention.

Channel

"The channel is the way in which a message or messages travel between source and receiver." (McLean, 2005) For example, think of your television. How many channels do you have on your television? Each channel takes up some space, even in a digital world, in the cable or in the signal that brings the message of each channel to your home. Television combines an audio signal you hear with a visual signal you see. Together they convey the message to the receiver or audience. Turn off the volume on your television. Can you still understand what is happening? Many times you can, because the body language conveys part of the message of the show. Now turn up the volume but turn around so that you cannot see the television. You can still hear the dialogue and follow the story line.

Similarly, when you speak or write, you are using a channel to convey your message. Spoken channels include face-to-face conversations, speeches, telephone conversations and voice mail messages, radio, public address systems, and voice over Internet protocol (VoIP). Written channels include letters, memorandums, purchase orders, invoices, newspaper and magazine articles, blogs, e-mail, text messages, tweets, and so forth.

Receiver

"The receiver receives the message from the source, analyzing and interpreting the message in ways both intended and unintended by the source." (McLean, 2005) To better understand this component, think of a receiver on a football team. The quarterback throws the football (message) to a receiver, who must see and interpret where to catch the ball. The quarterback may intend for the receiver to "catch" his message in one way, but the receiver may see things differently and miss the football (the intended meaning) altogether.

As a receiver you listen, see, touch, smell, and/or taste to receive a message. Your audience "sizes you up," much as you might check them out long before you take the stage or open your mouth. The nonverbal responses of your listeners can serve as clues on how to adjust your opening. By imagining yourself in their place, you anticipate what you would look for if you were them. Just as a quarterback plans where the receiver will be in order to place the ball correctly, you too can recognize the interaction between source and receiver in a business communication context. All of this happens at the same time, illustrating why and how communication is always changing.

Feedback

When you respond to the source, intentionally or unintentionally, you are giving feedback. Feedback is composed of messages the receiver sends back to the source. Verbal or nonverbal, all these feedback signals allow the source to see how well, how accurately (or how poorly and inaccurately) the message was received. Feedback also provides an opportunity for the receiver or audience to ask for clarification, to agree or disagree, or to indicate that the source could make the message more interesting. As the amount of feedback increases, the accuracy of communication also increases (Leavitt & Mueller, 1951).

For example, suppose you are a sales manager participating in a conference call with four sales reps. As the source, you want to tell the reps to take advantage of the fact that it is World Series season to close sales on baseball-related sports gear. You state your message, but you hear no replies from your listeners. You might assume that this means they understood and agreed with you, but later in the month you might be disappointed to find that very few sales were made. If you followed up your message with a request for feedback ("Does this make sense? Do any of you have

any questions?") you might have an opportunity to clarify your message, and to find out whether any of the sales reps believed your suggestion would not work with their customers.

Environment

"The environment is the atmosphere, physical and psychological, where you send and receive messages." (McLean, 2005) The environment can include the tables, chairs, lighting, and sound equipment that are in the room. The room itself is an example of the environment. The environment can also include factors like formal dress, that may indicate whether a discussion is open and caring or more professional and formal. People may be more likely to have an intimate conversation when they are physically close to each other, and less likely when they can only see each other from across the room. In that case, they may text each other, itself an intimate form of communication. The choice to text is influenced by the environment. As a speaker, your environment will impact and play a role in your speech. It's always a good idea to go check out where you'll be speaking before the day of the actual presentation.

Context

"The context of the communication interaction involves the setting, scene, and expectations of the individuals involved." (McLean, 2005) A professional communication context may involve business suits (environmental cues) that directly or indirectly influence expectations of language and behavior among the participants.

A presentation or discussion does not take place as an isolated event. When you came to class, you came from somewhere. So did the person seated next to you, as did the instructor. The degree to which the environment is formal or informal depends on the contextual expectations for communication held by the participants. The person sitting next to you may be used to informal communication with instructors, but this particular instructor may be used to verbal and nonverbal displays of respect in the academic environment. You may be used to formal interactions with instructors as well, and find your classmate's question of "Hey Teacher, do we

have homework today?" as rude and inconsiderate when they see it as normal. The nonverbal response from the instructor will certainly give you a clue about how they perceive the interaction, both the word choices and how they were said.

Context is all about what people expect from each other, and we often create those expectations out of environmental cues. Traditional gatherings like weddings or quinceañeras are often formal events. There is a time for quiet social greetings, a time for silence as the bride walks down the aisle, or the father may have the first dance with his daughter as she is transformed from a girl to womanhood in the eyes of her community. In either celebration there may come a time for rambunctious celebration and dancing. You may be called upon to give a toast, and the wedding or quinceañera context will influence your presentation, timing, and effectiveness.

In a business meeting, who speaks first? That probably has some relation to the position and role each person has outside the meeting. Context plays a very important role in communication, particularly across cultures.

Interference

Interference, also called noise, can come from any source. Interference is anything that blocks or changes the source's intended meaning of the message."(McLean, 2005) For example, if you drove a car to work or school, chances are you were surrounded by noise. Car horns, billboards, or perhaps the radio in your car interrupted your thoughts, or your conversation with a passenger.

Psychological noise is what happens when your thoughts occupy your attention while you are hearing, or reading, a message. Imagine that it is 4:45 p.m. and your boss, who is at a meeting in another city, e-mails you asking for last month's sales figures, an analysis of current sales projections, and the sales figures from the same month for the past five years. You may open the e-mail, start to read, and think, "Great—no problem—I have those figures and that analysis right here in my computer." You fire off a reply with last month's sales figures and the current projections attached. Then, at five o'clock, you turn off your computer and go home. The next morning, your boss calls on the phone to tell you he was inconvenienced because you neglected to include the sales figures from the previous years. What was the problem? Interference: by thinking about how you wanted to respond to your boss's message, you prevented yourself from reading attentively enough to understand the whole message.

Interference can come from other sources, too. Perhaps you are hungry, and your attention to your current situation interferes with your ability to listen. Maybe the office is hot and stuffy. If you were a member of an audience listening to an executive speech, how could this impact your ability to listen and participate?

Noise interferes with normal encoding and decoding of the message carried by the channel between source and receiver. Not all noise is bad, but noise interferes with the communication process. For example, your cell phone ringtone may be a welcome noise to you, but it may interrupt the communication process in class and bother your classmates.

Test your knowledge

Two Models of Communication

Researchers have observed that when communication takes place, the source and the receiver may send messages at the same time, often overlapping. You, as the speaker, will often play both roles, as source and receiver. You'll focus on the communication and the reception of your messages to the audience. The audience will respond in the form of feedback that will give you important clues. While there are many models of communication, here we will focus on two that offer perspectives and lessons for business communicators.

Rather than looking at the source sending a message and someone receiving it as two distinct acts, researchers often view communication as a transactional process (Figure 1.3 "Transactional Model of Communication"), with actions often happening at the same time. The distinction between source and receiver is blurred in conversational turn-taking, for example, where both participants play both roles simultaneously.

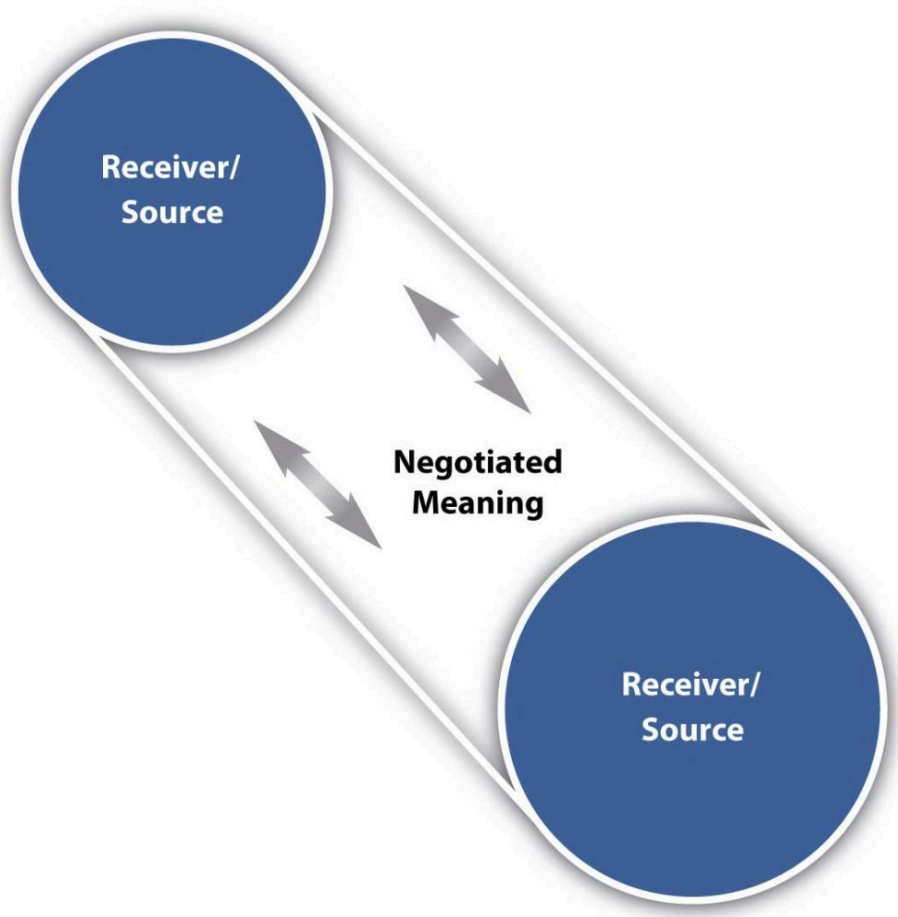
Figure 1.3 Transactional Model of Communication

Researchers have also examined the idea that we all construct our own interpretations of the message. As the State Department quote at the beginning of this chapter indicates, what I said and what you heard may be different. In the constructivist model (Figure 1.4 "Constructivist Model

of Communication"), we focus on the negotiated meaning, or common ground, when trying to describe communication (Pearce & Cronen, 1980),

Imagine that you are visiting Atlanta, Georgia, and go to a restaurant for dinner. When asked if you want a "Coke," you may reply, "sure." The waiter may then ask you again, "what kind?" and you may reply, "Coke is fine." The waiter then may ask a third time, "what kind of soft drink would you like?" The misunderstanding in this example is that in Atlanta, the home of the Coca-Cola Company, most soft drinks are generically referred to as "Coke." When you order a soft drink, you need to specify what type, even if you wish to order a beverage that is not a cola or not even made by the Coca-Cola Company. To someone from other regions of the United States, the words "pop," "soda pop," or "soda" may be the familiar way to refer to a soft drink; not necessarily the brand "Coke." In this example, both you and the waiter understand the word "Coke," but you each understand it to mean something different. In order to communicate, you must each realize what the term means to the other person, and establish common ground, in order to fully understand the request and provide an answer.

Figure 1.4 Constructivist Model of Communication



Because we carry the multiple meanings of words, gestures, and ideas within us, we can use a dictionary to guide us, but we will still need to negotiate meaning.

Key Takeaway

The communication process involves understanding, sharing, and meaning, and it consists of eight essential elements: source, message, channel, receiver, feedback, environment, context, and interference. Among the models of communication are the transactional process, in which actions happen simultaneously, and the constructivist model, which focuses on shared meaning.

Test your knowledge

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Communication and Emotional Intelligence (EI)

One of the most important aspects to good communication is emotional intelligence (EI). is different from IQ. First, EI predicts much of life success, much more than IQ, in fact (Goleman, 2005). According to Daniel Goleman, a researcher on EI, there are five main aspects or domains to EI:

1. Knowing your emotions
2. Managing your emotions
3. Motivating yourself
4. Recognizing and understanding other people's emotions
5. Managing relationships

First, let's discuss knowing your emotions. If we don't know how we feel about something, it can be difficult to communicate. It may seem obvious to know what we are feeling from moment to moment, but oftentimes we do not. How we feel impacts our body language as well as our verbal communication. For example, let's say you just got home from work and had a really crummy day. When you get home, you find that your spouse has not unloaded the dishwasher yet, as you had agreed. Tie this with a crummy day, and you might communicate differently about it than if you had a great day.

On the other hand, if you recognize that you are tired and a bit cranky, your awareness of these emotions allows you to manage them. The third aspect of EI, motivating yourself, goes without saying in a management or human resource role. This is the key not only to career success but also to personal success.

The last two domains of EI revolve around being able to see and understand emotions in other people, which in turn can benefit the relationship. Let's say, in the situation above, you get home and the dishwasher isn't unloaded, but you recognize immediately through body language and facial expressions that your spouse is extremely upset by something. Seeing this emotion in someone else may help you decide if you should mention the dishwasher—or not—at this specific time. But what if you didn't recognize this emotion and raised your voice to your spouse about the unloaded dishwasher? It will probably result in an argument. Using this example, I am sure you can see how this translates into the workplace. Emotional intelligence allows us to work better with people, understand them, and communicate with them.

Test your knowledge

Behavioral Patterns and Communication Styles

Our communication styles can determine how well we communicate with others, how well we are understood, and even how well we get along with others. As you can imagine, our personality types and our communication styles are very similar. Keep in mind, though, that no one person is "always" one style. We can change our style depending on the situation. The more we can understand our own dominant communication style and pinpoint the styles of others, the better we can communicate. The styles are expresser, driver, relater, and analytical. Let's discuss each of these styles next.

People with an expresser communication style tend to get excited. They like challenges and rely heavily on hunches and feelings. Depending on the type of business, this can be a downfall as sometimes hard data should be used for decision-making purposes. These people are easily recognized because they don't like too many facts or boring explanations and tend to be antsy if they feel their time is being wasted with too many facts.

People with a driver style like to have their own way and tend to be decisive. They have strong viewpoints, which they are not afraid to share with others. They like to take charge in their jobs but also in the way they communicate. Drivers usually get right to the point and not waste time with small talk.

People with a relater style like positive attention and want to be regarded warmly. They want others to care about them and treat them well. Because relaters value friendships, a good way to communicate well with them is to create a communication environment where they can feel close to others.

People with an analytical communication style will ask a lot of questions and behave methodically. They don't like to be pressured to make a decision and prefer to be structured. They are easily recognized by the high number of questions they ask.

Which One of These Communication Styles Do You Tend to Use?

	Passive	Assertive	Aggressive
Definition	Communication style in which you put the rights of others before your own, minimizing your own self-worth	Communication style in which you stand up for your rights while maintaining respect for the rights of others	Communication style in which you stand up for your rights but you violate the rights of others
Implications to others	my feelings are not important	we are both important	your feelings are not important
	I don't matter	we both matter	you don't matter
	I think I'm inferior	I think we are equal	I think I'm superior
Verbal styles	apologetic	I statements	you statements
	overly soft or tentative voice	firm voice	loud voice
Nonverbal styles	looking down or away	looking direct	staring, narrow eyes
	stooped posture, excessive head nodding	relaxed posture, smooth and relaxed movements	tense, clenched fists, rigid posture, pointing fingers
Potential consequences	lowered self-esteem	higher self-esteem	guilt
	anger at self	self-respect	anger from others
	false feelings of inferiority	respect from others	lowered self-esteem
	disrespect from others	respect of others	disrespect from others
	pitied by others		feared by others

Let's discuss an example of how these communication styles might interact. Let's assume an analytical communicator and a relater are beginning a meeting where the purpose is to develop a project time line. The analytical communicator will be focused on the time line and not necessarily the rapport building that the relater would be focused on. The conversation might go something like this:

Relater:

What are you doing this weekend? I am going to my son's baseball game. It is supposed to be hot—I am looking forward to it.

Analytical:

That's great. OK, so I was thinking a start date of August 1st for this project. I can get Kristin started on a to-do list for the project.

Relater:

That would be great. Kristin is a really hard worker, and I'm sure she won't miss any details.

Analytical:

Yes, she's OK. So, your team will need to start development now with a start day coming up. How are you going to go about this?

How do these two personality styles walk away from this conversation? First, the relater may feel ignored or rejected, because the analytical communicator didn't want to discuss weekend details. The analytical communicator may feel annoyed that the relater is wasting time talking

about personal things when they have a goal to set a project time line. These types of small miscommunications in business are what can create low morale, absenteeism, and other workplace issues. Understanding which style we tend to use can be the key in determining how we communicate with others. Here is another, personal example of these communication styles and how a conversation might go:

Expresser, to his partner:

I am really excited for our hiking trip this weekend.

Driver:

I still think we should leave on Thursday night rather than Friday.

Expresser:

I told you, I don't think I can get all day Friday off. Besides, we won't have much time to explore anyway, if we get there on Thursday, it will already be dark.

Driver:

It won't be dark; we will get there around 7, before anyone else, if we leave after work.

Expresser:

I planned the trip. I am the one who went and got our food and permits, I don't see why you have to change it.

Driver:

You didn't plan the trip; I am the one who applied for the permits.

In this situation, you can see that the expresser is just excited about the trip and brings up the conversation as such. The driver has a tendency to be competitive and wants to win, hence his willingness to get there Thursday before everyone else. The expresser, on the other hand, tried to sell his ideas and didn't get the feedback he felt he deserved for planning the trip, which made the communication start to go south.

In addition to our communication personalities, people tend to communicate based on one of three styles. First, a passive communicator tends to put the rights of others before his or her own. Passive communicators tend to be apologetic or sound tentative when they speak. They do not speak up if they feel like they are being wronged.

An aggressive communicator, on the other hand, will come across as standing up for his or her rights, while possibly violating the rights of others. This person tends to communicate in a way that tells others they don't matter, or their feelings don't matter.

An assertive communicator respects his rights and the rights of others when communicating. This person tends to be direct but not insulting or offensive. The assertive communicator stands up for his or her own rights but makes sure the rights of others aren't affected.

Have you heard of a passive-aggressive communicator? This person tends to be passive but later aggressive by perhaps making negative comments about others or making snide or underhanded comments. This person might express his or her negative feelings in an indirect way, instead of being direct. For example, you are trying to complete a project for a client and the deadline is three days away. You and your team are working frantically to finish. You ask one of your employees to come in to work on Saturday morning to finish up the loose ends, so the project will be ready to present to the client on Monday. Your employee agrees, but when you show up on Monday, the project isn't ready to present. You find out that this person had plans on Saturday but wasn't direct with you about this. So the project didn't get completed, and you had to change the appointment

with the client. Later, you also find out that this employee was complaining to everyone else that you had asked her to come in on Saturday. As you can see from this example, passive-aggressive behavior doesn't benefit anyone. The employee should have been direct and simply said, "I can't come in on Saturday, but I can come in Sunday or work late Friday night." Ideally, we want to be assertive communicators, as this shows our own self-esteem but at the same time respects others and isn't misleading to others, either.

When dealing with someone who exhibits passive-aggressive behavior, it is best to just be direct with them. Tell that person you would rather she be direct than not show up. Oftentimes passive-aggressive people try to play the martyr or the victim. Do not allow such people to press your buttons and get you to feel sorry for them. This gives them control and can allow them to take advantage.

Test your knowledge

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CHAPTER 5: MANAGING ANGER

Chapter 5 Objectives

Learning Objectives

By the end of Chapter 5 you will be able to:

1. Define anger
2. Describe the goal of anger management.
3. Describe the conflict resolution process.
4. Provide an example of how you would use the conflict resolution process in your life.

Defining Anger

The three general types of anger expression are:

1. Aggressive
2. Passive
3. Assertive

Aggressive anger: Anger expressed in this way is directed at the other person to hurt him/her emotionally, physically or psychologically. Yelling, put-downs, and hitting are examples of aggressive anger.

Passive anger: A person internalizes the expression of anger when he or she avoids dealing with the situation that contributed to feelings of anger. The anger can then be expressed by getting even, holding a grudge, or being mean at some time in the future. Spreading nasty rumors, not speaking to the person, and damaging property can be examples of passive anger.

Assertive anger: This is usually the best way to communicate feelings of anger because anger is expressed directly and in a nonthreatening way to the person involved. A statement such as "I feel angry when you …" is an example of assertive anger.

Test your knowledge

Methods of Anger Management

The goal of anger management is to reduce both your emotional feelings and the physiological arousal that anger causes. You can't get rid of, or avoid, the things or the people that enrage you, nor can you change them, but you can learn to control your reactions.

Are You Too Angry?

There are psychological tests that measure the intensity of angry feelings, how prone to anger you are, and how well you handle it. But chances are good that if you do have a problem with anger, you already know it. If you find yourself acting in ways that seem out of control and frightening, you might need help finding better ways to deal with this emotion.

Why Are Some People More Angry Than Others?

According to Jerry Deffenbacher, PhD, a psychologist who specializes in anger management, some people really are more "hotheaded" than others are; they get angry more easily and more intensely than the average person does. There are also those who don't show their anger in loud spectacular ways but are chronically irritable and grumpy. Easily angered people don't always curse and throw things; sometimes they withdraw socially, sulk, or get physically ill.

People who are easily angered generally have what some psychologists call a low tolerance for frustration, meaning simply that they feel that they should not have to be subjected to frustration, inconvenience, or annoyance. They can't take things in stride, and they're particularly infuriated if the situation seems somehow unjust: for example, being corrected for a minor mistake.

What makes these people this way? A number of things. One cause may be genetic or physiological: There is evidence that some children are born irritable, touchy, and easily angered, and that these signs are present from a very early age. Another may be sociocultural. Anger is often regarded as negative; we're taught that it's all right to express anxiety, depression, or other emotions but not to express anger. As a result, we don't learn how to handle it or channel it constructively.Research has also found that family background plays a role. Typically, people who are easily angered come from families that are disruptive, chaotic, and not skilled at emotional communications.

Is It Good To "Let it All Hang Out?"

Psychologists now say that this is a dangerous myth. Some people use this theory as a license to hurt others. Research has found that "letting it rip" with anger actually escalates anger and aggression and does nothing to help you (or the person you're angry with) resolve the situation.

It's best to find out what it is that triggers your anger, and then to develop strategies to keep those triggers from tipping you over the edge.

Can Anger Cause Stress and Health Issues?

Could your personality kill you—or might it make you live longer? Could it give you heart disease, or protect you from illness? Could it push you toward or away from doctor appointments? Personality traits play a distinct role in determining how healthy we are, psychologists say. "Everything is related to everything else. How stressed or angry you are, and how you interact with the world, is contingent in large part on your personality style," says Michael Miller, editor in chief of the *Harvard Mental Health Letter*. "And that is going to have an enormous impact on your health."

Here's a look at common personality types and traits and how each can help or hurt your health (sometimes both):

Hostile

One of the aspects of the impatient, hard-charging Type A personality that is known to increase heart disease risk is hostility. Hostile people eat and smoke more and exercise less than other personality types, says Redford Williams, head of behavioral medicine at Duke University Medical Center and author of *Anger Kills*.

They're likelier to be overweight in middle age and have higher cholesterol and blood pressure. Williams's past research suggests hostile people are also more likely to develop irregular heart rhythms, and to die before reaching their 50s. Most of these problems can be traced back to elevated levels of the stress hormone cortisol, as well as increased inflammation in the walls of the coronary arteries, which leads to a greater risk of heart attack.

No personality is set in stone, however, and Type A's can be taught how to take the edge off their hostility. Hostile heart patients who attend workshops that teach coping skills, for instance, have a lower incidence of depression and healthier blood pressure than Type A's who don't go. The key, Williams says, is learning how to communicate more clearly and how to control anger and other negative emotions. He suggests asking yourself four questions when you get angry: Is this issue truly important? Is what I'm feeling appropriate to the facts? Can I modify the situation in a positive way? Is taking such action worth it? Meditation, deep breathing, and yoga can damp hostility with a layer of calm.

Impulsive

Because Type A personalities are defined by competitiveness, a drive to succeed, and a sense of urgency, they are prone to take risks and act without thinking, neither of which is likely to improve health. Non-Type A's can be impulsive, too. Such people are often not as well-grounded as others, says Robin Belamaric, a clinical psychologist in Bethesda, Md.: "They'll look at an opportunity that comes along and say, 'Hmm, that sounds like fun,' whereas another, more thoughtful person, will say, 'I'm going to pass, because I'm not sure it's the best idea.' "

Relaxed

If you're a Type B, you roll with the punches. You're relaxed, take life a day a time, and handle stress without cracking. That translates to a higher quality of life and lower likelihood of heart disease—less anxiety strengthens the immune system. The more we chill, the better off we are, says Miller: "You don't want to get locked into a stressful, tense state of mind." Over the long term, he adds, relaxing and managing stress effectively will lengthen your life, help your heart and gastrointestinal system, and just make you feel better overall.

Extrovert

People who are outgoing, involved in their communities, and have strong social connections reap health benefits. An analysis of 148 studies published in the online journal *PLoS medicine* in July found that on average, adults enrolled in a study with many close friendships were 50 percent likelier to survive until their study ended than were those with few friendships. And a 2009 study published in *Perspectives in Psychological Science* suggests that social support leads to improved coping skills, healthy behavior, and adherence to medical regimens. Bonding with others also reduces stress and improves the immune system—so making friends and getting involved becomes, in effect, a well-being tonic. What drives at least some of the health benefits goes beyond biology, Miller says. "It may have to do with the fact that when you're around people, you think, 'Oh, Martha has gone for her mammogram—that reminds me, I should, too.' "

Eager to please

People-pleasers—Type C's—are conforming, passive, and want to accommodate. That can be a good thing when it comes to patient compliance: They're more likely to take the right medicines in the right doses at the right times, for instance—once they see a doctor, that is. Making and following through on appointments can be challenging for Type C's, who tend to accept their fate as inevitable and fall readily into hopelessness and helplessness. That means others must push them to take care of themselves. "They may be less likely to maintain their health on their own," Belamaric says. "If they develop a problem, they may just complain about it, hoping somebody says, 'I have a good doctor, I'll make you an appointment.' " Some Type C's may be so mired that they don't seek medical attention—even when it's clearly necessary—and slough off preventive behaviors, like watching what they eat. "If they get a serious diagnosis, they may be passive, throw their hands up, and say, 'Well, there's nothing I can do about it, anyway. If it's my time, it's my time,' " Belamaric says.

Stressed and distressed

Type D's—D is for distressed—dwell on negative emotions and are afraid to express themselves in social situations. Compared to more optimistic sorts, a Type D may face three times the risk for future heart problems, according to a recent study in the journal *Circulation: Cardiovascular Quality and Outcomes.* Type D's also face a higher likelihood of compulsive overeating and substance abuse. "If you're a person who is prone to depression or anxiety, or if you're overly self-critical, there's more of a chance of turning to gratifying behavior to feel better," Miller says.

Optimistic versus pessimistic

Optimism "heavily influences physical and mental health," concluded a study published in May in the journal *Clinical Practice & Epidemiology in Mental Health* after researchers followed more than 500 males for 15 years. The rate of heart-related deaths was 50 percent lower among optimists than among pessimists. "Optimists have a higher quality of life, and they may be more resilient in the way they deal with stress," Miller says. "So if a problem comes along, they're able to handle it better, and they become less symptomatic." Glass-half-empty types harbor little hope for the future and tend more toward depression and anxiety disorders. But there's a catch for those at the extreme end of the optimism spectrum: They think of themselves as impervious to risks. Extreme optimists who smoke are the best examples. They believe they won't develop lung cancer. Why give up smoking to prevent a nonexistent risk?

The "self-healing personality"

That is the name Howard Friedman, a professor of psychology at the University of California-Riverside, attaches to people who are curious, secure, constructive, responsive, and conscientious. These traits translate to enthusiasm for life, emotional balance, and strong social relationships. "Positive emotions buffer hormonal responses to stress," says Friedman, who studies the relationship between personality and longevity. Self-healers, he says, "have healthier behavior patterns: more physical activity, a better diet, and less smoking and substance abuse."

Resolving Conflict and Dealing with Others Anger

Conflict Resolution

Conflict is an inevitable and healthy part of life. Each person has a different set of values and beliefs that colours his or her perceptions of the world. Each person also has a different set of goals, wants, and needs. At work, each person may have a different opinion about what needs to be done to solve a problem. Too often, people assume that there has to be a winner in a conflict. They do not attempt to find a solution that is satisfactory to all. When you deal with conflict in a healthy, open manner, you often find a better solution.

People are frequently in conflict over resources, perceptions, and values. Conflicts over resources are easier to resolve than conflicts over perceptions and values.

Not all conflicts and differences can be resolved. Sometimes, you have to learn to agree to disagree. When you can learn to respect one another's point of view without feeling resentful, wanting revenge, or retaliating, you have handled the situation constructively.

Ineffective Ways to Deal with Conflict

If you constantly avoid conflict when your views are different from those of others, you may become angry and resentful. Eventually, you may have so many negative feelings bottled up inside that you act inappropriately and can no longer be constructive.

Of course, if you air your differences in a way that belittles other people, you may create hard feelings in others. Similarly, if you are overly insistent on having your own way, you may badger and bully others into acceptance of your view. The other party may give in but will feel resentful.

Another often ineffective approach is a bargaining approach. While this is more effective than avoiding conflict or winning at all costs, it may not be the most creative approach. One party may offer something that he or she does not feel good about. In the end, both parties may not get what they need.

By spending a little more time, identifying what the problem is and what each party wants and needs, a more creative solution might be found. Bargaining is often used as a quick-fix solution.

Effective Conflict Resolution

You can learn to deal with conflict in a positive and constructive manner that enhances decision making and contributes to effective working relationships. These skills are called conflict **resolution** skills.

Constructive conflict resolution is an opportunity for change, growth, and understanding. The most important quality in resolving a conflict is to shift from making judgments about other people and their statements to being curious. Instead of thinking, "Joe is a real fool. How can he expect anyone to buy that idea?" the constructive person thinks, "I wonder what Joe has in mind?"

When you make the shift from judgment to curiosity, following through with an appropriate question, others are not likely to feel defensive. They may be flattered that you are interested in

their ideas. When people do not feel defensive, they are more likely to consider new ideas and cooperate.

Conflict resolution process

The steps in effective conflict resolution are:

1. Create an effective atmosphere
2. Clarify perceptions
3. Focus on individual and shared needs
4. Take a positive approach
5. Generate options
6. Develop a list of stepping stones to action
7. Make mutual benefit agreements
8. Part on good terms

Create an effective atmosphere

Conflicts cannot be resolved in the heat of the moment. If you have a conflict to resolve, arrange to meet at a convenient time when you will not be interrupted or distracted. Never deal with a conflict in front of customers and guests. Start the discussion of the problem in an open, positive way.

If you are angry, postpone the session until you can control your emotions. Sometimes, it can be useful to move the discussion to a more neutral place. For example, you might agree to meet for coffee with the person. A public location where you feel obliged to be polite can help you stay in control of your feelings. You will be less likely to really unload your anger on the other person. Because the one party may feel intimidated by being alone with the other, choose a location in which your conversation can be kept private, but neither party will feel unsafe.

Clarify perceptions

Make time at the beginning of the session for each person to state his or her views. Avoid using blaming statements such as, "You make me so angry." Instead, state your observations and feelings about an event. For example, you might say, "I had asked for Saturday night off because my mother is visiting from out of town. I'm upset because my request is not reflected in the new schedule."

Avoid abusive or inflammatory remarks. If you say, "You are a rude and insensitive jerk!" or "You are always late," the listener is likely to tune out. He or she becomes defensive and unwilling to listen further. If you say, "I was hurt by your jokes about death. My father is terminally ill and I am very worried about him," the listener is more likely to be willing to engage in further conversation.

When it is your turn to listen, pay careful attention to what the person is saying. Use paraphrasing, summarizing, and questions to clarify what the person is saying and feeling. For example, you might say, "So what you are saying is that you were very angry when I asked you to work Saturday. You wanted the day off to spend with your mother. You thought that I ignored your

request." If the speaker uses blaming or inflammatory language, try to avoid taking the comments personally. Ask questions to determine exactly what the problem is.

Watch your language, tone of voice, and nonverbal gestures. Keep calm and centered.

Focus on individual and shared needs

Find out what each person wants and needs to resolve the situation.

By identifying shared needs, both parties are working toward a consensus. That is, they are attempting to find a decision that takes both parties needs and opinions into account.

Take a positive approach

To work toward a solution, you should take the attitude that together you can find a solution to the problem. This is not the time to think about failures to resolve problems in the past. Treat the agreement as if you are starting fresh. Forgive others for their mistakes in the past. Go on from today and work toward the goals you have set.

Generate options

Use the brainstorming approach to get out as many ideas as possible without evaluating or criticizing them. Treat each idea as new material to help solve the problem. Remember that ideas that you think are frivolous and silly may help you think about the problem a new way. If nothing else, they help build a bridge of laughter behind the two parties.

Develop stepping stones to action

Sort through the ideas to see which ones will work. Set goals and develop an action plan. Create short, achievable steps that work toward your overall goal.

Make mutual benefit agreements

This step may look like bargaining, but it starts from a different point. The point is to make sure that you both get what you need. Rather than finding a compromise, you are finding a way that both parties can win.

Part on good terms

When you have dealt with a conflict, or if you have agreed to disagree, make a point of parting on good terms. Treat the other person with respect and dignity. Thank the person for discussing the issue with you. For example, you might say, "I really appreciated you explaining your point of view. Even though we might not agree on this issue, I respect your beliefs." This creates a climate in which you can continue to work together harmoniously. It also means that the person will have a positive approach to resolving the problem when another conflict arises.

Dealing with Anger

Conflicts cannot be effectively resolved if you cannot control your anger. If you are feeling angry:

- Take a few deep breaths to calm down
- Say that you are angry and explain why (without becoming abusive)
- Postpone the discussion if you cannot calm yourself
- Write down your key points and concerns before going into another session
- Move your discussion to a neutral location

If the other person is angry, acknowledge his or her feelings.

When one party thinks there is no conflict

Sometimes, you may feel upset or angry, and the other person does not see the problem. This can be very frustrating. You may be more successful in raising the issue if you are as specific as possible in describing the problem and how you are affected. If necessary, write your concerns down on paper.

When you feel nervous about confronting someone

You may feel very anxious about confronting someone with a problem. Perhaps you have had trouble dealing with this person before. Perhaps the problem is with a supervisor. It may be useful to role play the situation with a friend or co-worker and ask for feedback on how to handle the conflict more effectively. Think through exactly what you need for successful resolution beforehand. Arrange a meeting in a neutral location with the person.

When the other party does not seem to want a resolution

Sometimes it appears that the other party does not want a resolution. In this case, the best approach is to ask the person directly whether he or she wants to find a solution. If the person says yes, explain why you thought that a resolution was not wanted. Deal with these issues first. If the person does not want a resolution, you must decide whether you can live with the conflict or whether you need to take some other action.

For example, you may consider finding another job because you have been unable to resolve a serious conflict with a co-worker or supervisor. However, you may also decide that the assets of working with this individual or in this job outweigh the problems associated with the conflict. If you have gained some respect and understanding for the individual's position, you may be able to agree to disagree.

Some people may not want to find a solution because they only want things their own way. You may be able to get beyond their defenses by making a special effort to find out what they need. Ask them how you can help meet their needs while still meeting your own.

When conflicts are apparently unsolvable, it may be necessary to find a mediator to help you deal with the problem.

When the other person has a complaint about your behaviour

If you have made a mistake and you think that the person's complaint about you is fair, make an appropriate apology. Then attend to how to correct the problem in the future. Do not keep apologizing over and over again. Focus on making a decision that puts the matter right. Thank the person for bringing the concern to your attention.

If the complaint is unfair, make it clear that you think so. Attempt to deal with the misunderstanding that arose between you. Perhaps your communication has not been as clear as it should be. Try to close the matter in a way that allows you to part on good terms. Even though the complainant may have been wrong or misinformed, do not try to make him or her look foolish or argue about minor details. Find a way of giving thanks. For example, you might say, "Thanks for discussing this with me."

Diffusing anger

You must deal with the emotion and upset before you can solve the problem. Until the emotions have been calmed, the person is unable to hear logical suggestions and solutions.

When someone is angry it is easy to become angry yourself. You need to stay calm and

controlled. Keep eye contact and adopt a concerned body posture, voice tone, and facial expression.

Take a few deep breaths to calm yourself if necessary. Encourage the person to blow off steam. Apologize and acknowledge the person's feelings. Keep your apologies sincere and dignified. Do not apologize so abjectly (in a miserable, degraded manner) that the customer may begin to doubt your sincerity. Show empathy by nodding, encouraging the person to finish the story. Be sure to be an active listener. Reassure the person that you want to help solve the problem.

Solving the Problem

When the person is calm and able to discuss the situation fully, you can move to the problem-solving stage. Ask what he or she would like done to resolve the situation. Offer solutions. Agree on a solution.

Test your knowledge

Chapter 5 References

Available to PSU Students through Penn State eBooks
Anger Management
http://www.pensu.eblib.com.ezaccess.libraries.psu.edu/patron/FullRecord.aspx?p=475918&echo=1&userid=PZgPuVSw%2b8bQuhNvcVIZ6g%3d%3d&tstamp=1492224700&id=9C6220149180130B7D77FD50CD9AABD07399C57D

Chapter 5 Cover Image
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CHAPTER 6: ANXIETY

Chapter 6 Learning Objectives

Learning Objectives

By the end of Chapter 6 you will be able to:

1. Define anxiety.
2. Identify the symptoms of anxiety.
3. Identify the symptoms of depression.

Defining Anxiety

Everybody experiences anxiety from time to time. Although anxiety is closely related to fear, the two states possess important differences. Fear involves an instantaneous reaction to an imminent threat, whereas anxiety involves apprehension, avoidance, and cautiousness regarding a potential threat, danger, or other negative event (Craske, 1999). While anxiety is unpleasant to most people, it is important to our health, safety, and well-being. Anxiety motivates us to take actions—such as preparing for exams, watching our weight, showing up to work on time—that enable us to avert potential future problems. Anxiety also motivates us to avoid certain things—such as running up debts and engaging in illegal activities—that could lead to future trouble. Most individuals' level and duration of anxiety approximates the magnitude of the potential threat they face. For example, suppose a single woman in her late 30s who wishes to marry is concerned about the possibility of having to settle for a spouse who is less attractive and educated than desired. This woman likely would experience anxiety of greater intensity and duration than would a 21-year-old college junior who is having trouble finding a date for the annual social. Some people, however, experience anxiety that is excessive, persistent, and greatly out of proportion to the actual threat; if one's anxiety has a disruptive influence on one's live, this is a strong indicator that the individual is experiencing an anxiety disorder.

Anxiety disorders are characterized by excessive and persistent fear and anxiety, and by related disturbances in behavior (APA, 2013). Although anxiety is universally experienced, anxiety disorders cause considerable distress. As a group, anxiety disorders are common: approximately 25%–30% of the U.S. population meets the criteria for at least one anxiety disorder during their lifetime (Kessler et al., 2005). Also, these disorders appear to be much more common in women than they are in men; within a 12-month period, around 23% of women and 14% of men will experience at least one anxiety disorder (National Comorbidity Survey, 2007). Anxiety disorders are the most frequently occurring class of mental disorders and are often comorbid with each other and with other mental disorders (Kessler, Ruscio, Shear, & Wittchen, 2009).

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https://psu.pb.unizin.org/kines082/?p=185#h5p-35

Symptoms of Anxiety

Generalized Anxiety Disorder (GAD), which affects 6.8 million adults or 3.1 percent of the U.S. population, is characterized by persistent and excessive worry about a number of different things. Individuals with GAD find it difficult to control their worry. They may worry more than seems warranted about actual events or may expect the worst even when there is no apparent reason for concern.

People with the disorder, which is also referred to as GAD, experience excessive anxiety and worry, often expecting the worst even when there is no apparent reason for concern. They anticipate disaster and may be overly concerned about money, health, family, work, or other issues. GAD is diagnosed when a person finds it difficult to control worry on more days than not for at least six months and has three or more symptoms.

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GAD is diagnosed in adults when they experience at least three of the symptoms below on more days than not for at least six months; only one symptom is required in children.

Symptoms of GAD include the following:

- restlessness or feeling keyed up or on edge
- being easily fatigued
- difficulty concentrating or mind going blank
- irritability
- muscle tension
- sleep disturbance (difficulty falling or staying asleep, or restless, unsatisfying sleep)

People with generalized anxiety disorder (GAD) experience excessive anxiety and worry, often about health, family, money, or work. This worrying goes on every day, possibly all day. It disrupts social activities and interferes with work, school, or family. GAD is diagnosed in adults when they experience at least three of the symptoms below on more days than not for at least six months; only one symptom is required in children. Symptoms of GAD include the following: restlessness or feeling keyed up or on edge being easily fatigued difficulty concentrating or mind going blank irritability muscle tension sleep disturbance (difficulty falling or staying asleep, or restless, unsatisfying sleep)

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Panic Disorders

Panic disorder is diagnosed in people who experience spontaneous seemingly out-of-the-blue panic attacks and are preoccupied with the fear of a recurring attack. Panic attacks occur unexpectedly, sometimes even during sleep.

A panic attack is the abrupt onset of intense fear or discomfort that reaches a peak within minutes and includes at least four of the following symptoms:

- Palpitations, pounding heart, or accelerated heart rate
- Sweating
- Trembling or shaking
- Sensations of shortness of breath or smothering
- Feelings of choking
- Chest pain or discomfort
- Nausea or abdominal distress
- Feeling dizzy, unsteady, light-headed, or faint
- Chills or heat sensations
- Paresthesia (numbness or tingling sensations)
- Derealization (feelings of unreality) or depersonalization (being detached from oneself)
- Fear of losing control or "going crazy"
- Fear of dying

Since many of the symptoms of panic disorder mimic those of heart disease, thyroid problems, breathing disorders, and other illnesses, people with panic disorder often make many visits to emergency rooms or doctors' offices, convinced they have a life-threatening issue.

In the past it might have taken months or years and lots of frustration before getting a proper diagnosis. Some people are afraid or embarrassed to tell anyone, including their doctors or loved ones about what they are experiencing for fear of being seen as a hypochondriac. Instead they suffer in silence, distancing themselves from friends, family, and others who could be helpful. We hope this pattern is changing.

Many people suffering from panic attacks don't know they have a real and highly treatable disorder.

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https://psu.pb.unizin.org/kines082/?p=189#h5p-38

Other Types of Anxiety Disorders

Specific Phobias

High bridges, new places, or old elevators may make us a bit uneasy or even frightened. We might try to avoid things that make us uncomfortable, but most people generally manage to control their fears and carry out daily activities without incident.
But people with specific phobias, or strong irrational fear reactions, work hard to avoid common places, situations, or objects even though they know there's no threat or danger. The fear may not make any sense, but they feel powerless to stop it. People who experience these seemingly excessive and unreasonable fears in the presence of or in anticipation of a specific object, place, or situation have a specific phobia. Having phobias can disrupt daily routines, limit work efficiency, reduce self-esteem, and place a strain on relationships because people will do whatever they can to avoid the uncomfortable and often-terrifying feelings of phobic anxiety. While some phobias develop in childhood, most seem to arise unexpectedly, usually during adolescence or early adulthood. Their onset is usually sudden, and they may occur in situations that previously did not cause any discomfort or anxiety. Specific phobias commonly focus on animals, insects, germs, heights, thunder, driving, public transportation, flying, dental or medical procedures, and elevators. Although people with phobias realize that their fear is irrational, even thinking about it can often cause extreme anxiety.

Social Anxiety Disorder

It's the extreme fear of being scrutinized and judged by others in social or performance situations: Social anxiety disorder can wreak havoc on the lives of those who suffer from it. This disorder is not simply shyness that has been inappropriately medicalized.

Symptoms may be so extreme that they disrupt daily life. People with this disorder, also called social phobia, may have few or no social or romantic relationships, making them feel powerless, alone, or even ashamed.

- About 15 million American adults have social anxiety disorder
- Typical age of onset: 13 years old
- 36 percent of people with social anxiety disorder report symptoms for 10 or more years before seeking help

Although they recognize that the fear is excessive and unreasonable, people with social anxiety

disorder feel powerless against their anxiety. They are terrified they will humiliate or embarrass themselves.

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The anxiety can interfere significantly with daily routines, occupational performance, or social life, making it difficult to complete school, interview and get a job, and have friendships and romantic relationships. Social anxiety disorder usually begins in childhood or adolescence, and children are prone to clinging behavior, tantrums, and even mutism.

Post Traumatic Stress Disorder

It's not unusual for people who have experienced traumatic events to have flashbacks, nightmares, or intrusive memories when something terrible happens — like the 9/11 terrorist attacks and those in cities around the world (Orlando and Paris, for example) or the bombings at the 2013 Boston Marathon, or active combat. Be tolerant of your nervous system: It's having a normal reaction. Try not to get hooked to news reports, which may seem particularly compelling. Spend time with loved ones in favorite activities or outside in nature, and avoid alcohol. Learn more below, including how to help children. Posttraumatic stress disorder, or PTSD, is a serious potentially debilitating condition that can occur in people who have experienced or witnessed a natural disaster, serious accident, terrorist incident, sudden death of a loved one, war, violent personal assault such as rape, or other life-threatening events. Research has recently shown that PTSD among military personnel may be a physical brain injury, specifically of damaged tissue, caused by blasts during combat.

Obsessive-Compulsive Disorder (OCD)

Obsessive-compulsive disorder, commonly called OCD, appears in different ways, and not every person has the same symptoms; many people have combinations of various OCD symptoms. In general, those who have OCD suffer from unwanted and intrusive thoughts that they can't seem to get out of their heads (obsessions), often compelling them to repeatedly perform ritualistic behaviors and routines (compulsions) to try and ease their anxiety.

If you or a loved one suffers from OCD, you're not alone. Millions of people have it, and it doesn't discriminate: This disorder affects men, women, teens, and children from every background, race, and ethnicity. But with the appropriate treatment, you are most likely to find relief.

Most adults who have OCD are aware that their obsessions and compulsions are irrational, yet they feel powerless to stop them. They may spend several hours every day focusing on obsessive thoughts and performing seemingly senseless rituals involving hand-washing, counting, or checking to ward off persistent, unwelcome thoughts, feelings, or images. These can interfere with a person's normal routine, schoolwork, job, family, or social activities. Trying to concentrate on daily activities may be difficult.

Untreated OCD can be detrimental to all aspects of life, so getting proper treatment is essential to taking control over the illness and gaining relief. Learning about the disorder is critical to finding the right treatment and overcoming frequently incapacitating symptoms.

Unlike adults, children and teens with OCD may not realize that their obsessions and compulsions are excessive or even view their symptoms as a disorder that can be treated.

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Depression

Most people feel anxious or depressed at times. Losing a loved one, getting fired from a job, going through a divorce, and other difficult situations can lead a person to feel sad, lonely, scared, nervous, or anxious. These feelings are normal reactions to life's stressors.

But some people experience these feelings daily or nearly daily for no apparent reason, making it difficult to carry on with normal, everyday functioning. These people may have an anxiety disorder, depression, or both. It is not uncommon for someone with an anxiety disorder to also suffer from depression or vice versa. Nearly one-half of those diagnosed with depression are also diagnosed with an anxiety disorder. The good news is that these disorders are both treatable, separately and together. Read on to find out more about the co-occurrence of anxiety and depression and how they can be treated.

Depression is a condition in which a person feels discouraged, sad, hopeless, unmotivated, or disinterested in life in general. When these feelings last for a short period of time, it may be a case of "the blues." But when such feelings last for more than two weeks and when the feelings interfere with daily activities such as taking care of family, spending time with friends, or going to work or school, it's likely a major depressive episode. Major depression is a treatable illness that affects the way a person thinks, feels, behaves, and functions. Depression is one of the most common mental disorders in the United States. In 2014, around 15.7 million adults age 18 or older in the U.S. had experienced at least one major depressive episode in the last year, which represented 6.7 percent of all American adults. At any point in time, 3 to 5 percent of adults suffer from major depression; the lifetime risk is about 17 percent. As many as 2 out of 100 young children and 8 out of 100 teens may have serious depression.

Types of Depression

Three main types of depressive disorders—major depression, persistent depressive disorder, and bipolar disorder—can occur with any of the anxiety disorders.

Major depression involves at least five of these symptoms for a two-week period.

- Persistent sad, anxious or "empty" mood
- Feelings of hopelessness, pessimism
- Feelings of guilt, worthlessness, helplessness
- Loss of interest or pleasure in hobbies and activities, including sex
- Decreased energy, fatigue, feeling "slowed down"
- Difficulty concentrating, remembering, making decisions
- Insomnia, early-morning awakening, or oversleeping
- Low appetite and weight loss or overeating and weight gain
- Thoughts of death or suicide, suicide attempts

- Restlessness, irritability
- Persistent physical symptoms that do not respond to treatment, such as headaches, digestive disorders and pain for which no other cause can be diagnosed.

Such an episode is disabling and will interfere with the ability to work, study, eat, and sleep. Major depressive episodes may occur once or twice in a lifetime, or they may recur frequently. They may also take place spontaneously, during or after the death of a loved one, a romantic breakup, a medical illness, or other life event.

Some people with major depression may feel that life is not worth living and some will attempt to end their lives.

Persistent depressive disorder, or PDD, (formerly called dysthymia) is a form of depression that usually continues for at least two years. Although it is less severe than major depression, It involves the same symptoms as major depression, mainly low energy, poor appetite or overeating, and insomnia or oversleeping. It can manifest as stress, irritability, and mild anhedonia, which is the inability to derive pleasure from most activities.

People with PDD might be thought of as always seeing the glass as half empty.

Bipolar disorder, once called manic-depression, is characterized by a mood cycle that shifts from severe highs (mania) or mild highs (hypomania) to severe lows (depression).

During the manic phase, a person may experience abnormal or excessive elation, irritability, a decreased need for sleep, grandiose notions, increased talking, racing thoughts, increased sexual desire, markedly increased energy, poor judgment, and inappropriate social behavior.

During the depressive phase, a person experiences the same symptoms as would a sufferer of major depression. Mood swings from manic to depressive are often gradual, although occasionally they can occur abruptly.

An interactive H5P element has been excluded from this version of the text. You can view it online here:
https://psu.pb.unizin.org/kines082/?p=198#h5p-37

Coping with Anxiety and Depression

- **Take a time-out.** Practice yoga, listen to music, meditate, get a massage, or learn relaxation techniques. Stepping back from the problem helps clear your head.
- **Eat well-balanced meals.** Do not skip any meals. Do keep healthful, energy-boosting snacks on hand.
- **Limit alcohol and caffeine**, which can aggravate anxiety and trigger panic attacks.
- **Get enough sleep.** When stressed, your body needs additional sleep and rest.
- **Exercise daily** to help you feel good and maintain your health. Check out the fitness tips below.
- **Take deep breaths**. Inhale and exhale slowly.
- **Count to 10 slowly**. Repeat, and count to 20 if necessary.
- **Do your best**. Instead of aiming for perfection, which isn't possible, be proud of however close you get.
- **Accept that you cannot control everything**. Put your stress in perspective: Is it really as bad as you think?
- **Welcome humor**. A good laugh goes a long way.
- **Maintain a positive attitude**. Make an effort to replace negative thoughts with positive ones.
- **Get involved.** Volunteer or find another way to be active in your community, which creates a support network and gives you a break from everyday stress.
- **Learn what triggers your anxiety.** Is it work, family, school, or something else you can identify? Write in a journal when you're feeling stressed or anxious, and look for a pattern.
- **Talk to someone.** Tell friends and family you're feeling overwhelmed, and let them know how they can help you. Talk to a physician or therapist for professional help.

Fitness Tips: Stay Healthy, Manage Stress

For the biggest benefits of exercise, try to include at least 2½ hours of moderate-intensity physical activity (e.g. brisk walking) each week, 1¼ hours of a vigorous-intensity activity (such as jogging or swimming laps), or a combination of the two.

- **5 X 30:** Jog, walk, bike, or dance three to five times a week for 30 minutes.
- **Set small daily goals** and aim for daily consistency rather than perfect workouts. It's better to walk every day for 15-20 minutes than to wait until the weekend for a three-hour fitness marathon. Lots of scientific data suggests that frequency is most important.
- **Find forms of exercise** that are fun or enjoyable. Extroverted people often like classes and group activities. People who are more introverted often prefer solo pursuits.
- **Distract yourself** with an iPod or other portable media player to download audiobooks, podcasts, or music. Many people find it's more fun to exercise while listening to something they enjoy.

- **Recruit** an "exercise buddy." It's often easier to stick to your exercise routine when you have to stay committed to a friend, partner, or colleague.
- **Be patient** when you start a new exercise program. Most sedentary people require about four to eight weeks to feel coordinated and sufficiently in shape so that exercise feels easier.

Rational Emotive Behavior Therapy

Developed by Albert Ellis in the mid-1950s, Rational Emotive Behaviour Therapy (REBT) was the first of the cognitive behaviour therapies (CBT) and continues to be one of the major CBT approaches (Bond & Dryden, 2000). After practicing psychoanalysis with Sigmund Freud, Ellis came to see flaws with his approach. Many of the answers he was looking for came from philosophy, an interest from his youth. He found that contemporary theories complimented[*spelling?*], and worked well with, theories from philosophers from the past (Ellis & Joffe Ellis, 2011).

Anxiety, panic, depression, and fear observed as avoidance, are all emotions often requiring professional therapy[*Rewrite to improve clarity*]. In dealing with these emotions, REBT teaches that, although almost everyone wants happiness, we readily counteract efforts to reach our goals with our own thoughts and perceptions. During the process of REBT clients learn about the interactional relationship between thoughts, behaviour, and emotions. To prevent detrimental emotional effects, clients learn new ways to view and respond to life's challenges. REBT therapy involves many different techniques and may also include homework assignments. With hard work and practice, REBT promises long-term emotional change.

Foundational theories and principles

Some of the historical figures that provided inspiration to Ellis when developing REBT include:

Buddha – The Buddha used a similar active-directive style with his followers in order to help them learn to question their thoughts and emotions. When their current thinking was not effective, they were asked to consider opening up to different ways of thinking and work hard to change these habits. The Buddhist perspective views life to be rooted in suffering and this suffering is caused by cravings or needs. It is believed that relief from suffering can only be gained by ending these urges and accepting what is apparent. This can be compared to REBT teaching the recognition of irrational beliefs in order to relieve emotional distress (Christopher, 2003).

Epictetus – Epictetus' statement "Men are not disturbed by things but by the view they take of them" (Ellis & Joffe Ellis, 2011, p. 27) is often quoted by Ellis. The power of thought over feelings or emotions, central to REBT, can be seen in this statement. Epictetus was a Roman Stoic philosopher. His accepting and unangry philosophies are often used as part of REBT therapy (Ellis & Joffe Ellis, 2011).

Other historical figures noted by Ellis to have influenced the creation of REBT include Marcus Aurelius, Confucius, Lao Tzu, Socrates, Epicurus, Seneca and Emerson (Ellis & Joffe Ellis, 2011)

REBT also has influences from many contemporary perspectives including the psychotherapist Alfred Adler and Freud. Constructivism is an idea introduced by George Kelly with his personal construct theory in 1955. Constructivism claims that a person has the ability to construct their own reality by controlling their thoughts, feelings. and actions (McWilliams, 2016). This suggests that emotional difficulties can be caused by one's own thoughts, an idea central to REBT.

Ellis had a great deal of interest in the work of John B Watson who founded Behaviorism. Although Watson rejected the idea of thoughts and introspection being central to emotional difficulties, he provided Ellis with information and understandings contributing to REBT. Ellis found great value in Watson's insistence on an empirical approach to achieving definitive outcomes (Carpintero, 2004).

Over the years of gathering this information Ellis learned that people have more control of their emotions than they may realise. REBT holds that people are the main contributors to their own emotional distress due to their thoughts. REBT claims that people can counteract emotional distress by learning to observe their thoughts and working on changing problematic thinking (Ellis, 1990).

Figure 2. People mistakenly believe the event causes the consequence

ABC theory

Life provides us with a variety of experiences, some we look forward to and enjoy, some are neutral and others are perceived as activating events (A). It is these events which are often viewed as the cause of a person's emotional disturbance. REBT holds that it is not the situation or event causing emotional problems. It asserts that people mainly cause the difficulties they experience with self-disturbing beliefs (B) about the event, resulting in the difficult emotional consequence (C). Therefore, contrary to traditional understanding where A determines C, the combination of both A and B determines the resulting emotional distress at C.

Rational and irrational thoughts

It is claimed that if a difficult situation should arise, a person thinking rationally will experience healthy negative emotions like sadness, remorse and disappointment. However, a person thinking in irrational ways will experience unhealthy negative emotions like depression, guilt and shame.

When As are viewed negatively and perceived in a rational manner a person will think along these lines, "I don't like As and I wish they didn't happen but they do and I will deal with it". This would enable the person to deal with the event. If, on the other hand, the person was to be irrational about it they may think, "This A is terrible and I can't stand it!" In this circumstance unhealthy negative emotions will likely result. (Ellis & Joffe Ellis, 2011). See Table 1 for further comparison of rational and irrational thoughts.

Table 1

Comparison of Rational and Irrational Thoughts as Proposed by REBT

Rational thoughts	**Irrational thoughts**
Founded in science Assessed with good reason Claim a preference for things to be the way the person wants, not demanding it Is forgiving of self, others and life Has a high level of tolerance and acceptance Results in appropriate and healthy emotions (Dryden, 2010).	Uses words like should, must and ought When things go wrong it is a catastrophe, awful or exaggerated Is demanding Is judgemental Has a low tolerance of frustration Emotional results are unhealthy and debilitating (Dryden, 2010).

REBT theory states that irrational beliefs fall into four main categories:

1. Low frustration tolerance
2. Demandingness
3. Global self-downing/evaluation
4. Awfulising/catastrophising (Szentagotai, Lupu, & Cosman, 2008)

Interconnectedness of thoughts, emotions and behaviour[edit]

Figure 4. REBT proposes thoughts, emotions and behaviours all interact and influence each other

Another principle of REBT is the interconnectedness of our thoughts, emotions and behaviour. It is believed that thoughts, emotions, and behaviour are all interrelated contributions to both B (beliefs) and C (consequence), thus determining a person's healthy or unhealthy emotional experience.

*Must*urbatory beliefs and the three basic musts

Musts, shoulds, and oughts are often part of irrational thinking. REBT hypothesises that people

frequently learn to become *must*urbators from significant others like parents, teachers, friends, and other highly regarded social acquaintances. Perhaps even more problematic is the innate tendency that people have to want more than they have, increasing that want to *must* have. REBT aims to prevent clients using three basic musts as it is believed they result in emotional difficulties. Use of the word *must* is to be avoided in contexts such as "I must always perform well or else I am no good", "others must treat me well or they are no good" and "the world or life must always treat me well or life is no good".

Each of these uses of the word must will contribute to specific emotional problems. "I must always, perform well or else I am no good" is believed to result in anxiety, depression, worthlessness, despair, shame and guilt. "Others must treat me well or they are no good" is thought to cause anger, vindictiveness, rage, passive aggression, and violence. "The world or life must always treat me well or life is no good" will leave the person experiencing frustration, intolerance, self-pity, procrastination, and depression (Ellis, 1999).

Meta-emotional problems (emotional disturbance about emotional disturbance)

When a person has an uncomfortable emotional response to an activating event this is considered the primary experience. Commonly referred to as secondary emotional problems, meta-emotional problems refer to detrimental psychological behaviour in response to the primary experience. This experience is a magnification of the primary experience due to the focus on, and response to, the primary emotion. This causes the person to experience the negative emotion in an even more intense manner. Some examples are experiencing anxiety about being anxious, being depressed about being depressed, putting yourself down about putting yourself down (Dryden & Neenan, 2004).

Techniques

REBT is multi-modal, and as such, has integrated aspects from cognitive, emotive, and behavioural therapies. One of the main aims is for clients to gain unconditional self-acceptance and to become self-sufficient, not relying on the psychotherapist and needing to return to therapy for the same problem. It also recommends that a person live with humour and a healthy perspective. A person taking themselves and others too seriously is seen to lead to detrimental thinking causing emotional discomfort. As such, REBT uses a variety of techniques and often these are aimed at lightening the mood, including humorous songs, and joking around during a session (Ellis & Joffe Ellis, 2011).

Unconditional Acceptance

Due to the detrimental effects of *mus*turbatory beliefs, REBT teaches that one of the main contributors to emotional disturbance is a lack of self-acceptance, other-acceptance, and life-acceptance. Clients are taught to consistently aim to unconditionally accept themselves, others, and life, especially during difficult times. Examples of opportunities to practice this outside the clinic include: for the self, when one makes a mistake; for others, when a person does something to you that you consider to be disrespectful; towards life, such as rain on your wedding day.

ABC(DE) theory

During therapy clients are taught the detrimental effect of inappropriate beliefs or opinions about the A. When concluding a session clients are often asked to partake in homework exercises related to ABC theory. To solidify their understanding, clients are often asked to write up and label the ABC specifics about events that happen in their lives during the time between sessions. This labelling includes all facets of the ABC with particular focus on the B. Labelling the B involves clients being required to recognise the beliefs to be rational or irrational (Rait, Monsen, & Squires, 2010).

One of the most effective techniques of REBT is the D – disputing, of ABC theory. As the REBT psychotherapist is considered to be an expert, it is thought appropriate for them to dispute the irrational beliefs of clients. This is done in a considerate but definite manner so as to not leave clients with any doubt about the need to change their way of thinking. The final aspect of the ABC theory is the E – effective new philosophies. During REBT, clients learn to view aspects of life in different ways to those which have been contributing to their emotional difficulties (Ellis, 1974).

Cognitive

ABC theory provides the foundation for some of the most effective psychotherapeutic techniques. Clients are taught to find a person who displays emotional well-being, attitude, and behaviours in line with those perceived as ideal by REBT. They are then to aim to use the model's attitudes and behaviours in their own life. Clients are also taught to research, with the aim of finding other people who have lived, or are living, in ways that emulate REBT principles. This is to expand the positive influence in the client's life.

Furthermore, clients are to assess the cost to benefit ratio of certain situations. This is done after clients have been taught the negative impact of their detrimental behaviour and learned more beneficial habits. The loss incurred by using the newly learned skill (if any) is then compared to what may be gained. Clients are also encouraged to read books, listen to recordings, and watch videos based on REBT, other CBTs and other inspiring philosophies. This is to reinforce

REBT learning. Further reinforcement is gained with clients being advised to teach others REBT habits. This can be done in circumstances focused on learning specifically or through philosophic discussion. Clients are considered to continue benefiting from REBT when they habituate to the practice of being aware of their thoughts and thinking problems through before acting. It is believed this will prevent emotional disturbance by delaying and perhaps preventing emotions being in control.

Emotive-evocative

Rational emotive imagery (REI) is used in REBT to change unhealthy emotions to more healthy ones. An example of REI can be found here. REI is used to solidify understanding of one of the fundamental concepts of REBT: that all emotions are legitimate, however, some become overwhelming and certain techniques can be used to rectify problems incurred. REI involves clients vividly picturing themselves in a situation experiencing the extreme emotions. While this is happening, the therapist helps the client continue to be in the situation while changing the emotional experience to a more positive one by picturing a much more favourable negative emotional experience. In order for the response to become habit, the technique is to be practiced for at least 30 days (Ellis & Joffe Ellis, 2011).

With a similar aim, clients are also encouraged to strongly use coping statements. What makes this an emotive technique is the strength of emphasis placed on the statement. Clients are to repeat the statements whilst making them with vigor.

Some examples of statements include:

- I don't like this but I *can* deal with it!
- I may make a mistake but that *doesn't ever* make me a failure!
- Catastrophes *do not* happen to me, just inconveniences!

Role-plays are used to evoke emotions by having the person take part in an experience in which they feel uncomfortable emotions. Other people playing parts in the role-play behave in ways so as to increase this discomfort. Observers watching during the role-play critique the client's performance and with the follow up performance all involved aim to find the "shoulds", "musts" and "oughts" contributing to the client's detrimental negative emotional experience (Ellis & Joffe Ellis, 2011).

Behavioral

Shame attacking exercises are both emotive-evocative and behavioural exercises. These exercises

aim to expose the effect expectation based "shoulds" and "musts" have on the resulting shame experienced by a person. According to REBT, if a person demands they "should not" or "must not" make a mistake and then they do, shame is caused by them judging the mistake. This judgement flows on to oneself. This translation, bad mistake means bad person, is considered false. The shame attacking exercises involves doing something one would normally avoid due to it being considered shameful. While doing this, the person is told to be aware of their thoughts and emotions, being sure not to be embarrassed or put themselves down.

REBT uses some other well-known behavioural techniques such as in vivo desensitisation. This method involves a series of assignments leading to desensitisation. For example, a person with a fear of public speaking would initially be given an assignment to present a one minute speech to a close acquaintance. The next assignment would involve a longer speech. Subsequently, a speech of the same length to more people. The length and time would continue to increase until the person reaches their goal (Ellis & Joffe Ellis, 2011).

General Semantics

REBT holds that a person experiencing emotional difficulties is likely to have been unknowingly inducing these experiences upon themselves after gaining understandings about the world as a child. Parents, teachers, and others held in high regard will have imparted understanding with the intention of assisting the child to have a safe journey throughout life. Used in the way intended, the person would react to difficult situations in a well-balanced manner. It is thought however, that this information is distorted by the person's self-talk.

REBT adapted principles from Alfred Korzybski, the founder of General Semantics. One of the semantics adapted includes teaching clients to cease overgeneralising with the aim of having them stop making all-encompassing judgements about the self or others and instead judge the behaviour. Additionally, Korzybski formulated the concept of secondary emotional problems, such as anxiety about being anxious and being depressed about being depressed (Ellis & Joffe Ellis, 2011). Along with Karen Horney's ideas about the "tyranny of shoulds" (as cited in Kerr, 1984), Korzybski contributed to the notion that catastrophising and awfulising has a strong influence on the development of emotional difficulties.

According to REBT, we are naturally inclined to overgeneralise, and the influence of significant others adds to this tendency. As such, this behaviour needs to be corrected to reduce emotional difficulty. REBT teaches awareness of absolutistic thinking (must, should, hate, and horrible) and overgeneralisations as it is believed that this way of thinking can lead to the development of emotional problems when expectations are not met. Fortunately, due to the influence of constructivism, REBT teaches that we do not need to think in this way. Even if we do, this can be brought to our attention and these false premises and conclusions can be changed. REBT therapists use different techniques to do this, including education, disputing, discussion, and reasoning, to help their clients toward a more productive way of thinking.

Work and Practice

To increase the efficacy of therapy and reduce further emotional difficulties, REBT emphasises the need for clients to continue working on what they have learned in therapy. This persistence is required not only by the client but also the therapist. Therapists are to choose the most appropriate technique from the many available and persist with it. When it is believed that the most has been gained, it is suggested they try a different technique with the possibility of gaining more benefit for the client (Rait, Monsen, & Squires, 2010).

Efficacy of REBT Affecting Emotional Change

Although REBT is the first CBT and one of the most popular psychotherapeutic approaches, there has been limited research about its efficacy. Ellis and Joffe Ellis (2011) state various reasons for this. For example, The Albert Ellis institute was set up to train students in therapeutic techniques, not to conduct research. It is also suggested that the expense of good research is too high for the institute to afford. Furthermore, the mix of various cognitive, emotive, and behavioural techniques comprising REBT makes it difficult to research. Moreover, the theory of REBT is said to apply to most emotional disturbances, not one or two specifically.

Ellis and Joffe Ellis (2011) contend that, considering many REBT techniques are found within CBT, the substantial amount of research provided focusing on CBT validates REBT. For example, in order to support the clinical hypotheses of REBT, Ellis and Joffe Ellis (2011) provided the results of a comprehensive study of meta-analyses performed in relation to CBT. This meta-analysis conducted by Butler, Chapman, Forman and Beck (2006) covered 16 meta-analyses with a total of 9995 participants in 332 separate studies. The studies covered 16 diagnosed emotional disorders and provided 562 comparisons between CBT and other approaches. The results do provide support for cognitive therapy and CBT although it is suggested that future analyses need to provide more investigation into the benefit of CBT in relation to a more diverse population, specific disorders, long-term effects and more comparison to other treatments. Considering this, it does appear questionable whether Ellis and Joffe Ellis (2011) can justify the claim this study validates REBT, especially considering CBT is ultimately an approach that does differ.

Although Ellis and Joffe Ellis (2011) claim limited studies specifically focused on REBT exist, they can be found and do provide support for this approach. One example is the case study in which Wood (2017) provided REBT to an elite archer experiencing performance related anxiety before and during competition. During seven sessions the client received education about ABC *theory*. Her irrational beliefs were then *disputed* and after having learned about her irrational beliefs she was to test out her newly developed philosophy as *homework*. This entailed competing in competitions in which expectation to perform well was high. Self-report data showed that as her irrational belief decreased her rational beliefs improved in regularity. The results of the competitions showed improvement in scores correlating with the change in beliefs. In follow up six months later, the improved rational belief and competition scores had continued. Although it

may be suggested that the self-report is questionable as the positive effects may be related to the Hawthorne effect, it is likely this athlete enjoyed positive results due to REBT.

Another study focused on the theory and mechanisms of change in relation to the effects of both REBT and CBT on major depressive disorder (MDD). Significant positive benefit was found for both approaches. Interestingly, in looking at the mechanisms of change, the researchers noted that restructuring irrational beliefs appeared to have a positive effect on depressed mood and automatic negative thought (Szentagotai, David, Lupu, & Cosman, 2008). As automatic negative thought is central to CBT this may confirm Albert Ellis' claim that successful CBT research also confirms the efficacy of REBT. Additionally, this study was performed in Romania, thus confirming the efficacy of REBT in a cross-cultural setting and stronger results may have been found if contributing factors, like homework compliance, was considered. It should be noted that the practitioners in this study had 7 to 14 years of clinical experience, therefore, the results may not have been as promising if clinicians with less experience were used.

Conclusion

REBT emerged in the mid-1950s from Albert Ellis' desire to assist people to alleviate emotional difficulties such as anxiety, panic, depression, anger, and fear. Many of the foundational REBT systems were conceived by combining what Ellis believed to be the most effective historical philosophies with favoured aspects from contemporary psychology at that time. In order to change difficult emotions, the central focus for REBT is in changing thoughts which are believed to be a strong contributor to emotional difficulties that people experience.

ABC theory explains that most people believe that an activating event causes the emotional response. However, perception of the event, and therefore the emotional response, is made to be more difficult by the person's thoughts about the event. Additionally, REBT asserts that thoughts, emotions, and behaviour are all interconnected. Therefore a change in one will affect the others. Considering this, REBT asserts that if one profoundly changes irrational thoughts it will have a profound effect on behaviour and emotions.

Due to the combination of different perspectives used to create REBT, therapy includes a wide variety of techniques and considerations. In therapy, clients are taught ABC theory with the aim of bringing their attention to the impact of rational and irrational thinking. Therapy includes cognitive, emotive, and behavioural techniques, humour and bringing awareness to use of detrimental semantics. In order to prevent inevitable negative life experiences resulting in emotional difficulties an REBT therapist uses these techniques to teach clients to accept themselves, others, and life. As part of this, the therapist disputes clients' irrational beliefs and teaches more rational ways of thinking. Therapy also includes homework assignments that clients are expected to complete between sessions. Through the therapy process it is believed they will grow a new understanding of how to perceive life and all that it involves. After the experience of REBT, and by continuing with the hard work and practice REBT requires, it is considered that people will negotiate life's inevitable problems without the unhealthy emotional difficulties experienced previously.

Chapter 6 References

Chapter 6 Cover Image- Anxiety, Fear, Stress, Wooden, Emotion. Wokandapix. Made available under Creative Commons CC0 1.0 Universal Public Domain Dedication https://pixabay.com/en/anxiety-fear-stress-emotion-wooden-2019928/

https://adaa.org

ADAA is an international nonprofit organization dedicated to the prevention, treatment, and cure of anxiety, depressive, obsessive-compulsive, and trauma-related disorders through education, practice, and research.

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CHAPTER 7: HEALTHY EATING

Chapter 7: Healthy Eating

Chapter 7 Learning Objectives

Learning Objectives

By the end of Chapter 7 you will be able to:

1. Identify 10 things you should know about the 2015-2020 dietary guidelines
2. Name a food from each of the five food groups.
3. Describe the recommendations for fats, vitamins, and water.
4. Provide an example of how food choice can affect stress.
5. Describe what a healthy plate of food contains.

The Importance of Healthy Eating

Belloc and Breslow (1972) listed 7 habits associated with general health. These are referred to as the "Alameda 7."

Healthy habits:

(1) having never smoked

(2) drinking less than 5 standard drinks at one sitting

(3) exercising

(4) sleeping 7-8 hours a night

(5) maintaining a desirable weight for height

(6) eating breakfast regularly and not skipping meals

(7) having a good diet, avoiding snacks

where:

• The level of exercise varies with age. For an elderly individual, light exercise (walking, gardening, etc.) at least once a week may be sufficient.

• Desirable weight for height could be expressed in the body mass index (BMI). The Metropolitan Life Tables also can be used.

Limitations:

• This leaves out quite a few unhealthy habits (unprotected sex with multiple partners, intravenous drug abuse, driving without a seat belt, etc.).

• Control of concurrent disease (diabetes, hypercholesterolemia, etc.) is not listed.

• While a little alcohol intake is considered beneficial, this would allow 4 drinks at a sitting (with several sittings per day).

Top 10 Things to Know About the 2015-2020 Dietary Guidelines for Americans

The Dietary Guidelines provides a clear path to help Americans eat healthfully, informed by a critical, and transparent review of the scientific evidence on nutrition.

1. A lifetime of healthy eating helps to prevent chronic diseases like obesity, heart disease, high blood pressure, and Type 2 diabetes.
2. Healthy eating is one of the most powerful tools we have to reduce the onset of disease. The Dietary Guidelines recommendations can help you make informed choices about eating for you and your family.
3. The path to improving health through nutrition is to follow a healthy eating pattern that's right for you. Eating patterns are the combination of foods and drinks you eat over time. A healthy eating pattern is adaptable to a person's taste preferences, traditions, culture and budget.
4. A healthy eating pattern includes:
    1. A variety of vegetables: dark green, red and orange, legumes (beans and peas), starchy and other vegetables
    2. Fruits, especially whole fruit
    3. Grains, at least half of which are whole grain
    4. Fat-free or low-fat dairy, including milk, yogurt, cheese, and/or fortified soy beverages
    5. A variety of protein foods, including seafood, lean meats and poultry, eggs, legumes (beans and peas), soy products, and nuts and seeds
    6. Oils, including those from plants: canola, corn, olive, peanut, safflower, soybean, and sunflower. Oils also are naturally present in nuts, seeds, seafood, olives, and avocados.
5. Healthy eating patterns limit added sugars. Less than 10% of your daily calories should come from added sugars. ChooseMyPlate.gov provides more information about added sugars, which are sugars and syrups that are added to foods or beverages when they are processed or prepared. This does not include naturally occurring sugars such as those consumed as part of milk and fruits.
6. Healthy eating patterns limit saturated and *trans* fats. Less than 10% of your daily calories should come from saturated fats. Foods that are high in saturated fat include butter, whole milk, meats that are not labeled as lean, and tropical oils such as coconut and palm oil. Saturated fats should be replaced with unsaturated fats, such as canola or olive oil
7. Healthy eating patterns limit sodium. Adults and children ages 14 years and over should limit sodium to less than 2,300 mg per day, and children younger than 14 years should consume even less. Use the Nutrition Facts label to check for sodium, especially in processed foods like pizza, pasta dishes, sauces, and soups.

8. Most Americans can benefit from making small shifts in their daily eating habits to improve their health over the long run. Small shifts in food choices—over the course of a week, a day, or even a meal—can make a difference in working toward a healthy eating pattern that works for you.
9. Remember physical activity! Regular physical activity is one of the most important things individuals can do to improve their health. According to the Department of Health and Human Services' Physical Activity Guidelines for Americans, adults need at least 150 minutes of moderate intensity physical activity each week and should perform muscle-strengthening exercises on two or more days each week. Children ages 6 to 17 years need at least 60 minutes of physical activity per day, including aerobic, muscle-strengthening, and bone-strengthening activities.
10. Everyone has a role– at home, schools, workplaces, communities, and food retail outlets – in encouraging easy, accessible, and affordable ways to support healthy choices.
    1. At **home, you and your family** can try out small changes to find what works for you like adding more veggies to favorite dishes, planning meals and cooking at home, and incorporating physical activity into time with family or friends.
    2. **Schools** can improve the selection of healthy food choices in cafeterias and vending machines, provide nutrition education programs and school gardens, increase school-based physical activity, and encourage parents and caregivers to promote healthy changes at home.
    3. **Workplaces** can encourage walking or activity breaks; offer healthy food options in the cafeteria, vending machines, and at staff meetings or functions; and provide health and wellness programs and nutrition counseling.
    4. **Communities** can increase access to affordable, healthy food choices through community gardens, farmers' markets, shelters, and food banks and create walkable communities by maintaining safe public spaces.
    5. **Food retail outlets** can inform consumers about making healthy changes and provide healthy food choices.

Dietary Guidelines

Adequate Nutrients Within Calorie Needs

- Consume a variety of nutrient-dense foods and beverages within and among the basic food groups while choosing foods that limit the intake of saturated and *trans* fats, cholesterol, added sugars, salt, and alcohol.
- Meet recommended intakes within energy needs by adopting a balanced eating pattern, such as the USDA Food Guide or the DASH Eating Plan.

Weight Management

- To maintain body weight in a healthy range, balance calories from foods and beverages with calories expended.
- To prevent gradual weight gain over time, make small decreases in food and beverage calories and increase physical activity.

Physical Activity

- Engage in regular physical activity and reduce sedentary activities to promote health, psychological well-being, and a healthy body weight.
    - To reduce the risk of chronic disease in adulthood: Engage in at least 30 minutes of moderate-intensity physical activity, above usual activity, at work or home on most days of the week.
    - For most people, greater health benefits can be obtained by engaging in physical activity of more vigorous intensity or longer duration.
    - To help manage body weight and prevent gradual, unhealthy body weight gain in adulthood: Engage in approximately 60 minutes of moderate- to vigorous-intensity activity on most days of the week while not exceeding caloric intake requirements.
    - To sustain weight loss in adulthood: Participate in at least 60 to 90 minutes of daily moderate-intensity physical activity while not exceeding caloric intake requirements. Some people may need to consult with a healthcare provider before participating in this level of activity.
- Achieve physical fitness by including cardiovascular conditioning, stretching exercises for flexibility, and resistance exercises or calisthenics for muscle strength and endurance.

Food Groups to Encourage

- Consume a sufficient amount of fruits and vegetables while staying within energy needs. Two cups of fruit and 2½ cups of vegetables per day are recommended for a reference 2,000-calorie intake, with higher or lower amounts depending on the calorie level.
- Choose a variety of fruits and vegetables each day. In particular, select from all five vegetable subgroups (dark green, orange, legumes, starchy vegetables, and other vegetables) several times a week.
- Consume 3 or more ounce-equivalents of whole-grain products per day, with the rest of the recommended grains coming from enriched or whole-grain products. In general, at least half the grains should come from whole grains.
- Consume 3 cups per day of fat-free or low-fat milk or equivalent milk products.

Fats

- Consume less than 10 percent of calories from saturated fatty acids and less than 300 mg/day of cholesterol, and keep *trans* fatty acid consumption as low as possible.
- Keep total fat intake between 20 to 35 percent of calories, with most fats coming from sources of polyunsaturated and monounsaturated fatty acids, such as fish, nuts, and vegetable oils.
- When selecting and preparing meat, poultry, dry beans, and milk or milk products, make choices that are lean, low-fat, or fat-free.
- Limit intake of fats and oils high in saturated and/or *trans* fatty acids, and choose products low in such fats and oils.

Carbohydrates

- Choose fiber-rich fruits, vegetables, and whole grains often.
- Choose and prepare foods and beverages with little added sugars or caloric sweeteners, such as amounts suggested by the USDA Food Guide and the DASH Eating Plan.
- Reduce the incidence of dental caries by practicing good oral hygiene and consuming sugar- and starch-containing foods and beverages less frequently.

Sodium and Potassium

- Consume less than 2,300 mg (approximately 1 tsp of salt) of sodium per day.
- Choose and prepare foods with little salt. At the same time, consume potassium-rich foods, such as fruits and vegetables.

Alcoholic Beverages

- Those who choose to drink alcoholic beverages should do so sensibly and in moderation—defined as the consumption of up to one drink per day for women and up to two drinks per day for men.
- Alcoholic beverages should not be consumed by some individuals, including those who cannot restrict their alcohol intake, women of childbearing age who may become pregnant, pregnant and lactating women, children and adolescents, individuals taking medications that can interact with alcohol, and those with specific medical conditions.
- Alcoholic beverages should be avoided by individuals engaging in activities that require attention, skill, or coordination, such as driving or operating machinery.

Food Safety

To avoid microbial foodborne illness:

- Clean hands, food contact surfaces, and fruits and vegetables. Meat and poultry should *not* be washed or rinsed.
- Separate raw, cooked, and ready-to-eat foods while shopping, preparing, or storing foods.
- Cook foods to a safe temperature to kill microorganisms.
- Chill (refrigerate) perishable food promptly and defrost foods properly.
- Avoid raw (unpasteurized) milk or any products made from unpasteurized milk, raw or partially cooked eggs or foods containing raw eggs, raw or undercooked meat and poultry, unpasteurized juices, and raw sprouts.

Five Food Groups

Grains

Healthy Intake: Healthy eating patterns include whole grains and limit the intake of refined grains and products made with refined grains, especially those high in saturated fats, added sugars, and/or sodium, such as cookies, cakes, and some snack foods. The grains food group includes grains as single foods (e.g., rice, oatmeal, and popcorn), as well as products that include grains as an ingredient (e.g., breads, cereals, crackers, and pasta). Grains are either whole or refined. Whole grains (e.g., brown rice, quinoa, and oats) contain the entire kernel, including the endosperm, bran, and germ. Refined grains differ from whole grains in that the grains have been processed to remove the bran and germ, which removes dietary fiber, iron, and other nutrients. The recommended amount of grains in the Healthy U.S.-Style Eating Pattern at the 2,000-calorie level is 6 ounce-equivalents per day. At least half of this amount should be whole grains.

Key nutrient contributions: Whole grains are a source of nutrients, such as dietary fiber, iron, zinc, manganese, folate, magnesium, copper, thiamin, niacin, vitamin B_6, phosphorus, selenium, riboflavin, and vitamin A. Whole grains vary in their dietary fiber content. Most refined grains are enriched, a process that adds back iron and four B vitamins (thiamin, riboflavin, niacin, and folic acid). Because of this process, the term "enriched grains" is often used to describe these refined grains.

Considerations: Individuals who eat refined grains should choose enriched grains. Those who consume all of their grains as whole grains should include some grains, such as some whole-grain ready-to-eat breakfast cereals, that have been fortified with folic acid. This is particularly important for women who are or are capable of becoming pregnant, as folic acid fortification in the United States has been successful in reducing the incidence of neural tube defects during fetal development. Although grain products that are high in added sugars and saturated fats, such as cookies, cakes, and some snack foods, should be limited, as discussed in the Added Sugars and Saturated Fats sections below, grains with some added sugars and saturated fats can fit within healthy eating patterns.

Dairy

Healthy intake: Healthy eating patterns include fat-free and low-fat (1%) dairy, including milk, yogurt, cheese, or fortified soy beverages (commonly known as "soymilk"). Soy beverages fortified with calcium, vitamin A, and vitamin D, are included as part of the dairy group because they are similar to milk based on nutrient composition and in their use in meals. Other products sold as "milks" but made from plants (e.g., almond, rice, coconut, and hemp "milks") may contain calcium

and be consumed as a source of calcium, but they are not included as part of the dairy group because their overall nutritional content is not similar to dairy milk and fortified soy beverages (soymilk). The recommended amounts of dairy in the Healthy U.S.-Style Pattern are based on age rather than calorie level and are 2 cup-equivalents per day for children ages 2 to 3 years, 2½ cup-equivalents per day for children ages 4 to 8 years, and 3 cup-equivalents per day for adolescents ages 9 to 18 years and for adults.

Key nutrient contributions: The dairy group contributes many nutrients, including calcium, phosphorus, vitamin A, vitamin D (in products fortified with vitamin D), riboflavin, vitamin B_{12}, protein, potassium, zinc, choline, magnesium, and selenium.

Considerations: Fat-free and low-fat (1%) dairy products provide the same nutrients but less fat (and thus, fewer calories) than higher fat options, such as 2% and whole milk and regular cheese. Fat-free or low-fat milk and yogurt, in comparison to cheese, contain less saturated fats and sodium and more potassium, vitamin A, and vitamin D. Thus, increasing the proportion of dairy intake that is fat-free or low-fat milk or yogurt and decreasing the proportion that is cheese would decrease saturated fats and sodium and increase potassium, vitamin A, and vitamin D provided from the dairy group. Individuals who are lactose intolerant can choose low-lactose and lactose-free dairy products. Those who are unable or choose not to consume dairy products should consume foods that provide the range of nutrients generally obtained from dairy, including protein, calcium, potassium, magnesium, vitamin D, and vitamin A (e.g., fortified soy beverages [soymilk]).

Protein Foods

Healthy intake: Healthy eating patterns include a variety of protein foods in nutrient-dense forms. The protein foods group comprises a broad group of foods from both animal and plant sources and includes several subgroups: seafood; meats, poultry, and eggs; and nuts, seeds, and soy products. Legumes (beans and peas) may also be considered part of the protein foods group as well as the vegetables group (see the About Legumes (Beans and Peas) call-out box). Protein also is found in some foods from other food groups (e.g., dairy). The recommendation for protein foods in the Healthy U.S.-Style Eating Pattern at the 2,000-calorie level is 5½ ounce-equivalents of protein foods per day.

Key nutrient contributions: Protein foods are important sources of nutrients in addition to protein, including B vitamins (e.g., niacin, vitamin B_{12}, vitamin B_6, and riboflavin), selenium, choline, phosphorus, zinc, copper, vitamin D, and vitamin E). Nutrients provided by various types of protein foods differ. For example, meats provide the most zinc, while poultry provides the most niacin. Meats, poultry, and seafood provide heme iron, which is more bioavailable than the non-heme iron found in plant sources. Heme iron is especially important for young children and women who are capable of becoming pregnant or who are pregnant. Seafood provides the most vitamin B_{12} and vitamin D, in addition to almost all of the polyunsaturated omega-3 fatty acids, eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA), in the Patterns (see the About Seafood call-out box).

Eggs provide the most choline, and nuts and seeds provide the most vitamin E. Soy products are a source of copper, manganese, and iron, as are legumes.

Considerations: For balance and flexibility within the food group, the Healthy U.S.-Style Eating Pattern includes weekly recommendations for the subgroups: seafood; meats, poultry, and eggs; and nuts, seeds, and soy products. A specific recommendation for at least 8 ounce-equivalents of seafood per week also is included for the 2,000-calorie level (see the About Seafood call-out box). One-half ounce of nuts or seeds counts as 1 ounce-equivalent of protein foods, and because they are high in calories, they should be eaten in small portions and used to replace other protein foods rather than being added to the diet. When selecting protein foods, nuts and seeds should be unsalted, and meats and poultry should be consumed in lean forms. Processed meats and processed poultry are sources of sodium and saturated fats, and intake of these products can be accommodated as long as sodium, saturated fats, added sugars, and total calories are within limits in the resulting eating pattern (see the About Meats and Poultry call-out box). The inclusion of protein foods from plants allows vegetarian options to be accommodated.

Vegetables

Healthy intake: Healthy eating patterns include a variety of vegetables from all of the five vegetable subgroups—dark green, red and orange, legumes (beans and peas), starchy, and other. These include all fresh, frozen, canned, and dried options in cooked or raw forms, including vegetable juices. The recommended amount of vegetables in the Healthy U.S.-Style Eating Pattern at the 2,000-calorie level is 2½ cup-equivalents of vegetables per day. In addition, weekly amounts from each vegetable subgroup are recommended to ensure variety and meet nutrient needs.

Key nutrient contributions: Vegetables are important sources of many nutrients, including dietary fiber, potassium, vitamin A, vitamin C, vitamin K, copper, magnesium, vitamin E, vitamin B_6, folate, iron, manganese, thiamin, niacin, and choline. Each of the vegetable subgroups contributes different combinations of nutrients, making it important for individuals to consume vegetables from all the subgroups. For example, dark-green vegetables provide the most vitamin K, red and orange vegetables the most vitamin A, legumes the most dietary fiber, and starchy vegetables the most potassium. Vegetables in the "other" vegetable subgroup provide a wide range of nutrients in varying amounts.

Considerations: To provide all of the nutrients and potential health benefits that vary across different types of vegetables, the Healthy U.S.-Style Eating Pattern includes weekly recommendations for each subgroup. Vegetable choices over time should vary and include many different vegetables. Vegetables should be consumed in a nutrient-dense form, with limited additions such as salt, butter, or creamy sauces. When selecting frozen or canned vegetables, choose those lower in sodium.

Fruits

Healthy intake: Healthy eating patterns include fruits, especially whole fruits. The fruits food group includes whole fruits and 100% fruit juice. Whole fruits include fresh, canned, frozen, and dried forms. The recommended amount of fruits in the Healthy U.S.-Style Eating Pattern at the 2,000-calorie level is 2 cup-equivalents per day. One cup of 100% fruit juice counts as 1 cup of fruit. Although fruit juice can be part of healthy eating patterns, it is lower than whole fruit in dietary fiber and when consumed in excess can contribute extra calories. Therefore, at least half of the recommended amount of fruits should come from whole fruits. When juices are consumed, they should be 100% juice, without added sugars. Also, when selecting canned fruit, choose options that are lowest in added sugars. One-half cup of dried fruit counts as one cup-equivalent of fruit. Similar to juice, when consumed in excess, dried fruits can contribute extra calories.

Key nutrient contributions: Among the many nutrients fruits provide are dietary fiber, potassium, and vitamin C.

Considerations: Juices may be partially fruit juice, and only the proportion that is 100% fruit juice counts (e.g., 1 cup of juice that is 50% juice counts as ½ cup of fruit juice). The remainder of the product may contain added sugars. Sweetened juice products with minimal juice content, such as juice drinks, are considered to be sugar-sweetened beverages rather than fruit juice because they are primarily composed of water with added sugars (see the Added Sugars section below). The percent of juice in a beverage may be found on the package label, such as "contains 25% juice" or "100% fruit juice." The amounts of fruit juice allowed in the USDA Food Patterns for young children align with the recommendation from the American Academy of Pediatrics that young children consume no more than 4 to 6 fluid ounces of 100% fruit juice per day. Fruits with small amounts of added sugars can be accommodated in the diet as long as calories from added sugars do not exceed 10 percent per day and total calorie intake remains within limits.

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Fats, Vitamin, Minerals, and Water

Fats

Fats and oils are part of a healthful diet, but the type of fat makes a difference to heart health, and the total amount of fat consumed is also important. High intake of saturated fats, *trans* fats, and cholesterol increases the risk of unhealthy blood lipid levels, which, in turn, may increase the risk of coronary heart disease. A high intake of fat (greater than 35 percent of calories) generally increases saturated fat intake and makes it more difficult to avoid consuming excess calories. A low intake of fats and oils (less than 20 percent of calories) increases the risk of inadequate intakes of vitamin E and of essential fatty acids and may contribute to unfavorable changes in high-density lipoprotein (HDL) blood cholesterol and triglycerides.

KEY RECOMMENDATIONS

- Consume less than 10 percent of calories from saturated fatty acids and less than 300 mg/day of cholesterol, and keep *trans* fatty acid consumption as low as possible.
- Keep total fat intake between 20 to 35 percent of calories, with most fats coming from sources of polyunsaturated and monounsaturated fatty acids, such as fish, nuts, and vegetable oils.
- When selecting and preparing meat, poultry, dry beans, and milk or milk products, make choices that are lean, low-fat, or fat-free.
- Limit intake of fats and oils high in saturated and/or *trans* fatty acids, and choose products low in such fats and oils.

Vitamins and Minerals

Daily Nutritional Goals for Age-Sex Groups Based on Dietary Reference Intakes and *Dietary Guidelines* Recommendations

	Source of goal [a]	Female 19-30	Male 19-30	Female 31-50	Male 31-50	Female 51+	Male 51+
Calorie level(s) assessed		**2,000**	**2,400, 2,600, 3,000**	**1,800**	**2,200**	**1,600**	**2,000**
Macronutrients							
Protein, g	RDA	46	56	46	56	46	56
Protein, % kcal	AMDR	10-35	10-35	10-35	10-35	10-35	10-35
Carbohydrate, g	RDA	130	130	130	130	130	130
Carbohydrate, % kcal	AMDR	45-65	45-65	45-65	45-65	45-65	45-65
Dietary fiber, g	14g/ 1,000 kcal	28	33.6	25.2	30.8	22.4	28
Added sugars, % kcal	DGA	<10%	<10%	<10%	<10%	<10%	<10%
Total fat, % kcal	AMDR	20-35	20-35	20-35	20-35	20-35	20-35
Saturated fat, % kcal	DGA	<10%	<10%	<10%	<10%	<10%	<10%
Linoleic acid, g	AI	12	17	12	17	11	14
Linolenic acid, g	AI	1.1	1.6	1.1	1.6	1.1	1.6
Minerals							
Calcium, mg	RDA	1,000	1,000	1,000	1,000	1,200	1,000[b]
Iron, mg	RDA	18	8	18	8	8	8
Magnesium, mg	RDA	310	400	320	420	320	420
Phosphorus, mg	RDA	700	700	700	700	700	700
Potassium, mg	AI	4,700	4,700	4,700	4,700	4,700	4,700
Sodium, mg	UL	2,300	2,300	2,300	2,300	2,300	2,300
Zinc, mg	RDA	8	11	8	11	8	11
Copper, mcg	RDA	900	900	900	900	900	900
Manganese, mg	AI	1.8	2.3	1.8	2.3	1.8	2.3
Selenium, mcg	RDA	55	55	55	55	55	55
Vitamins							
Vitamin A, mg RAE	RDA	700	900	700	900	700	900
Vitamin E, mg AT	RDA	15	15	15	15	15	15
Vitamin D, IU	RDA	600	600	600	600	600[c]	600[c]
Vitamin C, mg	RDA	75	90	75	90	75	90
Thiamin, mg	RDA	1.1	1.2	1.1	1.2	1.1	1.2

	Source of goal [a]	Female 19-30	Male 19-30	Female 31-50	Male 31-50	Female 51+	Male 51+
Riboflavin, mg	RDA	1.1	1.3	1.1	1.3	1.1	1.3
Niacin, mg	RDA	14	16	14	16	14	16
Vitamin B_6, mg	RDA	1.3	1.3	1.3	1.3	1.5	1.7
Vitamin B_{12}, mcg	RDA	2.4	2.4	2.4	2.4	2.4	2.4
Choline, mg	AI	425	550	425	550	425	550
Vitamin K, mcg	AI	90	120	90	120	90	120
Folate, mcg DFE	RDA	400	400	400	400	400	400

[a] RDA = Recommended Dietary Allowance, AI = Adequate Intake, UL = Tolerable Upper Intake Level, AMDR = Acceptable Macronutrient Distribution Range, DGA = 2015-2020 *Dietary Guidelines* recommended limit; 14 g fiber per 1,000 kcal = basis for AI for fiber.

[b] Calcium RDA for males ages 71+ years is 1,200 mg.

[c] Vitamin D RDA for males and females ages 71+ years is 800 IU.

Notes

Source: Institute of Medicine. Dietary Reference Intakes: The essential guide to nutrient requirements. Washington (DC): The National Academies Press; 2006.

Source: Institute of Medicine. Dietary Reference Intakes for Calcium and Vitamin D. Washington (DC): The National Academies Press; 2010.

Water

Getting enough water every day is important for your health. Healthy people meet their fluid needs by drinking when thirsty and drinking with meals. Most of your fluid needs are met through the water and beverages you drink. However, you can get some fluids through the foods that you eat. For example, broth soups and foods with high water content such as celery, tomatoes, or melons can contribute to fluid intake.

Water helps your body:

- Keep your temperature normal
- Lubricate and cushion joints
- Protect your spinal cord and other sensitive tissues
- Get rid of wastes through urination, perspiration, and bowel movements

Your body needs more water when you are:

- In hot climates
- More physically active
- Running a fever
- Having diarrhea or vomiting

If you think you are not getting enough water, these tips may help:

- Carry a water bottle for easy access when you are at work of running errands.
- Freeze some freezer safe water bottles. Take one with you for ice-cold water all day long.
- Choose water instead of sugar-sweetened beverages. This can also help with weight management. Substituting water for one 20-ounce sugar sweetened soda will save you about 240 calories.
- Choose water when eating out. Generally, you will save money and reduce calories.
- Add a wedge of lime or lemon to your water. This can help improve the taste and help you drink more water than you usually do.

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My Plate

How Food Choices Affect Stress

Food is a potent natural reward and food intake is a complex process. Reward and gratification associated with food consumption leads to dopamine (DA) production, which in turn activates reward and pleasure centers in the brain. An individual will repeatedly eat a particular food to experience this positive feeling of gratification. This type of repetitive behavior of food intake leads to the activation of brain reward pathways that eventually overrides other signals of satiety and hunger. Thus, a gratification habit through a favorable food leads to overeating and morbid obesity. Overeating and obesity stems from many biological factors engaging both central and peripheral systems in a bi-directional manner involving mood and emotions. Emotional eating and altered mood can also lead to altered food choice and intake leading to overeating and obesity. Research findings from human and animal studies support a two-way link between three concepts, mood, food, and obesity.

Introduction

It is hypothesized that individuals engage in a variety of behaviors to regulate their mood (Morris and Reilly, 1987). Important among mood regulating behaviors is food consumption. The interaction between mood, emotional state, and feeding behaviors is complex and it is hypothesized that individuals regulate their emotions and mood by changing both food choices and quantities. It is also apparent that mood can affect the self-rewarding mechanisms of food consumption (Morris and Reilly, 1987). Specific types of food tend to be preferred under certain psychological conditions due to the influence of foods on the activity of brain reward centers (Figure 1) (Rangel, 2013; Jauch-Chara and Oltmanns, 2014; Weltens et al., 2014). Positive feedback loops can result in enhancement of appetite leading to obesity. Interestingly, highly palatable foods activate the same brain regions of reward and pleasure that are active in drug addiction (Volkow et al., 2012), suggesting a neuronal mechanism of food addiction leading to overeating and obesity (Davis et al., 2011, 2014; Dileone et al., 2012; Volkow et al., 2012; Dagher, 2013; Davis, 2013; Ziauddeen and Fletcher, 2013; Pai et al., 2014; Potenza, 2014). Dopamine, which directly activates reward and pleasure centers, affects both mood and food intake (Cantello et al., 1989; Diehl and Gershon, 1992; Fochtmann and Fink, 1992; Black et al., 2002; Cawley et al., 2013), further supporting the link between psychology and eating behaviors.

FIGURE 1

Figure 1. Complex two-way relationship linking food intake, mood, and

obesity.

Mood disorders are often found in association with abnormal feeding behaviors. For example, depression and anxiety are comorbidities of obesity (Novick et al., 2005; Simon et al., 2006; Kloiber et al., 2007). Impairment in central nervous system (CNS) function has been linked to obesity that in turn impacts mental and physical health (Allison et al., 2009; Talen and Mann, 2009; Duarte et al., 2010). Obese individuals are at increased risk of developing depression (25, 26), and this risk is doubled in the presence of diabetes (Anderson et al., 2001; De Groot et al., 2001; Labad et al., 2010). Depressed mood is also associated with abdominal obesity and poor diet (Roberts et al., 2003; Dong et al., 2004; Simon et al., 2006; Luppino et al., 2010; Zhao et al., 2011; Hamer et al., 2012). A link between obesity and depression has been found in animal models of mood disorders (Lombard, 2000; Pawels and Volterrani, 2008; Dallman et al., 2003, 2005; Singh et al., 2007, 2009, 2011; Dallman, 2010; Chuang et al., 2011; Diz-Chaves, 2011; Maniam and Morris, 2012; Spence and Courbasson, 2012; Akubuiro et al., 2013; Kumar et al., 2013), suggesting that a common signaling pathway may underlie these phenotypes in both humans and animals.

There are numerous articles on the regulation of food intake, obesity, and mood. However, further exploration of the interaction among mood, food, and obesity is much needed. The aim of this review article is to highlight the complex interplay among mood, emotional state, and eating behaviors .

Central Nervous System in Regulation of Mood, Food, and Obesity

Bi-Directional Link of Food and Emotion

In humans, eating behavior is complex and is affected by both mood and emotions (Lyman, 1982; Mehrabian, 1995; Macht, 1999; Macht and Simons, 2000). However, mood and emotions are distinct. Mood is characterized by psychological arousal in the absence of obvious stimuli that can last for several minutes or longer. In contrast, emotions are short-term affective response to reinforcing stimuli. Of all emotions, a study shows that frequent emotions such as, anger and joy have the strongest influence on appetite and food choice (Macht, 1999). Behavior based findings from human studies of questionnaires, field, and clinical studies suggest an integrative five way model that predicts five different aspects of emotional eating. These five aspects include: food choice, food intake, loss of cognitive controls, food modulating emotions, and emotion-congruent modulating eating, see review by Macht (2008). Therefore, depending on the state of negative emotions or distress, emotional eating is triggered where food intake can either increase or decrease within the same individuals (Ouwens et al., 2009). Emotional state has also been connected with addiction (Parylak et al., 2011). Sensory and psychological pathways influence food choice, the quantity, and meal frequency that may not be a part of normal physiological requirement. Many psychosomatic theories of obesity suggests that obese people overeat due

to inability to perceive their physiological state, hunger, and satiety and that overeating reduce emotional discomfort and anxiety (Kaplan and Kaplan, 1957; Schachter, 1968; Bruch, 1985). The internal/external theory of obesity predicts that normal eaters alter their food intake to regulate their emotion, while obese people do not (Schachter, 1968; Canetti et al., 2002). Depending on whether an eater is restrained or emotional, stress and negative emotions could be associated with both increased and decreased motivation to eat; and under those circumstances, food choice differs (Herman and Mack, 1975). Thus, emotional distress influences emotional food choice and intake.

Stress and Food Intake

There is a close interaction between food, mood, and stress (Benton and Donohoe, 1999; Oliver and Wardle, 1999; Gibson, 2006; Dallman, 2010; Bast and Berry, 2014). Stress can affect feeding behavior (Greeno and Wing, 1994; Yau and Potenza, 2013), resulting in either increased or reduced food intake depending on the types of external or psychological stressors (Oliver and Wardle, 1999; Gibson, 2006; Dallman, 2010; Yau and Potenza, 2013). Similarly, chronic stress can lead to either increased consumption of palatable and rewarding foods leading to obesity or a diminished appetite leading to weight loss (Cartwright et al., 2003; Adam and Epel, 2007; Tryon et al., 2013). Furthermore, following exposure to a stressor, studies show that intake of palatable foods reduce signs of stress and anxiety (Pecoraro et al., 2004; La Fleur et al., 2005; Maniam and Morris, 2010, 2012; Ulrich-Lai et al., 2010; Finger et al., 2011, 2012). Interestingly, stress-induced preference for palatable food is often seen in humans (Souquet and Rowland, 1989; Epel et al., 2004; Pecoraro et al., 2004; Christiansen et al., 2011; Gibson, 2012; Merali et al., 2013; Sharma et al., 2013; Sharma and Fulton, 2013; Meye and Adan, 2014; Park et al., 2014; Rho et al., 2014). Notably, this behavior is extended to animals (Dallman et al., 2003, 2005; Cottone et al., 2009). This suggests that a common neurobiological pathway maybe involved in food choice and patterns of eating behavior during stress.

Mood and Food Intake

Mood states such as anxiety and depression affect food choice and energy metabolism. Overeating and obesity is often associated with depression and anxiety in humans which has also been reported in animal models (Novick et al., 2005; Simon and Von Korff, 2006; Kloiber et al., 2007; Singh et al., 2007, 2009; Akubuiro et al., 2013; Patterson and Abizaid, 2013; Sharma and Fulton, 2013). Both endocrine and metabolic conditions are exacerbated in major depression (Mcelroy et al., 2004; Simon et al., 2006; De Wit et al., 2010; Luppino et al., 2010; Marijnissen et al., 2011). Individuals experiencing depressed moods show preference for and consume palatable "comfort foods" as a mean to alleviate their negative feelings (Macht, 2008). Although on a short-term basis, palatable foods can provide some relief from negative emotions and mood states,

chronic consumption of calorically-rich foods ultimately leads to obesity which in turn promotes vulnerability to depression and anxiety (Novick et al., 2005; Simon et al., 2006; Kloiber et al., 2007; Sharma and Fulton, 2013). Conversely, there are findings showing that prolonged high-fat feeding leads to negative emotional states, increased stress sensitivity, and altered basal corticosterone levels (Sharma et al., 2012). Thus, negative emotion impacts food choice and intake that in turns affects mood in a bi-directional manner.

Interestingly, other behaviors of reduced pleasure/reward experience, anxiety-like behavior, and heightened stress-induced hypothalamic pituitary adrenal axis (HPA) activation have been found in mice. Furthermore, after exposure to chronic high-fat diet and then switching to normal chow diet, mice showed craving for sucrose, high-fat foods, and displayed enhanced anxiety-like behavior (Sharma et al., 2012). Similar findings of increased behavioral and physiological signs of depression and anxiety have been reported in humans when switched from a high-fat sugar diet to regular diet (Avena et al., 2008; Teegarden and Bale, 2008; Cottone et al., 2009; Pickering et al., 2009; Iemolo et al., 2012; Sharma et al., 2012; Blasio et al., 2013). All together, these findings suggest that chronic high-fat feeding promotes negative emotional states and potentiates condition for enhanced sensitivity to stress that leads to continuous repetitive cycles of overeating, weight gain, and depressed mood.

Food Preference and Mood

Hippocrates, father of modern medicine, said: “Let your food be your medicine, and your medicine be your food” (Prasad, 1998). Research from human trials and animal studies have shown that foods directly influence brain neurotransmitter systems which in turn has effects on mood and performance by altering the brain structure, chemistry, and physiology. Mood can also influence our food choices and expectations on the effects of certain foods can influence our sapiens. Some of those foods impacting mood are discussed below and summarized in Table 1 (Spring et al., 1982-1983; Rogers and Lloyd, 1994).

TABLE 1

Table 1. Summary of biological factors and food influencing mood, emotions, food intake, and brain signaling pathways.

Chocolate has a strong effect on mood, generally increasing pleasant feelings and reducing tension (Osman and Sobal, 2006; Parker et al., 2006b; Cartwright et al., 2007; Fletcher et al., 2007).

Chocolate contains psychoactive chemicals such as andamines that stimulate the brain and result in good mood (Ottley, 2000). However, negative feelings are also associated with chocolate in some women on weight loss regimes who experience guilt after eating chocolate. The unique taste and feel from chocolate in the mouth leads to chocolate craving due to sensory factors associated with chocolate eating (Macht and Dettmer, 2006; Osman and Sobal, 2006; Parker et al., 2006b; Cartwright et al., 2007; Fletcher et al., 2007).

Caffeine, mostly consumed in the form of coffee and tea, not only has stimulant effects on enhancing alertness, vigilance, and reaction time but also increases anxiety in susceptible individuals (Acquas et al., 2002; Rossi et al., 2010). Caffeine blocks adenosine receptors in the brain and can relieve headaches, drowsiness, and fatigue. Short-term caffeine deprivation in regular users results in withdrawal symptoms (Rogers, 1995).

Omega-3 fatty acids, found in various foods can influence, mood, behavior, neuroticism, and impulse control (Van Strater and Bouvy, 2006; Conklin et al., 2007; Stahl et al., 2008). Omega-3 fatty acids play a role in major depressive disorder, bipolar disorder, schizophrenia, substance abuse, and attention deficit disorder (Young and Martin, 2003; Parker et al., 2006a; Van Strater and Bouvy, 2006; Stahl et al., 2008). Docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA), both members of the omega-3 fatty acid family, contribute to the fluidity of the cell membrane, and thereby play an important role in brain development and function (Pawels and Volterrani, 2008). Low blood levels of polyunsaturated omega-3 fatty acids are associated with depression, implying a role in mood disorders (Lombard, 2000; Sanchez-Villegas et al., 2007; Antypa et al., 2012; Moranis et al., 2012; Kang and Gleason, 2013; Grosso et al., 2014).

Micronutrients, such as thiamine (vitamin B1), iron, and folic acid, play a role in emotion. Thiamine containing foods influence mood states (Benton et al., 1995). Improved thiamine status increases well-being, sociability, and overall energy levels. Insufficient amounts of thiamine are associated with impaired mood and cognitive functioning (Benton et al., 1997; Benton and Donohoe, 1999).

Iron deficiency represents one of the most common nutritional problems worldwide. Iron deficiency anemia can result in depressed mood, and problems with attention and lethargy (Benton and Donohoe, 1999).

Folic acid plays an important role in the brain. Folic acid deficiency is associated with depressed mood (Coppen and Bolander-Gouaille, 2005; Young, 2007). Psychiatric patients often run the risk of developing folic acid deficiency due to loss of appetite from anticonvulsant drugs that inhibit folic acid absorption (Ottley, 2000). Collectively, these findings suggest foods influence mood.

Mood can influence food preference (Christensen and Brooks, 2006). Choice of eating palatable foods can either lead to comfort feeling or disgust. A good example of behavioral change that is observed after taking a meal is altered mood. A general effect of meal on behavior is observed from animals to humans where hunger leads to irritability and meal intake leads to arousal and alertness. Thus, a search for food is cultivated. Once satiety sets in, sedentary and calm behaviors most likely have positive rather than negative effect on mood (Macht and Simons, 2000; Macht et al., 2003; Macht and Dettmer, 2006; Macht, 2008). A potential internal information route on emotional behavior was first recognized in 2001 where nutrients from gut were relayed to the brain by the vagus nerve affecting emotions (Zagon, 2001). However, the relationship of emotions, physiological arousal, and mood in a given situation is significantly dependent upon on the

subject's motivational state (Reid and Hammersley, 1999) and the individual's personality trait of neuroticism that interacts with mood and response to emotional stimuli (Dess and Edelheit, 1998).

The pathogenesis of both mood and metabolic disorders during obesity can be triggered by certain diets (Wallin and Rissanen, 1994; Sanchez-Villegas and Martinez-Gonzalez, 2013). Diets like Western diets that are rich in saturated fat and low in poly-unsaturated and mono-unsaturated fatty acids tend to increase the incidences of depression (Peet et al., 1998). On the other hand, diet like the Mediterranean diet appears to reduce depression (Sanchez-Villegas and Martinez-Gonzalez, 2013; Sanchez-Villegas et al., 2013). Furthermore, many reports show the increased incidence of depression on diets that lack omega-3 polyunsaturated fatty acids (PUFA) and that depression is reduced when intake of PUFA is increased in both humans (Lin and Su, 2007; Sanchez-Villegas et al., 2007; Oddy et al., 2011; Park et al., 2012a) and rodents (Moranis et al., 2012; Park et al., 2012b). Besides mood changes, high fat diets promote increased weight gain, visceral adipose tissue, larger waist circumference, and more cardiovascular disease mortality (Schulze et al., 2006; Molenaar et al., 2009; Romaguera et al., 2009, 2010; Mozaffarian et al., 2011; Estruch and Salas-Salvado, 2013; Nazare et al., 2013). The accumulation of adipose tissue in abdominal stores leads to several complications of obesity including insulin resistance leading to metabolic syndrome (Despres et al., 2006; Tchernof and Despres, 2013). These changes also lead to neurobiological impairments affecting mood disorders such as depression and anxiety (Weber-Hamann et al., 2002; Van Reedt Dortland et al., 2013a,b). It is believed that increased circulating plasma fatty acids such as palmitic acid enters the brain and impairs neurological function (Tsuboi et al., 2013). Palmitic acid impairs leptin and insulin receptor signaling in the hypothalamus and promotes weight gain (Benoit et al., 2009; Kleinridders et al., 2009). Under these circumstances, obesity is promoted, as well as a negative emotional state. In addition, leptin and insulin have been noted to influence mood (Gonder-Frederick La et al., 1989; Lu et al., 2006; Lu, 2007; Zeman et al., 2009; Ryan et al., 2012).

Furthermore, several studies have shown humans on high fat diet manifest mood disorders like depression that correlates positively with high serum palmitate (Tsuboi et al., 2013). Similarly, rats on high fat diet display increased anxiety-like behavior, altered body weight, plasma insulin, leptin, and glucose levels when compared to rats on iso-caloric olive oil high fat diet that show no changes in body weight, glycaemia, leptin, and insulin levels (Hryhorczuk et al., 2013). Thus, saturated fats stimulate HPA disturbances and/or inflammation, leading to anxiogenic-like behavior in animals and depression in humans. All together these findings suggest an association between certain foods and improved mood.

Psychiatric and Eating Disorders

The Diagnostic and Statistical Manuals of Mental Disorders (DSM-5), which was developed by the American Psychiatric Association in 1994, reported disturbed eating behaviors in psychiatric disorders (American Psychiatric Association, 2013). In humans, melancholic depression is associated with hypercortisolism, anhedonia, hypophagia, and weight loss (Fisher et al., 1997; Krishnan and Nestler, 2008; Ulrich-Lai and Herman, 2009; Hammack et al., 2010; Carroll et al.,

2012; Hryhorczuk et al., 2013; Patterson and Abizaid, 2013; Schellekens et al., 2013b). In contrast to atypical depression, the most common forms of depression are characterized by reduced hypothalamic pituitary adrenal axis (HPA) activity, increased appetite, carbohydrate craving, and weight gain (Juruena and Cleare, 2007). Those with abdominal obesity are associated with hyperactive HPA axis due to an elevated response to corticotrophin releasing hormone (CRH) stimulation and increased stimulated response to stress (Pasquali, 2012).

Altered serum cortisol level is associated with depression (Parker et al., 2003; Raison and Miller, 2003; Stetler and Miller, 2011). Altered cortisol, HPA axis, and food intake have been associated with depression (Ulrich-Lai and Herman, 2009; Dallman, 2010; Schellekens et al., 2012a). The neuronal pathways that regulate food intake, and circuitries that act *via* the HPA axis are implicated in a complex two-way relationship of three concepts between mood, food, and eating behavior (Figure 1) (Kyrou and Tsigos, 2009; Ulrich-Lai and Herman, 2009; Dallman, 2010; Schellekens et al., 2012b, 2013b). It is noted that there is an overlap in neural circuitry of food intake and stress that likely reinforces a link between stress and feeding behavior (Maniam and Morris, 2012). These overlapping circuitries of HPA axis modulating feeding behavior and stress converge on corticosterone hormone producing neurons in the paraventricular nucleus (PVN). Thus, elevated glucocorticoid and a dysfunctional HPA axis are common to both depression and obesity.

Glucocorticoids exert multiple effects on metabolic, endocrine, immune, and behavioral functions. Glucocorticoids regulate reward and emotional processes *via* their receptors in midbrain and limbic circuits (Arnett et al., 2011; Solomon et al., 2012; Hryhorczuk et al., 2013; Patterson and Abizaid, 2013; Wang et al., 2013). Glucocorticoids not only act peripherally to maintain energy homeostasis but also centrally to modulate HPA activity, emotional, and behavioral effects of stress (Fedoroff et al., 2003; Figueiredo et al., 2003). Under physiologic acute stress, the HPA axis is activated, and glucocorticoids are released. This leads to a major restoration of energy balance by increasing insulin, increasing motivation for palatable food (Piazza and Le Moal, 1997; Dallman et al., 2006; Dallman, 2010), and mobilizing stored energy toward central stores that leads to obesity (Mann and Thakore, 1999). Thus, obesity and mood disorder are linked *via* the HPA axis. In rodents, chronic corticosterone exposure leads to increased glucocorticoid receptor (GC) expression in fore-brain and basolateral amygdala that results in depressive-like, anxiety-like behaviors, and increased locomotors (Wei et al., 2004; Boyle et al., 2005, 2006). Therefore, these findings suggest that a deficit in glucocorticoid signaling in distinct brain regions may play a role in affective disorder.

Obesity and Mood

Obesity increases incidence of anxiety and mood disorders (Simon et al., 2006). Stress induced overeating and obesity is also associated with major depression in humans (Novick et al., 2005; Simon et al., 2006; Kloiber et al., 2007). Individuals under chronic stress tend to have more visceral fat due to excessive systemic cortisol levels (Brown et al., 2004; Adam and Epel, 2007; Kyrou and Tsigos, 2009). In all, there appears to be a good association between hypercortisolemic

depression, abdominal fat accumulation (Weber-Hamann et al., 2002), decreased glucocorticoid-mediated negative feed back, and increased corticotropin releasing hormone (CRH) release from the paraventricular nucleus (PVN) (Holsboer, 2000). Furthermore, major depression in adolescence is linked to a higher risk for obesity in adulthood (Richardson et al., 2003). It is also noted that metabolic conditions are exacerbated in depression and vice versa (Mcelroy et al., 2004; Simon et al., 2006; De Wit et al., 2010; Luppino et al., 2010; Marijnissen et al., 2011). Like-wise, stress significantly impacts food intake in both humans and animals, thereby promoting metabolic disturbances (Block et al., 2009; Dallman, 2010; Maniam and Morris, 2012). Overeating can also be considered to be analogous to drugs of use because it reflects an addiction where individuals become physically and psychologically dependent on foods rich in fat and sugar (Avena et al., 2008, 2009; Barry et al., 2009; Parylak et al., 2011; Allen et al., 2012; Davis, 2013). Reports also show that with intake of palatable rewarding food, acute stress responses are reduced (Dallman et al., 2003; Lutter and Elmquist, 2009; Chuang et al., 2011; Kumar et al., 2013), thereby showing the potential of "comfort eating" in stress relief. All together these findings suggest that there is a reciprocal link in mood disorder and obesity.

Peripheral System in Regulation of Mood, Food, and Obesity

The gut-brain axis mediates the communication between brain and gut when it comes to appetite, satiety, and energy homeostasis (Cummings and Overduin, 2007; Ahima and Antwi, 2008; Blevins and Baskin, 2010; Gibson et al., 2010; Suzuki et al., 2010, 2012). Furthermore, peripheral hormones have also been reported to regulate mood, food intake, and obesity (Tschop et al., 2000; Nakazato et al., 2001; Olszewski et al., 2008; Blevins and Baskin, 2010; Suzuki et al., 2010; Andrews, 2011b; Dickson et al., 2011; Egecioglu et al., 2011; Skibicka and Dickson, 2011; Overduin et al., 2012; Perello and Zigman, 2012; Karra et al., 2013). Gastrointestinal signals such as cholecystokinin (CCK), bombesin, glucagon eneterostatin, insulin, resistin, somatedin, cyclohistiyl-proline, leptin, amylin, and apolipoprotein A-IV are all known to reduce food intake. The exception is ghrelin, which increases food intake. Several peripheral factors that engage the CNS in a bi-directional manner and influence mood and food intake are summarized in Table 1 and discussed below.

Ghrelin

A gut orexigenic hormone ghrelin is synthesized in the stomach and acts centrally to mediate increased food intake *via* central pathways (Kojima et al., 1999, 2004; Tschop et al., 2000; Nakazato et al., 2001; Andrews, 2011a; Diz-Chaves, 2011). The hypothalamus in the brain directly senses peripheral ghrelin and modifies the energy status (Schaeffer et al., 2013). Studies support that ghrelin reaches the brain *via* the vagus afferents to the nucleus solitary tract (NST), which further projects to the arcuate nucleus of the hypothalamus (Asakawa et al., 2001; Date et al.,

2002; Williams and Mobarhan, 2003). Ghrelin activates downstream signaling *via* the hormone secretagogue receptor (GSH-R1a) where it is ubiquitously expressed in multiple brain regions and in peripheral tissues. Due to multiple sites of GSH-R1a expression, it is not surprising that ghrelin performs many other biological activities of growth hormone secretion, glucose and lipid metabolism, and gastrointestinal motility. However, other properties of GHS-R1a allowing dimerization with multiple G-protein coupled receptors suggest the likelihood of cross talk between many other neuropeptide systems of serotonin and dopamine (Schellekens et al., 2013a,b). Thus, ghrelin has the potential to engage multiple neuropeptide systems in mood, food, and obesity.

The ghrelinergic system also mediates the non-homeostatic hedonic rewarding and motivational aspects of food intake *via* mesolimbic dopaminergic circuitry (Dickson et al., 2011; Egecioglu et al., 2011; Skibicka et al., 2011; Perello and Zigman, 2012). Studies support ghrelin's involvement in stress mediated food reward behavior (Perello et al., 2010; Kumar et al., 2013; Chuang et al., 2011; Diz-Chaves, 2011). Numerous studies provide a link between ghrelin and affective disorders, such as depression and anxiety (Schanze et al., 2008; Barim et al., 2009; Kluge et al., 2009). Ghrelin also alleviates depression (Kluge et al., 2011). All together these studies suggest that the ghrelinergic system is an attractive system to target stress associated metabolic and mood associated eating disorders in obesity.

Serotonin

Serotonin has numerous functions besides regulating mood that includes regulation of sleep, appetite, and impulse control (Steiger, 2004; Daubert and Condron, 2010; Nordquist and Oreland, 2010; Mosienko et al., 2012). Serotonin levels from the gut and alimentary canal constitutes about 80–90% of the human body's total serotonin and not in the brain. This is surprising, as serotonin dictates most of our mood and happiness (Wurtman and Wurtman, 1989; Benton and Donohoe, 1999). Central serotonin pathways participate in the regulation of mood and modulate meal patterns in terms of quality and quantity. Neurotransmitter release of serotonin from serotonergic neurons in the brain is governed by food intake (Shabbir et al., 2013). The essential amino acid tryptophan that comes from food is the precursor for serotonin synthesis (Prasad, 1998). Ingestion of carbohydrates increases the plasma ratio of tryptophan to other large neutral amino acids leading to increased serotonin synthesis in the brain and alleviating depression. Such is the case for carbohydrate craving during depression that often leads to obesity and vice versa (Pepino et al., 2009; Shabbir et al., 2013). This is observed during stress, winter depression, or in people trying to give up smoking. Nicotine increases brain serotonin secretion and its withdrawal leads to depression (Wallin and Rissanen, 1994; Wurtman and Wurtman, 1996). Brain serotonin plays a role in the pathophysiology of depression, as treatments with serotonin potentiating drugs alleviates depression in seasonal affective disorder (Wurtman, 1993). Based on these findings it has been suggested that the excessive carbohydrate intake by patients with premenstrual syndrome (PMS) and seasonal affective disorder (SAD) relieves the depressive symptoms *via* an increased central serotonergic activity (Cizza et al., 2005; Miller, 2005). A diet rich in carbohydrates can

relieve depression and elevate mood (Wurtman and Wurtman, 1989; Benton and Donohoe, 1999). Furthermore, research has shown that dieters tend to become depressed as the serotonin levels are reduced due to decreased carbohydrate intake (Huether et al., 1997). Thus, these studies imply that certain foods are strong mood regulators.

Leptin

Low leptin levels have been found to be associated with human depression and depression-like behaviors in rodents (Kraus et al., 2001; Lu et al., 2006; Guo et al., 2012; Lawson et al., 2012). Antidepressant-like effect of leptin in leptin insufficiency or leptin resistance suggests the hormone contributes to altered mood (Lu, 2007). Increased visceral fat and dyslipidemia are associated with several endocrine and metabolic changes that link to CNS control of emotional states and mood (Hryhorczuk et al., 2013). As an endocrine gland, adipose tissue secretes numerous peptide hormones that target the brain and peripheral tissues to regulate metabolism and behavior. Leptin circulates in proportion to fat mass (Maffei et al., 1995). Leptin impacts several physiological processes such as appetite, energy expenditure, and neuroendocrine function. The hormone has also been linked to human depression and has been shown in rodents to have antidepressant and anxiolytic effects (Asakawa et al., 2003; Liu et al., 2010; Yamada et al., 2011; Lawson et al., 2012). Nevertheless, there are conflicting findings of leptin levels and depression, which are discussed below.

Major depressive disorder (MDD) has been shown to be associated with lower plasma leptin levels when compared to healthy controls (Kraus et al., 2001; Atmaca et al., 2002, 2008; Westling et al., 2004; Jow et al., 2006). On the other hand, there are reports showing increased plasma leptin levels in depression (Kraus et al., 2002; Esel et al., 2005; Schilling et al., 2013), gender specific increased leptin levels in women with depressive disorder (Rubin et al., 2002; Esel et al., 2005; Zeman et al., 2009), as well as no changes of leptin by antidepressant treatment (Esel et al., 2005). In depressed individuals suffering from loss of appetite, plasma leptin levels do not differ from those of healthy controls (Deuschle et al., 1996). In another study, it was found that higher serum leptin was associated with atypical depressive patients with increased appetite (Gecici et al., 2005). In older men, a combination of elevated visceral fat and high leptin levels was associated with depression (Milaneschi et al., 2012), and high leptin correlated positively with depressive symptoms in patients with type 2 diabetes (Labad et al., 2012). Thus, these reports suggest more studies are required to draw a better conclusion regarding the role of leptin in human depression.

Interestingly, rodent studies have provided the most conclusive findings. Leptin modulates the HPA axis and mice that lack leptin (obese *ob/ob* mice or its leptin receptor (obese *db/db* mice) show increased depression-like behavior (Collin et al., 2000; Asakawa et al., 2003; Lu et al., 2006; Finger et al., 2010; Liu et al., 2010; Sharma et al., 2010; Yamada et al., 2011; Guo et al., 2012, 2013). Furthermore, leptin deficient *ob/ob* mice have elevated corticosterone that can be reduced by leptin replacement (Garthwaite et al., 1980; Arvaniti et al., 2001). In contrast, chronic unpredictable mild stress in rats activates the HPA axis and leads to depressive-like behaviors that correlate with decreased serum leptin levels (Ge et al., 2013). Leptin receptors (LepRb) in midbrain and forebrain

loci that affect emotional processes are targeted by leptin. Genetic deletion of LepRb in the hippocampus results in a depression-like phenotype, which is reduced by leptin administration to the hippocampus thereby showing an antidepressant effects (Asakawa et al., 2003; Lu et al., 2006; Finger et al., 2010; Liu et al., 2010; Guo et al., 2013). Loss of LepRb specifically in glutamatergic neurons of the forebrain elicits depressive-like behavior without affecting anxiety (Guo et al., 2012). Stress-induced dopamine release is also associated with high leptin (Burghardt et al., 2012). Leptin activates dopamine neurons in the VTA of the midbrain reducing dopamine neuronal firing and increases dopamine availability (Fulton et al., 2006; Hommel et al., 2006). Selective deletion of LepRb from midbrain dopamine neurons results in increased anxiety-like behavior, but not depressive-like behavior (Liu et al., 2011). LepRb signaling in limbic and prefrontal nuclei mediates the antidepressant action of leptin. In contrast, leptin in dopamine neurons of the ventral midbrain and in central nucleus of the amygdala leptin signaling exerts the anxiolytic actions of leptin. Thus, leptin signaling in different brain regions exerts different physiological behaviors.

In conditions of central obesity that favors insulin resistance and type 2 diabetes, leptin sensitivity is diminished. Leptin resistance is associated with high plasma leptin levels and defective LepRb signaling. These states are characteristic of obesity and increase the risk for mood disorders (Myers et al., 2012). Mice made obese by a high fat diet intake show reduced sensitivity to effects of leptin and antidepressant actions of leptin when compared to low-fat diet treated controls (Yamada et al., 2011). Further, leptin insensitivity exacerbates HPA dysregulation in obesity (Komorowski et al., 2000; Collura et al., 2009) and thereby enhances the mass of dysfunctional central adipose stores in a cortisol-dependent manner. Leptin resistance has been reported to be associated with the mid brain VTA where mesolimbic DA neurons reside (Matheny et al., 2011). Leptin resistance appears to affect multiple neural and endocrine pathways including hippocampal, mesolimbic dopamine pathways, and HPA activity ultimately affecting emotions and mood. Thus, these studies provide evidence of leptin related mechanisms underlying depression in obesity.

Adiponectin

Low levels of another adipose-derived hormone, adiponectin, has been implicated in energy homeostasis, metabolic disturbances, insulin resistance (Kennedy et al., 2006; Hanley et al., 2007; Turer and Scherer, 2012; Hryhorczuk et al., 2013) and recently, depression in humans (Arita et al., 1999; Cnop et al., 2003; Ryo et al., 2004; Leo et al., 2006; Narita et al., 2006; Hanley et al., 2007; Weber-Hamann et al., 2007; Yilmaz, 2008) and rodents (Maeda et al., 2001; Milan et al., 2002; Delporte et al., 2004; Ye et al., 2007). Changes in adiponectin levels are secondary to metabolic disturbances in obesity (Morrison et al., 2011; Doumatey et al., 2012). There are conflicting reports of either positive or negative associations of adiponectins levels with mood disorder (Yilmaz, 2008; Zeman et al., 2009; Jeong et al., 2012; Wilhelm et al., 2013), or no changes in patients with major depressive disorder or with antidepressants (Lehto et al., 2010; Jeong et al., 2012). Mice exposed to chronic social defeat recapitulate the low levels of adiponectin, stress-induced depressive-like behaviors, and impaired HPA axis (Liu et al., 2012). Interestingly central administration of

adiponectin has antidepressant effects (Liu et al., 2012). Thus, a link between plasma adiponectin levels and depression is observed in mice. In contrast, humans show more ambiguous results depending on the type of depressive disorder, sex, and treatment.

Resistin

Adipocyte-derived resistin is linked to insulin resistance in rodent models of depression-like behavior while in humans, the role of resistin is less defined (Schwartz and Lazar, 2011; Hryhorczuk et al., 2013). In genetic and diet induced obese mice circulating resistin levels are elevated (Steppan et al., 2001). In contrast, resistin is down regulated in human obesity (Way et al., 2001; Degawa-Yamauchi et al., 2003; Owecki et al., 2011; Sadashiv et al., 2012). However, there is one study that shows a positive correlation between resistin levels and atypical depression (Lehto et al., 2010). In human depression, however, resistin levels positively correlate with salivary cortisol (Krsek et al., 2004; Silha et al., 2004; Weber-Hamann et al., 2007). Conversely, resistin levels are lower in patients receiving antidepressant treatment who have remitted from depression (Weber-Hamann et al., 2007). Thus, these studies imply that resistin plays a role in affecting mood.

Insulin

From a recent systematic review and meta-analysis there appears to be a significant cross-sectional association between depression and insulin resistance (Kan et al., 2013) and there is a bi-directional association between diabetes and depressed mood. Depression is associated with pre-diabetes insulin resistance (Anderson et al., 2001; Kan et al., 2013) and obesity (Hamer et al., 2012). However, there exists a weak association of insulin resistance and depression (Adriaanse et al., 2006; Platt et al., 2013; Shen and Bergquist-Beringer, 2013). High fat diet intake impairs the hypothalamic insulin receptor signaling (De Souza et al., 2005; Kim and Feldman, 2012) and reduced hypothalamic insulin signaling promotes weight gain and negative emotional states (Gustafson et al., 1999; Koponen et al., 2008; Akbaraly et al., 2009; Almeida et al., 2009; Benoit et al., 2009; Kleinridders et al., 2009; Pulkki-Raback et al., 2009; Platt et al., 2013). Intranasal insulin ameliorates self-reported mood, reduce cortisol levels, and visceral obesity (Benedict et al., 2004; Chapman et al., 2013). Further treating patients with major depressive disorder and abdominal obesity, the insulin-sensitizing drug pioglitazone shows reduced sign of depression, anxiety, and reduced insulin resistance (Kemp et al., 2012).

In rodents, reduced insulin receptor signaling impacts mood when placed on a long-term 30%kcal fat diet that shows anxiolytic effects (Marks et al., 2009). Similarly, rosiglitazone administered to normal chow-fed mice and rats show an antidepressant action in behavioral despair tests (Eissa Ahmed et al., 2009; Ryan et al., 2012). Antisense RNA targeting the insulin receptor in rats results in increased depression-like behavior and anxiety-like behavior (Grillo et al., 2011). By and large, these results suggest that insulin signaling is involved in mood. However,

further studies are required to determine whether intranasal insulin has antidepressant effects in depressed individuals and, if so, whether this action is maintained in obesity.

To summarize, food intake is regulated by the peripheral and central system that are engaged in a bi-directional manner. Peripheral signals mostly modulate satiety and indicate adiposity signal to the brain. Ghrelin is the only peripheral hormone that induces hunger but interestingly it is also involved in mood and hedonic aspects of food intake. There are several brain regions involved in food intake that overlaps brain areas involved in drugs of abuse and reward. Overlapping brain regions of reward, mood, and food intake suggests that molecular changes in these regions may provide further insights in to distinct and overlapping pathways that could aid in understanding clinical treatments of comorbidity of mood disorder, overeating, and obesity.

Chapter 7 References

Chapter 7 Cover Image- Carrot, Kale, Walnuts, Tomatoes, Vegetable, Food. dbreen. Made available under Creative Commons CC0 1.0 Universal Public Domain Dedication https://pixabay.com/en/carrot-kale-walnuts-tomatoes-1085063/

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CHAPTER 8: PHYSICAL ACTIVITY AND EXERCISE

Chapter 8 Learning Objectives

Learning Objectives

By the end of Chapter 8 you will be able to:

1. Describe the benefits of physical activity
2. Explain what an adult would need to do to accomplish in a week meet the physical activity guidelines.
3. Name the three components of muscle strengthening.
4. Describe what one would need to do to complete a bone strengthening activity.
5. Explain the impact of physical activity on stress.

The Benefits of Physical Activity

Regular physical activity is one of the most important things you can do for your health. It can help:

- Control your weight
- Reduce your risk of cardiovascular disease
- Reduce your risk for type 2 diabetes and metabolic syndrome
- Reduce your risk of some cancers
- Strengthen your bones and muscles
- Improve your mental health and mood
- Improve your ability to do daily activities and prevent falls, if you're an older adult
- Increase your chances of living longer

If you're not sure about becoming active or boosting your level of physical activity because you're afraid of getting hurt, the good news is that **moderate-intensity aerobic activity**, like brisk walking, is generally **safe for most people**.

Start slowly. Cardiac events, such as a heart attack, are rare during physical activity. But the risk does go up when you suddenly become much more active than usual. For example, you can put yourself at risk if you don't usually get much physical activity and then all of a sudden do vigorous-intensity aerobic activity, like shoveling snow. That's why it's important to start slowly and gradually increase your level of activity.

If you have a chronic health condition such as arthritis, diabetes, or heart disease, talk with your doctor to find out if your condition limits, in any way, your ability to be active. Then, work with your doctor to come up with a physical activity plan that matches your abilities. If your condition stops you from meeting the minimum *Guidelines*, try to do as much as you can. What's important is that you avoid being inactive. Even 60 minutes a week of moderate-intensity aerobic activity is good for you.

The bottom line is – the health benefits of physical activity far outweigh the risks of getting hurt.

If you want to know more about how physical activity improves your health, the section below gives more detail on what research studies have found.

Control Your Weight

Looking to get to or stay at a healthy weight? Both diet and physical activity play a critical role in controlling your weight. You gain weight when the calories you burn, including those burned during physical activity, are less than the calories you eat or drink. For more information see our section on balancing calories. When it comes to weight management, people vary greatly in

how much physical activity they need. You may need to be more active than others to achieve or maintain a healthy weight.

To maintain your weight: Work your way up to 150 minutes of moderate-intensity aerobic activity, 75 minutes of vigorous-intensity aerobic activity, or an equivalent mix of the two each week. Strong scientific evidence shows that physical activity can help you maintain your weight over time. However, the exact amount of physical activity needed to do this is not clear since it varies greatly from person to person. It's possible that you may need to do more than the equivalent of 150 minutes of moderate-intensity activity a week to maintain your weight.

To lose weight and keep it off: You will need a high amount of physical activity unless you also adjust your diet and reduce the amount of calories you're eating and drinking. Getting to and staying at a healthy weight requires both regular physical activity and a healthy eating plan. The CDC has some great tools and information about nutrition, physical activity and weight loss. For more information, visit Healthy Weight

Reduce Your Risk of Cardiovascular Disease

Heart disease and stroke are two of the leading causes of death in the United States. But following the Guidelines and getting at least 150 minutes a week (2 hours and 30 minutes) of moderate-intensity aerobic activity can put you at a lower risk for these diseases. You can reduce your risk even further with more physical activity. Regular physical activity can also lower your blood pressure and improve your cholesterol levels.

Reduce your risk of Type 2 Diabetes and Metabolic Syndrome

Regular physical activity can reduce your risk of developing type 2 diabetes and metabolic syndrome. Metabolic syndrome is a condition in which you have some combination of too much fat around the waist, high blood pressure, low HDL cholesterol, high triglycerides, or high blood sugar. Research shows that lower rates of these conditions are seen with 120 to 150 minutes (2 hours to 2 hours and 30 minutes) a week of at least moderate-intensity aerobic activity. And the more physical activity you do, the lower your risk will be.

Already have type 2 diabetes? Regular physical activity can help control your blood glucose levels. To find out more, visit Diabetes and Me.

Reduce Your Risk of Some Cancers

Being physically active lowers your risk for two types of cancer: colon and breast. Research shows that:

- Physically active people have a lower risk of colon cancer than do people who are not active.
- Physically active women have a lower risk of breast cancer than do people who are not active.

Reduce your risk of endometrial and lung cancer.

Although the research is not yet final, some findings suggest that your risk of endometrial cancer and lung cancer may be lower if you get regular physical activity compared to people who are not active.

Improve your quality of life. If you are a cancer survivor, research shows that getting regular physical activity not only helps give you a better quality of life, but also improves your physical fitness.

Strengthen Your Bones and Muscles

As you age, it's important to protect your bones, joints and muscles. Not only do they support your body and help you move, but keeping bones, joints and muscles healthy can help ensure that you're able to do your daily activities and be physically active. Research shows that doing **aerobic, muscle-strengthening and bone-strengthening physical activity** of at least a moderately-intense level **can slow the loss of bone density** that comes with age.

Hip fracture is a serious health condition that can have life-changing negative effects, especially if you're an older adult. But research shows that people who do 120 to 300 minutes of at least moderate-intensity aerobic activity each week have a lower risk of hip fracture.

Regular physical activity helps with arthritis and other conditions affecting the joints. If you have arthritis, research shows that doing 130 to 150 (2 hours and 10 minutes to 2 hours and 30 minutes) a week of moderate-intensity, low-impact aerobic activity can not only improve your ability to manage pain and do everyday tasks, but it can also make your quality of life better.

Build strong, healthy muscles. Muscle-strengthening activities can help you increase or maintain your muscle mass and strength. Slowly increasing the amount of weight and number of repetitions you do will give you even more benefits, no matter your age.

Improve Your Mental Health and Mood

Regular physical activity can help keep your thinking, learning, and judgment skills sharp as you age. It can also reduce your risk of depression and may help you sleep better. Research has shown that doing aerobic or a mix of aerobic and muscle-strengthening activities 3 to 5 times a week for 30 to 60 minutes can give you these mental health benefits. Some scientific evidence has also shown that even lower levels of physical activity can be beneficial.

Improve Your Ability to do Daily Activities and Prevent Falls

A functional limitation is a loss of the ability to do everyday activities such as climbing stairs, grocery shopping, or playing with your grandchildren.

How does this relate to physical activity? If you're a physically active middle-aged or older adult, you have a lower risk of functional limitations than people who are inactive

Already have trouble doing some of your everyday activities? Aerobic and muscle-strengthening activities can help improve your ability to do these types of tasks.

Are you an older adult who is at risk for falls? Research shows that doing **balance** and **muscle-strengthening activities** each week along with **moderate-intensity aerobic activity**, like brisk walking, can help reduce your risk of falling.

Increase Your Chances of Living Longer

Science shows that physical activity can reduce your risk of dying early from the leading causes of death, like heart disease and some cancers. This is remarkable in two ways:

1. Only a few lifestyle choices have as large an impact on your health as physical activity. People who are physically active for about 7 hours a week have a 40 percent lower risk of dying early than those who are active for less than 30 minutes a week.
2. You don't have to do high amounts of activity or vigorous-intensity activity to reduce your risk of premature death. You can put yourself at lower risk of dying early by doing at least 150 minutes a week of moderate-intensity aerobic activity.

Everyone can gain the health benefits of physical activity – age, ethnicity, shape or size do not matter.

An interactive H5P element has been excluded from this version of the text. You can view it online here:
https://psu.pb.unizin.org/kines082/?p=243#h5p-41

Aerobic Activity

Source: *The Physical Activity Guidelines for Americans Office of Disease Prevention & Health Promotion, U.S. Department of Health and Human Services,http://www.health.gov/paguidelines/guidelines/*

Aerobic activities, also called endurance activities, are physical activities in which people move their large muscles in a rhythmic manner for a sustained period. Running, brisk walking, bicycling, playing basketball, dancing, and swimming are all examples of aerobic activities. Aerobic activity makes a person's heart beat more rapidly to meet the demands of the body's movement. Over time, regular aerobic activity makes the heart and cardiovascular system stronger and fitter.
Aerobic physical activity has these components:

- Frequency
- Intensity, or how hard a person works to do the activity. The intensities most often examined are moderate intensity (equivalent in effort to brisk walking) and vigorous intensity (equivalent in effort to running or jogging);
- Duration, or how long a person does an activity in any one session.

Although these components make up a physical activity profile, research has shown that the total amount of physical activity (minutes of moderate–intensity physical activity, for example) is more important for achieving health benefits than is any one component (frequency, intensity, or duration).

Key Guidelines for Adults

All adults should avoid inactivity. Some physical activity is better than none, and adults who participate in any amount of physical activity gain some health benefits.
For substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity. Aerobic activity should be performed in episodes of at least 10 minutes, and preferably, it should be spread throughout the week.
For additional and more extensive health benefits, adults should increase their aerobic physical activity to 300 minutes (5 hours) a week of moderate-intensity, or 150 minutes a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity activity. Additional health benefits are gained by engaging in physical activity beyond this amount.
Adults should also do muscle-strengthening activities that are moderate or high intensity and

involve all major muscle groups on 2 or more days a week, as these activities provide additional health benefits.

How Much Total Activity a Week?

When adults do the equivalent of 150 minutes of moderate-intensity aerobic activity each week, the benefits are *substantial*. These benefits include lower risk of premature death, coronary heart disease, stroke, hypertension, type 2 diabetes, and depression.

Not all health benefits of physical activity occur at 150 minutes a week. As a person moves from 150 minutes a week toward 300 minutes (5 hours) a week, he or she gains additional health benefits. Additional benefits include lower risk of colon and breast cancer and prevention of unhealthy weight gain.

Also, as a person moves from 150 minutes a week toward 300 minutes a week, the benefits that occur at 150 minutes a week become *more extensive*. For example, a person who does 300 minutes a week has an even lower risk of heart disease or diabetes than a person who does 150 minutes a week.

The benefits continue to increase when a person does more than the equivalent of 300 minutes a week of moderate-intensity aerobic activity. For example, a person who does 420 minutes (7 hours) a week has an even lower risk of premature death than a person who does 150 to 300 minutes a week. Current science does not allow identifying an upper limit of total activity above which there are no additional health benefits.

How Many Days a Week and for How Long?

Aerobic physical activity should preferably be spread throughout the week. Research studies consistently show that activity performed on at least 3 days a week produces health benefits. Spreading physical activity across at least 3 days a week may help to reduce the risk of injury and avoid excessive fatigue.

Both moderate- and vigorous-intensity aerobic activity should be performed in episodes of at least 10 minutes. Episodes of this duration are known to improve cardiovascular fitness and some risk factors for heart disease and type 2 diabetes.

The *Guidelines* for adults focus on two levels of intensity: moderate-intensity activity and vigorous–intensity activity. To meet the Guidelines, adults can do either moderate-intensity or vigorous-intensity aerobic activities, or a combination of both. It takes less time to get the same benefit from vigorous-intensity activities as from moderate-intensity activities. A general rule of thumb is that 2 minutes of moderate-intensity activity counts the same as 1 minute of vigorous-intensity activity. For example, 30 minutes of moderate-intensity activity a week is roughly the same as 15 minutes of vigorous-intensity activity.

A person doing moderate-intensity aerobic activity can talk, but not sing, during the activity. A

person doing vigorous intensity activity cannot say more than a few words without pausing for a breath.

Moderate Intensity

- Walking briskly (3 miles per hour or faster, but not race-walking)
- Water aerobics
- Bicycling slower than 10 miles per hour
- Tennis (doubles)
- Ballroom dancing
- General gardening

Vigorous Intensity

- Racewalking, jogging, or running
- Swimming laps
- Tennis (singles)
- Aerobic dancing
- Bicycling 10 miles per hour or faster
- Jumping rope
- Heavy gardening (continuous digging or hoeing, with heart rate increases)
- Hiking uphill or with a heavy backpack

An interactive H5P element has been excluded from this version of the text. You can view it online here:
https://psu.pb.unizin.org/kines082/?p=248#h5p-42

Muscle-Strengthening Activity

Source: *The Physical Activity Guidelines for Americans Office of Disease Prevention & Health Promotion, U.S. Department of Health and Human Services.http://www.health.gov/paguidelines/guidelines/*

This kind of activity, which includes **resistance training** and lifting weights, causes the body's muscles to work or hold against an applied force or weight. These activities often involve relatively heavy objects, such as weights, which are lifted multiple times to train various muscle groups. Muscle-strengthening activity can also be done by using elastic bands or body weight for resistance (climbing a tree or doing push-ups, for example).

Muscle-strengthening activity also has three components:

- **Intensity**, or how much weight or force is used relative to how much a person is able to lift;
- **Frequency**, or how often a person does muscle strengthening activity; and
- **Repetitions**, or how many times a person lifts a weight (analogous to duration for aerobic activity). The effects of muscle-strengthening activity are limited to the muscles doing the work. It's important to work all the major muscle groups of the body: the legs, hips, back, abdomen, chest, shoulders, and arms.

Muscle-strengthening activities provide additional benefits not found with aerobic activity. The benefits of muscle-strengthening activity include increased bone strength and muscular fitness. Muscle-strengthening activities can also help maintain muscle mass during a program of weight loss.

Muscle-strengthening activities make muscles do more work than they are accustomed to doing. That is, they overload the muscles. Resistance training, including weight training, is a familiar example of muscle-strengthening activity. Other examples include working with resistance bands, doing calisthenics that use body weight for resistance (such as push-ups, pull-ups, and sit-ups), carrying heavy loads, and heavy gardening (such as digging or hoeing).

Muscle-strengthening activities count if they involve a moderate to high level of intensity or effort and work the major muscle groups of the body: the legs, hips, back, chest, abdomen, shoulders, and arms. Muscle strengthening activities for all the major muscle groups should be done at least 2 days a week.

No specific amount of time is recommended for muscle strengthening, but muscle-strengthening exercises should be performed to the point at which it would be difficult to do another repetition without help. When resistance training is used to enhance muscle strength, one set of 8 to 12 repetitions of each exercise is effective, although two or three sets may be more effective. Development of muscle strength and endurance is progressive over time. Increases in the amount of weight or the days a week of exercising will result in stronger muscles.

Bone-Strengthening Activity

Source: *The Physical Activity Guidelines for Americans Office of Disease Prevention & Health Promotion, U.S. Department of Health and Human Services .http://www.health.gov/paguidelines/guidelines/*

This kind of activity (sometimes called weight-bearing or weight-loading activity) produces a force on the bones that promotes bone growth and strength. This force is commonly produced by impact with the ground. Examples of bone-strengthening activity include jumping jacks, running, brisk walking, and weight-lifting exercises. As these examples illustrate, bone-strengthening activities can also be aerobic and muscle strengthening.

An interactive H5P element has been excluded from this version of the text. You can view it online here:
https://psu.pb.unizin.org/kines082/?p=253#h5p-44

The Impact of Physical Activity on Stress

One of the most eminent stressors in students' lives is academic stress (AS).[1] Students report experiencing AS at predictable times each semester with the greatest extent at the end of a semester, resulting from taking and studying for exams, grade competition and the large amount of time invested in studying.[2–5]

The effectiveness of AS as a psychosocial stressor is well established regarding repercussions on physiological and psychological health.[6] It has been shown that AS has negative implications on physiological health variables, such as immune functions (suppresses cellular immunity while preserving humoral immunity)[7] and neuroendocrine functions (increase in adrenocorticotropic hormone levels and cortisol levels, when perceiving high stress).[8] Furthermore, in AS periods, different effects on psychological parameters can be detected, such as increased anxiety,[9] poor sleep quality,[10] a negative effect on well-being,[11] increased negative affectivity[12] and increases in the prevalence of depressive symptoms.[13] Based on these findings, it can be assumed that times of high AS (ie, examination periods) have a negative impact on health-related physiological and psychological outcomes.

Evidence suggests the relationship between stress and sleep quality to be bidirectional: 1) high stress levels have negative effects on sleep quality[14] and 2) poor sleep quality affects subsequent stress levels.[15] Regarding the effect of stress on sleep quality, a growing body of research suggests that high stress levels negatively influence sleep quality.[16] Taking AS as the stress-evoking situation, a study conducted by Lund et al[10] found that students with higher stress levels also report poorer sleep quality and more negative mood and illness. Regarding the reverse effect of sleep quality on stress, studies have shown that sleep deprivation (ie, poor sleep quality) potentiated stress responses of the hypothalamic–pituitary–adrenal (HPA) axis (ie, cortisol secretion) in a similar way as real stress does[17] and that reactivity to a psychosocial laboratory stressor after sleep deprivation was increased compared to that in normal sleeping participants. These effects have also been shown for psychological stress outcomes, as participants with poor sleep quality showed significantly more fatigue and lower behavioral alertness.[17,18] These results were also confirmed in a longitudinal approach with student's sleep quality and duration predicting mood and self-esteem, showing direct and indirect effects on academic performance.[19]

Well-being is commonly defined as the optimal functioning that enables an individual to live an effective life and to accomplish satisfaction in life and genuine happiness.[20] It has been found to be inversely related to perceived stress in students,[21] meaning that students show decreased well-being in high stress periods, whereby poor well-being also has a negative effect on health.[22] Sugiura et al[21] have shown that well-being has a protective role in the relationship between stress and health. To avoid any stress-induced health complaints in AS periods, well-being can be seen as a resource of mental health, which should be obtained even in phases of high stress.

The impact of positive affect (PA) and negative affect (NA; or mood in common) is an important aspect of health behavior changes (ie, to change or maintain the healthy behavior even in times of high stress).[23] Therefore, in an AS situation, changes in health behavior are often coupled with changes in affectivity, with a progression from positive affectivity to a negative one. Studies

have shown that high levels of PA are positively correlated to desirable health behaviors such as nutrition or drug avoidance in low stress situations and therefore should be maintained in high stress periods.[24] As opposed to this, this pattern changes in phases with high stress, showing significant increases in NA as well as decreases in PA and health-related outcomes (ie, depression, psychosomatic symptoms and chronic difficulties).[25] Therefore, a temporally stable PA disposition may be related to adaptive health behaviors in AS periods.[26]

Taken together, it is well known that sleep quality, well-being and affectivity are negatively affected by stress and that their deterioration has negative impacts on general health. It needs to be asked, however, how healthy students in AS periods can counteract these negative effects of stress on health. Although there is evidence that physical activity and exercise (as part of behavioral activation interventions) can alleviate symptoms of depression,[26] bipolar spectrum symptomatology[27] or mood disorders[28] in clinical student samples, less is known about their influence in healthy student populations. A meta-analysis conducted by Regehr et al[29] found several interventions to counteract these negative implications. These authors stated that interventions can be divided into three subgroups, cognitive, behavioral and/or mindfulness-based techniques. Most of the studies found a positive effect of interventions on physiological and psychological stress parameters (eg, anxiety, depressive symptoms and well-being). However, it is surprising that physical activity does not appear as an intervention method in this review, as it is commonly known to positively affect physiological (ie, the cardiovascular system)[30] and psychological health (ie, cognitive functions).[31] Moreover, its positive effect on health-related outcomes in stressful situations is commonly known. The stress-buffering hypothesis, which was derived from the assumption of Cohen and Willis,[32] who found social support to protect individuals from potentially pathogenetic effects of stress, is one of the most discussed assumptions on how physical activity might influence the stress-coping system. This hypothesis postulates that physical activity (which is hereafter used as a hypernym, including all exercise activities and activities with exercise character such as bicycling) might act as a moderator of the stress–health relationship by reducing the detrimental effects of stress on physical and mental health and therefore can buffer the negative effects of stress on health.[33,34] This hypothesis has been verified in many studies for acute activity[35] as well as for habitual, regular activity.[33]

Based on these findings, the present study was conducted to shed light on the question whether those students, who are regularly physically active, have higher sleep quality, higher well-being and higher PA in AS periods than those who do not. In the present study, the regular examination period at the end of each semester therefore serves as a naturalistic stressor for studying the effects of stress on health outcomes. In particular, it is hypothesized that 1) sleep quality, well-being and PA decrease (NA increases) over time from baseline to AS period in all subjects. Moreover, it is assumed that 2) physically active students – while progressing from baseline to AS period – show better sleep quality, higher well-being and more positive and less negative affectivity than their inactive counterparts. This would confirm the stress-buffering effect of physical activity among healthy students in a naturalistic stress setting for the first time.

Methods

Participants

A total of 64 university students (M_{age} = 23.13 ± 5.12 years, 67% women) volunteered in the current study. Participation was voluntary and could be discontinued at every point without any disadvantages. Since the current study involved only a survey and the obtained information

from the participants was recorded pseudonymized in a manner that human subjects cannot be identified and/or linked to the specific data, this study was exempted from obtaining informed consent prior to questioning. Nevertheless, this study complies with the Declaration of Helsinki[36] and the Belmont Report[37] in its entirety.

Although participants enrolled in different faculties, most of them were psychology students (88%). They, however, were able to gain participation credits by providing their code after study termination.

Task and procedure

Participants completed a total of five surveys, with T1 at the end of the semester break, which lasted from the end of July until mid October (serving as baseline condition, as it is hypothesized that this is the most unstressful time in the semester), and T2–T5 being presented every Friday in the last 4 weeks of the semester, representing the stressful examination period. T1 and T5 slightly differed from T2, T3 and T4, as additional data were acquired. In total, five different measurements were used in this study: the total amount of physical activity per week as well as sleep quality, well-being, affect and perceived stress.

Physical activity

Physical activitity was assessed using the German Physical Activity, Exercise, and Sport Questionnaire ([Bewegungs- und Sportaktivität Fragebogen]; BSA-F).[38] Participants were instructed to name the number of different exercise activities they participated during the last week and to indicate the frequency and duration of each episode in minutes for every activity. The latter amounts were added up to obtain a total activity index in minutes per week.

Sleep quality

To assess sleep quality of participants, the German version of the Pittsburgh Sleep Quality Index (PSQI) was used.[39,40] Subjects were asked to answer a total of 19 questions, assessing a wide variety of factors relating to sleep quality, including estimates of sleep duration and latency as well as the frequency and severity of specific sleep-related problems they possibly perceived over the last 7 days. These 19 items were grouped into seven component scores, each weighted on a 0–3 scale. These seven components were then summed to yield a global PSQI score, which had a range of 0–21, with higher scores indicating poorer sleep quality. A score worse (ie, higher) than “5” is an empirically validated cutoff value for bad sleep quality.[39]

Well-being

For the acquisition of interindividual well-being, the German Questionnaire for Assessing Subjective Physical Well-Being ([Fragebogen zur Erfassung des körperlichen Wohlbefindens]; FEW-16) was applied.[41] Here, participants had to answer 16 questions, each loading on one of the four subscales (resilience, vitality, ease of mind and ability of enjoyment). Answers were coded from 1 (strongly disagree) to 6 (strongly agree), resulting in a total sum score of well-being between 16 and 96.

Positive and negative affect

To ascertain positive and negative affectivity in participants, the Positive and Negative Affect Schedule (PANAS) was used.[42,43] Here, subjects had to rate a total of 24 adjectives on a 5-point Likert scale from 1 (very slightly or not at all) to 5 (extremely), depending on the intensity they felt like this in the last week. Examples were “interested” for PA or “upset” for NA. Ten items could be summarized to a score for positive and negative affectivity, respectively, ranging from 12 to 60.

Perceived stress

To determine the extent to which students perceived their life to be stressful, the 14 items from the Perceived Stress Scale (PSS) were used.[44] Participants were instructed to indicate how often they encountered stressful events within the last week. Responses were given on a 5-point Likert scale ranging from 0 (never) to 4 (very often). Participants could reach a total sum score ranging from 0 to 56.

Results

A preliminary manipulation check was performed in order to examine whether students indeed perceived the AS phase as a real-life stressor. The empirical mean stress scores of the PSS measured within the AS phase (ie, within times T2–T5) showed pronounced medium to large differences from the baseline measurement at T1, indicating support for this assumption (Figure 1).

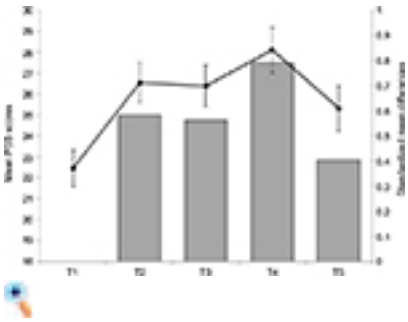

Figure 1 PSS scores and standardized mean differences for every measurement occasion, from baseline (T1) throughout the examination period (T2-T5).

Notes: Line graph displays mean scale scores of perceived stress with error bars representing 95% confidence intervals. The vertical bars show the standardized difference between the mean scores of measurement occasions compared to baseline at T1.

Abbreviation: PSS, Perceived Stress Scale.

Table 1 shows the mean scores for each dependent variable. It can be seen, however, that overall sleep quality, well-being and PA decrease until T4, which is the point in time where most examinations took place. In the week between T4 and T5, 89% of participants completed their examinations. However, for some students, some examinations took place after T5 as well, but the overall (mental) health started to increase again from T4 onward. Positive affectivity, however, was actually even higher at T5 than at the end of the semester break (T1), probably resulting from the fall of the enormous weight of writing examinations.

Table 1 Mean scores (M) and SD values for the four dependent variables, as well as for physical activity on all five measurement occasions

Abbreviations: SD, standard deviation; PA, positive affect; NA, negative affect.

Subsequently, to test our hypotheses, we generated and tested a series of multilevel growth curve models using HLM 7.[45] Since hypothesis 1 builds on the basic assumption that students exhibit change (ie, deterioration) in their sleep quality, (positive) affectivity and well-being over the course of the examination period, separate unconditional growth models were constructed to examine this change over time.[46] Preliminary analyses revealed that a second-order quadratic change trajectory, including two time predictors (ie, a linear and a quadratic one), yielded the best model fit for all dependent variables. For every model, the time predictor was centered at the initial status. Accordingly, the models tested were as follows:

$$Level\ 1: Y_{ij} = \pi_{0i} + \pi_{1i} TIME_{ij} + \pi_{2i} TIME_{ij}^2 + \varepsilon_{ij}$$

$$Level\ 2: \pi_{0i} = \gamma_{00} + \zeta_{0i}$$
$$\pi_{1i} = \gamma_{10} + \zeta_{1i}$$
$$\pi_{2i} = \gamma_{20} + \zeta_{2i}$$

The level 1 component represents the individual growth model that defines the value of the dependent variable of every individual as a function of a systematic growth parameter plus random error. Up to this point, the level 1 model is very similar to a typical regression model, but the growth parameters are assumed to randomly vary across individuals, what is represented by residual terms of level 2. This specification of level 1 and level 2 components is called an unconditional growth model because it involves no substantive predictor variables beyond the ones capturing change over time (ie, TIME and $TIME^2$). Accordingly, this model can be used to test hypothesis 1. Table 2 summarizes the results for the unconditional growth model for every dependent variable.

Table 2 Results of the unconditional growth models for the four dependent variables

Abbreviations: PSQI, Pittsburgh Sleep Quality Index; FEW, Fragebogen zur Erfassung des Wohlbefindens; PA, positive affect; NA, negative affect; PANAS, Positive and Negative Affect Schedule.

Hypothesis 1 was confirmed for every dependent variable, as the coefficients associated with the TIME predictors are all significant and indicate a worsening of sleep quality, well-being and affectivity. However, these initial negative effects diminish over time, as indicated by the $TIME^2$ coefficient. Therefore, the curves reach their angular points at some points in time, with values of dependent variables approaching baseline levels again.

In a next step, we analyzed whether this change over time is the same for all participants or whether there are differences between participants regarding their levels of physical activity. To test for this prediction associated with hypothesis 2, conditional growth models were set up for each dependent variable, including physical activity as a time-varying predictor at level 1. Since both a predictor that incorporates the main effect of physical activity and a predictor that represents the interaction between time and activity were included, the tested model extended to:

$$Level\ 1: Y_{ij} = \pi_{0i} + \pi_{1i} TIME_{ij} + \pi_{2i} TIME_{ij}^2 + \pi_{3i} ACTIVITY + \pi_{4i}\ (ACTIVITY\ \times\ TIME) + \varepsilon_{ij}$$

$$Level\ 2: \pi_{0i} = \gamma_{00} + \zeta_{0i}$$
$$\pi_{1i} = \gamma_{10} + \zeta_{1i}$$
$$\pi_{2i} = \gamma_{20} + \zeta_{2i}$$
$$\pi_{3i} = \gamma_{30} + \zeta_{3i}$$
$$\pi_{4i} = \gamma_{40} + \zeta_{4i}$$

Note that the main effect presents a direct effect of physical activity (ie, students differ in the health-related variables as a function of physical activity) and that the interaction term implies the assumption associated with the stress-buffering hypothesis (ie, different patterns of change within the examination period as a function of physical activity).

When comparing level 1 error variance between the unconditional growth model and the subsequent conditional growth model, it can be concluded that the within-individual variance associated with differences in physical activity for every dependent measure is not negligible (ie, 6% for sleep quality, 19% for well-being, 18% for PA and 7% for NA). Results of the four conditional growth models are shown in Table 3.

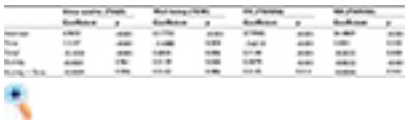

Table 3 Results of the conditional growth models for the four dependent variables

Abbreviations: PSQI, Pittsburgh Sleep Quality Index; FEW, Fragebogen zur Erfassung des Wohlbefindens; PA, positive affect; NA, negative affect; PANAS, Positive and Negative Affect Schedule.

Examining the regression coefficients for sleep quality in the conditional model, no significant main effect for physical activity, $t(63) = 0.049$, $p = 0.961$, could be detected, but a significant interaction between physical activity and time, $t(63) = -2.851$, $p < 0.01$, indicating different patterns of change in sleep quality over time depending on one's activity level was observed (Table 2).

For well-being, the conditional growth model revealed a significant main effect for physical activity, $t(63) = 2.095$, $p < 0.05$, indicating that physically active students feel better in general (Table 2). Moreover, the interaction between physical activity and time is significant by trend, $t(63) = 1.743$, $p = 0.086$.

Regarding affectivity, physical activity provoked different effects for PA and NA (Table 2). For PA, results showed both, a significant main effect for physical activity, $t(63) = 4.164$, $p < 0.001$, and a significant interaction, $t(63) = 2.555$, $p < 0.05$. For NA, only the main effect yielded significance, $t(63) = -4.763$, $p < 0.001$, but not the interaction between time and activity, $t(63) = -0.111$, $p = 0.912$.

Discussion

The first goal of the present study was to assess changes in health-related outcomes (sleep quality, well-being and affectivity) as students progress from stress-free times to more stressful times of their semester. Results confirm the first hypothesis showing a significant deterioration of

sleep quality, well-being and PA over time from baseline to the end of the AS period. Moreover, concerning hypothesis 2, results also demonstrate how these changes are shaped as a function of physical activity. To illustrate this influence, the regression coefficients were used to determine estimated trajectories for three prototypical activity levels based on common classifications of the World Health Organization (WHO):[47] 1) highly active students who indicate at least 300 minutes of moderate intensity activity per week, 2) moderately active students with a reported amount of moderate intensity activity up to 150 minutes per week and 3) sedentary students who are not active at all (Figure 2).

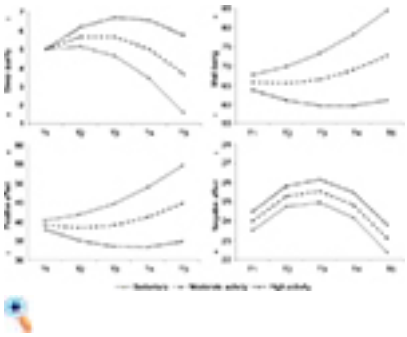

Figure 2 Estimated pattern of change in sedentary, moderate and high physical activity levels for sleep quality, subjective well-being, PA and NA.

Abbreviations: PA, positive affect; NA, negative affect.

These classifications are considered prototypes since they build on the assumption of a constant amount of physical activity over all measurement occasions. Since studying and taking exams are very time-consuming for many students, these classifications are neither likely nor supported by the empirical data. Indeed, we found physical activity to decrease continuously over the measurement occasions in our data set (from an average amount of physical activity of 211 minutes at T1 to 88 minutes at T5). Such changes in the amount of physical activity would appear in Figure 2 as a discontinuous shift. For example, imagine a student who engages in 300 minutes of physical activity at the baseline measurement (T1). This would lead to an estimated value of 5.00 in sleep quality. Over the course of the semester, he manages to maintain his level of physical activity until T2 (estimated value: 5.15). Accordingly, he would follow the solid line (high activity) and exhibit only minor deterioration in sleep quality until then. If this student now entirely stops being physically active, his sleep quality would shift and follow the dotted line in Figure 2 afterward (sedentary; T3 = 6.70; T4 = 6.56; T5 = 5.75).

For all dependent variables, results are discussed in more detail in the following section.

Concerning sleep quality, highly active, moderately active and sedentary students did not differ at baseline (T1). However, overall sleep quality was rather poor in all students over all 5 points of measurement (M = 5.89, SD = 2.96; Table 1), given that Buysse et al[39] proposed a cutoff at 5 points, with a higher score indicating bad sleep quality. However, the fact that no main effect of weekly physical activity on sleep quality could be detected in this study is contradictory to the results of studies on the effect of acute physical activity on sleep in healthy subjects. Youngstedt et al[47] found in a meta-analysis that acute physical activity showed a positive impact on total sleep time, deep sleep and rapid eye movement (REM) sleep and therefore had a positive impact on sleep quality in total. Kredlow et al[48] confirmed these results in a recent meta-analysis as they found a longer sleep duration, shorter latency and better deep sleep as a result of acute physical activity. In a 3-week intervention of aerobic exercise training, Kalak et al[49] also found positive effects of

acute physical activity on subjective sleep quality. However, this does not seem to be the case in our study, which may be due to the fact that students are also more stressed and have lower sleep quality in the semester break, as they need to work or do an internship and/or write academic project papers, so that physical activity loses its positive effect due to higher stress levels.

Moreover, a systematic review on the influence of physical activity on sleep insomnia (as sometimes caused by stress phases such as AS periods) showed a significant reduction in sleep latency and drug use in physically active people suffering from insomnia.[50] In this population, a randomized controlled trial on the effect of acute activity (for at least 150 minutes per week, as advised by the WHO)[51] also indicated a significant improvement in sleep quality and a decrease in insomnia symptoms, depressive symptoms and anxiety.[52] The present study confirmed these findings, as physical activity had a positive effect on sleep quality during the AS period, which is shown to deteriorate sleep patterns in students.[53]

It is known that stress negatively affects well-being in students.[54] This finding was replicated by the present results as impaired well-being was detected in students in more stressful times during the AS phase. Moreover, many large-scale studies have shown the positive effect of physical activity on well-being (eg, the Scottish Health Survey[55] or the Copenhagen Heart Study[56]), which was confirmed by the main effect in the present study. Students who are more physically active feel generally better than those who are not active at all. However, as there was no interaction found in the present study, this pattern did not change in AS periods.

Whereas NA is accepted to predict increased risk of illness and mortality, PA is associated with lower morbidity and decreased symptoms.[57,58] It is known that AS periods have a negative impact on affective state with NA increased and PA decreased during times of high academic demands,[24] which was replicated in the present findings. However, there is extensive evidence for the proposition that physical activity or exercise is associated with enhanced affect and mood[59] and therefore can buffer the negative effects of stress on affectivity. More active students have higher PA and lower NA than inactive students, as signified by the results of the present study. Moreover, it was shown in previous studies that PA predicts academic performance.[60,61] In this vein, physical activity during the examination period might also have an effect on academic performance, albeit an indirect one. There are many studies providing evidence for the positive effects of physical activity on student performance in school.[62] However, there is a lack of evidence for this relationship in university students. Therefore, future research should aim at examining whether these positive effects do also emerge in AS periods and whether they are a direct effect of physical activity, or whether they are mediated by an increase in positive affectivity or other health-related variables.

The major strengths of this study include the longitudinal design and the usage of AS as a naturalistic stressor. However, the inclusion of only one baseline measure may have been inadequate. For future studies, it may be of interest to include more than one baseline measure in times of little stress to determine if there is any variability in the dependent variables outside of high stress times. External validity of the results should be limited to the specific nature of the sample, as mostly psychology students participated. Results of the present study point to the importance of physical activity in AS periods. Therefore, it can be assumed that the results can provide the basis for activity interventions, which can be offered to students in AS periods to help them maintain their activity levels to buffer the negative effects of stress on health. Another limitation of the present study is that only self-report measures were used. In terms of

the activity measure, this might have led to an erroneous assessment of the actual amount of physical activity due to social desirable responding. In this vein, a study conducted by Dyrstad et al revealed that people tend to overestimate their activity time ascertained via self-report measures when compared to accelerometer data.[63] However, participants of the present study reported decreasing amounts of activity during the AS phase. Therefore, the potential overestimation of physical activity time might only be present as an additive shift that might not lead to a distorted representation of the process modeled within the AS period. However, future studies might use more objective measures, such as accelerometers, for effective activity time and the intensity of the given activity. In this regard, intensity levels or metabolic equivalents (METs) of physical activity could play an important role. It might be that either the intensity of activities per se or the kind of activity moderates the described effects.

Moreover, there are still significant variance components for every conditional model, within both the intercepts and the slopes, that call for additional moderating variables to explain this variability. Owing to personality factors of participants or organizational or cultural conditions, it may be that students have the same amount of stress but cope differently and therefore differ in their perceived amount of stress, as proposed in the transactional theory.[64] Therefore, future studies should examine time-invariant variables, such as organizational skills, coping style, year in college, difficulty of classes, number of credits taken in the semester, other academic pursuits, outside academic responsibilities and personality or organizational culture within different faculties, which can then be integrated on level 2 in the described model. Moreover, additional health-related variables should be included in the following examinations, such as diet, smoking status and drug abuse.

Taken together, the results of the present study suggest a positive effect of physical activity on sleep quality, well-being and affect in AS periods. This effect, however, seems to depend on the total amount of activity made within the stress period. Therefore, it should be students' goal to maintain their physical activity levels (or even to start exercising) in times with high (academic) stress. Moderate intensity activity of 150 minutes/week seems to be enough to profit from the stress-buffering and health-promoting effects. It needs to be asked, however, if an amount of 150 minutes of moderate intensity activity per week is really reconcilable with the imminent work load within the AS phase. If an average student gets lectures for 6–8 hours a day, studies for another 6–8 hours for exams and may need to go to work to fund his studying, it is hardly surprising that students save time by decreasing their activity times. Consequently, future studies should aim at examining possible moderators such as students' time management and non-university workload.

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Chapter 8 References

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CHAPTER 9: EFFICIENT TIME MANAGEMENT

Chapter 9 Learning Objectives

Learning Objectives

By the end of Chapter 9 you will be able to:

1. Define Time Management
2. Explain the Pareto Principle and give an example of how you could use it in your life.
3. Name three factors in time management for successful college studying
4. Using the ABCD Matrix as a reference explain why things that are urgent are not always the most important.
5. Identify three things you should take into consideration when getting a job to help with finances during college.

The Pareto Principle

The **Pareto principle** (also known as the **80/20 rule**, the **law of the vital few,** or the **principle of factor sparsity**) states that, for many events, roughly 80% of the effects come from 20% of the causes. Management consultant Joseph M. Juran suggested the principle and named it after Italian economist Vilfredo Pareto, who noted the 80/20 connection while at the University of Lausanne in 1896, as published in his first paper, "*Cours d'économie politique*". Essentially, Pareto showed that approximately 80% of the land in Italy was owned by 20% of the population; Pareto developed the principle by observing that about 20% of the peapods in his garden contained 80% of the peas. It is a common rule of thumb in business; e.g., "80% of your sales come from 20% of your clients."

Mathematically, the 80/20 rule is roughly followed by a power law distribution (also known as a Pareto distribution) for a particular set of parameters, and many natural phenomena have been shown empirically to exhibit such a distribution.

he 80/20 Rule is one of the most helpful of all concepts of time and life management. It is also called the Pareto Principle after its founder, the Italian economist Vilfredo Pareto, who first wrote about it in 1895. Pareto noticed that people in his society seemed to divide naturally into what he called the "vital few," the top 20% in terms of money and influence, and the "trivial many," the bottom 80%.

The Great Discovery

He later discovered that virtually all economic activity was subject to this Pareto Principle as well.

For example, this rule says that 20% of your activities will account for 80% of your results. 20% of your customers will account for 80% of your sales. 20% of your products or services will account for 80% of your profits. 20% of your tasks will account for 80% of the value of what you do, and so on.

This means that if you have a list of ten items to do, two of those items will turn out to be worth as much or more than the other eight items put together.

The Greatest Payoff

Here is an interesting discovery. Each of these tasks may take the same amount of time to accomplish. But one or two of those tasks will contribute five or ten times the value as any of the others.

Often, one item on a list of ten things that you have to do can be worth more than all the other nine items put together. This task is invariably the one that you should do first.

The Most Valuable Tasks

The most valuable tasks you can do each day are often the hardest and most complex. But the payoff and rewards for completing these tasks efficiently can be tremendous. For this reason, you must adamantly refuse to work on tasks in the bottom 80% while you still have tasks in the top 20% left to be done.

Before you begin work, always ask yourself, "Is this task in the top 20% of my activities or in the bottom 80%?"

Getting Started

The hardest part of any important task is getting started on it in the first place. Once you actually

begin work on a valuable task, you seem to be naturally motivated to continue. There is a part of your mind that loves to be busy working on significant tasks that can really make a difference. Your job is to feed this part of your mind continually.

Managing Your Life

Time management is really life management, personal management. It is really taking control over the sequence of events. Time management is control over what you do next. And you are always free to choose the task that you will do next. Your ability to choose between the important and the unimportant is the key determinant of your success in life and work.

Effective, productive people discipline themselves to start on the most important task that is before them. They force themselves to eat that frog, whatever it is. As a result, they accomplish vastly more than the average person and are much happier as a result. This should be your way of working as well.

Action Exercises

Make a list of all the key goals, activities, projects and responsibilities in your life today. Which of them are, or could be, in the top 10% or 20% of tasks that represent, or could represent, 80% or 90% of your results?

Resolve today that you are going to spend more and more of your time working in those few areas that can really make a difference in you life and career, and less and less time on lower value activities.

Organizing Your Time

People's attitudes toward time vary widely. One person seems to be always rushing around but actually gets less done than another person who seems unconcerned about time and calmly goes about the day. Since there are so many different "time personalities," it's important to realize how you approach time. Start by trying to figure out how you spend your time during a typical week, using Activity 2.

Activity 2: Where Does the Time Go?

See if you can account for a week's worth of time. For each of the activity categories listed, make your best estimate of how many hours you spend in a week. (For categories that are about the same every day, just estimate for one day and multiply by seven for that line.)

Category of activity	Number of hours per week
Sleeping	
Eating (including preparing food)	
Personal hygiene (i.e., bathing, etc.)	
Working (employment)	
Volunteer service or internship	
Chores, cleaning, errands, shopping, etc.	
Attending class	
Studying, reading, and researching (outside of class)	
Transportation to work or school	
Getting to classes (walking, biking, etc.)	
Organized group activities (clubs, church services, etc.)	
Time with friends (include television, video games, etc.)	
Attending events (movies, parties, etc.)	
Time alone (include television, video games, surfing the Web, etc.)	
Exercise or sports activities	
Reading for fun or other interests done alone	
Talking on phone, e-mail, Facebook, etc.	
Other—specify: _____	
Other—specify: _____	

Now use your calculator to total your estimated hours. Is your number larger or smaller than 168, the total number of hours in a week? If your estimate is higher, go back through your list and adjust numbers to be more realistic. But if your estimated hours total fewer than 168, don't just go back and add more time in certain categories. Instead, ponder this question: *Where does the time go?* We'll come back to this question.

Think about your time analysis in Activity 2. People who estimate too high often feel they don't have enough time. They may have time anxiety and often feel frustrated. People at the other extreme, who often can't account for how they use all their time, may have a more relaxed attitude. They may not actually have any more free time, but they may be wasting more time than they want to admit with less important things. Yet they still may complain about how much time they spend studying, as if there's a shortage of time.

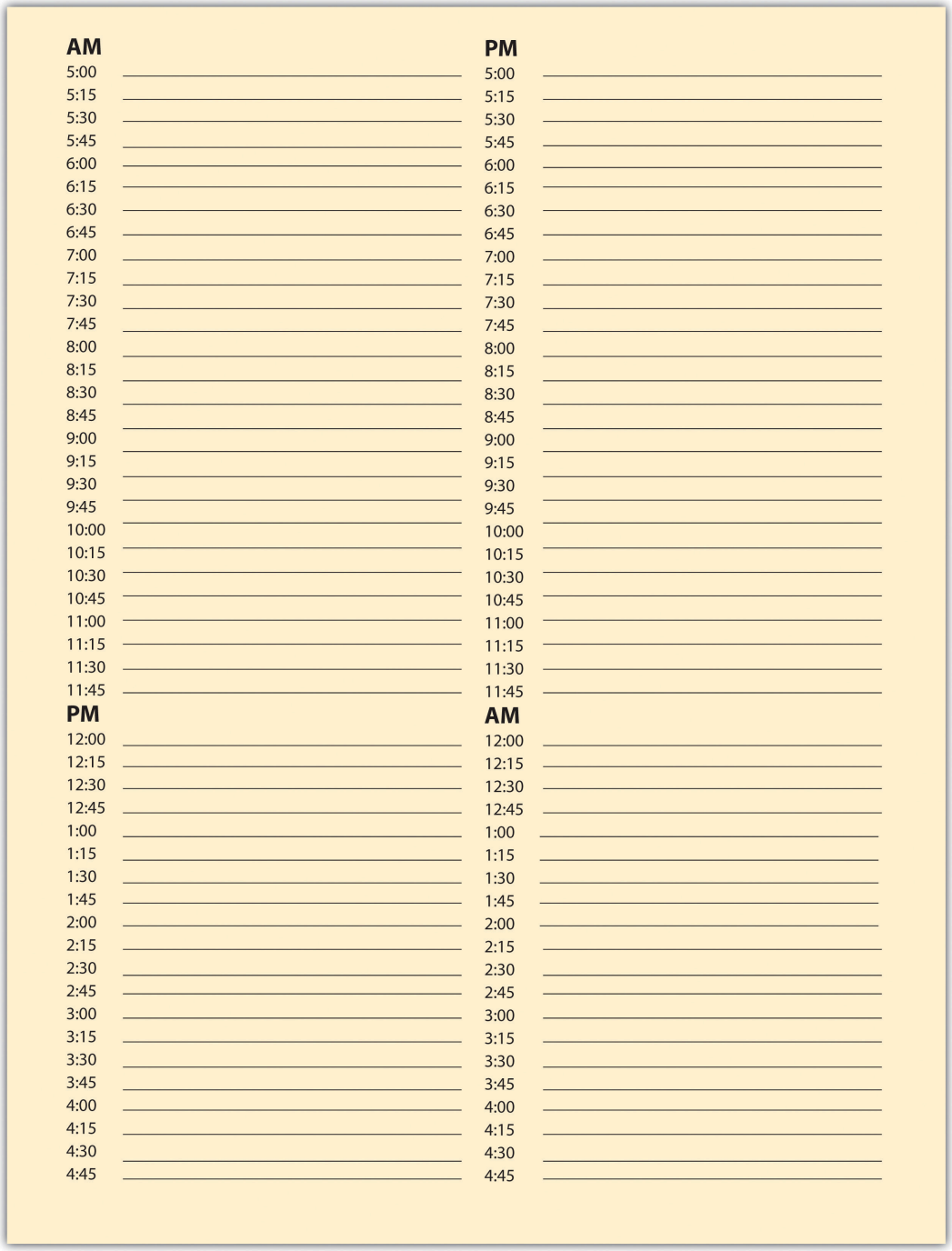
People also differ in how they respond to schedule changes. Some go with the flow and accept changes easily, while others function well only when following a planned schedule and may become upset if that schedule changes. If you do not react well to an unexpected disruption in your schedule, plan extra time for catching up if something throws you off. This is all part of understanding your time personality.

Another aspect of your time personality involves time of day. If you need to concentrate, such

as when writing a class paper, are you more alert and focused in the morning, afternoon, or evening? Do you concentrate best when you look forward to a relaxing activity later on, or do you study better when you've finished all other activities? Do you function well if you get up early—or stay up late—to accomplish a task? How does that affect the rest of your day or the next day? Understanding this will help you better plan your study periods.

While you may not be able to change your "time personality," you can learn to manage your time more successfully. The key is to be realistic. How accurate is the number of hours you wrote down in Activity 2? The best way to know how you spend your time is to record what you do all day in a time log, every day for a week, and then add that up. Make copies of the time log in Figure 2.4 "Daily Time Log" and carry it with you. Every so often, fill in what you have been doing. Do this for a week before adding up the times; then enter the total hours in the categories in Activity 2. You might be surprised that you spend a lot more time than you thought just hanging out with friends—or surfing the Web or playing around with Facebook or any of the many other things people do. You might find that you study well early in the morning even though you thought you are a night person, or vice versa. You might learn how long you can continue at a specific task before needing a break.

Figure 2.4 Daily Time Log



If you have work and family responsibilities, you may already know where many of your hours go. Although we all wish we had "more time," the important thing is what we do with the time we have. Time management strategies can help us better use the time we do have by creating a schedule that works for our own time personality.

Time Management

Time management for successful college studying involves these factors:

- Determining how much time you need to spend studying

- Knowing how much time you actually have for studying and increasing that time if needed
- Being aware of the times of day you are at your best and most focused
- Using effective long- and short-term study strategies
- Scheduling study activities in realistic segments
- Using a system to plan ahead and set priorities
- Staying motivated to follow your plan and avoid procrastination

For every hour in the classroom, college students should spend, on average, about two hours on that class, counting reading, studying, writing papers, and so on. If you're a full-time student with fifteen hours a week in class, then you need another thirty hours for rest of your academic work. That forty-five hours is about the same as a typical full-time job. If you work part time, time management skills are even more essential. These skills are still more important for part-time college students who work full time and commute or have a family. To succeed in college, virtually everyone has to develop effective strategies for dealing with time.

Look back at the number of hours you wrote in Activity 2 for a week of studying. Do you have two hours of study time for every hour in class? Many students begin college not knowing this much time is needed, so don't be surprised if you underestimated this number of hours. Remember this is just an average amount of study time—you may need more or less for your own courses. To be safe, and to help ensure your success, add another five to ten hours a week for studying.

To reserve this study time, you may need to adjust how much time you spend in other activities. Activity 3 will help you figure out what your typical week should look like.

Activity 3: Where Should Your Time Go?

Plan for the ideal use of a week's worth of time. Fill in your hours in this order:

1. Hours attending class
2. Study hours (2 times the number of class hours plus 5 or more hours extra)
3. Work, internships, and fixed volunteer time
4. Fixed life activities (sleeping, eating, hygiene, chores, transportation, etc.)

   Now subtotal your hours so far and subtract that number from 168. How many hours are left? _____ Then portion out the remaining hours for "discretionary activities" (things you don't have to do for school, work, or a healthy life).
5. Discretionary activities

Category of activity	Number of hours per week
Attending class	
Studying, reading, and researching (outside of class)	
Working (employment)	
Volunteer service or internship	
Sleeping	
Eating (including preparing food)	
Personal hygiene (i.e., bathing, etc.)	
Chores, cleaning, errands, shopping, etc.	
Transportation to work or school	
Getting to classes (walking, biking, etc.)	
Subtotal:	
Discretionary activities:	
Organized group activities (clubs, church services, etc.)	
Time with friends (include television, video games, etc.)	
Attending events (movies, parties, etc.)	
Time alone (include television, video games, surfing the Web, etc.)	
Exercise or sports activities	
Reading for fun or other interests done alone	
Talking on phone, e-mail, Facebook, etc.	
Other—specify: _____	
Other—specify: _____	

Note: If you find you have almost no time left for discretionary activities, you may be overestimating how much time you need for eating, errands, and the like. Use the time log in Figure 2.4 "Daily Time Log" to determine if you really have to spend that much time on those things.

Activity 3 shows most college students that they do actually have plenty of time for their studies without losing sleep or giving up their social life. But you may have less time for discretionary activities than in the past. *Something, somewhere has to give.* That's part of time management—and why it's important to keep your goals and priorities in mind. The other part is to learn how to use the hours you do have as effectively as possible, especially the study hours. For example, if you're a typical college freshman who plans to study for three hours in an evening but then procrastinates, gets caught up in a conversation, loses time to checking e-mail and text messages, and listens to loud music while reading a textbook, then maybe you actually spent four hours "studying" but got only two hours of actual work done. So you end up behind and feeling like you're still studying way too much. The goal of time management is to actually get three hours of studying done in three hours and have time for your life as well.

Special note for students who work. You may have almost *no* discretionary time at all left in Activity 3 after all your "must-do" activities. If so, you may have overextended yourself—a situation

that inevitably will lead to problems. You can't sleep two hours less every night for the whole school year, for example, without becoming ill or unable to concentrate well on work and school. It is better to recognize this situation now rather than set yourself up for a very difficult term and possible failure. If you cannot cut the number of hours for work or other obligations, see your academic advisor right away. It is better to take fewer classes and succeed than to take more classes than you have time for and risk failure.

Time Management Strategies for Success

Following are some strategies you can begin using immediately to make the most of your time:

- **Prepare to be successful.** When planning ahead for studying, think yourself into the right mood. Focus on the positive. "When I get these chapters read tonight, I'll be ahead in studying for the next test, and I'll also have plenty of time tomorrow to do X." V*isualize* yourself studying well!
- **Use your best—and most appropriate—time of day.** Different tasks require different mental skills. Some kinds of studying you may be able to start first thing in the morning as you wake, while others need your most alert moments at another time.
- **Break up large projects into small pieces.** Whether it's writing a paper for class, studying for a final exam, or reading a long assignment or full book, students often feel daunted at the beginning of a large project. It's easier to get going if you break it up into stages that you schedule at separate times—and then begin with the first section that requires only an hour or two.
- **Do the most important studying first.** When two or more things require your attention, do the more crucial one first. If something happens and you can't complete everything, you'll suffer less if the most crucial work is done.
- **If you have trouble getting started, do an easier task first.** Like large tasks, complex or difficult ones can be daunting. If you can't get going, switch to an easier task you can accomplish quickly. That will give you momentum, and often you feel more confident tackling the difficult task after being successful in the first one.
- **If you're feeling overwhelmed and stressed because you have too much to do, revisit your time planner.** Sometimes it's hard to get started if you keep thinking about other things you need to get done. Review your schedule for the next few days and make sure everything important is scheduled, then relax and concentrate on the task at hand.
- **If you're really floundering, talk to someone.** Maybe you just don't understand what you should be doing. Talk with your instructor or another student in the class to get back on

track.

- **Take a break.** We all need breaks to help us concentrate without becoming fatigued and burned out. As a general rule, a short break every hour or so is effective in helping recharge your study energy. Get up and move around to get your blood flowing, clear your thoughts, and work off stress.
- **Use unscheduled times to work ahead.** You've scheduled that hundred pages of reading for later today, but you have the textbook with you as you're waiting for the bus. Start reading now, or flip through the chapter to get a sense of what you'll be reading later. Either way, you'll save time later. You may be amazed how much studying you can get done during downtimes throughout the day.
- **Keep your momentum.** Prevent distractions, such as multitasking, that will only slow you down. Check for messages, for example, only at scheduled break times.
- **Reward yourself.** It's not easy to sit still for hours of studying. When you successfully complete the task, you should feel good and deserve a small reward. A healthy snack, a quick video game session, or social activity can help you feel even better about your successful use of time.
- **Just say no.** Always tell others nearby when you're studying, to reduce the chances of being interrupted. Still, interruptions happen, and if you are in a situation where you are frequently interrupted by a family member, spouse, roommate, or friend, it helps to have your "no" prepared in advance: "No, I *really* have to be ready for this test" or "That's a great idea, but let's do it tomorrow—I *just can't* today." You shouldn't feel bad about saying no—especially if you told that person in advance that you needed to study.
- **Have a life.** Never schedule your day or week so full of work and study that you have no time at all for yourself, your family and friends, and your larger life.
- **Use a calendar planner and daily to-do list.** We'll look at these time management tools in the next section.

Battling Procrastination

Procrastination is a way of thinking that lets one put off doing something that should be done now. This can happen to anyone at any time. It's like a voice inside your head keeps coming up with these brilliant ideas for things to do right now other than studying: "I really ought to get this room cleaned up before I study" or "I can study anytime, but tonight's the only chance I have to do X." That voice is also very good at rationalizing: "I really don't need to read that chapter now; I'll have plenty of time tomorrow at lunch…."

Procrastination is very powerful. Some people battle it daily, others only occasionally. Most

college students procrastinate often, and about half say they need help avoiding procrastination. Procrastination can threaten one's ability to do well on an assignment or test.

People procrastinate for different reasons. Some people are too relaxed in their priorities, seldom worry, and easily put off responsibilities. Others worry constantly, and that stress keeps them from focusing on the task at hand. Some procrastinate because they fear failure; others procrastinate because they fear success or are so perfectionistic that they don't want to let themselves down. Some are dreamers. Many different factors are involved, and there are different styles of procrastinating.

Just as there are different causes, there are different possible solutions for procrastination. Different strategies work for different people. The time management strategies described earlier can help you avoid procrastination. Because this is a psychological issue, some additional psychological strategies can also help:

- Since procrastination is usually a habit, accept that and work on breaking it as you would any other bad habit: one day at a time. Know that every time you overcome feelings of procrastination, the habit becomes weaker—and eventually you'll have a new habit of being able to start studying right away.
- Schedule times for studying using a daily or weekly planner. Carry it with you and look at it often. Just being aware of the time and what you need to do today can help you get organized and stay on track.
- If you keep thinking of something else you might forget to do later (making you feel like you "must" do it now), write yourself a note about it for later and get it out of your mind.
- Counter a negative with a positive. If you're procrastinating because you're not looking forward to a certain task, try to think of the positive future results of doing the work.
- Counter a negative with a worse negative. If thinking about the positive results of completing the task doesn't motivate you to get started, think about what could happen if you keep procrastinating. You'll have to study tomorrow instead of doing something fun you had planned. Or you could fail the test. Some people can jolt themselves right out of procrastination.
- On the other hand, fear causes procrastination in some people—so don't dwell on the thought of failing. If you're studying for a test, and you're so afraid of failing it that you can't focus on studying and you start procrastinating, try to put things in perspective. Even if it's your most difficult class and you don't understand *everything* about the topic, that doesn't mean you'll fail, even if you may not receive an A or a B.
- Study with a motivated friend. Form a study group with other students who are motivated and won't procrastinate along with you. You'll learn good habits from them while getting the work done now.
- Keep a study journal. At least once a day write an entry about how you have used your time and whether you succeeded with your schedule for the day. If not, identify what factors kept you from doing your work. (Use the form at the end of this chapter.) This journal will help you see your own habits and distractions so that you can avoid things that lead to procrastination.
- Get help. If you really can't stay on track with your study schedule, or if you're always putting things off until the last minute, see a college counselor. They have lots of experience with

this common student problem and can help you find ways to overcome this habit.

Calendar Planners and To-Do Lists

Calendar planners and to-do lists are effective ways to organize your time. Many types of academic planners are commercially available (check your college bookstore), or you can make your own. Some people like a page for each day, and some like a week at a time. Some use computer calendars and planners. Almost any system will work well if you use it consistently.

Some college students think they don't need to actually write down their schedule and daily to-do lists. They've always kept it in their head before, so why write it down in a planner now? Some first-year students were talking about this one day in a study group, and one bragged that she had never had to write down her calendar because she never forgot dates. Another student reminded her how she'd forgotten a preregistration date and missed taking a course she really wanted because the class was full by the time she went online to register. "Well," she said, "except for that time, I never forget anything!" Of course, none of us ever forgets anything—until we do.

Calendars and planners help you look ahead and write in important dates and deadlines so you don't forget. But it's just as important to use the planner to schedule *your own time*, not just deadlines. For example, you'll learn later that the most effective way to study for an exam is to study in several short periods over several days. You can easily do this by choosing time slots in your weekly planner over several days that you will commit to studying for this test. You don't need to fill every time slot, or to schedule every single thing that you do, but the more carefully and consistently you use your planner, the more successfully will you manage your time.

But a planner cannot contain every single thing that may occur in a day. We'd go crazy if we tried to schedule every telephone call, every e-mail, every bill to pay, every trip to the grocery store. For these items, we use a to-do list, which may be kept on a separate page in the planner.

Check the example of a weekly planner form in Figure 2.5 "Weekly Planner". (You can copy this page and use it to begin your schedule planning. By using this first, you will find out whether these time slots are big enough for you or whether you'd prefer a separate planner page for each day.) Fill in this planner form for next week. First write in all your class meeting times; your work or volunteer schedule; and your usual hours for sleep, family activities, and any other activities at fixed times. Don't forget time needed for transportation, meals, and so on. Your first goal is to find all the blocks of "free time" that are left over.

Remember that this is an **academic planner**. Don't try to schedule in everything in your life—this is to plan ahead to use your study time most effectively.

Next, check the syllabus for each of your courses and write important dates in the planner. If your planner has pages for the whole term, write in all exams and deadlines. Use red ink or a

highlighter for these key dates. Write them in the hour slot for the class when the test occurs or when the paper is due, for example. (If you don't yet have a planner large enough for the whole term, use Figure 2.5 "Weekly Planner" and write any deadlines for your second week in the margin to the right. You need to know what's coming *next* week to help schedule how you're studying *this* week.)

Figure 2.5 Weekly Planner

HOURS	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
6–7 AM							
7–8							
8–9							
9–10							
10–11							
11–12 PM							
12–1							
1–2							
2–3							
3–4							
4–5							
5–6							
6–7							
7–8							
8–9							
9–10							
10–11							
11–12 AM							
12–1							
1–2							
2–3							
3–4							
4–5							
5–6							

Remember that for every hour spent in class, plan an average of two hours studying outside of class. These are the time periods you now want to schedule in your planner. These times change from week to week, with one course requiring more time in one week because of a paper due at the end of the week and a different course requiring more the next week because of a major exam. Make sure you block out enough hours in the week to accomplish what you need to do. As you

choose your study times, consider what times of day you are at your best and what times you prefer to use for social or other activities.

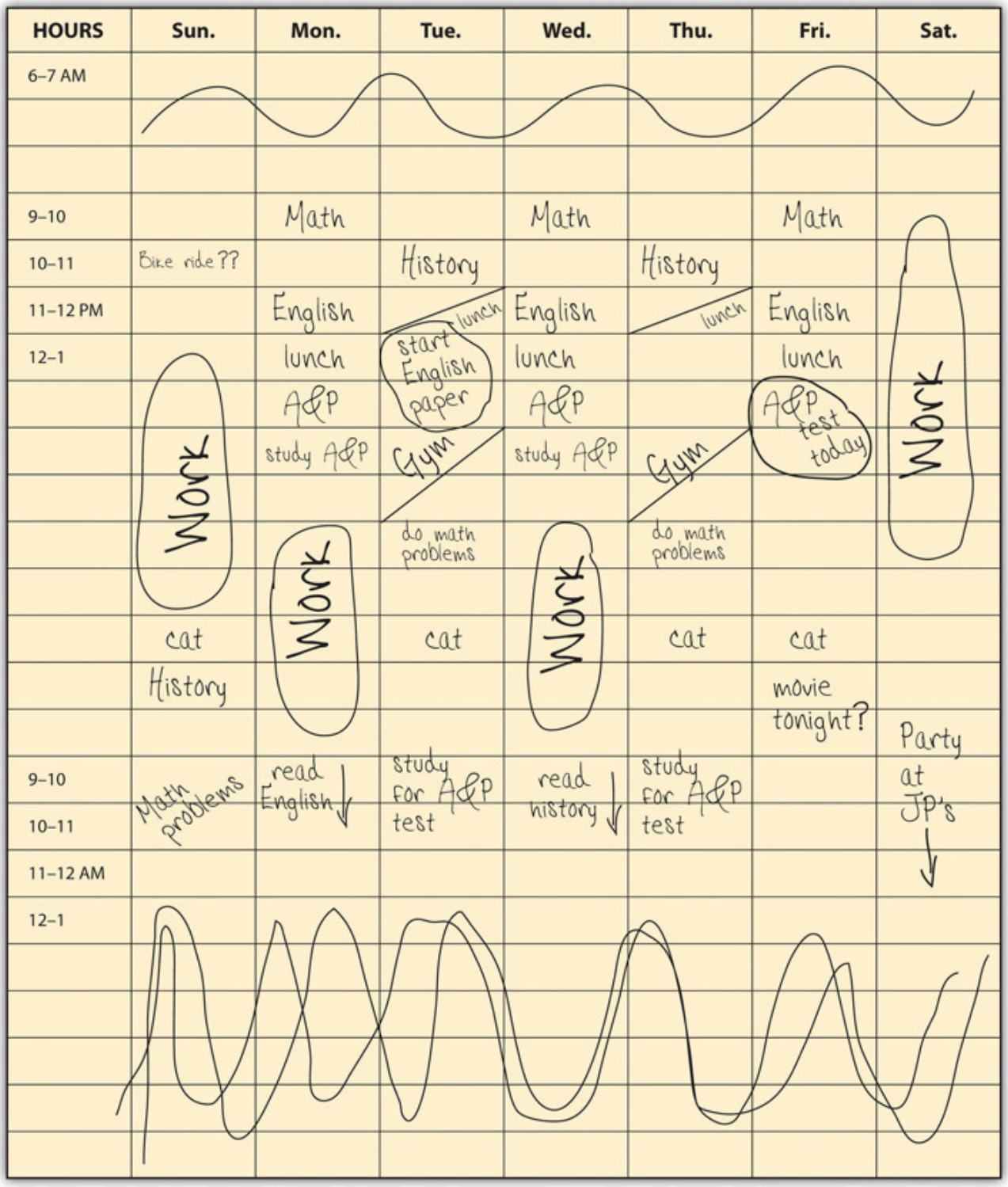
Don't try to micromanage your schedule. Don't try to estimate exactly how many minutes you'll need two weeks from today to read a given chapter in a given textbook. Instead, just choose the blocks of time you will use for your studies. Don't yet write in the exact study activity—just reserve the block. Next, look at the major deadlines for projects and exams that you wrote in earlier. Estimate how much time you may need for each and work backward on the schedule from the due date. For example,

You have a short paper due on Friday. You determine that you'll spend ten hours total on it, from initial brainstorming and planning through to drafting and revising. Since you have other things also going on that week, you want to get an early start; you might choose to block an hour a week ahead on Saturday morning, to brainstorm your topic, and jot some preliminary notes. Monday evening is a good time to spend two hours on the next step or prewriting activities. Since you have a lot of time open Tuesday afternoon, you decide that's the best time to reserve to write the first draft; you block out three or four hours. You make a note on the schedule to leave time open that afternoon to see your instructor during office hours in case you have any questions on the paper; if not, you'll finish the draft or start revising. Thursday, you schedule a last block of time to revise and polish the final draft due tomorrow.

If you're surprised by this amount of planning, you may be the kind of student who used to think, "The paper's due Friday—I have enough time Thursday afternoon, so I'll write it then." What's wrong with that? First, college work is more demanding than many first-year students realize, and the instructor expects higher-quality work than you can churn out quickly without revising. Second, if you are tired on Thursday because you didn't sleep well Wednesday night, you may be much less productive than you hoped—and without a time buffer, you're forced to turn in a paper that is not your best work.

Figure 2.6 "Example of a Student's Weekly Planner Page with Class Times and Important Study Sessions" shows what one student's schedule looks like for a week. This is intended only to show you one way to block out time—you'll quickly find a way that works best for you.

Figure 2.6 Example of a Student's Weekly Planner Page with Class Times and Important Study Sessions



Here are some more tips for successful schedule planning:

- Studying is often most effective immediately after a class meeting. If your schedule allows, block out appropriate study time after class periods.

- Be realistic about time when you make your schedule. If your class runs to four o'clock and it takes you twenty minutes to wrap things up and reach your study location, don't figure you'll have a full hour of study between four o'clock and five o'clock.
- Don't overdo it. Few people can study four or five hours nonstop, and scheduling extended time periods like that may just set you up for failure.
- Schedule social events that occur at set times, but just leave holes in the schedule for other activities. Enjoy those open times and recharge your energies!
- Try to schedule some time for exercise at least three days a week.
- Plan to use your time between classes wisely. If three days a week you have the same hour free between two classes, what should you do with those three hours? Maybe you need to eat, walk across campus, or run an errand. But say you have an average forty minutes free at that time on each day. Instead of just frittering the time away, use it to review your notes from the previous class or for the coming class or to read a short assignment. Over the whole term, that forty minutes three times a week adds up to a lot of study time.
- If a study activity is taking longer than you had scheduled, look ahead and adjust your weekly planner to prevent the stress of feeling behind.
- If you maintain your schedule on your computer or smartphone, it's still a good idea to print and carry it with you. Don't risk losing valuable study time if you're away from the device.
- If you're not paying close attention to everything in your planner, use a colored highlighter to mark the times blocked out for really important things.
- When following your schedule, pay attention to starting and stopping times. If you planned to start your test review at four o'clock after an hour of reading for a different class, don't let the reading run long and take time away from studying for the test.

Your Daily To-Do List

People use to-do lists in different ways, and you should find what works best for you. As with your planner, consistent use of your to-do list will make it an effective habit.

Some people prefer not to carry their planner everywhere but instead copy the key information for the day onto a to-do list. Using this approach, your daily to-do list starts out with your key scheduled activities and then adds other things you hope to do today.

Some people use their to-do list only for things not on their planner, such as short errands, phone calls or e-mail, and the like. This still includes important things—but they're not scheduled out for specific times.

Although we call it a daily list, the to-do list can also include things you may not get to today

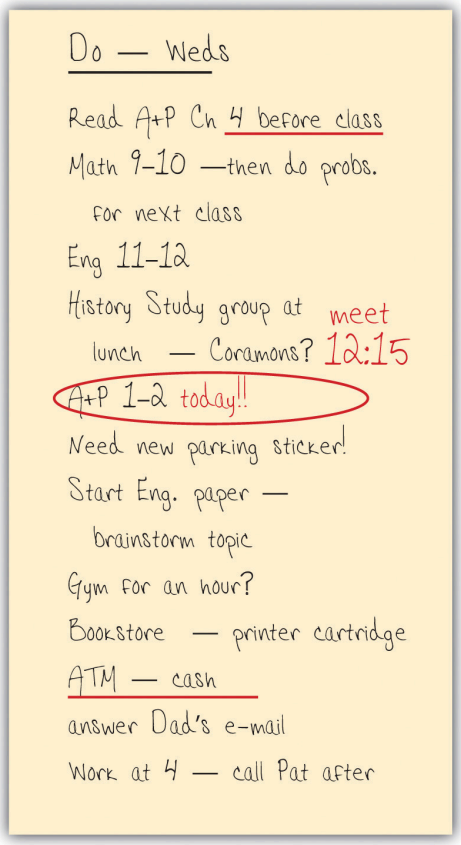
but don't want to forget about. Keeping these things on the list, even if they're a low priority, helps ensure that eventually you'll get to it.

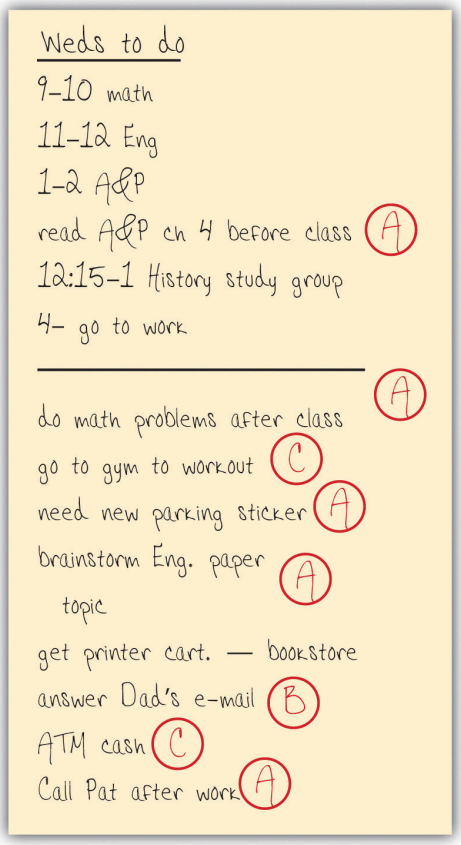
Start every day with a fresh to-do list written in a special small notebook or on a clean page in your planner. Check your planner for key activities for the day and check yesterday's list for items remaining.

Some items won't require much time, but other activities such as assignments will. Include a time estimate for these so that later you can do them when you have enough free time. If you finish lunch and have twenty-five minutes left before your next class, what things on the list can you do now and check off?

Finally, use some system to prioritize things on your list. Some students use a 1, 2, 3 or A, B, C rating system for importance. Others simply highlight or circle items that are critical to get done today. Figure 2.7 "Examples of Two Different Students' To-Do Lists" shows two different to-do lists—each very different but each effective for the student using it.

Figure 2.7 Examples of Two Different Students' To-Do Lists





Use whatever format works best for you to prioritize or highlight the most important activities.

Here are some more tips for effectively using your daily to-do list:

- Be specific: "Read history chapter 2 (30 pages)"—not "History homework."
- Put important things high on your list where you'll see them every time you check the list.
- Make your list at the same time every day so that it becomes a habit.
- Don't make your list overwhelming. If you added *everything* you eventually need to do, you could end up with so many things on the list that you'd never read through them all. If you worry you might forget something, write it in the margin of your planner's page a week or two away.
- *Use* your list. Lists often include little things that may take only a few minutes to do, so check your list any time during the day you have a moment free.
- Cross out or check off things after you've done them—doing this becomes rewarding.
- Don't use your to-do list to procrastinate. Don't pull it out to find something else you just "have" to do instead of studying!

Time Management Tips for Students Who Work

If you're both working and taking classes, you seldom have large blocks of free time. Avoid temptations to stay up very late studying, for losing sleep can lead to a downward spiral in performance at both work and school. Instead, try to follow these guidelines:

- If possible, adjust your work or sleep hours so that you don't spend your most productive times at work. If your job offers flex time, arrange your schedule to be free to study at times when you perform best.
- Try to arrange your class and work schedules to minimize commuting time. If you are a part-time student taking two classes, taking classes back-to-back two or three days a week uses less time than spreading them out over four or five days. Working four ten-hour days rather than five eight-hour days reduces time lost to travel, getting ready for work, and so on.
- If you can't arrange an effective schedule for classes and work, consider online courses that allow you to do most of the work on your own time.
- Use your daily and weekly planner conscientiously. Any time you have thirty minutes or more free, schedule a study activity.
- Consider your "body clock" when you schedule activities. Plan easier tasks for those times when you're often fatigued and reserve alert times for more demanding tasks.
- Look for any "hidden" time potentials. Maybe you prefer the thirty-minute drive to work over a forty-five-minute train ride. But if you can read on the train, that's a gain of ninety minutes every day at the cost of thirty minutes longer travel time. An hour a day can make a huge difference in your studies.
- Can you do quick study tasks during slow times at work? Take your class notes with you and use even five minutes of free time wisely.
- Remember your long-term goals. You need to work, but you also want to finish your college program. If you have the opportunity to volunteer for some overtime, consider whether it's really worth it. Sure, the extra money would help, but could the extra time put you at risk for not doing well in your classes?
- Be as organized on the job as you are academically. Use your planner and to-do list for work matters, too. The better organized you are at work, the less stress you'll feel—and the more successful you'll be as a student also.
- If you have a family as well as a job, your time is even more limited. In addition to the previous tips, try some of the strategies that follow.

Time Management Tips for Students with Family

Living with family members often introduces additional time stresses. You may have family obligations that require careful time management. Use all the strategies described earlier, including family time in your daily plans the same as you would hours spent at work. Don't assume that you'll be "free" every hour you're home, because family events or a family member's need for your assistance may occur at unexpected times. Schedule your important academic work well ahead and in blocks of time you control. See also the earlier suggestions for controlling your space: you may need to use the library or another space to ensure you are not interrupted or distracted during important study times.

Students with their own families are likely to feel time pressures. After all, you can't just tell your partner or kids that you'll see them in a couple years when you're not so busy with job and college! In addition to all the planning and study strategies discussed so far, you also need to manage your family relationships and time spent with family. While there's no magical solution for making more hours in the day, even with this added time pressure there are ways to balance your life well:

- Talk everything over with your family. If you're going back to school, your family members may not have realized changes will occur. Don't let them be shocked by sudden household changes. Keep communication lines open so that your partner and children feel they're together with you in this new adventure. Eventually you will need their support.
- Work to enjoy your time together, whatever you're doing. You may not have as much time together as previously, but cherish the time you do have—even if it's washing dishes together or cleaning house. If you've been studying for two hours and need a break, spend the next ten minutes with family instead of checking e-mail or watching television. Ultimately, the important thing is *being together*, not going out to movies or dinners or the special things you used to do when you had more time. Look forward to being with family and appreciate every moment you are together, and they will share your attitude.

Figure 2.8

Make the most of your time with family, since you'll also need time alone for studying. Lee Ruk – 2015 July 01,Family visit – CC BY-SA 2.0.

- Combine activities to get the most out of time. Don't let your children watch television or play video games off by themselves while you're cooking dinner, or you may find you have only twenty minutes family time together while eating. Instead, bring the family together in the kitchen and give everyone something to do. You can have a lot of fun together and share the day's experiences, and you won't feel so bad then if you have to go off and study by yourself.
- Share the load. Even children who are very young can help with household chores to give you more time. Attitude is everything: try to make it fun, the whole family pulling together—not something they "have" to do and may resent, just because Mom or Dad went back to school. (Remember, your kids will reach college age someday, and you want them to have a good attitude about college.) As they get older, they can do their own laundry, cook meals, and get themselves off to school, and older teens can run errands and do the grocery shopping. They will gain in the process by becoming more responsible and independent.
- Schedule your study time based on family activities. If you face interruptions from young children in the early evening, use that time for something simple like reviewing class notes. When you need more quiet time for concentrated reading, wait until they've gone to bed.
- Be creative with child care. Usually options are available, possibly involving extended family members, sitters, older siblings, cooperative child care with other adult students, as well as child-care centers. After a certain age, you can take your child along to campus when you attend an evening course, if there is somewhere the child can quietly read. At home, let your

child have a friend over to play with. Network with other older students and learn what has worked for them. Explore all possibilities to ensure you have time to meet your college goals. And don't feel guilty: "day care babies" grow up just as healthy psychologically as those raised in the home full time.

Time Management Tips for Student Athletes

Student athletes often face unique time pressures because of the amount of time required for training, practice, and competition. During some parts of the year, athletics may involve as many hours as a full-time job. The athletic schedule can be grueling, involving weekend travel and intensive blocks of time. You can be exhausted after workouts or competitions, affecting how well you can concentrate on studies thereafter. Students on athletic scholarships often feel their sport is their most important reason for being in college, and this priority can affect their attitudes toward studying. For all of these reasons, student athletes face special time management challenges. Here are some tips for succeeding in both your sport and academics:

- Realize that even if your sport is more important to you, you risk everything if you don't also succeed in your academics. Failing one class in your first year won't get you kicked out, but you'll have to make up that class—and you'll end up spending more time on the subject than if you'd studied more to pass it the first time.
- It's critical to plan ahead. If you have a big test or a paper due the Monday after a big weekend game, start early. Use your weekly planner to plan well in advance, making it a goal, for example, to have the paper done by Friday—instead of thinking you can magically get it done Sunday night after victory celebrations. Working ahead will also free your mind to focus better on your sport.
- Accept that you have two priorities—your sport and your classes—and that both come before your social life. That's just how it is—what you have accepted in your choice to be a college athlete. If it helps, think of your classes as your job; you have to "go to study" the same as others "go to work."
- Use your planner to take advantage of any downtime you have during the day between classes and at lunch. Other students may seem to have the luxury of studying during much of the afternoon when you're at practice, and maybe they can get away with hanging out between classes, but you don't have that time available, at least not during the season. You need to use all the time you can find to keep up with your studying.

- Stay on top of your courses. If you allow yourself to start slipping behind, maybe telling yourself you'll have more time later on to catch up, just the opposite will happen. Once you get behind, you'll lose momentum and find it more difficult to understand what's going on the class. Eventually the stress will affect your athletic performance also.
- Get help when you need it. Many athletic departments offer tutoring services or referrals for extra help. But don't wait until you're at risk for failing a class before seeking help. A tutor won't take your test or write your paper for you—they can only help you focus in to use your time productively in your studies. You still have to want to succeed.

Key Takeaways

- People "use" time very differently. To develop strategies for managing your time, discover your time personality and observe how much time you spend in different activities in the course of a week.
- Plan your schedule with two hours of study time for each hour in class. Use your most alert times of day, break up large tasks into smaller pieces and stages, take breaks to help you stay focused, avoid distractions, and reward yourself for successful accomplishments.
- Procrastination has many different causes for different people but is a problem for most students. Different techniques can help you battle procrastination so you can get the job done.
- Use a weekly calendar planner to block out study times and plan well ahead for examinations and key assignments to achieve success in school.
- Use a daily to-do list along with your weekly planner to avoid overlooking even smaller tasks and to make the most of your time throughout the day.
- Students who work, live with family, or are athletes often face significant time pressures and must make a special effort to stay organized and plan ahead for efficient studying.

Checkpoint Exercises

1. What time(s) of day are you at your most alert?

   _____

   What time(s) of day are you at your least alert?

   _____

2. What category of *discretionary* activity (not sleeping, working, studying, etc.) represents your largest use of time?

   _____

   Can you reduce the time you spend in that activity if you need more time for your coursework?

   _____

3. For each of the following statements about time management, circle T for true or F for false:

T	F	Think yourself into a positive mood before starting to study.
T	F	Always study just before going to sleep so that you'll dream about the topic.
T	F	Break up larger projects into smaller parts and stages.
T	F	Get everything done on your to-do list before studying so that you're not distracted.
T	F	When feeling stressed by a project, put it off until tomorrow.
T	F	Talk with your instructor or another student if you're having difficulty.
T	F	Try to study at least three hours at a time before taking a break.
T	F	Reward yourself for successfully completing a task.
T	F	Avoid studying at times not written in on your weekly planner; these are all free times just for fun.
T	F	Whenever interrupted by a friend, use that opportunity to take a break for up to thirty minutes.
T	F	Turn off all electronic devices when reading an assignment except for your laptop if you use it to take notes.
T	F	Since people procrastinate when they're distracted by other things that need doing, it's best to delay studying until you've done everything else first.
T	F	Studying with a friend is a sure way to waste time and develop poor study habits.
T	F	Use a study journal to observe how you use your time and determine what things are keeping you from getting your work done.
T	F	There's no reason to keep a weekly calendar if all your instructors have provided you with a syllabus that gives the dates for all assignments and tests.
T	F	Studying for a particular class is most effective immediately after that class meets.

4. Without looking at your planner, to-do list, or anything else in writing, quickly write a list of everything you need to do in the next few days. Then look through your planner, to-do list, and any other class notes for anything you missed. What might you have forgotten or delayed if you weren't keeping a planner and to-do list?

5. Without looking at your weekly or daily schedule, think about your typical week and the times you have free when not in class, working, studying, eating, socializing, and so on. List at least three "downtimes" when you don't usually study that you can use for coursework when necessary.

_____

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ABCD Task Evaluation Matrix

One or more interactive elements has been excluded from this version of the text. You can view them online here:
https://psu.pb.unizin.org/kines082/?p=274

Financial Goals and Realities

What Are Your Financial Goals?

Whatever it is you plan to do in your future, whether work or other activities, your financial goals in the present should be realistic to enable you to fulfill your plan. Consider these scenarios:

Keri entered college planning to major in business. Her family was not able to give her much financial support, but she chose to attend an expensive private college because she thought it would help her get into a good graduate business school. She had to take large loans to pay her tuition, but she wasn't concerned about a budget because she assumed she'd make a lot later on and be able to easily pay off the loans. Yet when she graduated and had to begin making payments on her private bank loans, she discovered she couldn't afford to go straight to business school after all. She put her dream on hold for a few years and took a job she didn't much like.

Jorge had worked a few years after high school but finally decided that he needed a college degree to get the kind of job he wanted. He was happy with his life otherwise and kept his nice apartment and car and enrolled in a couple night classes while continuing to work full time during the day. He was surprised how much he had to study, however, and after a couple months he felt he was struggling. He just didn't have enough time to do it all—so he dropped first one class and then, a couple weeks later, the other. He told himself that he'd try it again in a year or two, but part of him wondered how anyone could ever get through college while working.

What Keri and Jorge have in common is a conflict between their financial goals and realities. Both were motivated to succeed in college, and both had a vision for their future. But both were unsuccessful in finding ways to make their dreams come true—because of money issues.

Could they have done things differently? Maybe Keri could have gone to a less expensive school and still reached her goal, or maybe she could have avoided such heavy student loans by working summers and part time during the school year. Maybe Jorge could have reduced his living expenses and cut back his work hours to ensure he could balance school and work better. Maybe both were spending thousands of dollars a year on things they could have done without if only they'd thought through their goals and learned to live within a budget.

Taking control of your personal finances begins with thinking about your goals and deciding what really matters to you. Here are some things to think about:

- Is it important for you to graduate from college without debt? Is it acceptable to you, or necessary, to take some student loans?
- What are your priorities for summers and other "free time"? Working to earn money? Taking nonpaying internships or volunteering to gain experience in your field? Enjoying social activities and time with friends?
- How important is it to take a full load of classes so that your college education does not take longer than necessary?
- How important is it to you to live in a nice place, or drive a nice car, or wear nice clothes, or eat in nice restaurants? How important in comparison to your educational goals?

There are no easy answers to such questions. Most people would like enough money to have and do what they want, low enough expenses that they don't have to work too much to stay on budget, and enough financial freedom to choose activities without being swayed by financial concerns. Few college students live in that world, however. Since you will have to make choices, it's important first to think about what really matters to you—and what you're willing to sacrifice for a while in order to reach your goals.

Make More or Spend Less?

That often becomes an issue for college students. You begin by setting up a realistic budget and sticking to it. A budget is simply the best way to balance the money that comes in with the money that goes out.

For most college students, the only way to increase the "money coming in" side of the budget is to work. Even with financial support from your family, financial aid from the college, your savings from past jobs, and the like, you will still need to work if all your resources do not equal the "money going out" side of the budget. **The major theme of this section is avoiding debt except when absolutely necessary to finance your education.** Why is that so important? Simply because money problems and debt cause more people to drop out of college than any other single factor.

This chapter includes discussion of how students can earn money while in college and the benefits of working. But working too much can have a negative impact by taking up time you might need for studying. It's crucial, therefore, whenever you think about your own financial situation and the need to work, to also think about *how much* you need to work—and consider whether you would be happier spending less if that meant you could work less and enjoy your college life and

studies more. As we'll see later, students often spend more than they actually need to and are often happier once they learn to spend less.

Key Takeaways

- Almost every college student faces money issues, but you can learn to take control of your finances.
- Being able to complete your college career should be a key priority when setting financial goals.
- Since college students need time for classes and studying, it is generally more important to spend less money rather than work more hours.

Making Money

Most college students work while in school. Whether you work summers only or part time or full time all year, work can have both benefits and drawbacks. The difference may result as much from the type of job you work as from the number of hours you work.

A Job Can Help or Hurt

In addition to helping pay the bills, a job or internship while in school has other benefits:

- Experience for your résumé
- Contacts for your later job search network
- Employment references for your résumé

Work or internship experience related to your future career has significant value. Not all students can find such opportunities in their community, however. But even a job or volunteering outside your field can have value and say something about you to future employers. Your job may demonstrate that you have initiative, are responsible, are a team player or can work independently, and can take on financial responsibility. Potential future employers will check your work references. Having an employer from your college years say you did a good job, were always on time to work, and were honest and responsible in doing your job definitely gives you an advantage over students who graduate without having worked at all.

At the same time, some jobs contribute more to your overall college experience. Remember, you're in college for an education and to gain a wide range of skills—not just for the degree. The best student jobs help you engage more deeply in the college experience, while the wrong kind of job gets in the way of that experience. Here are some factors to consider as you look for a job:

- **What kinds of people will you be interacting with?** Other students, instructors, researchers? Interacting with others in the world of college can broaden your college experience, help motivate you to study, and help you feel part of a shared experience. You may work with or meet people who in the future can refer you to employers in your field. On the other hand, working in a business far from campus, for example, may offer a steady paycheck but can separate you from the academic community and detract from a positive college experience.

- **Is the job flexible enough to meet a college student's needs?** Will you be able to change your work hours during final exam week or when a special project is due? A rigid work schedule may cause difficulty at times when you really need to focus on your classes.
- **What will you be able to say about your work in your future résumé?** Does it involve any skills—including people skills or financial or managerial responsibilities—that your employer can someday praise you for? Will working this job help you get a different, better job next year?

These factors can make a job ideal for college students, but in the real world many students will have to work less-than-ideal jobs. Working at a fast food restaurant or overnight shipping company may not seem very glamorous or offer the benefits described previously, but it may be the only job available at present. Don't despair—things can always change. Make the money you need to get by in college but don't become complacent and stop looking for more meaningful work. Keep your eyes and ears open for other possibilities. Visit the campus student employment office frequently (or check online) for new postings. Talk to other students.

At the same time, even with a dull job, do your best and keep a good attitude. Remember that your boss or supervisor may someday be a work reference who can help (or hurt) your chances of getting a job you really want.

Student Jobs

The number of hours college students work per week varies considerably, from five to ten hours a week to full time and everywhere in between. Before deciding how much you need to work, first make a detailed budget as described later. Your goal should be to make as much as you need, and hopefully a little more to save, but first you need to know your true need. Remember your goals in college and stay focused on your education. Cut back on your optional spending so that you don't have to work so many hours that your studies are impacted.

Where to Find a Job

Start at your campus financial aid office or student employment office. If they don't have anything right for you at first, check back frequently for new job postings.

For off-campus jobs, check the classified ads in your local newspaper and Craigslist. Many jobs are never advertised, however, so ask friends, family members, and other students. Visit appropriate companies in your area and ask if they have openings.

If you applied for financial aid when you applied to your college, you probably already know whether you qualify for a work study program. Often these jobs are ideal because they are designed for students. If your financial circumstances change, be sure to check in with the financial aid office because your eligibility may have changed.

Many government agencies also have summer jobs or internships for college students. This work may be an ideal way to gain experience related to your chosen field. (See "Additional Resources" below for more information.)

Go to Work for Yourself

If you have energy and initiative, you can create your own work. While it may take some time to get started, flexibility and being your own boss can make up for this drawback. Students often make money in ways like these:

- Tutor classmates in a subject you are good in.
- Sell your technical skills to help others set up new computer hardware, teach software skills such as PowerPoint or Excel, or design Web sites.
- Sell things you no longer need (video games, DVDs, textbooks) on eBay or Craigslist. Earn a commission by helping others sell their stuff online.
- Provide services to faculty members and residents in the nearby community: lawn mowing, snow shoveling, housecleaning, babysitting, pet sitting, dog walking, and so on.

Additional Resources

Campus jobs and work study. Check with your campus student employment or financial aid office.

Broad listing of links for federal government jobs and internships for students. See https://www.usajobs.gov/StudentsAndGrads

Student Opportunities at the Environmental Protection Agency (EPA). See http://www.epa.gov/careers.

Student Opportunities at the U.S. Department of Defense. See http://godefense.cpms.osd.mil/student_opportunities.aspx.

Student Opportunities at the U.S. Department of Health and Human Services. See http://www.hhs.gov/about/careers/pathways/internship-opportunities-students/index.html.

Student Opportunities at the National Science Foundation. See http://www.nsf.gov/careers/careertypes/pathways.jsp.

Student Internships at the State Department. See https://careers.state.gov/intern/student-programs.

Balancing the Job You Have with Your Ideal Job

A growing percentage of students are working full time when they return to school, and many continue in the same jobs. If you're in this situation, you know that balancing work and college is one of the most difficult things you've ever done. You're used to working—but not used to finding time for class and studying at the same time. You likely feel harried and frustrated at times, and you may even start to wonder if you're cut out for college. The time may come when you start thinking about dropping classes or leaving college altogether. It may be hard to stay motivated.

If you start feeling this way, focus on your big goals and don't let the day-to-day time stresses

get you down. As difficult as it may be, try to keep your priorities, and remember that while you face temporary difficulties now, a college degree is forever.

- Acknowledge that sacrifice and compromise may be needed.
- Reduce your expenses, if you can, so you can cut back on the number of hours you work. This may mean temporarily giving up some things you enjoy in order to reach your goals.
- If you cannot cut your expenses and work hours and simply do not have the time to do well in your classes, you may have to cut back on how many classes you take per term. Try everything else first, but know that it's better to succeed a little at a time than to push too hard and risk not succeeding. If you do have to cut back, keep a positive attitude: you're still working toward your future ideal.

If you ever feel the temptation to quit, see your college counselor to explore all your options. Resources may be available that you don't know about.

Key Takeaways

- The best student jobs have value for your college experience and future résumé and network, while the wrong kinds of jobs may detract from your college experience.
- How much you work should be based on a realistic budget and your financial goals and needs.
- To find the best job for you, use all the resources available.

CHAPTER 10: IMPLEMENTING A STRESS REDUCTION PLAN

Chapter 10 Learning Objectives

Learning Objectives

By the end of Chapter 10 you will be able to:

1. Describe how you formed your stress reduction plan.
2. Identify the steps in the change process.
3. Name the 10 R's and give an example of each.
4. Name 5 ways out of the 13 mentioned on how to reduce stress throughout your life.

Why Planning is Important

Developing a personal action plan helps us manage stress to live a long, healthy life. To develop your action plan for coping with stress, complete the following steps:

Write down two or three of your major stressors. (Sources of stress)

Determine a realistic goal for each stressor and write it down. (How do you want things to be?)

Identify activities or strategies that will help you complete each goal. (What do you need to do to reach this goal?)

Determine how much time you will need to reach each goal.

Think about who might help you reach each goal. (Who can you depend on to hold you accountable for reaching your goal?)

How will you celebrate when you reach each goal? (What can you do for yourself to celebrate this accomplishment?)

Stages of Changing Unhealthy Behaviors

The transtheoretical model of behavior change, based on five stages of change, assesses a person's readiness to stop an old, unhealthy behavior and act on a new, healthy behavior.

Key Points

- Created by Prochaska and DiClemente in the 1970s, the transtheoretical model (also called the stages-of-change model) proposes that change is not a discrete decision, but is instead a five-step process that consists of *precontemplation*, *contemplation*, *preparation*, *action*, and *maintenance*.
- At the precontemplation stage, an individual may or may not be aware of a problematic behavior, and generally has no desire to change their behavior.
- At the contemplation stage, participants are intending to start the healthy behavior but are still ambivalent.
- People at the preparation stage are ready to start taking action, and take small steps that they believe can help them make the healthy behavior a part of their lives.
- In the action stage, people have changed their behavior and need to work hard to keep moving ahead. An individual finally enters the maintenance stage once they exhibit the new behavior consistently for over six months.
- Despite the stress caused by their problem behavior, many people simply are not ready to initiate change; the stages-of-change model helps assess where on the spectrum they fall and to guide treatment efforts accordingly.

Term

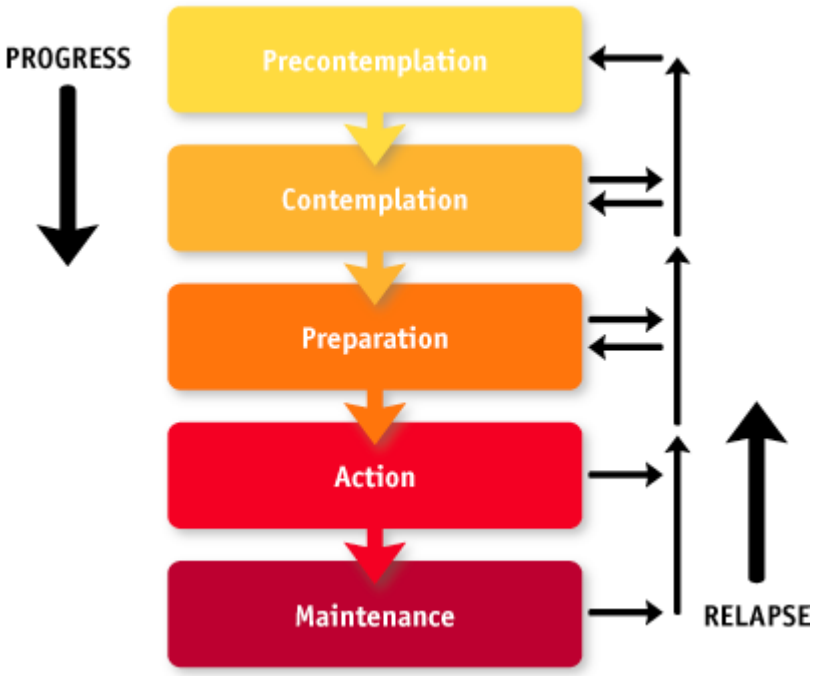
- transtheoretical model
  Also called the stages-of-change model; a model that describes behavior change as a process that involves a number of different stages.

The Process of Change

Because health psychology is interested in the psychology behind health-related behaviors, it also concerns itself with how people can learn to *change* their behaviors. The transtheoretical model of

behavior change assesses an individual's readiness to act on a new healthier behavior, and provides strategies to guide the individual through each stage of the behavior-change process.

Created by Prochaska and DiClemente in the 1970s, the model proposes that change is a process rather than a discrete decision. People must build up the motivation to change and this motivation is dependent on a number of personal and environmental factors. According to the transtheoretical model, behavioral change is a five-step process, consisting of *precontemplation*, *contemplation*, *preparation*, *action*, and *maintenance*.



Stages-of-change model The stages-of-change model explains behavior change as a process rather than a discrete decision.

Stages-of-change model

The stages-of-change model explains behavior change as a process rather than a discrete decision.

Precontemplation

At the precontemplation stage, an individual may or may not be aware of a problematic behavior, and generally has no desire to change their behavior. People in this stage learn more about healthy behavior: they are encouraged to think about the benefits of changing their behavior and to feel emotions about the effects of their negative behavior on others. Precontemplators typically underestimate the pros of changing and overestimate the cons. One of the most effective steps

that others can help with at this stage is to encourage them to become more mindful of their decision making and more conscious of the multiple benefits of changing an unhealthy behavior.

Contemplation

At this stage, participants are intending to start the healthy behavior, often within the next six months. While they are usually more aware of the pros of changing, their cons are about equal to their pros. This ambivalence about changing can cause them to keep putting off taking action. People in this stage learn about the kind of people they could be if they changed their behavior and learn more from people who behave in healthy ways. Others can help people at this stage by encouraging them to work on reducing the cons of changing their behavior.

Preparation

People at this stage are ready to start taking action, generally within the next 30 days. They take small steps that they believe can help them make the healthy behavior a part of their lives, such as telling their friends and family. People in this stage should be encouraged to seek support, tell people about their plan to change, and think about how they would feel if they behaved in a healthier way. Their main concern is this: When they act, will they fail? They learn that the better prepared they are, the more likely they are to keep progressing.

Action

In the action stage, people have changed their behavior and need to work hard to keep moving ahead. These participants need to learn how to strengthen their commitments to change and to fight urges to slip back. Useful techniques at this stage can include substituting activities related to the unhealthy behavior with positive ones, rewarding themselves for taking steps toward changing, and avoiding people and situations that tempt them to behave in unhealthy ways.

Maintenance

An individual finally enters the maintenance stage once they exhibit the new behavior consistently for over six months. It is important for people in this stage to be aware of situations that may tempt them to slip back into doing the unhealthy behavior—particularly stressful situations. It is

recommended that people in this stage seek support from and talk with people they trust, spend time with people who behave in healthy ways, and remember to engage in healthy activities to cope with stress instead of relying on unhealthy behavior.

Some theorists suggest a sixth phase called termination, in which individuals have no temptation to return to old unhealthy behaviors as a way of coping. Importantly, the progression through these stages is not strictly linear. People may move back and forth between the stages as their motivation changes. Often people relapse in their behavior multiple times before finally achieving maintenance. In this way, relapse is conceptualized as a return from the action or maintenance stage to an earlier stage.

Applying the Stages of Change

The stages-of-change model has been widely utilized in the treatment of health-related behaviors such as substance use, obesity, diabetes, and other problem behaviors. Change is a difficult process that requires close analysis of the benefits and costs of the behavior. For instance, a smoker must come to the conclusion that the health risks associated with their smoking are more important to them than the benefits, which may include taste, stress relief, social aspects, or other factors. Coming to this decision is no easy task; despite the stress caused by their problem behavior, many people simply are not ready to initiate change. This model helps assess where on the spectrum a person falls and helps guide treatment efforts accordingly.

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Goal Setting

Stress Management Plan

Use the 10 R's given below, to help you create a stress management plan to manage your identified stressors.

	How would you apply this to yourself (write the answe in the rows below)
The ten R's of Stress Management	
Recognize – What is causing the stress? Don't linger on the symptoms too long.	
Realize – There are some things outside your control. Don't worry about things you can't control.	
Reorganize – In order to reduce your stress.	
Regulate – If there are things in your life that you do to excess, then lower them. By lowering your excess you can lower your stress levels. For example, reduce you coffee intake, coffee stimulates the body for approximately 30-60min. Coffee raises the stress hormones in the bloodstream. It also has half life of up to five hours, dropping energy levels and causing fatigue .Also, ensure you get enough sleep, when you are stressed you need more sleep.	
Reality Check – What is important to you in life? Remind yourself of all the things that you have achieved that matter to you. Think positively and remind yourself about what is good in your life.	

Return – Go back to the source and get more information if you need it. For example, if you have to give a presentation at work and are unsure of its content ask your boss. There is no harm in asking for more guidance. You are not saying that you can't cope but it is a simple way of reducing stress from the beginning.	
Refuse – There are times you need to say no! It is better to say no, than to say yes and not deliver.	
Redirect – Delegate! By delegating you are reducing your stress. You are also helping others to train whom in turn will in the future help you further and hence minimising your stresses of the future.	
Reflect – Think about all that you have achieved. Be happy with yourself, recognise how capable you really are.	
Relax – It is important to insure that you find time to relax. Set aside time for relaxation and most importantly don't feel guilty. You deserve it.	

A Lifetime of Stress Management

Below are some ways to manage stress throughout your life.

Based on research, it is the general consensus that the best way to manage stress is to deal with it the moment that you feel it coming on. Do not put it off until a time when the body would have already activated its stress response.

Seek to create inner balance in your body and realize that positive emotions will create coherent heart rhythms, while on the contrary, negative emotions create erratic, chaotic patterns in the heart beat.

1. Identify the source of your stress –

You can do this by noting on paper the things that pushes you to have negative emotions such as anger, fear, etc. Note also the time of day – whether early morning or closer towards the end of the work day. Next categorize your problems, them based on the list of causes given earlier. It's a good time to remove the source and seek to find a balance.

2. Check and re-check your to-do list –

You are neither superman nor super woman. Simplify your life, trim the fat off that list and remove things that do not add value or is not directly linked to the outcome of your goals. Delegate responsibility to others where possible.

3. Set your house in order –

By that I mean you must prioritize. Everything cannot be done all at once. *Stop multitasking* – it gives a false sense that you are making progress when in reality you are not. Assign each task or project a number and start working on them in order of the one that is most life threatening and so on, so forth.

4. Laugh, laugh and laugh –

Why laugh so much? Laughter is a good medicine, and humor can heal a soul that is wounded and stressed. It causes your body to release endorphins that quickly improve your mood.

5. Develop strategies that enable you to think positively –

Being optimistic will enable you to cope much better under stressful conditions. This also include surrounding yourself with positive thinkers, and people who will encourage you to stick with your goals in life.

6. Avoid negative people –

They demand a lot of your energy. Avoiding them is one way of removing stress and getting rid of toxins and lowering stress causing hormones such as cortisol and adrenaline.

7. Embrace spirituality –

spirituality is a sure and effective way of filling your life with inner peace and tranquility, while it gives you a clearer sense of your purpose. It helps you to regulate your pace and gives you a more positive outlook on life

8. Visit your church –

Church is a good place to go. Hearing the word of God brings life and light into your soul and spirit and to gain natural healing in your body. You can also foster and build long lasting relationships with other believers.

9. Take time out to unplug and re-energize yourself –

Social media has its advantages as it helps you build relationships and friendships but it is not worth dying for.

10. Lower your expectations –

Give yourself permission to lower your standard of expectation of always getting a perfect score for everything you do. Very quickly, you will rid yourself of the perfectionist in your head that's been refusing to get a less-than a perfect 10 score.

11. Turn off the light and sleep –

Your body functions at an optimal level when you get the required number of hours sleep. The fewer hours of sleep your body get, the more of the stress hormone cortisol it produces

12. Avoid chemical stimulants and sugar –

The more stressed you get the more of these (coffee, coke, sweet muffins, doughnuts) your body will crave but the catch is – the more your body crave them, the more stressed you become.

13. Set aside time for family bonding –

You need people who love, support and care for you in emotional and stressful times and when times are tough. Sharing what you are going through is a way of releasing stress.

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