

*See also* Anxiety Disorders; Dissociative Disorders; Emotional Disorders; Medical Therapies; Mood Disorders; Objectivity in Diagnosis; Personality Disorders

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## MEDITATION AND RELAXATION

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Meditation includes a variety of practices intended to cultivate greater attention to and awareness of one's experiences. An outcome of meditation may be achieving a state of relaxation. However, other cognitive changes may result from meditative practices, including increased mental clarity and concentration as well as changes in attitudes. Relaxation is a state of rest characterized by low physical arousal and a sense of emotional calm and well-being. The aims of this entry are to describe several of the most widely practiced meditation and relaxation techniques, summarize major theories of how meditation and relaxation techniques produce their effects, and highlight research findings in support of these theories.

Relaxation techniques are structured activities that people use to manage the emotional and physical effects of stress. Different forms of meditation have been practiced for centuries in both Eastern and Western religious and cultural traditions. Today, a range of health care professionals,

including clinical psychologists, teach different forms of meditation and relaxation to help people cope with daily stresses; to help treat psychological disorders, including anxiety, substance use disorders, and depression; and as alternative and complementary medical treatments for conditions such as chronic pain, hypertension, irritable bowel syndrome, HIV, and cancer.

### Meditation and Relaxation Techniques

Although the terms *meditation* and *relaxation* are often used interchangeably, it is important to note that not all relaxation techniques involve meditation and that not all meditation practice has relaxation as its goal. Herbert Benson, M.D., coined the term *relaxation response* to describe the physical state of deep relaxation that occurs when practicing meditation and other relaxation exercises. One technique for cultivating the relaxation response is a modified form of Transcendental Meditation (TM), which was introduced by Maharishi Mahesh Yogi in India during the late 1950s and is based on practices described in ancient Hindu texts.

TM began to gain popularity in Western cultures in the 1960s. Individuals practicing TM are taught to sit comfortably with their eyes closed for two 20-minute sessions per day and to focus their attention on a mantra, a Sanskrit word or sound that is silently repeated and that allows the mind to settle. If distracting thoughts and feelings arise while meditating, the person calmly dismisses them and returns attention to the mantra. The goal of TM is to transcend the ordinary state of consciousness in order to experience a blissful state of transcendental consciousness, pure consciousness, or the effortless state of being (without thinking or concentration). Instruction in TM is typically provided by teachers who have undergone a specific training program.

Like TM, the practice Benson helped popularize involves sitting in a quiet space, adopting a passive attitude toward one's thoughts, and focusing one's attention on a silently repeated mantra while exhaling. However, the practice was simplified to be easier to learn outside of specialized TM training settings. For instance, the Sanskrit mantra was replaced with an English word, such as *one*. TM and Benson's procedure emphasize a passive, effortless state in which relaxation comes at its

own pace. Putting pressure on oneself to achieve relaxation may paradoxically increase stress and negative emotions.

Both TM and Benson's modified version are sometimes referred to as *concentration meditation* because the practitioner fixes his or her attention on a particular mental object. Although originating in different traditions, many other meditation and relaxation techniques include mentally focusing on a word, phrase, or image. For instance, guided-imagery exercises involve mentally creating a pleasant scene, such as relaxing on a beach, by imagining the various physical sensations of being in that setting (imagining the sounds of waves and the feeling of warm sand).

Autogenic relaxation procedures rely on the power of suggestion by silently repeating phrases such as "My arms feel heavy and warm" in order to increase the perception of physical sensations of relaxation. *Loving-kindness meditation* includes the use of phrases such as "May I be happy" and "May I live with ease and well-being" first directed to oneself, then visualizing different individuals, such as friends and loved ones (as well as people who are difficult to get along with) and sending them similar wishes.

*Mindfulness meditation* is a form of meditation that has gained considerable popularity and has been the subject of theory development and psychological research. Mindfulness is defined as the process of intentionally paying attention to moment-to-moment experiences in a nonjudgmental manner. Jon Kabat-Zinn is credited with introducing mindfulness meditation to a broad audience and conducting some of the first studies of this approach. He developed an 8-week stress management course—Mindfulness-Based Stress Reduction (MBSR)—that combines several meditation practices by which people learn to be aware of internal experiences, such as physical sensations of the body at rest and in movement, sensations of breathing, thoughts, and feelings.

Ultimately, a person learns to integrate these practices so as to meditate without a specific focus and instead be aware of sensations, feelings, or thoughts entering the mind without becoming preoccupied with any of them. Mindfulness meditation is sometimes contrasted with both concentration meditation and the relaxation exercises described earlier in that a person does not

intend to change his or her experience but rather to become more aware (or mindful) of what is already present in the body, mind, and one's surroundings.

Other forms of relaxation involve actively changing one's physical experience to directly produce a relaxation response. For instance, in diaphragmatic breathing exercises, a person intentionally slows and deepens breathing by inflating the abdomen with each in-breath ("belly breathing") rather than breathing in a shallow manner ("chest breathing"). Another popular technique is progressive muscle relaxation in which one reduces muscle tension by sequentially tensing and relaxing various muscle groups (e.g., muscles of the feet, legs, torso, arms, neck, shoulders, and face) and focusing on the feeling of relaxation that is produced in the specific muscles.

### Theories of Meditation and Relaxation

Extensive research has demonstrated that meditation and relaxation exercises have wide-ranging psychological and physical benefits when applied in both clinical and nonclinical settings such as workplaces and schools. The mechanisms by which these practices produce these benefits are an area of ongoing research. Several theories have been advanced to account for how meditation and relaxation produce beneficial outcomes.

As noted previously, Benson introduced the theory of relaxation response to explain the physical changes that result from meditation and relaxation practices. In this biologically oriented theory, a key concept is that two forces in the body's nervous system work together to maintain homeostasis. The sympathetic nervous system (SNS) can produce a "fight-or-flight" response that increases alertness and coping with a perceived danger. After the danger has passed, the parasympathetic nervous system (PNS) returns the body to a more relaxed state, for instance, by slowing heart rate and breathing.

Although this recovery process occurs naturally, some people may find themselves in a state of prolonged physiological activation due to chronic stressful experiences or their own way of coping with stress—for instance, by mentally dwelling on negative topics. Chronic activation of stress responses has been linked to a range of negative

health consequences, such as hypertension, coronary heart disease, insomnia, and chronic pain. Laboratory research involving people who practice meditation and relaxation techniques supports the theory that they may help counteract stress-related health conditions by engaging the PNS.

Another prominent theory is *cognitive behavioral self-regulation*. If people can voluntarily control their thoughts and actions, they can, in turn, influence their emotions, physiology, and ultimately, their health. It is important to clarify that within meditation, there is an emphasis on controlling one's *response* to thoughts and emotions rather than their content or frequency—an idea discussed in more detail later. A major psychological process people learn to self-regulate is attention. During times of stress, people tend to increase the attention they pay to potential threats. Concentration meditation provides an alternative mental focus in the form of emotionally neutral mantras. Relaxation exercises call to mind pleasant phrases or images.

The self-regulation of attention is a central aspect of mindfulness meditation as well. One mindfulness practice is the *body scan* and involves systematically moving one's attention throughout various regions of the body, noticing when one's attention has wandered, and returning it to body sensations. By repeatedly refocusing attention, meditation may strengthen the metaphorical "muscle" of attention. Emerging research evidence suggests that participation in meditation training can improve attention regulation as measured by performance-based neuropsychological tests. Brain imaging studies are also increasingly used to examine changes in the prefrontal cortex, limbic system, and other regions involved in regulating attention, emotions, and behavior.

Some theories focus on the idea that relaxation and meditation cultivate the increased awareness of internal experiences, which, in turn, can facilitate the replacement of unhealthy, automatic habits with healthier, intentional responses. For instance, through meditation or relaxation exercises that focus attention on the body, a person may become aware that he or she has been tensing his or her shoulders all afternoon and then proceed to relax those muscles. Programs using progressive muscle relaxation and meditation training have been effective in treating generalized anxiety

disorder in which chronic muscle tension is a common symptom.

Meditation practices have also been shown to help people recover from substance use disorders. Through meditation, people can learn to recognize when they are experiencing the physical sensations of cravings and to closely observe the shifting intensity of these sensations moment by moment. Such focused monitoring can become an alternative to using substances to relieve cravings. This technique has been called *urge surfing*.

A related idea is *decentering*, a process in which people observe their thoughts as mere "mental events" without necessarily believing them to be true. For instance, if the thought "I am a loser" arises while a person is meditating, the person might instead say silently "Right now, I am having the thought that I am a loser" and allow the thought to pass without further reflection or analysis.

Meditation practices help people accept difficult internal experiences. Several lines of research have shown that efforts to suppress unwanted thoughts or emotions can have the paradoxical effect of actually increasing their frequency. Certain mindfulness meditation techniques encourage people to give up the goal of suppressing unwanted experiences and instead turn attention toward unpleasant feelings in the body, explore them with gentle curiosity, and adopt a compassionate, accepting attitude toward them.

When feelings are acknowledged in this way, it may temporarily produce discomfort, but the approach suggests that the unwanted thoughts and feelings are then more likely to pass on their own without causing longer term distress. This *acceptance-based approach* may be contrasted with relaxation techniques in which the goal is to directly change one's feelings by imagining pleasant scenes, slowing breathing, or relaxing muscles.

There will may be a time and place for each of these approaches. A skillful clinician could introduce relaxation and meditation techniques in a way that best suits the particular needs of the client. In some cases, it may be most important to help a person feel less overwhelmed by emotions using a technique that can reduce arousal, produce relaxation, and enhance the feeling of being in control of emotions and, by extension, life.

However, it may be important to help people learn to live *with* uncomfortable thoughts, feelings, and sensations without investing a lot of energy in the potentially frustrating and ineffective process of trying to get rid of them. The integration of mindfulness practices with cognitive behavioral psychotherapies has catalyzed a rich theoretical discussion of how to balance the goals of change and acceptance in psychotherapy across a range of psychological disorders.

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*See also* Attention; Behavioral Health; Chronic Illness, Psychological Aspects of; Cognitive Behavioral/Therapies; Cognitive Therapies; Contemporary Trends in Psychotherapy; Coping Strategies; Health Psychology; Heightened Consciousness; Hypnosis; Placebo Effect/Response; Psychological Wellness and Well-Being; Psychoneuroimmunology; Spirituality; Stress and Resilience to Life Challenge; Stress and Stressors

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what they see and experience so it can be accurately played back later. But scientific research makes clear that the video analogy is wrong. And tragic stories from the criminal justice system, where innocent people have been convicted based on someone's faulty memory, provide further evidence.

Memory is imperfect, much more like a *Wikipedia* entry than a video recording. That is, just like *Wikipedia* entries, memories can be updated and revised; they are ongoing reconstructions that can be modified by anyone who has access to them. This reconstructive nature of remembering the past means that they cannot always count on their ability to recall their experiences accurately.

Sir Frederic Bartlett, a legendary British psychologist, tried to make this point nearly a century ago. He showed that when people recall an event, they are not recalling an intact record of their past; instead, they are reconstructing. In his well-known studies, British subjects who read a Native North American story made systematic errors when they tried to recall details from that story later on. They remembered the story so as to be consistent with their own knowledge—remembering the seal hunt as a fishing trip, for example. Bartlett suggested that memory is not simply “played back.” It is crafted and molded by people's prior knowledge and experience. Since Bartlett, hundreds of studies have documented the flexible, reconstructive nature of memory.

This entry reviews a small sample of that research on the flexibility and reconstructive nature of memory, focusing on how new information—details, and even whole events—can enter into memory and become part of what a person recalls. The entry also considers the various sources that can influence and distort memory and concludes by considering the function of reconstructive memory and the question of why humans have such a flexible memory system.

### Eyewitness Evidence

On September 21, 2011, a death row inmate named Troy Davis was executed via lethal injection after being convicted in 1991 of murdering an off-duty police officer in Savannah, Georgia. As reported by John Rudolf in *The Huffington Post*,

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## MEMORY AS RECONSTRUCTIVE

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In a nationwide survey in the United States, 63% of people said they believed that memory worked like a video recorder, recording information about