Study Guide and Self-Assessment

2.1 The Relaxation Response
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Chapter Two

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 examples of the placebo 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. Whereas both are vital to health, the most important factor that determines your state of health is your mind. Positive thoughts about yourself and others and positive emotions such as contentment and love contribute to vitality, optimism, and joy, which can motivate living healthfully, aid healing and recovery from illness and injury, and increase longevity (Steptoe, Wardle, & Marmot, 2005). Negative thoughts and emotions contribute to depression, pessimism, and decreased health and longevity (Astin et al., 2003).

In Western culture, we are accustomed to thinking of health and healing in terms of drugs, medical treatments, and surgery. In other cultures, past and present, health and healing 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. All 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.

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). Recognizing their effectiveness, mainstream 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 relationships and their contributions to health and well-being.

### Table 2.1

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Autogenic training</td>
<td>Silent repetition of one of six autogenic phrases to produce a state of deep relaxation</td>
</tr>
<tr>
<td>Biofeedback</td>
<td>Using an electronic device to “feed back” information about the activity of a particular region of the body to alter that activity</td>
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<tr>
<td>Guided imagery</td>
<td>Using mental images suggested by a “guide” to produce relaxation and/or develop a skill</td>
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<tr>
<td>Hypnosis</td>
<td>Focusing attention and lessening awareness of surroundings to produce a relaxed state that is open to suggestion</td>
</tr>
<tr>
<td>Image visualization</td>
<td>Using self-generated mental images to produce relaxation and/or develop a skill</td>
</tr>
<tr>
<td>Meditation</td>
<td>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</td>
</tr>
<tr>
<td>Progressive muscle relaxation</td>
<td>Progressive tensing and relaxing of muscles in the body to produce relaxation</td>
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</table>

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 cells throughout the body. In this way, mental activity is able to influence many of the body’s physiological processes and maintain homeostasis (see Chapter 1).

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 following Managing Stress feature). 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, and headaches (Mayo Clinic, 2006). Biofeedback also can be used to produce changes in the brain’s electrical activity (alpha waves) to bring about a state of relaxation.

### The Autonomic Nervous System

A major way by which the mind and body communicate is through the autonomous nervous system (ANS), a group of nerves that regulate many of the body’s physiological processes, such as heart rate, blood pressure, gastroin-
Centers in the brain, principally the brain stem and hypothalamus, receive information about the state of the body 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 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, 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 physiological arousal mediated by the sympathetic division of the ANS, causing, among other things, sleep disturbances, muscle tension, gastrointestinal symptoms, and an increased risk for cardiovascular disease.

Quieting the Autonomic Nervous System

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

**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 2.1). 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 some 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.

**TERMS**

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

**biofeedback**: using an electronic device to “feed back” information about the body to alter a particular physiological function
accomplish that day and in your life. Two methods with a body of research to support their effectiveness are the relaxation response and autogenic training.

The Relaxation Response
The relaxation response is an automatic physiological pattern opposite of autonomic nervous system activation (Benson & Klipper, 2000). The relaxation response decreases oxygen consumption, respiratory rate, heart rate, blood pressure, and muscle tension. A variety of 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

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 (Kanji, White, & Ernst, 2004) and improving the quality of life in people with chronic medical conditions (Sutherland, Anderson, & Morris, 2005).

Autogenic training involves learning to concentrate on one of six basic autogenic phrases for a few minutes each day for 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 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.

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 2.3). 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, adrenalin and several other hormones are released into the blood that make the body alert and ready for action. The hormones bring about an increased heart rate and mobilize stored nutrients to supply energy for dealing with the danger.

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 illness 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 (hormone) systems. Nerves of the sympathetic nervous system connect to certain immune tissues. 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.

The mind can affect the workings of the immune system is illustrated in a study of the effects of mindfulness meditation on immune function in a work environment with healthy employees (Davidson et al., 2003). Volunteers were trained in mindfulness meditation for eight weeks, and at the end of training they were vaccinated with influenza vaccine. Compared to nonmeditating volunteers, antibody levels to the influenza vaccine were higher among meditators, demonstrating that mindfulness meditation produces measurable effects on the immune system.

The Mind Can Create Illness or Wellness

That thoughts and feelings can alter physiological processes means that individuals have powers to influence their health for ill or for well-being.

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.
Psychosomatic Illnesses
The power of the mind to create illness is illustrated by psychosomatic illnesses, also called psychophysiological disorders (Figure 2.4). These conditions are caused by negative mental states and attitudes, such as anxiety, depression, and stress, that harmfully change body physiology, hence the description psych (mind) and 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. 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 manage psychosomatic illnesses directly. Physicians tend to offer drugs to 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.

Somatization Disorders
Somatization refers to the occurrence of physical symptoms without the presence medically of detectable injury or disease. Psychological and social problems such as depression and hostility may cause pain, fatigue, nausea, diarrhea, and sexual and other problems. It is estimated that 25% to 75% of all patients who visit primary care physicians suffer from somatization disorders. These are difficult to treat, time-consuming for physicians to diagnose, and expensive for the health care system. The diagnostic criteria for a somatization disorder are shown in Table 2.2; the chief 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 somatization disorders are not feigning sickness; they have lost mind–body harmony to a serious degree.

The Mind Can Create Wellness
The power of the mind to create wellness is illustrated by studies that show that positive emotions are associ-
ated 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 (Steptoe, Wardle, & Marmot, 2005). Those with the highest happiness ratings showed the lowest heart rate and stress hormone levels (there was no effect of happiness on blood pressure).

Humor can have a positive effect on health (Christie & Moore, 2005). Humor increases comfort levels and decreases stress and anxiety in patients with cancer. Humor has a positive effect on the immune system by elevating natural killer cells (Bennett et al., 2004). Humor also improves pain thresholds, perhaps by activating endorphin release in the brain.

The importance of humor on health was recognized as far back as ancient Greece. Plato was a strong advocate of humor as a means to lighten the burdens of the soul and to improve one’s state of health. From medieval court jesters to circus clowns, humor has long been a factor influencing mind–body healing. Only now is medical science learning what people have known.
The Placebo Effect

The placebo effect is the lessening of symptoms or curing of disease by believing in the healing powers of a make-believe medicine or “sugar pill.” Although the curative powers of placebos are based on the recipient’s belief in their power, that is not to say that the placebo effect is not real. Placebos act on the mind, which brings about physiological changes.

The placebo effect is so common and powerful that before being approved for use, 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 has been found to occur in the treatment of ulcers, postoperative pain, seasickness, headache, coughs, rheumatoid arthritis, blood cell counts, hay fever, hypertension, and warts. The number of people responding to placebos for any kind of symptom ranges from 30% to 70%; most studies report about a 50% response. Thus, for almost any disease or symptom, a person has about a 50% chance of improvement by believing in the power of the treatment whether or not the treatment has any specific biological effect on symptoms.

Depression is a condition in which the placebo effect can account for as much as 75% of any relief experienced. Figure 2.5 shows the results of a study comparing two antidepressant drugs with a placebo pill. Notice that during the first three weeks of the study, depressed individuals got almost as much relief from the placebo as from the antidepressant drugs. Why the benefits of the placebo did not increase after that time could be a result of differences in the rates at which the antidepressants and the placebo were eliminated from the body or subtle chemical effects in the brain produced by the antidepressant drugs. Nevertheless, as demonstrated in this study, the placebo effect accounted for 60% to 70% of the relief.

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 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.

Pain responds exceptionally well to the placebo effect (Figure 2.6). As with depression, pain relief from placebo can occur from biological changes in the brain. 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 anti-pain 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.

A different study showed that placebo-induced pain relief might occur because the expectation of relief of pain might be changing the body’s manufacture or release of its own internal pain-reducing chemicals, called endorphins (Christensen, 2001). 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

Mind–Body Healing

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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 would appear that the expectation of pain relief can stimulate the manufacture and release of endorphins.

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.

Yet another reason that placebos are not part of medical practice is that 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 mind–body communication and the power of a negative placebo effect involved a patient who died apparently from reading a single word (Hewlett, 1994). This person had a history of chronic lymphatic 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 laying 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 that he had terminal cancer just from seeing the word leukemia in his medical records. The mind does heal; the mind does kill.

Faith and Healing

Thousands of years ago the priest–healers of ancient civilizations and the shamans of native tribes used the beliefs of their people to heal by incantation, to exorcise evil spirits, and to vanquish demons who were thought to cause disease. The existence of shamans, faith healers, and medicine men and women in cultures throughout human history suggests that their healing methods must have been generally successful. 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 also 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 also used 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

Over the centuries, faith and prayer have healed many people. Some ascribe healing to the power of God; oth-

**Humor Therapy**

It’s true that laughter is the best medicine. On average, the typical person laughs about 15 times per day. This number can shrink dramatically, however, when people are influenced by emotions such as anger, fear, or grief. Just as unresolved emotions can ultimately have a negative effect on the body, positive emotions can also influence our state of health.

Thanks to the pioneering work of Norman Cousins and others who have followed in his footsteps to develop the field of psychoneuroimmunology, we know that our emotions can trigger physiological responses, including the release of special neuropeptides, which seem to have a healing effect all their own. The result of several bouts of laughter can actually bring about a sense of homeostasis to help calm the body and, in effect, bring a sense of inner peace.

The real message of humor therapy is that we must learn to establish a sense of emotional balance, to feel the range of feelings—anger, fear, joy, love, and so on. Shortly before he died, Norman Cousins said that it wasn’t humor that healed him; it was love. Humor, he said, was a way in which compassion could do its healing work.

Here are some ways to tickle your funny bone and get your quota of 15 laughs per day.

1. Create a tickler notebook of cartoons, stories, photographs, and other items that bring a smile to your face. Refer to it often, especially when you’re down in the dumps.
2. Walk into a greeting card shop and buy five of the funniest cards you find.
3. Tell a close friend the most embarrassing event that has ever happened to you.
4. Buy 10 red roses and go to the nearest hospital or nursing home and distribute them to the first 10 people you see.
5. Over the weekend, go to a video store and pick up some comedy videos. Have a humorfest at home.
6. Read a funny novel.
7. Listen to a comedy audiotape or CD.
8. Hang out at a children’s playground and watch little kids play for a half hour.
9. Fill your tub with hot water, bubble bath, and a rubber duck. And play!
10. Call some old friends you haven’t talked to in a while, catch up on their lives; tell them a funny joke; then tell them you love them.

**Repeating This Phrase May Improve Your Health**

In the early 1900s, a French pharmacist named Émile 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 solving problems.

**Health Tip**

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

*Samuel Butler*
ers explain it by the power of belief in producing a placebo effect.

Today’s patients have faith in the knowledge of their physicians and the drugs they prescribe just as people of ancient civilizations believed in their priests and herbs. The improvement in any patient’s condition is a combination of faith in the healer and the efficacy of the treatment.

Spirituality, Religion, and Health

Many people believe that spirituality—finding meaning, hope, comfort, and inner peace through religion, a connection with Nature or some force larger than oneself—plays a role in health and illness. One study (MacLean et al., 2003) found that 66% of individuals want their physicians to be aware of their spiritual or religious beliefs. However, most individuals do not want their physicians to be directly involved in their health-related spiritual experiences. For example, only about 20% want their doctors to pray with them in routine office visits; about 50% want their doctors to pray with them in a hospitalized, near-death situation. A survey of doctors showed that 95% believed a patient’s spiritual outlook was important to handling health difficulties and 68% believed that physicians should ask patients about spiritual and religious issues (McCauley et al., 2005), although few physicians believe that it is appropriate for them to recommend prayer and religious activities to patients (Sloan et al., 2001).

Many people believe in the healing power of prayer and the capacity of faith to help them prevent and recover from illness. For example, compared to infrequent or never-attenders, people who attend religious services at least monthly were found to have a 30% to 35% reduced risk of death (Musick, House, & Williams, 2004). The positive effect on health of religious attendance is associated with healthier lifestyles (especially engaging in physical activity), increased social relationships, and stable marriages (Strawbridge et al., 2001). These factors may be responsible for the finding that weekly religious attendance is associated with a healthy immune system (Lutgendorf et al., 2004).

For centuries, science and religion provided separate ways of understanding the world. By definition, religious experience or the claims of religions cannot be tested by science because they are not subject to experimentation or reproducibility. With the development of new brain imaging techniques, however, spiritual experiences and brain electrical activity have become accessible to scientific investigation. The new field, called neurotheology, has shown that in brains of persons deep in prayer or meditation, visible structural changes occur (Begley, 2001). When people experience a “cosmic unity, loss of self, or perception of God,” brain activity is altered, particularly in a region called the temporal lobe. On reflection, it is not surprising that a strong spiritual experience is reflected in altered brain activity, just as a strong emotional experience is. What probably will never be answered is whether brain activity creates the mystical experience or whether the mystical experience has a reality of its own that occasionally is perceived by a human brain. As the Buddhist koan asks, “If a tree falls in the forest and no one hears it, does the fallen tree exist?”

Spiritual experiences tend to engender feelings of compassion and empathy; peace of mind; relatedness and communion with a force, power, or set of values larger than oneself; and harmony with the environment. These feelings are believed to be a cornerstone of health because they represent a balance between the inner and outer aspects of human experience. For some, the spiritual dimension of life is embodied in the practice of a specific religion. For others, the spiritual dimension is nonreligious and simply part of a personal philosophy. Many practices can help people experience the spiritual realms of existence—prayer, meditation, yoga, musical and artistic endeavors, and helping others are but a few common ones.

Becoming more spiritually aware, regardless of the chosen path, can lead to a healthier life. Being in touch with your spiritual feelings helps you handle life’s ups and downs with understanding and compassion for yourself and others. You become open to love in the highest sense of its meaning, which is acceptance and tolerance. You begin to love yourself despite your problems and...
Hypnosis and Healing

The modern use of hypnosis as a medical technique began with the Viennese physician Franz Anton Mesmer, 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. Many years later, a Scottish physician, James Braid, introduced the term hypnosis (from the Greek hypnos, meaning sleep) and began to practice hypnotherapy, the use of hypnosis to cure sickness.

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 while patients were in trance and also gave them posthypnotic suggestions. Many of the same procedures are used today in treating these and other behavioral disorders.

In the late nineteenth century, two French physicians showed that healing could be accomplished solely by suggestion and that cures resulted from the patient’s expectation of being cured. Hippolyte-Marie Bernheim, who used hypnototherapy successfully with thousands of patients, argued that almost all healing resulted from suggestions he gave receptive patients while they were in trance.

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 Relax

To study hypnosis, researchers must have a way of measuring the hypnotic state. A series of suggestibility tests that consist of a 12-point scale were developed by psychologists at Stanford University in the 1950s. A low score means that the subject does not enter a state of hypnosis; a high score means that the subject is highly susceptible to hypnosis. Most people score between 5 to 7 on the Stanford test, which is still used by researchers today (Nash, 2001).

Many people have fears about being hypnotized, and many myths about hypnosis still exist. Perhaps the greatest fear people have is that they can be forced to do something terrible or evil if they are hypnotized. This view was greatly reinforced by the popular film The Manchurian Candidate, which showed hypnotized people who were programmed to kill when given a verbal command by the hypnotist. Other people feel that they will lose their moral values if they become hypnotized, but this also is not true. 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 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.

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 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 to treat burns, pain, phobias (e.g., fear of flying or heights), fear of public speaking, and even survivors of the 9/11 attack with posttraumatic stress disorder (see Chapter 3) (Thacker, 2003).

Anyone who has seen the film Matrix or plays video games knows that virtual reality involves focusing one’s
Managing Stress

Progressive Muscle Relaxation
In the technique called progressive relaxation, you lie on your back in quiet, comfortable surroundings with your feet slightly apart and palms facing upward. Before beginning the exercise, allow the thoughts of the day and any worries to leave your mind. Then you are ready to begin.

1. Close your eyes; squeeze your lids shut as tightly as you can. Hold them shut for a count of five, then slowly release the tension. Notice how your eyes feel as they relax. Keep your eyelids lightly closed; breathe slowly and deeply.

2. Turn your palms down. Bend your left hand back at the wrist, keeping your forearm on the floor. Bend your hand as far as it will go until you feel tension in your forearm muscles. Hold for a count of five, then release the tension. Notice the warm, relaxed sensation that enters your wrist. Repeat with your right hand.

3. With palms up, make a tight fist in your left hand by tightening the muscles of the arm and fingers. Hold for a count of five; release the tension. Notice the tingling, relaxed sensation in your hand and arm. Repeat with your right hand.

4. Focus your attention on your left leg; slowly bring the top of your foot as far forward as you can while keeping your heel on the floor. Notice the tension in the muscles of your lower leg. Hold for a count of five; release the tension. Repeat with your right leg.

5. Point the toes in your left foot away from you as far as you can. Notice the tension in your calf muscles. Release the tension slowly. Repeat with your right foot.

Similar exercises can be performed to tense and relax other muscles.

Table 2.3
Some Myths and Facts About Hypnosis

<table>
<thead>
<tr>
<th>Common myths</th>
<th>The facts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypnotized subjects are faking.</td>
<td>Brain wave measurements and physiological responses show subjects are not faking.</td>
</tr>
<tr>
<td>You must be quiet and relaxed to be hypnotized.</td>
<td>Not true. It helps, but long-distance runners and people exercising vigorously may enter a hypnotic state.</td>
</tr>
<tr>
<td>Hypnosis is a sleeplike state.</td>
<td>No. Hypnotized subjects are fully aware unless they accept a suggestion to go to sleep.</td>
</tr>
<tr>
<td>People with certain personalities are easy to hypnotize.</td>
<td>There is no correlation between personality type and hypnotizability.</td>
</tr>
<tr>
<td>Hypnotized subjects can be made to do anything.</td>
<td>Not true. Subjects will refuse to do things they find embarrassing or immoral. They can terminate the hypnotic state at any time.</td>
</tr>
<tr>
<td>Under hypnosis, people remember events more accurately.</td>
<td>Often the opposite is the case. Testimony of hypnotized subjects remembering events of a crime or attack is often inaccurate.</td>
</tr>
<tr>
<td>Hypnotized subjects do not remember what they did or said while hypnotized.</td>
<td>If they accept a suggestion that they will forget, which is often a part of stage hypnosis, some may say that they forgot, but this is only temporary.</td>
</tr>
<tr>
<td>Hypnotized subjects can be made to do something terrible or evil and against their religious or moral values.</td>
<td>Absolutely not true.</td>
</tr>
</tbody>
</table>

attention on a computer-generated imaginary world. A medical application is exposing burn patients to virtual realities of glaciers, ice, snow, snowmen, and other features of a cold, cold world. Another application is to expose a person with a fear of flying to entire virtual reality flight experiences (Hoffman, 2004). While in the fearful virtual world, patients are, at the same time, safe in their therapist’s office. Because part of their mind knows they are safe, patients can confront their fears in the virtual world and learn to overcome them.

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 be a real therapeutic mainstay.

**TERMS**

hypnotherapy: the use of hypnosis to treat sickness

virtual reality therapy: use of computers to create virtual “worlds” to engage the mind in overcoming pain, fears, and other conditions
Meditation

Meditation has been associated with both Eastern and Western religions for centuries. Meditation is simply focused awareness. If you examine what is going on in your mind at any given moment, odds are you will find it flitting from one thought to another: “Did I remember to turn off the stove before I left the house?” “My feet are killing me; I shouldn’t have worn these shoes.” “I wonder what mood she’s going to be in tonight?” “Did the kids say something about going to a sleepover this weekend?” Our minds are generally constantly active and often involved in worrying or thinking about emotional upsets, financial concerns, or the pressures of daily activities.

Quieting the mind is healthy, and meditation is a way to accomplish that. Focused awareness can be achieved in 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 chatter. 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 meditation (Vipassana) teaches meditators simply to observe the flow of thoughts that pass through the mind with detachment. 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

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.

Meditation can be done anywhere, anytime.
awareness on God. Thus, meditation is something that everyone has experienced even if they have not called it meditation.

Meditation does not have to be done in a religious setting, nor is it complicated. To begin meditating, follow these simple suggestions:

- 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.

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? Gradually try to breathe by using your stomach muscles to move your diaphragm. Some people recommend the 4/7/8 pattern of breathing—inhale through the nose for a count of 4, hold for a count of 7, and exhale for a count of 8 through pursed lips. If this sequence is not comfortable, make up your own and focus on taking each breath the same way.

Practice this meditation twice a day, particularly if you are upset, tired, or in pain. Once you are comfortable with a breathing meditation, you may want to explore other forms of meditation. 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 Power of Suggestion**

Anytime 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 as warnings, especially to children who are particularly 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 suggestive you are and to protect yourself from both obvious and subtle suggestions that can damage your health and peace of mind.

**Image Visualization**

One of the most effective ways 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

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**TERMS**

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

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We are what we pretend to be, so we better be careful what we pretend to be. . . .

Kurt Vonnegut
Mother Night
Part One Achieving Wellness

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 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 is also the secret to improved sexual responses and enjoyment. Sexual arousal begins in the mind, and negative thoughts or fears can stiffen 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.

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.

Wellness Guide

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.)
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?

Health in Review

- 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.
- The unconscious regulation of all vital processes in the body is called homeostasis.
- 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.
- Somatization disorders are caused by psychosocial problems.
- The placebo effect often is almost as powerful as drugs in treating symptoms of illness.
- Religious activity is often associated with a healthier lifestyle.
- 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.
Health and Wellness Online

References


Suggested Readings


Recommended Web Sites

Please visit health.jbpub.com/hwonline for links to these Web sites.

**Meditation**
Descriptions of several kinds of meditation practices.

**Audio Relaxation Cassettes**
Dr. Emmett E. Miller presents articles on mental well-being and sells audiocassettes on image visualization, self-hypnosis, and many aspects of wellness and healing.

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