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Health Tips

*Repeating This Phrase May
Improve Your Health
Make Up Your Own Mantra
for Changing Behaviors
Image Visualization
Reduces Stress*



Managing Stress

*Biofeedback
Focusing Attention
Relaxation with Music*



Wellness Guide

*Using Your Mind to
Heal Your Body
Using Your Mind to
Improve Health*

CHAPTER 2

Mind–Body Communications Maintain Wellness

Learning Objectives

1. Describe three ways the mind and body communicate biologically.
2. Define psychosomatic illness.
3. Describe and give an example of the placebo effect and nocebo effect.
4. Describe how faith, religion, and spirituality affect health.
5. Explain hypnotherapy.
6. Describe meditation and image visualization.

Many people believe that good health is related primarily to proper nutrition and physical fitness. Although both are vital to health, another important factor affecting health is what goes on in your mind. Positive thoughts about yourself and others and positive emotions such as happiness and love contribute to vitality, optimism, and joy, which can motivate living healthfully, aid healing and recovery from illness and injury, and increase longevity (Dockray & Steptoe, 2010). Negative thoughts and emotions contribute to depression, pessimism, and decreased health and longevity.

Many people think of health and healing in terms of drugs, medical treatments, and surgery. However, health and healing also are accomplished by mental processes such as faith, magic, and spiritual practices. Even in our culture we recognize that attitudes play an important role in promoting health and recovering from illness. Most physicians are aware that a person's attitude greatly affects the probability of recovery from illness. We've all heard of the patient's "will to live."

The mind affects health and well-being because the mind and body make up a single, unified organism. No body exists without a mind; no mind exists without a body. The mind and body communicate with each other by means of the nervous, endocrine (hormone), and immune systems, allowing thoughts, beliefs, and feelings to change body chemistry and physiology.

Advances in identifying the biological mechanisms of mind-body communication confirm that the mind can affect health in powerful ways. Joy, creativity, and contentment lead to a state of mind-body harmony, which we experience as bodily health and subjective well-being. Fear, anxiety, stress, and depression contribute to mind-body disharmony, which increases risks for a variety of illnesses, impedes healing, and fosters a sense that life is difficult and unpleasant.

There are ways to focus the mind to promote health, prevent disease, and foster healing in times of illness. Among them are biofeedback, relaxation, hypnosis, guided imagery, autogenic training, and meditation (Table 2.1). Modern Western medicine has begun to utilize mind-body techniques, and researchers are elucidating the biological mechanisms that underlie mind-body communications and their effects on health and wellness. In this chapter we discuss mind-body interactions and how they affect health and well-being.

Mechanisms of Mind-Body Communication

Nerve cells in the brain's thought and feeling centers connect to other nerve cells in the brain and body, hormone-producing tissues and organs, and immune

Table 2.1
Mind-Body Methods for Promoting Health and Preventing and Recovering from Illness

Method	Description
Autogenic training	Silent repetition of one of six autogenic phrases to produce a state of deep relaxation
Biofeedback	Using an electronic device to "feed back" information about the activity of a particular region of the body to alter that activity
Guided imagery	Using mental images suggested by a "guide" to produce relaxation and/or develop a skill
Hypnosis	Focusing attention and lessening awareness of surroundings to produce a relaxed state that is open to suggestion
Image visualization	Using self-generated mental images to produce relaxation and/or develop a skill
Meditation	Focusing awareness on a self-produced inner sound ("mantra") or an external sound, or image, or one's breathing to lessen attentiveness to external stimuli
Relaxation response	Mental method to produce relaxation
Virtual reality therapy	Using computer-generated environments to simulate an experience to treat psychological difficulties

cells throughout the body. In this way, mental activity is able to influence many of the body's physiological processes and thereby affect health.

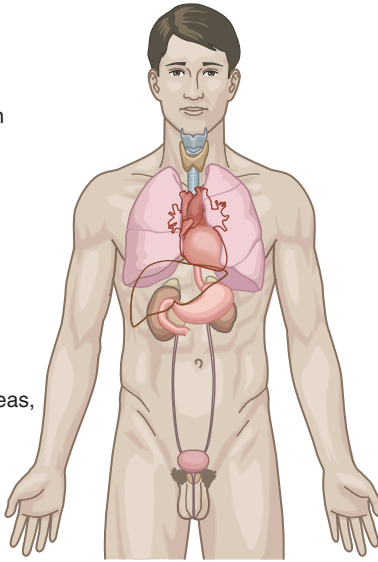
The Autonomic Nervous System

A major pathway by which the mind and body communicate is through the **autonomic nervous system** (ANS), a group of nerves that regulate many of the body's physiological processes, such as heart rate, blood pressure, breathing, and the functioning of the gastrointestinal, urinary, and reproductive systems. (Figure 2.1). Centers in the brain, principally in the brain stem and hypothalamus, receive information about the state of the body and/or environment and, in response, activate the nerve fibers of the ANS to maintain appropriate physiological balance. For example, when you exercise, the ANS stimulates the heart's pacemaker cells to increase your heart rate, thus increasing the amount of blood pumped to moving muscles.

The autonomic nervous system derives its name from the fact that its activities normally operate without conscious control. Thus, you do not think about how fast your heart should beat or whether you should sweat to cool yourself when jogging. Even though the ANS functions without conscious control, the signals it sends to the body can be affected by thoughts and feelings. For example, nearly all students are familiar with the nervous stomach and sweaty palms that accompany the stress of

Sympathetic

Dilates pupils
 Inhibits salivation
 Dilates bronchi (lungs)
 Stimulates heartbeat
 Stimulates adrenal gland
 Inhibits digestion (stomach, pancreas, liver, spleen)
 Dilates bladder

**Parasympathetic**

Constricts pupils
 Stimulates salivation
 Constricts bronchi (lungs)
 Slows heartbeat
 Inhibits adrenal gland
 Stimulates digestion (stomach, pancreas, liver, spleen)
 Contracts bladder

■ **Figure 2.1****Functions Controlled by the Autonomic Nervous System**

The autonomic nervous system has two parts or divisions. The sympathetic division and the parasympathetic division regulate functions that normally are not under conscious control, such as breathing, digestion, and heart rate.

taking an important exam. Realizing that it is possible to do poorly on an exam (a thought) leads to anxiety (an emotion), which activates the ANS to produce symptoms. Panic has an immediate effect on breathing and heart rate, and stress can constrict blood vessels, causing headaches or high blood pressure.

Many students live fast-paced, hectic lives that are full of time pressures and stress. Besides doing school assignments, many students work at jobs, and nearly all try to maintain harmonious social relationships with family and friends, which take time and attention. Moreover, the modern environment is filled with cell phones, tablets, the Internet, TV, video games, iPods, and other stimuli that compete for one's attention. Trying to accommodate all of life's demands produces near continuous physiologic arousal mediated by the sympathetic nerves of the ANS, causing, among other things, sleep disturbances, muscle tension, gastrointestinal symptoms, and an increased risk for cardiovascular disease.

It is possible to counteract ANS-mediated arousal by putting 20 to 30 minutes or more of quiet time into your life each day. (If you must, schedule it in your day-planner.) You can employ any of a number of techniques designed to lessen ANS arousal and create a sense of mind–body harmony (see Table 2.1). Or you can find a quiet spot in a park or a room where you can comfortably and silently reflect on the good things in your life and let go, for a time, of the problems of the world and what you need to accomplish that day and in your life.

Hormones

Besides the autonomic nervous system, the mind can affect physiology via the endocrine (hormone) system. **Hormones** are chemicals produced by special organs and tissues in the body. Each hormone regulates specific biological functions (**Figure 2.2**). Hormones notify the body of changes outside and inside the body that must be responded to in order to maintain health.

Many hormones respond to changes in thoughts and feelings. For example, if the mind interprets a situation as threatening or frightening, regardless of whether the danger is real or imagined, centers in the brain responsible

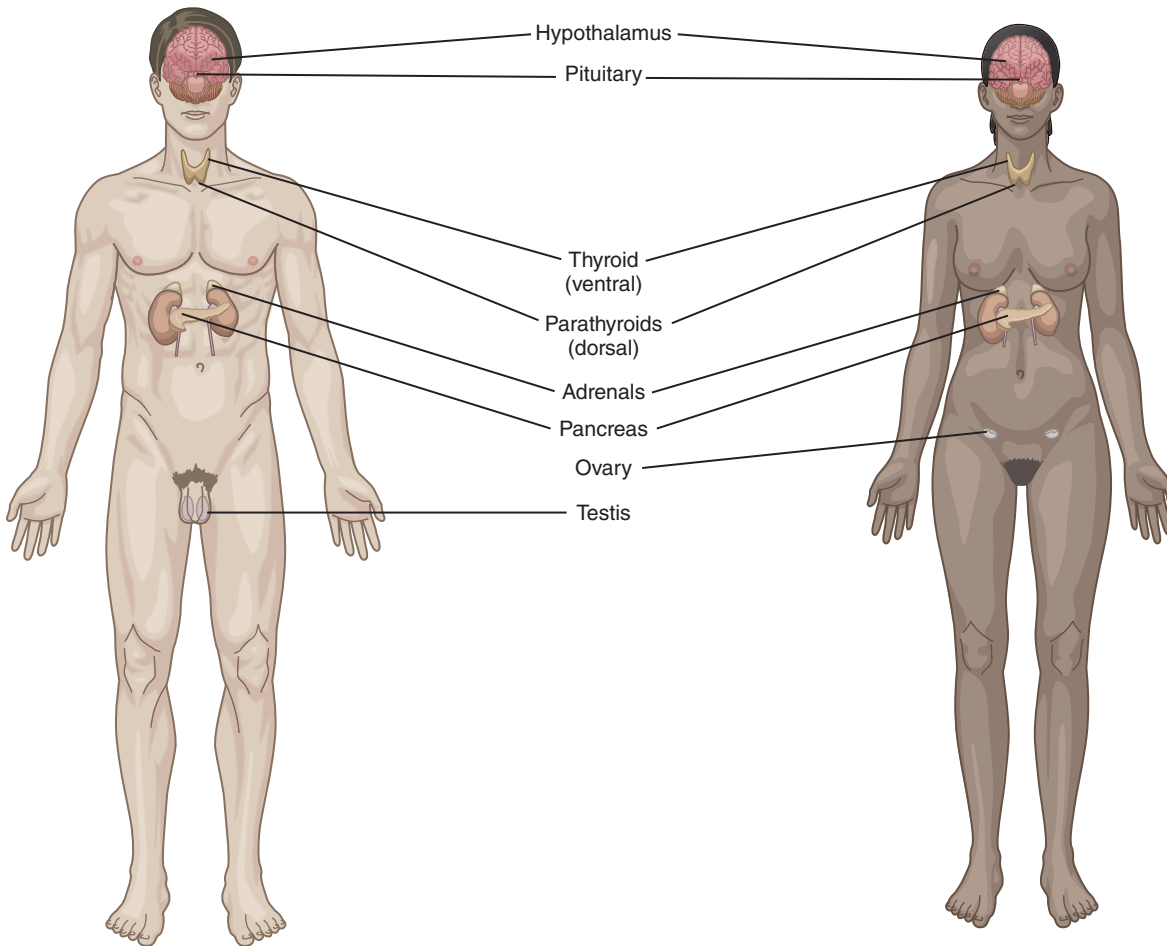


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TERMS

autonomic nervous system: the special group of nerves that control some of the body's organs and their functions

hormones: chemicals produced in the body that regulate body functions



■ **Figure 2.2**

Where Hormones Are Released

Hormones are released from different glands throughout the body. The synthesis and release of these hormones are regulated by the mind and autonomic nervous system. Hormones carry chemical messages that tell organs in the body how to respond to stimuli.

for emotions signal other parts of the brain and body to release hormones, such as adrenaline and cortisol, into the bloodstream. These hormones circulate to several of the body's organs and tissues to make the body alert and ready to deal with the danger.

Hormones manufactured in the brain can affect other areas of the brain; however, most hormones that originate

in the brain are released into the circulatory system and travel throughout the body. Certain brain hormones have been associated with increases or decreases in particular feelings and behaviors (see [Table 2.2](#)). Thus, the environment, the brain (mind), and hormones (chemical messengers) are intricately interconnected and, ultimately, can determine health.



Using Your Mind to Heal Your Body

Everyone has accidentally cut or burned his or her hand at one time or another. Perhaps you were chopping vegetables and the knife slipped, or perhaps you reached for a pan on the stove, forgetting that the handle was hot. The usual response to such accidents is anger at being careless or forgetful and anger at the sudden pain. We jump around, curse, and generally act in ways that exacerbate the injury and delay healing. A much better response to minor accidental injuries that do not require immediate medical attention is the following.

In case of a cut, place a clean cloth over the wound and press gently to help stop the bleeding. Then sit or lie down.

Close your eyes and allow yourself to become mentally and physically quiet. Visualize the injured part with your mind and see it as it was just before the accident. See the skin coming back together. Feel the pain recede. Notice that there is no bleeding. Continue doing this for five minutes or longer until you feel calm. If the accident caused a burn, place an ice bag or cool, wet cloth over the wound. Then lie down and visualize the skin becoming cooler and looking like the normal skin around the burn.

By immediately calming the mind after an injury, inflammation and other harmful physiological reactions in the area are reduced. Healing processes begin immediately when you send positive, calming thoughts and images to the injured area. Continue to visualize healing in the injured area.

Table 2.2**Hormone Levels Can Affect Moods, Thoughts, Feelings, and Behaviors**

Hormone	Effects of high levels
Cortisol	High blood levels of cortisol increase stress and alertness, decrease sensitivity to pain, impair memory processing, and increase depression.
Dopamine	High blood levels of dopamine increase pleasure and motivation and decrease sadness.
Oxytocin	High blood levels of oxytocin increase trust and feelings of attachment and decrease fear.
Vasopressin	High blood levels of vasopressin increase sexual arousal and attention but decrease anxiety.
Serotonin	High blood levels of serotonin increase aggression and obsessive thoughts.

The Immune System

Besides the ANS and endocrine system, the mind communicates with the body via the immune system. The immune system (discussed in detail in Chapter 12) is responsible for combating infections and ridding the body of foreign organisms and toxic substances. Immune system cells, tissues, and organs are located throughout the body. The immune system can be influenced by the mind via the nervous and endocrine systems. Nerves of the sympathetic nervous system connect to certain immune tissues, such as bone marrow, lymph nodes, and spleen. Many immune cells respond to the presence of the hormone cortisol as part of the stress response (see Chapter 3). Moreover, the immune system releases special chemicals called cytokines, which can affect the nervous and endocrine systems.

Many studies have demonstrated that the mind can affect the workings of the immune system. It is well known that stress and negative mood states can weaken the immune system and that methods to reduce stress such as mindfulness meditation and t'ai chi can strengthen immune response (Antoni, 2012). Positive emotions, such as feeling calm and peaceful, happy, and optimistic about life, can enhance immune function (Pressman & Black, 2012).

The Mind Can Create Illness or Wellness

That thoughts and feelings can alter physiological processes means that individuals have the power to influence their health for ill or for well-being. For thousands of years, belief in the healing powers of a deity or special person, such as a king, priest, or shaman, or ascribing healing powers to a potion or elixir, have been employed to heal the sick by ridding the body and/or spirit of demons and evil spirits. Today's patients have faith in the knowledge of their physicians and the medicines they prescribe just

as people of ancient civilizations believed in their priests and herbs. Any improvement in a patient's condition is likely a combination of faith in the healer and the efficacy of the treatment.

Egyptian papyri show that although the priest-physicians of ancient Egypt prescribed herbs and performed surgeries, their treatments relied on the belief of the people in the healing power of the gods. Priests would put patients into a trance in a temple and tell them that when they awakened, they would be healed. And often they were.

The Greeks and Romans had gods, oracles, and temples of healing. Their priests also used trance and sleeplike mental states to impart healing suggestions to receptive minds. Sometimes “miraculous cures” resulted. Greek and Roman emperors and priests also healed by the “laying on of hands”; people were healed because they believed that their rulers had divine powers. King Pyrrhus of Epirus is reputed to have cured sick patients solely by the touch of his big toe.

All religions teach that divine persons have the power to heal. The New Testament recounts many examples of the healing power of Jesus.

Is any sick among you? Let him call for the Elders of the church and let them pray over him, anointing him with oil in the name of the Lord; and the prayer of faith shall save the sick.

—James 5:14–15

That evening they brought him many who were possessed with demons, and he cast out the spirits with a word, and healed all who were sick.

—Matthew 8:14

And he said to her, “Daughter, your faith has made you well; go in peace and be healed of your diseases.”

—Mark 5:34

Faith. You can do little with it and nothing without it.

Samuel Butler



Repeating This Phrase May Improve Your Health

In the early 1900s, a French pharmacist named Emile Coué (1857–1926) became famous for using autosuggestion to cure people of all kinds of ailments. His most famous autosuggestion, which millions of people recited to themselves, was: “Every day, in every way, I’m getting better and better.”

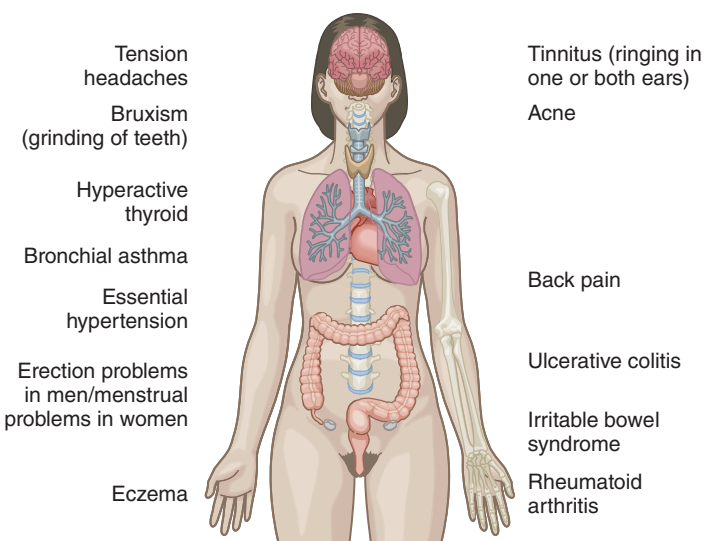
Try this autosuggestion or make up one of your own to fit a particular situation you want to improve. Repeat the suggestion in your mind as often as feels comfortable. Do it without effort or expectation. Autosuggestion is a powerful tool for improving health and for healing.

Nearly 50% of Americans use prayer to help them cope with illness (Wachholtz & Sambamoorthi, 2011). People pray for their own health and the health of others; they pray individually and in prayer groups. People pray to God, a “guardian angel,” or a deceased loved one for support and personal strength to cope with illness. Research shows that religiosity/spirituality is associated with reduced mortality among relatively healthy individuals, but not those who are ill (Chida et al., 2009). This finding may reflect that the social support offered by religious affiliation and the enhanced immune function from positive emotions such as security and confidence are associated with religious experience. Studies have been unable to find any therapeutic effects of intercessory prayer, in which groups pray for the health and recovery of patients either with or without the patients’ knowledge (Roberts et al., 2009).

At times of serious illness or when death is a possibility, many individuals want their physicians to be aware of their spiritual or religious beliefs. On the other hand, for routine health matters most patients do not want their physicians to be directly involved in their health-related spiritual experiences. Most doctors believe that a patient’s spiritual outlook is important to handling health difficulties and that physicians should ask patients about spiritual and religious issues, although few physicians believe that it is appropriate for them to recommend prayer and religious activities to patients (Sulmasy, 2009).

The Mind Can Create Illness

Psychosomatic Illnesses The power of the mind to cause illness is borne out by a long list of **psychosomatic illnesses** (Figure 2.3). These conditions are caused, in large measure, by mental states and attitudes such as



■ Figure 2.3

Psychosomatic Illnesses

Many diseases and disorders of the body are partly caused by thoughts and feelings.

persistent anxiety, depression, and stress that produce unhealthy physiological changes. That is why these illnesses are called psychosomatic, a term derived from the Greek (*psych*, mind; *soma*, body).

Many people believe that psychosomatic means imaginary, that “it’s all in the head.” This is not the case. The damage to the gastrointestinal tract in someone with stress-related irritable bowel syndrome is just as real as the damage caused by an infection or injury. Psychosomatic means that thoughts and feelings are at the root of the physiological abnormalities causing the symptoms.

Modern medicine (see Chapter 19) tends not to treat psychosomatic illnesses directly. Physicians prefer to use drugs that suppress symptoms, but rarely do they address the underlying mental states that cause the illness. This is caused in part by their training, which focuses on biological causes of disease, and in part by doctors not having time to probe the lifestyle of a patient with a psychosomatic illness; also, the patient’s health insurer is not likely to pay for the doctor to do so.

Somatic Symptom Disorder **Somatic symptom disorder** refers to the occurrence of physical symptoms usually, but not always, without the presence of detectable injury or disease. Psychological and social problems such as depression or anger may cause pain, fatigue, nausea, diarrhea, and sexual problems. It is estimated that 25% to 75% of all patients who visit primary care physicians suffer from somatic symptoms. These are difficult to treat, time-consuming for physicians to diagnose, and expensive for the healthcare system. A common complaint is pain of long duration in several parts of the body that cannot be explained by any medical condition or injury.

The lives that many people choose to live or are forced to live by financial or family circumstances can cause mind–body disruption that eventually produces pain and sickness. People suffering from somatic symptom disorder are not feigning sickness; they have lost mind–body harmony to a serious degree. Health can be restored with knowledge of how the mind and body interact and the application of methods that produce insight to the particular issue. Compassionate professional help and guidance are also beneficial.

The Mind Can Create Wellness

The power of the mind to create wellness is illustrated by studies that show that positive emotions are associated with healthful biological changes. For example, a group of English civil service workers were asked to rate their state of happiness several times during a typical work day while researchers measured blood pressure, heart rate, and stress hormone (cortisol) levels. Those with the highest happiness ratings showed the lowest heart rate and stress hormone levels (there was no effect of happiness on blood pressure).

The role of humor in maintaining health has a long history. Plato advocated humor as a means to lighten the

burdens of the soul and to improve one's health. From medieval court jesters to modern circus clowns, laughter has been used to help people forget their problems, to restore mind–body harmony, and to foster health and healing. In 1979, Norman Cousins, a well-known magazine editor, described how he had cured himself of a rare untreatable disease (ankylosing spondylitis) by watching humorous movies for months until he had laughed himself well (Cousins, 1979). Scientific studies have confirmed that humor has a positive effect on the immune system by increasing levels of natural killer cells that help prevent infections (Bennett & Lengacher, 2009). Humor elevates pain thresholds by activating endorphins (hormones released in the brain) that affect pain responses. Humor reduces stress and anxiety in cancer patients, thereby helping to reduce pain (Christie & Moore, 2005). Humor is a powerful adjunct to medicines in the healing process.

Dr. Madan Lal Kararia, an Indian physician who has been dubbed the Guru of Giggling, has developed a set of laughter exercises that are likened to yoga poses (Khatchadourian, 2010). Dr. Kararia recommends that people learn to laugh without jokes or funny videos on a regular schedule as a means to better health. He has established laughter clubs all over the world with an estimated 250,000 members. Perhaps, if more people laughed more often, many of the world's conflicts would be solved.

Mind–Body Healing

Placebo Effect

Another example of the mind contributing to wellness is the **placebo effect** (from the Latin “I shall please”), which refers to the lessening of symptoms or the curing of disease by a person's belief in the curative power of an inert medicine (called a sugar pill or placebo) or belief in the healing power of a person or special words or objects. Although placebo is often thought to be a fake medicine that tricks a patient into feeling better, in actuality a placebo produces identifiable biological changes; healing is not imagined or just “all in the head.” Placebos work because the *expectation* of effectiveness brings about real physiological changes in the body that lead to healing.

For example, researchers used functional magnetic resonance imaging (fMRI) to map changes in blood flow in the brains of volunteers (Wager et al., 2004). The volunteers were subjected to harmless but occasionally painful electric shocks or heat. When they believed an antipain cream had been applied to their arm, they rated the pain as less intense. Moreover, placebo pain relief was related to decreased brain activity in pain-sensitive brain regions and was associated with increased activity during anticipation of pain in other brain regions, providing evidence that placebos alter the experience of pain.

Placebo-induced pain relief likely occurs because the expectation of relief increases the body's manufacture

or release of its own internal pain-relieving chemicals, endorphins and cannabinoids (Colloca et al., 2013). For example, after having wisdom teeth removed, adults were given morphine or placebo for pain relief; about 33% of those receiving placebo experienced pain relief. Then, a chemical that blocks the effects of morphine and endorphins, called naloxone, was given to any patient who had experienced pain relief, either from morphine or placebo. All patients receiving naloxone experienced return of their pain. Thus, it was shown that the expectation of pain relief can stimulate the manufacture and release of endorphins.

The placebo effect is so common and powerful that the U.S. Food and Drug Administration requires that a new drug undergo a *double-blind, placebo-controlled* trial. This means comparing one group of patients' responses to a new drug with a different matched group's responses to a placebo (the control group). So as to minimize bias, people in the test-drug group and the placebo group do not know which substance they are receiving; that is, they are “blind.” Furthermore, none of the scientists administering the test drug or the placebo knows what the patients are receiving; that is, they also are “blind.” Only the project administrator knows who is receiving what. The efficacy of the new drug is determined by its performance compared to the placebo.

The placebo effect occurs in the treatment of many diseases, including the following: ulcers, irritable bowel syndrome, colitis, chronic pain, headache, hay fever, asthma, depression, warts, and high blood pressure. The number of patients responding to placebos for almost any disease or symptom ranges from 30% to 70%; most placebo-controlled drug studies find that about half of all patients respond to placebos. This remarkable finding means that you have a 50–50 chance of being cured simply by believing something will make you better.

Depression is a condition in which the placebo effect can account for as much as 75% of any relief experienced. To determine how the placebo effect could be operating to relieve depression, researchers used positron emission tomography (a PET scan) to visualize the activity in different regions of the brain when depressed individuals

TERMS

placebo effect: healing that results from a person's belief in a treatment that has no medicinal value

psychosomatic illnesses: physical illnesses brought on by negative mental states such as stress or emotional upset

somatic symptom disorder: occurrence of physical symptoms without any bodily disease or injury being present

received antidepressant medication or placebo (Mayberg et al., 2002). The results showed that the pattern of brain activity of patients receiving placebo was almost the same as those receiving antidepressants. Apparently, the expectation that their symptoms would improve caused biological changes in the brain that contributed to relief of depression (Kirsch et al., 2008). **Figure 2.4** shows comparisons of the effectiveness of four antidepressant medications and placebos to reduce symptoms of mild to moderate depression. Note that in each instance the placebo is almost as effective as the drug used to treat depression. About 60% of patients respond to the placebo as do those receiving the drug. Since one major characteristic of depression is feeling hopeless and that things cannot improve, these results suggest that believing that one is receiving a medication triggers a sense of hope, which reduces symptoms of depression. Antidepressant drugs and placebos produce similar alterations in brain chemistry, principally, elevations in the neurotransmitters serotonin and norepinephrine.

Why, if placebos are so effective in healing, are they not used more by physicians in treating patients? One reason is an ethical dilemma for physicians: A placebo might work for one patient, but not for another. Although the same could be true for a prescribed drug, the physician is protected legally by prescribing a drug that has been clinically tested and approved by the FDA. However, no legal protection exists for a physician prescribing a placebo if the patient decides to sue, claiming that the treatment did not meet accepted medical standards.

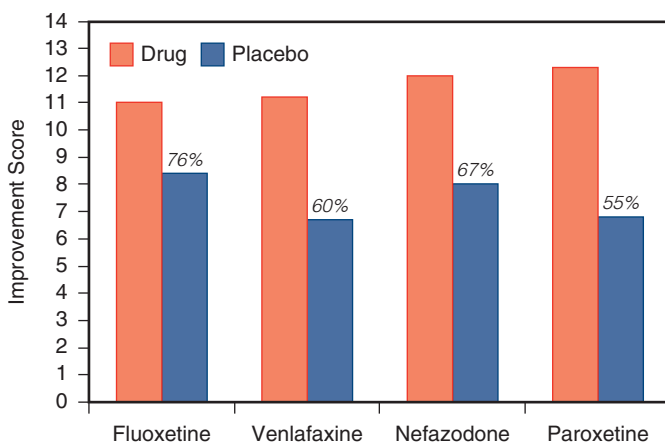


Figure 2.4
Comparison of Four Antidepressant Medications and Placebo in Improvement of Symptoms of Mild and Moderate Depression

The bars in the graph indicate the degree of improvement in symptoms of depression as determined by the Hamilton Depression Rating Scale (<http://www.psy-world.com/hdrs.htm>). In each instance the placebo produces considerable improvement.

Source: Data from Kirsch, I., et al. (2008). Initial severity and antidepressant benefits: A meta-analysis of data submitted to the Food and Drug Administration. *PLoS Medicine*, 5, e45. Retrieved from <http://www.plosmedicine.org/article/info:doi/10.1371/journal.pmed.0050045>

Who knows what might work as a placebo? Perhaps consuming a couple of M&Ms twice a day can cure pain and many other symptoms that people suffer. Often the safest and best path to relief of suffering is to engage the power of the mind.

The Nocebo Effect

A negative, harmful placebo effect is called a **nocebo effect** (from the Latin “I shall harm”), and it is another reason placebo pills are not used in medical practice. Placebos can be dangerous, just as drugs can be dangerous. Patients can become addicted to placebo pills used for pain relief and suffer withdrawal symptoms when they stop using them. Also, like prescription drugs, placebo pills can cause side effects. In one experiment, 40 volunteer asthmatic patients were asked to inhale a placebo spray, which they were told contained an allergen. Twelve of the volunteers had full-blown asthma attacks, and seven had lesser symptoms. The asthma attacks were reversed by inhalation of another placebo spray, which they were told would relieve the symptoms.

Words can produce a placebo effect in the same way as a pill. Because of this fact, you should always seek out health practitioners whom you trust and who use positive, constructive healing suggestions and who encourage you to become involved in self-healing practices. Avoid health practitioners who voice negative and pessimistic recommendations. No one needs to hear negative suggestions such as “You’ll probably have to take these pills for the rest of your life,” or “I doubt that you’ll be able to move around much after an accident like that.” In the presence of a physician, many patients become very open to suggestions, both positive and negative, because their minds are intently focused on what the doctor is saying. Such a focused state of mind is similar to that obtained in meditation or hypnosis. It is more helpful to practice being alert and critical when discussing your health concerns or diagnostic test results with a health professional. Of course, this is not always easy to do, especially when the information being conveyed causes distress or fear.

A tragic, but dramatic, example of a nocebo effect involved a patient who died apparently from reading a single word (Hewlett, 1994). This person had a history of chronic lymphocytic leukemia, a form of blood cancer that usually is easily controlled with drugs. The patient had been well for more than three years with only intermittent need for medication. However, he had never actually been informed of the original diagnosis of his condition.

One day he was in his physician’s office on a routine visit and happened to read the physician’s notes, which were lying on the desk. He saw the word *leukemia* in his file. He missed his next scheduled office visit and shortly thereafter showed up in the hospital’s emergency room. Within three weeks he died in the hospital. No cause of death could be discovered at autopsy, and his leukemia was still in remission. The patient apparently *believed*



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Take a time out to meditate whenever you need to.

that he had terminal cancer just from seeing the word *leukemia* in his medical records. The mind *does* heal; the mind *does* kill.

Methods to Promote Mind–Body Harmony and Health

Autogenic Training

Autogenic training uses autosuggestion to establish a balance between the mind and body through changes in the autonomic nervous system. The method has been shown to be effective in relieving anxiety (Miu, Heilman, & Miclea, 2009) and improving the quality of life in people with chronic medical conditions (Sutherland, Andersen, & Morris, 2005).

Autogenic training involves learning to concentrate on one of six basic autogenic phrases for a few minutes each day over a week or more. After weeks or months of practice, one is able to attain a deep sense of relaxation, often within seconds, which can result in healthful physiological changes. The six basic autosuggestions are as follows:

- My arms and legs are heavy.
- My arms and legs are warm.
- My heartbeat is calm and regular.
- My lungs breathe for me.
- My abdomen is warm.
- My forehead is cool.

The exact phrasing of any autogenic suggestion is not critical to its effectiveness. The words carry no particular power. Any suggestion can be rephrased so that it becomes comfortable, believable, and acceptable to the practitioner's mind.

Biofeedback

A classic method for using the mind to alter bodily functions is **biofeedback**. This method employs a recording device to facilitate learned self-control of physiological activities (see the Managing Stress feature “Biofeedback”). The recording device is connected to a region of the body (e.g., forehead, arm), and information about biological activity in that region is “fed back” on a screen or by means of a sound to the person in whose body the activity is taking place. Using this visual or auditory information about the activity, the person can learn to control the activity in a desired way. Biofeedback has been used successfully to treat more than 150 medical conditions, including high blood pressure, back pain, panic attacks, asthma, and headaches (Mayo Clinic, 2013). Biofeedback also can be used to produce changes in the brain's electrical activity (*alpha waves*) to bring about a state of relaxation.

Hypnosis and Healing

Hypnosis (from the Greek *hypnos*, meaning sleep) is a state of concentration and focused attention. The method typically involves attaining a relaxed mental state in which suggestions for imaginative experiences are presented by another person. This is called the hypnotic induction. Hypnotic suggestions can alter perception, sensation, emotion, thought, or behavior and, in this way, the mind can be focused on health issues. **Hypnotherapy** is the use of hypnosis to treat sickness. Hypnosis has been shown to help restore health in many conditions, including reducing pain, facilitating childbirth, decreasing anxieties, managing body weight, and stopping smoking.

The modern use of hypnosis as a medical technique began with the Viennese physician Franz Anton Mesmer,

TERMS

autogenic training: the use of autosuggestion to establish a balance between the mind and body through changes in the autonomic nervous system

biofeedback: using an electronic device to “feed back” information about the body to alter a particular physiological function

hypnosis: a state of concentration and focused attention

hypnotherapy: the use of hypnosis to treat sickness

nocebo effect: the opposite of placebo effect; a harmless substance that has harmful, undesirable, and adverse effects on health



Biofeedback

Dan was a first-year graduate student who experienced frequent headaches, for which he sought help from the Student Health Center. Medical tests showed no brain pathology, such as a tumor, or brain infection or injury. Diagnosis: Dan's headaches were related to the stress and anxiety about doing well in graduate school.

Dan's therapy involved meeting with a counselor to discuss ways to manage the stress of graduate school and biofeedback training to deal specifically with his headaches. In biofeedback sessions, three small sensing devices, which monitored the activity of the forehead's frontalis muscle, were attached to Dan's forehead (**Figure 2.5**). The frontalis and certain muscles in the neck involuntarily contract during times of stress, which impedes blood flow to the head, resulting in a headache. Wires from the three sensors were connected to a biofeedback unit, which was placed on a table directly in Dan's view. Whenever Dan's frontalis muscle contracted, the biofeedback unit produced audible clicks. A very tense frontalis produced rapid clicks. A relaxed frontalis produced infrequent, irregular clicks.

Dan was instructed by his biofeedback therapist to try to reduce the number of clicks, a skill that required several training sessions to attain. Paradoxically, not trying to relax his frontalis produced the best results. The therapy

proved successful. Dan seldom got headaches. And when he did, he could relieve them by relaxing the muscles in his forehead.

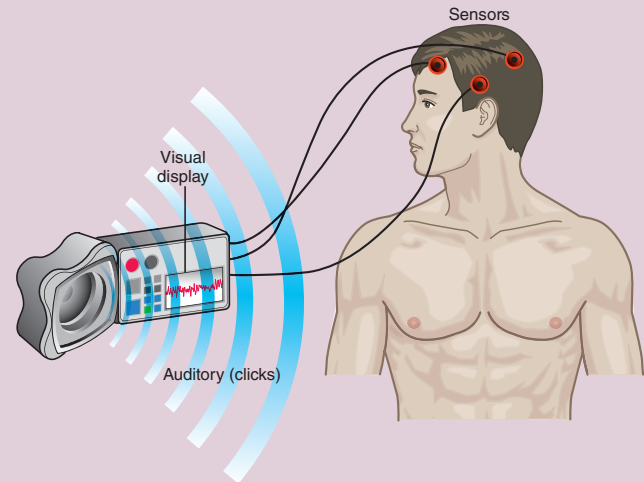


Figure 2.5

Biofeedback

The biofeedback device measures muscle tension in the head region. The speaker produces rapid audible clicks when muscles are tense and infrequent and irregular clicks when head muscles are relaxed.

who practiced in the late eighteenth and early nineteenth centuries. History has preserved the term *mesmerism* for the trancelike state that Mesmer produced in his patients (Galdos, 2009).

Mesmer called his technique for healing “animal magnetism” because he had his patients hold onto metal rods that supposedly transmitted healing energy while the patients were in trance. Mesmer was so successful that other physicians in Vienna forced the authorities to order him to stop using his unorthodox methods. In 1778, Mesmer moved to Paris, where he again was successful in attracting patients. Eventually, the French authorities appointed a scientific panel, which included Benjamin Franklin (U.S. ambassador to France at the time), to investigate Mesmer and his methods. The panel concluded that there was no scientific basis to animal magnetism and that Mesmer was a fraud. This conclusion was reached even though the panel did not dispute Mesmer's success in curing many patients. Discredited by physicians and scientists, Mesmer died in obscurity in 1815.

Despite being officially discredited, mesmerism (now called hypnotism) flourished throughout England, Europe, and the United States in the nineteenth century. In 1847, J. W. Robbins, a Massachusetts physician, reported using hypnotherapy to treat eating disorders and to help people stop smoking. Dr. Robbins used aversive suggestions with hypnotized patients and also gave them posthypnotic

suggestions. Many of the same procedures are used today in treating these and other disorders.

To be successful therapeutically, hypnosis requires that (1) the participants in the hypnosis encounter are identified as the *hypnotist* and the *client*; (2) suggestions are a key to the procedure; (3) the client (patient) consents to participating in the procedure, especially to receiving and accepting suggestions; and (4) the therapist describes the technique beforehand and how it is supposed to help (Montgomery et al., 2013). Success in hypnosis is greatly influenced by the rapport between client and hypnotherapist so the client can suspend reality and respond to suggestions (Bryant et al., 2012). Effective use of suggestion in healing seems to depend on the degree of mental relaxation involved. For reasons that are not entirely clear, a mind engaged in the conscious thoughts of daily living is not as open to suggestion as one that is internally relaxed by hypnosis, meditation, or other mental relaxation techniques.

Understanding Hypnosis May Help You

Many people have misapprehensions about being hypnotized, and many myths about hypnosis still exist. Perhaps the greatest fear people have is being induced to do something embarrassing, immoral, illegal, or evil when they are hypnotized. Some of the misconceptions and apprehensions about hypnosis are summarized in **Table 2.3**.

Hypnotherapy is potentially a valuable adjunct to medical practice and has a long and successful history. It is not used widely because of time constraints and the almost universal belief that the right pill will cure

We do not see things
as they are....We see
things as we are.

Talmud



Focusing Attention

A wise teacher said that you could read thousands of books about meditation, but none is as good as a demonstration. So, do this: Right now, notice the sensation of the bottoms of your feet touching the insides of the bottoms of your shoes. That sensation is caused by the nerves in the bottoms of your feet signaling your brain that your feet are touching your shoes. That signaling has been going on the entire time you've been reading this page, but you were unlikely to have noticed because your attention was focused on what you were reading—or perhaps on other thoughts—until you were asked to change the focus of your attention to

the bottoms of your feet. This shows that you can choose to focus your attention (also called your conscious awareness) on what you want to: your feet, signals of discomfort from your body, worries, your to-do list, or memories of a nice time you had with someone special. Meditation is being aware of what your mind is doing on a moment-to-moment basis and shifting the focus of your awareness if you wish to, for example, to your breathing, a repeating sound or prayer, or an image. Instead of your mind being pushed and pulled this way and that by the busyness of your life, meditation allows you to notice that your mind is overly busy—perhaps distressingly so—and to shift your mental process to something that facilitates feeling stable, in control, flexible, and adaptive.

Table 2.3

Myths About What Happens During Hypnosis

Myth: While under hypnosis you lose control of your mind and the hypnotist can make you do anything that he or she wants.

Fact: Despite what is portrayed in movies, a hypnotist cannot control your mind or make you do something against your will or beliefs. A hypnotized person can decide to become “unhypnotized” at any time. Ultimately, all hypnosis is self-hypnosis. The stage hypnotist selects people from the audience who *want* to be hypnotized and be part of the act. People do funny things on the stage because they agree in their minds that it is OK to do them. Similarly, a person follows a therapist’s suggestions because of trust and a desire to be helped. No one can control your mind if you do not agree to cooperate voluntarily.

Myth: Hypnosis is like falling asleep. You become unconscious and are unaware of what is happening around you. When you wake up you do not remember what was going on around you while you were hypnotized.

Fact: In hypnosis you do not lose consciousness, and most hypnotized subjects report that they feel very aware. Hypnosis is like focused attention in which you are aware of specific thoughts to the exclusion of others. Just as with deep meditation, you are always in touch with reality and choose to remain in the meditative state or “wake up.”

Myth: Hypnotists have special psychic or occult powers, which explains why they can control other people’s minds.

Fact: Hypnotists have trained their powers of observation and are skillful at giving suggestions. Those who claim to have special powers should be avoided because they harbor hidden motives and should not be trusted. Always remember that all hypnosis is self-hypnosis.

Myth: Only people with “weak minds” or of low intelligence can be hypnotized.

Fact: Everyone can be hypnotized, although people vary in that ability as they do in all abilities. People with above average intelligence usually enter a state of hypnosis more easily than others. Consider what happens in a movie theater. People laugh, cry, or are terrified by what is happening on the screen. But the images that affect them so powerfully are, in reality, light on the screen. Most moviegoers are in a state of hypnosis and, by adopting the role of “moviegoer,” have agreed to allow their emotions to be manipulated by the images. Nevertheless, everyone is in control of their minds. Witness the sudden “unhypnotizing” if someone yells “fire” or if the lights are turned on abruptly. Again, it is worth emphasizing that all hypnosis is self-hypnosis.

Myth: Hypnosis is not useful or effective in improving health or harmful behaviors.

Fact: Hypnosis, or hypnotherapy as it is called when used by trained health professionals, may be very useful in treating a wide range of symptoms. In 1957, the American Medical Association approved hypnotherapy as a valid therapeutic technique. Many physicians and clinical psychologists use hypnotherapy to treat a wide range of physical, emotional, and behavioral problems such as pain, panic attacks, smoking, alcoholism, and posttraumatic stress disorder.

everything. Physicians have to take time to develop a rapport with patients and be willing to take as much time as necessary to answer all questions and make sure the patient is comfortable with being hypnotized. Modern medical practice does not allow for this in an age of managed care and HMOs (see Chapter 19). Time is money in modern medical practice.

Meditation

Meditation is a long-standing religious and spiritual practice of focused awareness, trance induction, and relaxation that is increasingly used to promote health

and healing. Contrary to what some people think, meditation is not a cult, religion, or giving up control over one’s mind. It isn’t being “zoned out” without thoughts or used to escape reality. Instead, meditation is focusing

TERMS

Meditation: Focusing awareness on a self-produced inner sound (“mantra”) or an external sound, or image, or one’s breathing to lessen attentiveness to external stimuli

on, paying attention to, and noticing what your mind is doing right in this moment without judgment. If you examine what is going on in your mind at any given moment, you will probably find it flitting from one thought to another, called “chatter”: “Did I remember to turn off the lights before I left the house?” “My feet are killing me; I shouldn’t have worn these shoes.” “I wonder what will be on the math test?” “Is it ok to let the kids go to that sleepover this weekend?” Our minds are generally constantly active and often involved in worrying or thinking about emotional upsets, financial concerns, or the tasks and pressures of daily activities.

Quieting the mind is healthy, and meditation is a way to accomplish that. Focused awareness can be achieved in

Meditation is not what you think.

Krishnamurti

a number of ways, and there are many different kinds of meditation. *Zen meditation* (zazen) involves sitting still with legs crossed while trying to empty the mind of its chat-

ter. *Transcendental meditation* teaches practitioners to focus on a particular phrase (called a **mantra**) that is repeated internally; focusing the mind’s attention on a single phrase excludes other random thoughts. *Insight* or *mindfulness meditation* (Vipassana) teaches meditators simply to observe the flow of thoughts that pass through the mind without focusing on any particular one. Buddhists, especially Tibetan Buddhists, often meditate by focusing their attention on a religious image (called a **mandala**). Prayer is a form of meditation in that it focuses awareness on God. Meditation is something that nearly everyone has experienced even if they have not called it meditation.



Courtesy of Gordon Edlin

A mandala is a complex visual image used to focus attention and facilitate meditation. (“Green Tara,” an original painting by Maile Yawata.)



© iStockphoto/Thinkstock

Meditation can be done anywhere, any time.



Make Up Your Own Mantra for Changing Behaviors

Use the power of a mantra to change some aspect of performance or behavior. Choose some behavior or activity that you would like to change or improve. Then create your own mantra. It should not be something complicated, but a small thing that you feel you can achieve. It should be as specific as possible. For example:

Sports: I feel my body getting stronger.
I feel my body moving more swiftly through the water.
I become less tired each time around the track.

Behaviors: I will stop eating when I feel full.
I will not speak until the anger passes.
My mind will stay alert during classes and exams.

Be creative in designing your own mantra and spend time each day reciting it internally while in a quiet state. You can be a skeptic and the mantra will still work.



Relaxation with Music

Many people know and research has shown (Chanda & Levitin, 2013) that listening to or playing music can be relaxing. Music can focus the mind just as meditation, hypnosis, and prayer do. Thus, listening to or playing music can reduce stress. In medical settings, music can help patients lessen anxiety and stress. One study found that patients undergoing surgery were just as likely to be calmed by music as by sedative drugs (Bradt et al., 2013). Music can help reduce the chronic pain that accompanies rheumatoid arthritis, herniated discs, or fibromyalgia. Music can help those who have experienced stroke, Alzheimer's, and other neurological diseases.

The kind of music that people find helpful varies according to individuals' preferences. In general, soft music is preferred to loud; gentle rhythms and moderate beats that approximate the heart rate (65–75 beats per minute) are preferred to vigorous or complex rhythms and fast beats. The “background music”

found in doctors' and dentists' offices is known to reduce heart and breathing rates and reduce anxiety.

To use music as a therapy for insomnia, pain, stress, anxiety, or other problem, use the following guidelines:

- Choose music that you enjoy and find relaxing. Many types of classical music, soft jazz, Celtic and Native American music, and chants are suitable. Most people prefer music with flowing rhythms.
- Pick a time and place where you will not be disturbed and can let go of daily concerns. Plan to spend at least an hour in a relaxed state.
- You can listen at low volume or may feel more comfortable using ear-cupping headphones that reduce outside noise and distractions.
- Consider consulting a music therapist for additional advice and help.

Meditation does not have to be done in a religious setting, nor is it complicated.

- Choose a quiet place in your home or outside.
- Find a comfortable sitting position with your back straight. (Lying down is not recommended because it is strongly associated with sleep.)
- Be sure that you have at least 10 to 30 minutes during which you will not be disturbed.
- Busy people often find that meditating before bedtime works best (privacy, quiet).

A good way to begin meditation is to focus your attention on breathing. Begin by becoming aware of the way you are breathing. Is it slow and deep? Is it quick and shallow? Is it through one nostril or both?

As you focus your awareness on your breathing, your mind is highly likely to wander to various thoughts that stream by. When you notice your mind wandering, simply say to yourself, “My mind is wandering,” and refocus your awareness on your breathing. Perhaps count your breaths from 1 to 10 to help you focus (counting is similar to a mantra). After some time, it is highly likely that your mind will wander again. When you notice this, do not become frustrated or angry with yourself (“This isn't working!”; “I'm a bad meditator”). The mind's job is to think, and wandering to thoughts in meditation is demonstration of that. So, when your mind wanders to thought, notice and refocus your awareness on your breathing. Meditation is often repeating cycles of focus and wandering (loss of focus). With some practice (Remember: You are good at what you practice), you will become more skilled at focusing on breathing and the calm state of being that it brings, and will be able to let your thoughts stream in the background of your mind without paying much attention to them.

Practicing meditation almost every day can help you manage burnout and stress, increase your sense of well-being, lessen risks of a variety of illnesses and infections, deal with pain, increase your sense of harmony with your social and physical surroundings, get a good night's sleep, improve performance on tasks, and become aware of how your mental processes affect your life. College students take note! A mere four days of meditation training for 20 minutes a day can improve cognition and working memory (Zeidan et al., 2010, Chiesa et al., 2011).

Meditation has many documented health benefits—lowered blood pressure, decreased heart rates, less stress, increased blood flow, reduced pain, and relief of many chronic conditions such as asthma, arthritis, and irritable bowel syndrome.

The faster the world becomes, the more we need to slow down.

The Relaxation Response

The **relaxation response** is an automatic physiological response that is the opposite of autonomic nervous system activation (Benson & Klipper, 2000). The relaxation

TERMS

mandala: an artistic, religious design used as an object of meditation

mantra: a sound or phrase that is repeated in the mind to help produce a meditative state

relaxation response: the physiological changes in the body that result from mental relaxation techniques



Using Your Mind to Improve Health

- Become more aware of the power your mind has to improve health, hasten healing, and help you perform better in school and in other activities. Belief in yourself, in prayer, or in a particular treatment can facilitate healing and help prevent sickness.
- Use mental images that feel right to you to reduce exam anxiety and to improve performance in sports or other activities. Avoid negative mental images and thoughts such as “I feel lousy,” or “I’m too tired to run,” or “I just know I can’t do that.” Use your mind to create positive images

and thoughts. You can reverse what seems to be a “bad” day by suggesting to yourself that things are going to change and improve.

- Practice a daily mental relaxation technique in a place that is comfortable and quiet. Use the time to “talk” to your body to promote healing or to change behaviors. Visualize scenes from the past or the future that you know are healthy and constructive. As you become more adept at using your mind, you will find new ways to use mental relaxation in all aspects of your life. (Notice how we inserted a positive suggestion.)

response decreases oxygen consumption, respiratory rate, heart rate, blood pressure, and muscle tension. A variety of mind–body methods can produce the relaxation response, such as mantra meditation, progressive muscle relaxation, and guided imagery. For example, at the Harvard Medical School, patients are taught to sit quietly and silently repeat the word “one.” Methods that elicit the relaxation response share these features:

- A quiet environment
- A focusing of the mind’s attention, such as silently repeating a word or phrase, or focusing one’s breathing
- A passive, accepting mental state
- A comfortable physical position

Practicing the relaxation response regularly for 10–15 minutes per day increases feelings of well-being and decreases depression, anxiety, and hostility, which is correlated with improved cardiovascular and immune health (Chang et al., 2010).

Suggestion

Any time the mind becomes focused and relaxed, it also becomes more open to suggestion. This can be very beneficial or it can create problems, depending on the kind of suggestions being received by the mind. Suggestions given as warnings, especially to children, who are particularly vulnerable to suggestion, can affect behaviors and cause health problems throughout life. For example, here are some common admonitions given to children that can cause health problems because young children believe what they are told.

- Put on your boots when you go out in the snow or you will catch cold.
- If you keep eating cookies, you’ll get fat.
- If you don’t try harder, you’ll be a failure in life.
- If you climb those trees, you’ll fall and get hurt.
- If you go out at night, the ghosts will get you.

Each of these suggestions predicts a negative outcome. To a child’s mind, which is usually in a trancelike,

suggestible state, these negative suggestions become fixed in the unconscious mind and may have a harmful effect even many years later.

The mind can be made more open to suggestion by many things we are exposed to in daily life. For example, movies and television focus attention with both images and sound. As a consequence, they can induce a trancelike state and cause us to cry, laugh, and become angry or upset; they can actually manipulate our emotions through light and sound. No one dies on a movie screen, but we often react as if they did. The violence and horror people watch in movies and on TV often do affect both physical and emotional states. As a result of watching some frightening scene, people may actually become sick days, weeks, or years later when something reminds the subconscious mind of the scene and brings back the fear.

Advertisers know how to take advantage of viewers’ suggestible, hypnotic states of mind. Television programs usually are interrupted at an emotional peak in the story by advertising a product while viewers are still in a suggestible state of mind. Many people believe they are not influenced by advertising, but marketing studies indicate otherwise. Most advertisers try to persuade people to buy products they usually do not need. It is important to become more aware of how suggestible you are and to protect yourself from both obvious and subtle suggestions that can damage your health and peace of mind.

A very effective way to use suggestion to promote wellness and change undesirable behaviors is through the use of **image visualization**. Many mind–body healing techniques employ some form of image visualization. For example, frightening scenes from the past, especially from early childhood, can be reexperienced while a person is in a state of mental relaxation brought on by hypnosis or some other technique. As the scenes and emotional upsets are visualized in the mind, they can be reinterpreted and reprogrammed to change their negative effects on health and behaviors. Mental imagery can also be used to reduce pain; hasten healing; improve



Image Visualization Reduces Stress

Image visualization is telling yourself a story and “seeing” the images in your mind’s eye. An attorney in Los Angeles uses image visualization once in a while during the first few minutes of her lunch break. She closes the door to her office, takes off her shoes, and sits on the floor with her back against a wall. She closes her eyes and takes a few deep breaths. Then she imagines...

...that she is standing at the edge of a meadow that is filled with golden wildflowers. The sun is shining and the air is a very pleasant temperature. On the far side of the meadow is a hill. She imagines herself slowly walking across the meadow toward the hill on a path that has been worn down by previous walks through the flowers. When she reaches the hill, she begins to walk on a gently winding path toward the top. As she walks, she hears the sounds of birds and a nearby stream. Along the side of the path she sees bushes, small trees, a few flowers, and a few stones. Finally, she reaches the top of the hill, where there is a lovely stand of tall trees. There’s a clearing in the trees, and on one side of the clearing there’s a fallen log. She sits on the log and enjoys the warm sun filtering through the branches of the tall trees. She closes her eyes and rests. After a few minutes, it’s time to return, so she opens her eyes, rises, and walks across the clearing to a very large, smooth, white boulder. She looks on the top of the boulder and there’s a private message written just for her. She reads the message and then begins to walk down the path to the meadow, still hearing the sounds of the birds and the stream, and still feeling the warm sun. Eventually she reaches the meadow, retraces her path through the golden flowers, and then...

...she opens her eyes and embarks on the rest of her work day.

performance in sports; change smoking, drinking, or eating behaviors; and help control compulsive urges to gamble. At one time or another in our lives, we all daydream or run an “internal movie,” fantasizing our hopes and fears. During such fantasies we visualize experiences and create feelings. Image visualization can change body temperature, blood flow, heartbeat, breathing rate, production of hormones, and other body processes regulated by the brain.

Most psychologists who work with athletes to improve physical performance use image visualization. The so-called inner games of tennis, golf, skiing, and skating are based on image visualization. Baseball players in a batting slump use relaxation and visualization to “see” themselves getting hits. Basketball players use the technique to “see” their free throws going cleanly through the hoop.

Image visualization also can improve sexual responses and enjoyment. Sexual arousal begins in the mind, and negative thoughts or fears can stifle the

sexual responses. The sex organs are particularly sensitive to images generated in the mind. Most sex therapists use relaxation techniques and image visualization to help clients improve their sexual experiences. Tension related to sexual performance is usually the main reason for not experiencing the desired sexual sensations. In all areas of your life, begin to use your mental powers more to enhance health and improve performance in daily tasks.

Guided imagery is another application of suggestion to promote health and well-being and to relieve stress. Unlike image visualization, in which the image is created by oneself, in guided imagery, another’s verbal suggestions help guide you to create a particular physical response such as reducing stress, lowering blood pressure, or reducing pain. Often, a guided imagery experience begins with the guide suggesting that you take a few moments to settle from the day’s usual “busyness” by sitting or lying comfortably, closing your eyes, and taking some deep breaths. Then the guide may suggest images of you being in a peaceful locale, such as beside a mountain stream or at an isolated beach. The guide will describe in great detail the scene and remind you how peaceful and serene you feel. In the mountains you may be guided to see flowers in a meadow or birds flying overhead and to be soothed by the imagined sound of water flowing in a stream. You might be guided to imagine the water carrying away your worries and tension. At the beach you may be guided to sense the warm sun on your skin and hear the sound of waves coming ashore. As the water retreats to the sea it carries away some of your worry, tension, or pain. After a few minutes, your guide will suggest that it is time to leave your serene place and you are guided back to your normal environment. As you return, your guide reminds you how relaxed and good you feel and encourages you to carry that feeling with you as you move through the rest of your day.

Virtual Reality Therapies

It has been known for many centuries that *distraction* is a very effective treatment for pain. That is why meditation, hypnotherapy, prayer, and other methods that focus the mind’s attention on something other than pain or other

TERMS

guided imagery: using verbal suggestions to create one’s own mental images that produce relaxation, and feelings of harmony, and reduce stress

image visualization: use of mental images to promote healing and change behaviors

symptoms are so effective. Many Buddhist monks and devout individuals of many faiths learn to focus their attention so completely on a mantra, mandala, breathing, or exalted inner state that they are, quite literally, “out of their bodies.” Modern medical researchers are using this aspect of mind to create **virtual reality therapies (VRT)** to treat burns, pain, and phobias (e.g., fear of flying, insects, or heights). Virtual reality therapy involves focusing one’s attention on a computer-generated imaginary world. A medical application of VRT exposes burn patients to virtual realities of glaciers, ice, snow, snowmen, and other features of a cold, cold world to distract them from their pain. Another application of VRT is to help stroke patients to improve their gait and posture (Park et al., 2013). While in the fearful virtual world patients are, at the same time, safe in their therapist’s office and know that they can remove the headset at any time. Because part of their mind knows they are safe, patients can confront their fears in the virtual world and learn to overcome them.

A very important use of VRT is in the treatment of posttraumatic stress disorder (PTSD; see Chapter 3), which was experienced by many survivors of the 9/11 attack in New York and by soldiers who served in Iraq (Thacker, 2003). Examples of environments simulated are virtual Iraq, virtual airplane, virtual nicotine, and virtual 9/11. Patients using VRT can manipulate the virtual environments to lessen their fears and stress. Some manage to reduce their overall anxiety and arousal response so that they become relatively free of PTSD.

The software for virtual reality therapies is costly to develop, and so is the equipment to deliver the therapeutic treatments. Nevertheless, virtual reality therapy has enormous potential to help people overcome a variety of fears and symptoms of fear.

Taking Time Out to Quiet the Mind

Most of us live pretty hectic lives that are full of time pressures and mental stress. Most young people either go to school, work at a job, or do both. In addition to school and work, students engage in extracurricular activities, sports, concerts, cell phone conversations, computer chat rooms, video games, movies, television—the list goes on and on. To do all these things requires a healthy mind and body. Usually, health is something young people take for granted until it disappears. But staying healthy, even when you are young, means finding time to be quiet, to silence stressful thoughts, and to alleviate tensions in the body.

There are many ways to quiet down, and some suggestions and techniques have been presented in this chapter. But the best ones are the ones that you discover for yourself. Find a quiet spot in a park or in your yard where you can sit and reflect on the good things in your life. Forget for a time the problems of the world and what you need to accomplish in life. Just notice things around you, especially the small things. Watching an ant carry a bit of food twice its size is a good thing to do. Looking at the pattern of stars in the night sky is a good thing to do. Experiencing the freshness of new snow and the taste of rain is a good thing to do. Just be quiet as often as you can. It’s good for your mental and physical health.

TERMS

virtual reality therapy (VRT): use of computer programs to create virtual worlds that engage the mind in order to overcome pain and fear and to treat symptoms of posttraumatic stress disorder

Critical Thinking About Health

1. Identify one time in your life when you have been seriously ill (not counting colds or minor injuries). Describe the nature of the illness and the time it took to become well again. Discuss all of the factors that you think may have contributed to your becoming sick, including stress, emotional problems, poor nutrition, and so forth. Then discuss all of the factors that you believe contributed to your becoming well again, including medical care, prayer, alternative medicines, and other factors. What were the most important factors that led to your becoming sick? What were the most important ones in the healing process?
2. Find a selection of medical journals in the library and look at the drug company advertisements. Try to locate ones that show a comparison of the drug's effectiveness with a placebo. Determine how effective the placebo was from the data given (usually shown in a graph). Then compare the effectiveness of the drug with the placebo. If the placebo was effective, explain why you think it was so effective in this instance. Give your views on whether doctors should prescribe a placebo pill for some conditions before prescribing an active drug.
3. What is the role of religion/spirituality in health? To what degree should religion/spirituality be part of the clinical encounter between patient and physician?
4. Describe any experiences you have had with meditation, hypnosis, yoga, *qigong*, image visualization, or any other form of mental focusing and relaxation. Describe how you became involved with this activity and for what purpose you used it. Did it help you solve a particular health or emotional problem? Would you recommend this technique to others?

Chapter Summary and Highlights

Chapter Summary

Our bodies and brains are intimately interconnected. The brain controls thousands of chemical reactions in the body moment by moment; conversely, the state of the body directly affects thoughts, feelings, and emotions. Optimal health depends on maintaining mind–body harmony so that both work together to keep you feeling well, energetic, strong, and aware of yourself and others. The brain automatically regulates essential functions of the body such as breathing, digestion, blood pressure and flow, and reaction to the environment such as stopping you from walking in front of a moving car or pulling your hand away from a flame. Most brain activities occur without conscious control. But the mind can be trained through various mental and physical techniques to be more effective in healing illnesses and injuries. On the other hand, if your mind is disturbed, anxious, or depressed, it can cause bodily organs to malfunction, thus leading to illness. A dramatic example of the mind's power to affect health is the placebo effect. If a person believes in the power of a pill to cure or prevent disease, taking such a placebo pill will often work as well as a prescribed drug. Belief can heal because the mind has the power to change body chemistry.

Just as the body can be trained to do certain things, the mind also can be trained to calm anxieties and to facilitate healing. Techniques such as meditation, hypnosis, image visualization, and many others increase awareness of thoughts, reduce stress and emotional upset, and even alter body chemistry to promote healing and health. Learning and practicing regularly meditation or another or several mental relaxation techniques can provide lifelong tools for improving health and coping with upsetting situations that one encounters in life.

Highlights

- The human mind can cause changes in body chemistry through thoughts and feelings, which may have a positive or negative effect on your health.
- Optimal health is achieved when the mind and body communicate harmoniously.
- Disease can be regarded as disruption of homeostasis or disruption of the harmonious interaction of mind and body.
- The mind and organs of the body communicate continuously via the autonomic nervous system, which maintains vital body functions such as heart rate, level of blood sugar, and temperature.
- Psychosomatic illnesses are physical symptoms caused by stress, anxiety, and emotional upsets.
- Somatic symptom disorders are caused by psychosocial problems.
- The placebo effect often is almost as powerful as drugs in treating symptoms of illness.
- Hypnosis and meditation can play a positive role in healing illnesses.
- Belief, faith, and suggestion all have the power to heal because the mind can change disturbed body functions and reestablish homeostasis.
- A key to maintaining or improving health and wellness is to learn and practice a mental relaxation technique.
- Image visualization can be used to reduce anxiety and stress, modify behaviors, and enhance performance.
- Virtual reality therapies use computer software to treat phobias and severe pain.

For Your Health

Become more adept at using your mind to enhance your health by learning to meditate (Exercise 2.1 page 595). Meditation can help you manage stress, quiet your mind, increase your sense of well-being, enhance harmony with

your social and physical surroundings, get a good night's sleep, improve performance on tasks, and become aware of how your mental processes affect your life.

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Suggested Readings

- Benson, H. (2011). *Harvard Medical School stress management: Approaches for preventing and reducing stress*. Cambridge, MA: Harvard Medical School. The founder and former director of Harvard's Cardiac Wellness Programs and Institute for Mind Body Medicine teaches how to identify stress warning signs and to better manage stressful situations using a variety of stress relief techniques.
- Chiesa, A., et al. (2011). Does mindfulness training improve cognitive abilities? A systematic review of neuropsychological findings. *Clinical Psychology Review*, 31, 449–464. Discusses recent research showing that mindfulness meditation can enhance cognitive abilities.
- Cohen, K. S. (1997). *The way of qigong*. New York: Ballantine. The definitive guide to qigong—what it is, how it works, and what it can do for you.
- Dalai Lama. (2005). *The universe in a single atom: The convergence of science and spirituality*. New York: Morgan Road Books. The spiritual head of one of the world's oldest religions, Buddhism, explains why he does not see any conflict between spirituality and science.
- Farb, N. A., et al. (2012). The mindful brain and emotion regulation in mood disorders. *Canadian Journal of Psychiatry*, 57, 70–77. Shows that mindfulness can help people with mood disorders such as anxiety and depression by reducing automatic negative self-evaluation, increasing tolerance for negative affect and pain, and engendering self-compassion and empathy.
- Kabat-Zinn, J. (2011). *Mindfulness for beginners: Reclaiming the present moment—and your life*. Louisville, CO: Sounds True. Teaches how to transform your relationship to the way you think, feel, love, work, and play and thereby awaken to and embody more completely who you really are. Jon Kabat-Zinn, PhD, is executive director at the Center for Mindfulness in Medicine, Health Care and Society at the University of Massachusetts Medical Center and is the founder and former director of the UMMC Stress Reduction Clinic.
- Kornfield, J. (2008). *Meditation for beginners*. Louisville, CO: Sounds True. Presents a complete introduction to “Insight” meditation with step-by-step instruction in breathing, posture, attention, working with difficult emotions, and physical discomfort.
- Murray, D., & Stoessl, A. J. (2013). Mechanisms and therapeutic implications of the placebo effect in neurological and psychiatric conditions. *Pharmacology and Therapeutics*, 140, 306–318. Reviews the research on the effectiveness of placebos and their physiological mechanisms of action.
- Nash, M. R. (2001, June). The truth and hype of hypnosis. *Scientific American*, 37–54. A good introduction to our scientific understanding of hypnosis.
- Sagerstrom, S. C. (2012). *The Oxford handbook of psychoneuro-immunology*. Oxford, UK: Oxford University Press. Discusses the latest research in all aspects of the topic.
- Scott, R. A. (2010). *Miracle cures: Saints, pilgrims, and the healing powers of belief*. Berkeley: University of California Press. An academic sociologist examines the evidence for miracle cures over the centuries.
- Smith, B. L. (2011). Hypnosis today. *American Psychological Association Monitor*, 42, 50. An excellent discussion of the current state of hypnotherapy.
- Thompson, G. (2005). *The placebo effect and health: Combining science and compassionate care*. Amherst, NY: Prometheus Books. The author provides a comprehensive examination of the placebo effect.

Recommended Websites

Audio Relaxation CDs and MP3s

Dr. Emmett E. Miller presents articles on mental well-being and sells CDs and mp3s on image visualization, self-hypnosis, and many aspects of wellness and healing.

National Center for Complementary and Integrative Health (NIH) on Meditation: What You Need to Know

Descriptions of several kinds of meditation practices.

Study Help

The University of Toronto's suggestions for mastering academic skills and reducing stress from classes and studying.

University of Maryland Medical Center

<http://umm.edu/health/medical/altmed/treatment/hypnotherapy>. A very thorough discussion of the method of hypnotherapy.