

## ARTICLE TWO

### TURNING OFF THE STRESS RESPONSE

With the overview of “Stress and Your Body” behind us, let’s look more specifically at the body’s stress response and its corresponding relaxation response. The more you understand these bodily functions the more alert you will be to your own physical and spiritual condition, and the more quickly you can do something about both.

Serious study about stress was begun by a couple of post-World War I physiologists, Walter Cannon and Hans Selye. Cannon watched the responses of animals and coined the phrase “fight or flight” to describe their common reactions to danger. He coined another word—*homeostasis*—to describe the body’s attempt to stabilize itself by internal corrective mechanisms when its equilibrium has been disturbed.

The research of Selye (pronounced *zel’ye*), a Nobel Prize laureate, built upon Cannon’s ideas. He was the first one to use the word *stress* to describe the body’s response to a perceived threat. He proposed the General Adaptation Syndrome, or GAS (called more commonly the stress response today), to describe the predictable way the body seeks to maintain homeostasis when the demands and pressures of life disrupt internal control mechanisms.

### THE STRESS RESPONSE

Selye, who became known as the father of stress research, outlined three stages in the stress response. They provide a model to help us understand what happens in our bodies when our minds have declared an “emergency” of some sort after reaching certain conclusions or when our bodies react to an invasion by some outside pathogen or experience some type of dysfunction.

1. The alarm stage

This is the initial response of the body during the first few minutes after it senses a demand. The sympathetic nervous system (SNS) is activated, sending neural and chemical messages to various organs putting the body on “high alert” status.

More specifically, the hypothalamus in the brain stimulates the pituitary gland, which in turn signals the adrenal glands to produce what are commonly called “stress hormones.” The most familiar of these hormones to most of us are epinephrine (adrenalin), norepinephrine, and cortisol (a natural steroid similar to cortisone). These in turn notify other parts of the body of the emergency. As a result, pulse quickens, pupils dilate, digestion stops as the blood supply is sent to the muscles rather than the stomach and intestines, heart rate and blood pressure increase, muscles tense, and thinking quickens. Fats are released into the bloodstream as sources of emergency fuel, and the thyroid increases the metabolic rate of the body. All of this is a part of the body’s way of readying itself for “fight or flight.”

2. The adaptive/resistance stage

After the initial emergency passes, the body attempts to return to its former resting state because of its built-in mechanism to seek homeostasis.

If the emergency persists, the body continues to produce the stress hormones. Extended cortisol release results in increased blood sugar levels, weight gain, bone loss, elevated blood pressure, digestive problems, sleep deprivation, decreased sexual drive, and a weakened autoimmune system making the body more susceptible to viral and bacterial infections, fungal infections, and allergies.

Worry and anger keep the body in this state of emergency, and eventually serious physical problems develop as adaptive resources are depleted. This extended alarm state eventually leads to the final stage—the exhaustion stage.

### 3. The exhaustion stage (overload)

In this stage all of the above effects—weight gain, autoimmune dysfunction, and so forth—become elevated as the body shuts down because of depleted resources. Extended illnesses, chronic fatigue, thyroid depletion, inflammatory disorders, heightened allergies, coronary complications, and insomnia, though not always caused by exhaustion and stress are nonetheless worsened by extended stress.

These deteriorating physical conditions tempt the individual to more worry and anger and therefore, place even greater strain on the body. It is a deadly spiral. No wonder God so clearly forbids worry and the wrong kind of anger. They not only dishonor Him because of the underlying unbelief, but they also eventually destroy His creatures.

## THE RELAXATION RESPONSE

As we have seen, God has given us a wonderful “fight or flight” mechanism—called the “stress response”—to help us handle the emergencies of life. We have also seen that “stress hormones are wonderful friends in a genuine emergency, but deadly foes as a way of life.” The sustained stress response becomes highly destructive.

It is important to understand that *the stress response of the sympathetic nervous system does not “turn off” until the nervous system detects that both the body and the mind are at rest.* When that signal is received, the parasympathetic nervous system begins to counteract all the effects of the emergency mode of the sympathetic nervous system.

The parasympathetic nervous system works to conserve energy and return the body to a state of “rest and digest” instead of “fight or flight.” The heart rate decreases and arteries dilate, the gastrointestinal tract begins to function normally, and so forth.

Most “stressed-out” people never relax enough physically or spiritually for this trigger point to be reached. The sad consequence is the destruction of their bodies. Many studies have been done that demonstrate that patients who learn how to handle life’s pressures better experience improvement in coronary disease, autoimmune diseases, and inflammatory diseases.

The best the world can do in their “stress management” techniques is to help the person manage his emotional responses, better prioritize his life, establish a regular exercise routine, develop good eating habits, and practice some relaxation techniques. Essentially, we would agree with all of these concerns, and many of them will be addressed as you work through this study guide. But by themselves, they are not enough to quiet your soul.

*Biblical meditation*—The biblical approach is different from the world’s approach in that the person, instead of learning some sort of mind control such as transcendental meditation or yoga, finds true inner peace as he begins to practice the Lord Jesus’ invitation to “come unto me, all ye that labour and are heavy laden, and I will give you rest . . .” (Matthew 11:28–30). This is the *original* and the *only* truly effective, God-honoring way to stop the noise in the soul.

*If you do not establish a regular time of meditation on God’s Word, allowing Him to teach you Who He is and that He is more than enough, and if you do not respond to Him personally with trusting submission and hopeful petition for your troubles, your soul will not rest and your body will not relax.*

*Physical relaxation*—Biblical meditation will by itself calm your soul, and, eventually, your body. When both are at rest, your parasympathetic nervous system will turn off the adrenalin—and all the other stress hormones—and activate the “rest and digest” response.

You can hasten this process by adding a program of physical relaxation to your daily routine. The world offers many flavors of relaxation techniques that should be avoided—many of which are tainted with Eastern mysticism or New Age thinking, such as guided imagery, yoga, hypnosis, and so forth.

Two types of physical relaxation are very helpful. New Agers have often incorporated them into their own routines, but they are not essentially New Age techniques. They are valid physical exercises, which when practiced over a period of *several weeks* do activate the parasympathetic nervous system and shut off the stress response. These two techniques are breathing exercises and muscle relaxation exercises. Both are extremely helpful for people living tense, agitated, stress-filled lives.

### BREATHING EXERCISES

*Deep breathing helps the heart and the lungs function efficiently, and a habit of taking deep rather than shallow breaths can help to reduce tension. To develop the habit, sit or lie in a comfortable position, and breathe deeply and slowly, timing the breaths so that you take about half as many as usual in the course of one minute. Continue this rhythmic activity for five minutes, but stop if you begin to feel dizzy. Try to do this twice a day every day. If at other times you begin to feel a build-up of tension, make a point of breathing slowly and deeply for a few minutes. One result should be some easing of your sensation of mental strain.<sup>3</sup>*

Be sure to breathe abdominally and not from your chest. To be sure you are breathing deeply enough, place your hands on your stomach. If you are breathing abdominally, you should feel your hands rise and fall as you breathe. This will fill the bottom of your lungs. Once they are full, you should feel your chest expanding. Breathe out fully by contracting your stomach muscles.

Tracks one and two of the *Meditation CD* coach you through ten minutes of breathing exercises.

### MUSCLE RELAXATION EXERCISES<sup>4</sup>

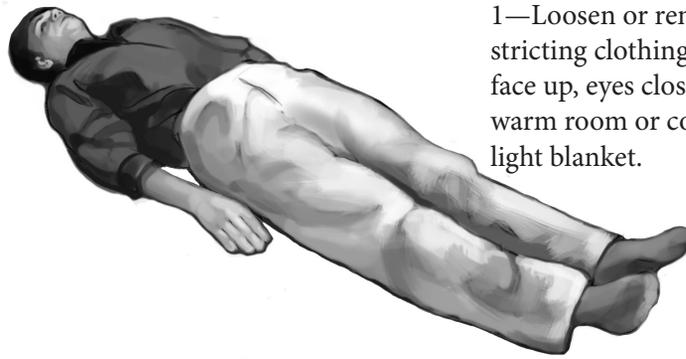
The following relaxation exercises are featured on track three of the *Meditation CD*. Work on them for several minutes before going on to the meditation tracks of the CD. They will help release physical tension and help your body relax. Once your body is totally relaxed, move on to the meditation portion of the CD. Practice this routine at least once a day and twice if possible—once in the morning or midway through the day, and the other before bedtime.

Caution: If you have experienced neck or shoulder problems, consult your physician before doing these exercises. Lifting your head and raising your arms as described may be harmful in such cases.

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<sup>3</sup>Jeffrey R. M. Kunz, MD. *The American Medical Association Family Medical Guide* (New York: Random House, 1982), 20.

<sup>4</sup>*Ibid.*, 19.



1—Loosen or remove any constricting clothing. Lie on the floor, face up, eyes closed, either in a warm room or covered with a light blanket.



2—Tighten the muscles in your face and then let them relax.



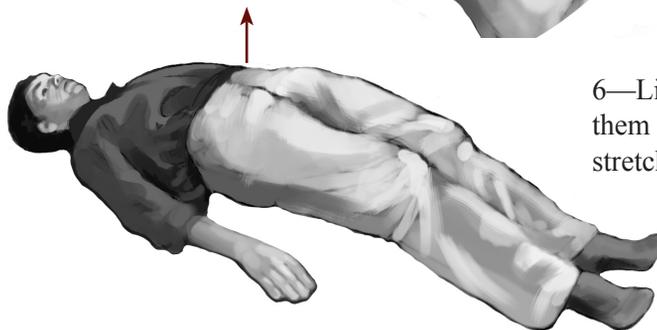
3—Lift your head and let it fall gently back. Keep your jaw and neck relaxed so that you can feel your throat opening.



4—Press your shoulders down onto the floor. Then relax them.



5—Stretch out your arms and fingers. Hold them taut for only a moment before easing the strain completely.



6—Lift your buttocks and let them fall again, feeling your spine stretch and relax as you do so.



7—Keeping your heels together, stretch your legs and toes. Then relax them completely.

Continue these exercises, one after the other, for a few minutes until you feel totally limp and relaxed from head to toe. Rest with your eyes open or closed. Before standing, turn and lean on your side for another two or three minutes. Repeat this routine every day.