

RELAXATION THERAPY: ADJUNCTIVE THERAPY FOR THE PHYSICIAN

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Relaxation therapy is one of the new modalities in the area of behavioral medicine which physicians may wish to use for tense patients as adjunctive to purely medical treatment. Efficacy of the specific therapy and patient compliance may be improved by use of relaxation therapy. This paper gives details on how to provide the basics in relaxation training. These techniques were used in a research program developed at Howard University Medical School. The beginning steps in controlled, relaxed breathing; progressive relaxation; autogenic training; and simple mental imagery are described. It is emphasized that time is required for the patient to acquire these skills. The skills are cumulative and, once learned, can lead to self-regulation and self-discipline to assist individuals in dealing with stress.

Relaxation is an almost universal form of advice given by physicians to countless numbers and types of patients with conditions ranging from tension headache and low back pain to myocardial infarction and even cancer. Hospitalization itself, with or without complete bed rest, is an attempt to have a patient relax. Physicians are also well aware of the drug route to relaxation. Relaxation is indeed an almost universal adjunctive or supportive procedure for a large proportion of patients that

physicians may see in their day-to-day practices.

But how is this state attained? Does the average patient really know how to relax, as much as he may want to? Is the bed patient really relaxing while in bed? Has not the physician seen both the awake and sleeping patient tossing and turning, moaning and groaning upon the bed—is this relaxation? Is the dulling of mental functions, drowsiness, and lethargy for hours to days, not to mention side effects and addiction, the price the patient has to pay for relaxation?

If there existed no other way except hospitalization and drugs to bring the patient to a relaxed state and reduce tension, the answer might be in the affirmative, but other ways are available. Reports dating back to the last 10 years^{1,2} (and some even earlier) give ample testimony to the efficacy of guided and self-directed techniques for relaxation. This paper is intended to give the reader an overview of major techniques currently available.

The techniques described here were organized and practiced in a program growing out of a research project conducted at Howard University College of Medicine in the Department of Community Health and Family Practice, Washington, DC. The program, still in operation, was originally funded to develop a biofeedback laboratory. Relaxation was the vehicle chosen for study. More than 200 cases were successfully assisted over a period of five years with conditions such as hypertension, intractable pain, migraine, obesity, and other stress-related conditions.

Presented in part in Stress Management Workshops for the staffs at St. Elizabeth's Hospital, Howard University Hospital, Children's Hospital, D.C. Dept. of Human Services, D.C. Superior Court, and other community health agencies. Requests for reprints should be addressed to Dr. Dorothy D. Harrison, Department of Community Health and Family Practice, Howard University College of Medicine, 520 W Street, NW, Washington, DC 20059.

TECHNIQUES FOR RELAXATION

There is some confusion as to what relaxation encompasses. Relaxation is not exercise, nor is it

engaging in hobbies and sports. Going on a trip or vacation or sleeping may not induce relaxation. All of those activities can create body tensions. Relaxation, as discussed here, can be described as a state of being which attains and maintains a steady hypometabolic-like level in which all striate muscles approach their longest reach, smooth muscles are functioning in a slow, steady, appropriate rhythm, and mental arousal is pleasant and low.

Each of these characteristics can be, and have been, taught to persons with various health problems. Relaxation has been attained and maintained in the face of anxiety, pain (headache, low back pain), muscle hyperactivity (bruxism, irritable bowel syndrome), and many other stress-related conditions, all of which were benefited by the relaxation experience. Training for each characteristic is a separate process which becomes cumulative as each new skill is mastered. Before starting, patients are made aware of the fact that the program requires dedication and discipline. Much is required, but much will be achieved—real relaxation and self-control.

Biofeedback may be used in the training to speed the process and help a patient to focus on what he or she is doing. The various biofeedback modalities (the functions monitored and how they are used in relaxation training) are described below.

The *electroencephalogram* monitors the brain wave pattern. There is interest only in those patterns which originate from the occipital area of the head. This monitors alpha and theta waves, both of which indicate mental relaxation.

The *electronic thermometer* monitors blood flow by measuring the temperature of a local area, usually the fingertips. A higher temperature indicates greater relaxation.

The *electromyogram* monitors muscle tension and neural firing. The lower the microvolt reading, the greater the relaxation.

The *electrodermogram* monitors skin conduction and state of sympathetic arousal.

STEP-BY-STEP RELAXATION PROCEDURES

Each step should be practiced daily by the patient for a week before proceeding to the next step.

Efficient Breathing

The first step is to teach deliberate, slow, deep, abdominal breathing. The BMR, measurement of the basal metabolic level, is measured by the rate of oxygen consumption. What may not be realized by all physicians is that this metabolic rate can be controlled by the individual through varying his rate of breathing. The operating level can be lowered simply by breathing at a slow, steady pace. Yogis have observed this phenomenon so clearly that they claim that there is another substance in the air called "prana," which interacts directly with the nervous system and has a calming effect on the individual.³

Breathing instructions proceed slowly; the pairing of abdominal (not chest) movements with controlled, slowed inspiration and expiration are taught first. After a little practice, it can be taught to a beat, counting to 4, then 6, 8, and 10 for the inspiration and expiration separately as the individual develops control and skill. This one technique can be of great benefit in producing some immediate relaxation.

Striate Muscle Relaxation

Relaxation of these muscles is a most important component of total relaxation because these muscles are the end organs preparing the body for the fight-or-flight response—the body's built-in response to stress. In our modern, highly civilized society, these actions are rarely carried out physically. However, biologically, all the preparatory functions go on internally, resulting in a great deal of energy being delivered to the muscles, which build up a high tension potential, all of which may not dissipate. Muscles are shortened to a miniscule degree, as described by Jacobson,⁴ and tension builds up out of the awareness of the individual. Thus, gradually over a lifetime, the resting level of a muscle is altered and the individual assumes characteristic postures which are unconscious, habitual states of readiness in which the tension level is raised. This occurs below the level of awareness, meaning that the average individual does not realize that his characteristic stance, facial expression, and/or resting posture still con-

TABLE 1. SHORTENED PROGRESSIVE RELAXATION

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1. Make yourself comfortable in chair or bed
 2. Place your head and spine in a straight line
 3. Close your eyes
 4. Tense your feet and legs all the way up to the thigh by raising your legs and pointing the toes
 5. Hold that position and feel the tension for about 10 seconds, then let your legs relax and drop down
 6. Arch your back forward up from chair or bed
 7. Hold that position for 10 seconds, then relax and sink back
 8. Pull your abdomen in as much as you can
 9. Hold 10 seconds, sense tension, then relax
 10. Tense your shoulders, pulling them up towards your ears
 11. Hold for 10 seconds, sense tension, then relax
 12. Stretch both arms out in front of you, tensing all muscles, making a tight fist
 13. Hold for 10 seconds, sense tension, then relax
 14. Push your head back into chair or bed, pushing hard
 15. Hold that tension, sense tension, then relax
 16. Tense up your face: frown, bite down with jaws, squeeze eyes tightly shut
 17. Hold that tension, sense it, then relax all muscles
 18. After tensing and relaxing all muscles, sit and enjoy the sensation of total relaxation a minute
 19. DO NOT go to sleep—survey your body while resting
 20. When you are ready, slowly begin to open your eyes, and smile, for having done something good for your body
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tains a great deal of tension. Thus, when recognizable stress is added to the individual and he is told to relax in the usual manner, muscles do not completely relax. The only way to release that tension is to systematically go through the entire body, tensing each muscle to a higher level, which forces the individual to become conscious of the tension of the muscle, and then to consciously relax it. One begins with a small area first—eg, the right arm, then the left arm, forehead, eyes, cheeks, and jaws, tensing and relaxing each area separately. The individual is advised to become aware of the feelings in each area, so that he can become more conscious of tension in muscles.

The basic technique was originally devised by Jacobson,⁵ who did considerable research leading up to its final development and called it “progressive relaxation.” There are many variations of the basic technique. One may start from the head and proceed downward, or at the feet and come up. As the entire body becomes relaxed, the patient must be admonished not to fall asleep, for that

would defeat the objective of teaching conscious recognition and control. After proceeding through small areas several times, until there is some skill and recognition of feelings of both tension and relaxation, larger areas may be done together, combining several small groups—eg, both arms and shoulders together, entire face—to proceeding more rapidly. A typical sequence is given in Table 1.

The procedure can be then be combined with the breathing instructions. The patient is instructed to take one or two deep, relaxing breaths at the beginning and end of the “Progressive Relaxation.”

AUTOGENIC TRAINING

This technique may be viewed as another procedure involving the entire body—mentally rather than physically. The author always uses the physi-

TABLE 2. SHORTENED AUTOGENIC TRAINING

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1. Assume a comfortable position as before
 2. Take two or three deep, relaxing breaths
 3. Close your eyes
 4. Now repeat slowly each of these phrases mentally six times and create the sensation described:
 - “My right arm is heavy and warm”
 - “My left arm is heavy and warm”
 - “My left leg is heavy and warm”
 - “My right leg is heavy and warm”
 - “My neck and shoulders are heavy and warm”
 - “My abdomen is warm”
 - “My forehead is cool and smooth”
 - “I am at peace with myself and fully relaxed”
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cal Progressive Relaxation first, to heighten sensation, then goes to the following procedure developed by Luthe and Schultz.⁶ An abbreviated version is shown in Table 2.

After practicing and becoming efficient in the use of autogenic therapy to relax the body, progressive relaxation may not be necessary on a daily or regular basis. Progressive relaxation can be reserved for those times when the individual is unusually tense and when tension cannot be dissipated in any other way.

MENTAL RELAXATION

The two procedures discussed are techniques for physically relaxing the body. The next is mental relaxation—the development of a calm, peaceful mental state. In some ways, mental relaxation may be more difficult to achieve. So ingrained is the notion that one's mental state is either uncontrollable by the individual, or at least controlled primarily by outside events in the environment, that the patient has to be almost forcibly or dogmatically guided through externally implanted images before he/she accepts the possibility that thoughts can be changed at will. Because the mind can be occupied with only one dominant thought pattern at a given moment, it is only necessary to exchange something pleasant for something that is unpleasant and stress producing. This has been

done best by guiding the patient to the creation of a pleasant, peaceful scene by using fantasy or mental imagery—after the individual is physically well-relaxed. Jacobson has demonstrated that it is impossible to hold on to a strong emotion relating to stress while completely physically relaxed.⁷ Thus, if a patient is in the grips of an emotional attachment to stress such as anger, fear, worry, or frustration, during deep relaxation, these emotions are released and only the memory of the event is retained. At this point, a pleasant image is introduced and the individual is encouraged to participate and add creatively to the suggested imagery which he must produce. An example is described below.

See yourself standing on a beach just behind the line of wet sand where the waves are breaking and sending little wavelets up to their highest reach—as though they are trying to touch your wiggling toes. It is a sunny, windy day. *Feel* the light spray falling on you—your feet, bare legs and even your face and other exposed portions of your body. *Hear* the sound of crashing waves—the high-pitched ones, close at hand, small with not much force, and the deep, booming sound of the great ones that break far out in the ocean. *Smell* the fishy, salt tang in the air. *Hear* the cries of seagulls overhead. *Watch* them circle and dart. *Taste* and *smell* the frankfurters someone is roasting nearby. *Feel* the hot sun and cool air on your face. Enjoy this peaceful scene and add to it from your own store of memories of days at the beach.

You can make up other scenes, and the patients

can be encouraged to develop personal scenes of quiet beauty and peace—places where they can go in their minds, away from the stress and the turmoil they are experiencing. Try to engage at least three sensory perceptions—sight, hearing, smell, touch, and/or taste. Once patients have experienced that it is possible to exert some control of the mind with these fantasy trips, they can be told that they can do this whenever they wish, that they have only to close their eyes and relax . . . and go on a mini-vacation. The above may sound simple, but it is powerful and effective.

Smooth Muscle Relaxation

It is important to make the distinction between the control of the voluntary muscles and those under autonomic control. Voluntary muscles respond to thoughts expressed in words—“my hand is heavy and warm”—while the autonomic responds more to images and symbolic representations. Thus, when an image is conveyed through the use of a variety of sensory receptors that the body is in danger, the fight-or-flight response is elicited, while the image of standing on the beach listening to waves elicits the opposite (relaxation). Mental imagery is the “language” or key to the greatest control of smooth muscle functioning.

Any peaceful scene, especially those from nature, will tend to quiet down autonomic functioning. Pain control can be achieved in many persons through the process of mental imagery and relaxation—using just the visualization of pleasant scenes. The mind becomes calm and the emotional effect pleasant. The body’s stress level decreases, and in this way the pain is lessened.

Diet and Chemical Stress

The food that is eaten, and the way it is eaten, can counteract all efforts in relaxation. Certain items in the diet, as is known, can serve as a source of chemical stress by initiating the stress or fight-or-flight response without any other source of stimulation. Each nutrient in its own way can

play havoc with the body’s homeostatic balance and ability to relax. The most important substances in this regard are caffeine, sugar, white flour, salt, alcohol, and (though not eaten) nicotine. Other items that a patient should be counselled to avoid are: processed fats, sodium nitrite, BHT (butylated hydroxytoluene), and food dyes. Taking time to read labels on processed foods can help to eliminate certain substances from one’s diet. Beyond this, eating habits can play a role in determining the amount of nutrients absorbed. If an individual is eating on the run, anxious, upset, or angry, the digestive process will be disturbed and more stress will be added to the body. Patients should be counselled to eat slowly, in a calm, relaxed manner, chewing the food thoroughly.

A word should be said about some “antistress” foods. Vitamins which have been so labeled are the vitamins of the B complex group: B₁ (thiamine), B₂ (riboflavin), B₃ (niacin), B₅ (pantothenic acid), B₆ (pyridoxine), B₁₂ (cobalamin), folic acid, biotin, choline, and para-aminobenzoic acid (PABA). They are noted for helping the body to combat stress and are found in liver, yeast, whole grains, and seeds. B vitamins are water soluble and are quickly depleted when the body reacts to stress. Also, even before they are ingested, they can be lost due to exposure to heat, light, and air; washing, cutting, and slow cooking can also destroy them.

Exercise

Although exercise is not relaxation per se, it is still an excellent precursor and companion to relaxation. The muscles which have been held in states of tense readiness can be loosened and put to work through simple limbering, stretching, or isometric exercises. This can then set the stage for complete relaxation. The individual will be buoyed up and receive a general toning from the physical exercise. It is beyond the scope of this paper to go into a full discussion on exercise since such information is readily available. The reader is encouraged to seek out such information if interested to complement a program in relaxation therapy. Walking is a simple exercise which could be recommended based upon the physician’s judgment.

DISCUSSION

The procedures discussed above represent the basic elements in relaxation training. Physicians might wish to become familiar with them to incorporate aspects into their general advice and counsel. On the other hand, should the patient require more than the physician can give, a referral can be made for intensive relaxation training, and the physician will have some knowledge of what is involved and support the patient's and the trainer's efforts. It is said that almost all disease states have a stress component—either primary or secondary. If this stress component can be lessened, then the overall prognosis might be improved and the specific medical therapy will have a greater opportunity for success. Thus, the techniques described may be useful in dealing with any patient, and more especially with one with a known stress-related condition. Jacobson⁷ suggests that physicians should routinely assess the stress level of all patients. A stress level can either mask, imitate, or intensify “physical signs and symptoms, and make critical diagnosis more difficult.”

Stress today has become a major factor in life. No one can escape its effects—from the top executive to the menial laborer—not to mention mid-level supervisors, and those with heavy responsibilities to perform the work. Certain job classifications have been singled out for excessive amounts of stress, such as air traffic controllers, miners, policemen, and the medical profession itself.

The medical profession brings young men and women into contact with pain, helplessness, and death. Thus, in becoming a physician, one must learn to repress and conceal natural human emotions. The physician attempts to compensate with intellectual abstraction and a drive to overachieve, a defensive posture and a distrust of sharing feelings.⁸ All of this bottling up can lead to a heavy load of stress. Rather than resorting to alcohol, easily accessible drugs, or even suicide, learning these techniques are a positive alternative. Therefore, the physician himself might wish to make personal use of this information.⁹

A word should be said about blacks and other minority groups. In addition to other usual “ambient” stress, various practices and policies motivated by prejudice and racism are additional burdens. Moreover, persons in these categories, as a rule, have fewer avenues of escape available to

them. Physicians should be alerted to the fact that a patient in any one of these categories might benefit from relaxation training that accompanies medical therapy.

Another aspect of stress management is the individual's life style, mental outlook, and mental attitude. A relaxed approach to life and the seeking of an inner calmness and serenity are all part of a complete relaxation training program. Much has been said in this respect about the Type A personality,¹⁰ usually blaming the victim in subtle ways. However, we need to look to a society which fosters competition, excessive time consciousness, business, and production in terms of numbers as the royal road to success, which in doing so, has negated free, simple relaxation as an important and necessary part of life, thus, making it necessary for people to be trained to relax.

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