



Using Relaxation in Coping with Gastrointestinal Disorders

By: Kenneth R. Jones, Ph.D., Research Assistant Professor of Medicine/Clinical Psychologist, and Steve Heymen, Ph.D., Assistant Professor of Medicine/Certified Biofeedback Therapist, University of North Carolina, Chapel Hill, N.C.

Relaxation training is an integral component of behavioral therapies for managing chronic pain, promoting health, and helping patients cope with life-threatening illness. Relaxation can also assist in managing functional GI disorders.

How can Relaxation Help?

Research has shown that relaxation provides several health benefits including: decreasing excess arousal produced by worry or anxiety, managing insomnia, buffering the adverse physiological responses to stress, and increasing pain tolerance while decreasing some of the symptoms associated with chronic pain. Relaxation training is also a vital part of any stress management program and is a component of many cognitive-behavioral treatment programs for problems such as headache, depression, anxiety, and phobias.

Many researchers and health professionals believe that relaxation provides two important functions: (1) as a coping skill that can be used *immediately* when a person is stressed, overly aroused, or in pain, and (2) by *preventing* some of the damaging effects of stress. Daily practice of relaxation lowers arousal that is associated with wear and tear on the body. Regular use of relaxation enables one to calm the body before beginning stressful activities and has been associated with improvements in the immune system.

For individuals with functional GI disorders, relaxation appears to help by dampening the pain, managing the arousal naturally associated with physical distress, empowering the patient with self-help skills, and managing irritability which is a very common consequence of chronic pain.

What is Relaxation?

The skill of achieving a deep state of relaxation has been pursued throughout much of recorded history and is a key element in many religious, cultural, and philosophical traditions. Contemporary health scientists have attempted to specify what relaxation is and identify how to teach people to relax effectively. It is helpful to view relaxation from the perspective of three integrated systems in the body: the brain, the skeletal muscle system, and the autonomic nervous system.

The Brain/Cognition – During and following relaxation, individuals typically report experiencing less rapid thinking and an increased ability to focus thoughts and maintain concentration. The quality of thought is also reported to be calm and restful in nature. Herbert Benson, M.D. describes the thinking state of relaxation as a “passive attitude,” perceived as a peaceful willingness to just let thoughts flow in a natural, non-directed, or non-controlled manner.

Relaxation produces a particular pattern of bioelectrical brain activity as recorded in the electroencephalogram (EEG). We refer to this EEG pattern as *alpha* activity. Everyone produces some alpha activity prior to falling asleep. Difficulty producing alpha activity is associated with sleep onset insomnia. Because we can record alpha and give people feedback on how well they are producing alpha states, we can use alpha feedback as one way to teach relaxation skills (see Biofeedback, below).

The Muscles – When relaxed, there are two changes in muscular activity. First, relaxed people are very still. When they move, they do so slowly and gently. Second, muscle tone is greatly diminished when people relax. Muscle tone is the background level of muscle tightness in between overt muscle movements. Many of us get sore, aching muscles in our lower backs and shoulders or develop muscle tension headaches when muscle tone is too high for too long.

The Autonomic Nervous System – The third system that changes with relaxation is the autonomic nervous system. This is the part of the nervous system outside of our brain and spinal cord that controls digestion, blood circulation, and other basic biological processes. This nervous system controls parts of our body that we do not normally have to consciously attend to, like our heartbeat or the level of activity of our gastrointestinal system. The system has two branches, the sympathetic nervous system and the parasympathetic nervous system. The sympathetic and parasympathetic systems activate different parts of the body in different ways, but they tend to act like the two sides of a scale – when the sympathetic system is activated, the parasympathetic system is less activated and vice-versa.

Generally, the sympathetic nervous system is activated when you are challenged, stressed, or faced with a dangerous situation. Our heart beats more forcefully and races, our palms sweat, and we suddenly feel very awake and alert. By contrast, we tend to be more parasympathetically activated when out of danger and environmental demands are low. Under parasympathetic activation, the organs take care of “vegetative” or housekeeping functions such as digesting meals, converting blood sugars for long-term storage, and moving nutrients to cells while moving waste away.

Breathing is an interesting physiological process. It is controlled by the autonomic nervous system (such as when we sleep), but can also be controlled voluntarily (such as when we hold our breath). Research studies suggest that many parts of the autonomic nervous system tend to follow the activity of breathing. Under sympathetic activation, breathing tends to be rapid, shallow, and less rhythmic.

During relaxation and parasympathetic activation, breathing is slow, deep, and has a regular rhythm. Because one can voluntarily change breathing patterns and because the autonomic nervous system tends to mimic what is going on with breathing, a relaxed breathing pattern can be a successful way to gain control over automatic physiological processes.

These three systems – the brain/cognition, the muscles, and the autonomic nervous system – are integrated by brain centers including: the limbic system (governing emotions), the hypothalamus (controlling basic biological/behavioral processes), and the reticular activating system (regulating arousal). The three systems tend to work in a coordinated fashion. When an individual changes the pattern of responding in one system, this affects the other systems. Thus, if one becomes very still and reduces muscle tone, there is a tendency for the brain and autonomic nervous system to generally reflect relaxation. Methods of producing relaxation tend to focus on one system, combinations of these systems, or all three.

Key Elements in Learning to Relax

Like any skilled act, relaxation skills are developed through practice. For a patient to show any lasting benefit from relaxation training, research has indicated that a minimum of four training/therapy sessions is critical. Researchers have found that patients will continue to show skill development over the first 10 relaxation training sessions, but generally, patients do not show additional benefit from more than 10 sessions. Regular practice of relaxation appears to be critical in learning how to become deeply relaxed and producing health benefits from relaxation. If one has difficulty in becoming relaxed, special coaching or individual tailoring of a relaxation technique may be required (see Seeking Professional Assistance, below).

Which Method is Best for Me?

There are subtle differences produced by various methods of teaching relaxation. Nevertheless, researchers have repeatedly found that any systematic program of relaxation appears to produce positive changes in physiologic and psychological states for most people. Thus, one should choose a relaxation-training program that feels comfortable to them. Various training programs are available through education programs such as yoga, transcendental meditation, or self-hypnosis. Many self-help books, guided relaxation tapes, or music-based relaxation recordings are also available. Biofeedback can also be a very powerful relaxation technique. Biofeedback is a psychological self-regulation technique using feedback from one's body reflected through a computer. Several studies have also shown that hypnosis is helpful to irritable bowel syndrome patients. Hypnosis therapies for functional GI disorders include both relaxation and suggestions for how to cope with functional GI problems.

The Basics

Roger Poppen has done a good deal of research attempting to identify in the most basic way, what one has to do to produce relaxation. He has broken this down into ten basic behaviors that you may want to try (see box).

Ten Relaxed Behaviors:

Most individuals prefer practicing relaxation in a comfortable chair in a quiet room (TV off).

Head: The head is motionless and well supported by a pillow or chair, and is centered with the midline of the body.

Eyes: Eyelids are lightly closed with smooth appearance and there is no motion of the eyes (one may want to focus on an object low and distant in the room before closing the eyes).

Mouth: The lips are parted at the center of the mouth and the front teeth are slightly parted.

Throat: There is an absence of motion and the neck is centered with midline.

Shoulders: Shoulders are rounded (dropped) and symmetric.

Body: The body is still. The torso, hips, and legs are symmetric in regard to midline. The muscles are still and the body is fully supported by the chair.

Hands: The hands should rest on chair arms or lap. The fingers are still and should be gently curved.

Feet: The feet and toes are still. The toes are pointed away from each other such that the feet form a V.

Quiet: You should make no vocalizations or loud respiratory sounds.

Breathing: Breathing pattern should be slower than when aroused, deep, and regular in rhythm.

After getting into a relaxed state, just simply remain still and enjoy this state for 10–20 minutes. If you feel yourself becoming more tense, review the list of relaxed behaviors. If you have trouble with worrisome thoughts, try focusing on your breathing and thinking about breathing out tension, and breathing in deeper relaxation.

(Adapted from Poppen, R. (1988), *Behavioral Relaxation Training & Assessment*, New York: Pergamon Press.)

Seeking Professional Assistance. Health psychologists and other behavioral medicine specialists regularly teach relaxation skills to help individuals cope with medical problems or reduce health risks. A health psychologist can also assist those who have difficulty learning to relax when a more individualized relaxation program is required. If you have difficulty finding a health psychologist, ask your health care providers for a referral, call your state psychological association, or contact a behavioral pain management program.

Opinions expressed are an author's own and not necessarily those of the International Foundation for Functional Gastrointestinal Disorders (IFFGD). IFFGD does not guarantee or endorse any product in this publication nor any claim made by an author and disclaims all liability relating thereto.

This article is in no way intended to replace the knowledge or diagnosis of your doctor. We advise seeing a physician whenever a health problem arises requiring an expert's care.

IFFGD is a nonprofit education and research organization. Our mission is to inform, assist, and support people affected by gastrointestinal disorders. For more information, or permission to reprint this article, write to IFFGD, 700 W. Virginia St., #201, Milwaukee, WI 53204. Call toll-free (In the U.S.): 888-964-2001 or 414-964-1799. Visit our websites at: www.iffgd.org.