

# **SquareONE**

# **Rehabilitation**

## **SLEEP**

## **AND**

## **STRESS**

## **MANAGEMENT**

## **GUIDE**

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## SLEEP MANAGEMENT

**A great night's sleep is part of the foundation for good health. Good sleep is not restless and shouldn't involve waking up during the night, and you should arise in the morning refreshed and energized.**

Great sleep is also important for fitness. It's essential for proper recovery from exercise, which is as important as the workout itself.

Poor sleep is more than just annoying — it is a public health problem. In the U.S. alone, up to 70 million adults have some type of sleep disorder. Sleep insufficiency is linked to motor-vehicle crashes, industrial disasters, medical and occupational mistakes, and other forms of human error. Those experiencing sleep insufficiency are also more likely to suffer from chronic diseases such as hypertension, diabetes, depression and obesity, along with cancer, increased mortality and reduced quality of life.

Clearly, we don't thrive as well without great sleep. While adults require seven to nine hours of uninterrupted sleep each night, children and adolescents need at least 10 to 12 hours. Unfortunately, studies show that about 30 percent of adults reported an average of six or less hours of sleep per night. The same number of high-school students only got eight hours of sleep on an average school night. Based on my clinical experience, about 50-60 percent of new patients did not get healthy sleep.

Poor sleep, whether minor or major, and regardless of the name for the problem, means that something is wrong with some aspect of health or fitness. The most common sleep problems are described below.

### Insomnia

Characterized by an inability to initiate or maintain sleep, insomnia often takes the form of early morning awakening, in which the individual awakens several hours early and is unable to resume sleeping.

Those with adrenal dysfunction from excess stress sometimes fall asleep easily (due to fatigue) but wake in the middle of the night and have trouble going back to sleep. **This is because the body is releasing high levels of the stress hormone cortisol at night, when levels should be low.** Many people say they wake up to urinate, but it's usually because of the cortisol. The urge to urinate comes after.

### Sleep Apnea

Snoring may be more than just an annoying habit — it can signify sleep apnea. People with sleep apnea characteristically make periodic gasping or “snorting” noises, during which their sleep is momentarily interrupted. Because interrupted sleep is often not restorative, this leads to excessive daytime sleeping. Sleep apnea is

associated with other serious conditions such as congestive heart failure, nasal obstruction and excess fat storage. The overconsumption of carbohydrates, especially from junk food, is a common cause of sleep apnea.

### **Drugs**

A variety of drugs can impair sleep. These include alcohol consumed too close to bedtime (or after about 6 pm), caffeine (sometimes even a cup at lunchtime), nicotine and pain medications, especially aspirin and other NSAIDS.

### **Daytime Sleepiness**

This is the most typical consequence of inadequate nighttime sleep. It can occur even in the absence of sleep apnea, insomnia or medications that produce drowsiness. This issue is often associated with the overconsumption of refined carbohydrates. Daytime sleepiness typically occurs after meals. This may indicate a lack of nutrients such as glucose or oxygen to the brain (usually caused by blood-sugar swings), and could lead to poor brain function.

### **Sleep Tips**

Lifestyle modifications are sometimes necessary to improve sleep habits. These simple recommendations can help create the best sleeping environment:

1. Go to bed about the same time each night and rise about the same time each morning.
2. Eliminate noises, electronics, and lights in the bedroom.
3. Have a healthy, comfortable bed with natural bedding.
4. Keep the room a bit cooler with adequate humidity.
5. Keep the room as dark as possible or use a mask.
6. Keep your cell phone outside your bedroom.
7. Take a warm bath, hot tub or sauna before bed.
8. Avoid watching TV late at night.
9. Avoid drinking alcohol or caffeine at least two hours before bed.
10. Do your evening reading on a couch or chair in another room.

One way to find out how much sleep you need is to avoid using an alarm clock. Go to bed when you feel tired and get out of bed when you wake up.

Don't turn to sedatives and sleep aids to help you sleep. These drugs can have negative side effects. Instead, getting healthier can restore normal sleep patterns, and help eliminate daytime sleep disorders.

## **STRESS MANAGEMENT**

All humans respond to stressful situations by releasing hormones, such as adrenalin and glucocorticoids, which instantaneously increase our heart rate, and energy level. This is a normal and necessary mechanism that all humans have to help survive an unexpected threatful situation. You mobilize energy in your thigh muscle's, you increase your blood pressure and turn off everything that's not essential to surviving such as digestion, growth and reproduction. The importance lies in knowing how to cope with and recover from the stressor.

However, if we perceive everyday as a threat, we will pay the price.

Our levels of inflammation will go up, blood sugar will rise, testosterone will plummet along with lean muscle mass, bad cholesterol will increase, visceral and abdominal fat will increase and with this there will be an increase in our chances of developing metabolic disease, cardiovascular disease, type 2 diabetes.

We may feel fine now, but the symptoms will creep up. Achy joints, trouble falling asleep, feeling tired, but wired during the day, digestion, leaky gut, gas and bloating.

The fact is, we live in an environment that causes our fight or flight instincts (i.e., pupils dilate, heart rate increase, digestion is inhibited, stress hormones increase) to stay in overdrive. Family, work, chronic pain, paying the bills, commutes, working out, electronics, and mismanaged diets.

Stress is the perception that the demands upon you are greater than you can competently meet. In situations where you have this perception, learn to scan your body for the following symptoms that indicate you are stressed:

1. Tight muscles, particularly in the neck and shoulders.
2. Increased heart rate.
3. Sweating.
4. Dry mouth.
5. Irritable stomach.
6. Cool, moist hands.

These symptoms are all indicative of stress. Also, here are some subjective symptoms to watch for which are also indicative of stress:

1. Irritability.
2. Nervousness.
3. Jumpiness
4. Sense of time pressure or urgency.

**So the question becomes “With all of this stress in our lives, how can we learn to positively cope and adapt from all of it?”**

**Being such an amazing organism, we have methods that are in our complete control to deal with all of this stress.**

**The three techniques are:**

1. Progressive Muscle Relaxation.
2. Deep Diaphragmatic Breathing
3. Challenging Your Thoughts.
4. Cardiac Output

### **1. Progressive Muscle Relaxation (PMR)**

**Progressive Muscle Relaxation is the first of a series of techniques you will learn to help reduce feelings of stress and anxiety.**

Learning proper relaxation will actually help increase your awareness of stress and anxiety by giving you a broader frame of reference (e.g. if you are always stressed, you may not realize how stressed you feel because you don't know what it's like to be relaxed).

### **What is Progressive Muscle Relaxation?**

Progressive Muscle Relaxation consists of a series of muscular exercises that involve tensing, then relaxing, each of 16 separate muscle groups throughout the body. This procedure is designed to decrease muscle activity (e.g. muscle tension) and, as a result, produce a feeling of profound relaxation throughout the body. This procedure will be extremely important for those of you who have backaches, headaches, and facial and/or neck pain.

## **The Technique:**

First, you will be instructed to focus your attention on the muscles in your right hand and lower arm by making a tight fist and tensing the muscles in the area. The instructions will tell you when to begin tensing by saying the word "Now". As soon as you hear the instructions, you may be tempted to start tensing; however, refrain from doing so until you hear the word "Now" because you want to hold the tension for the optimal 5-7 seconds. If you tense from the beginning of the instructions, you will tense the muscles too long and risk painful muscle spasms. You will hold the tension for 5-7 seconds and be instructed to notice how it feels, then told to relax. When you are told to relax, throw all tension out quickly at once to increase the momentum toward relaxation. You will be in the relaxed state for approximately 20 seconds and be instructed to notice what it feels like. The instructions proceed to the next muscle group using the same procedure throughout the body. The 16 muscle groups are the following (in order): hand and arm (left and right), biceps (left and right), forehead, middle face, lower face, neck, shoulders, abdomen, thighs (left and right), calves (left and right), and feet (left and right). The importance of this exercise is not only to promote relaxation, but also to learn to discriminate between feelings of tension and relaxation.

## **2. Deep Diaphragmatic Breathing.**

Breathing is an activity that we take for granted. We are often unaware of the process because it is something we do automatically. We do know that breathing is essential for living. It is also a powerful tool that, when used properly, can reduce stress.

In this section, we will first briefly describe the process of breathing and how it relates to stress and anxiety. Second, we will describe an exercise that will increase your attention to your breathing. Third, we will discuss the easiest method of relaxation, deep stomach diaphragmatic breathing.

### **A. Breathing and its Relationship to Stress and Anxiety**

When you breathe, you inhale air through your nose that is warmed by the mucus in your nasal passages and purified by the hairs in your nose. The air travels to your lungs to give oxygen to your blood in your heart that is then pumped to your body. The organs in your body use the oxygen to function and exchange waste products back to the blood, which returns to the heart to then, rejuvenate itself with more oxygen. The carbon dioxide released with every exhalation is a result of the waste products. This automatic process is dependent upon a sheet-like muscle located beneath your lungs known as the diaphragm. When you inhale, your diaphragm pushes down, allowing your lungs to drop and suck in air. Exhalation involves the diaphragm moving upward, allowing your lungs to contract. What most people do

not know is that the diaphragm, when used improperly, can hamper your breathing and consequently the functioning of your organs. For instance, if your blood is not oxygenated or purified, your organs will not receive enough oxygen that may lead to stomach upset or weakness, and then to feelings of depression and anxiety. In addition, hyperventilation (breathing too quickly or forcefully, as in panic situations) creates a blood gas imbalance that can lead to unpleasant feelings such as dizziness or tingling. So, it is important to pay attention to your breathing style. One way to do this is to do the following simple exercise:

## **B. Breathing Awareness Exercise**

Put one hand on your chest and one on your stomach. Breathe normally. Notice how your stomach moves in relation to your chest. Now, inhale deeply and exhale slowly. You will notice how much more dramatic the relationship is between your stomach and chest movements. This is the type of breathing you do just before you fall asleep. Becoming aware of your breathing is the first step of Deep Stomach/Diaphragmatic Breathing.

## **C. What is Deep Stomach Diaphragmatic Breathing?**

Perhaps the easiest and most "portable" method of relaxation is deep diaphragmatic breathing. This is a major component of the Lamaze technique, which is well known as a procedure that helps manage pain during birth. As the term suggests, this procedure involves breathing with the diaphragm. It is an unforced type of breathing that allows your lungs to become filled until you notice pressure and cannot contain any more air. At this point, you let the air out slowly and smoothly until the next inhalation comes automatically.

It's often helpful to do this exercise lying on your back as this enables you more easily to isolate the diaphragm. Practice it a minimum of 4 times daily for approximately 5 minutes or more each session. It is important to realize that if you don't plan specific times to practice, you will be likely to forget. Some natural prompts in your everyday life are useful (e.g. just before breakfast, lunch, dinner, bedtime, at traffic lights, when you first start up the car, etc.).

## **3. Challenging Your Thoughts.**

### **WHAT WE THINK INFLUENCES WHAT WE FEEL**

This section of reading will teach you how thoughts influence what we feel, what we do, and how our bodies physically respond. Our experience of being human shows how thoughts, feelings, behavior, and physiology all serve to mutually influence each other in the overall context of environment. Thoughts are a particularly important part of stress because even if you are skilled at reducing arousal once it occurs, if the thought or belief that was causing it remains, stress levels will quickly escalate

again. If relaxation-training skills were relied upon alone, this would mean an endless "tug of war" struggle that could prove quite frustrating. In many cases, it is more desirable to "nip anxiety in the bud" by dealing with the thoughts, beliefs, or assumptions that underlie uncomfortable feelings and physiological reactions.

We should clarify that our goal is not to make you live your life without emotions like robots. Rather, the goal is to help you live life more comfortably without wasting energy on emotions that may be based on distorted or inaccurate thinking. The first step is to become more aware of how your thoughts are connected with your feelings. To do this, over the next week keep track of what thoughts or images are in your mind at the time of a particularly strong emotion.

In those instances when you can readily see how your upsetting thoughts are inaccurate and you are able to make them more accurate, you will often notice an improvement in feeling. The goal is simply to provide you with the experience of seeing how your thoughts are connected with your feelings and to begin to uncover some of the beliefs or assumptions that empower them.

#### **4. Cardiac Output.**

Michelle McDonnell from the University of South Australia Rehabilitation Department found that stress hormone cortisol increased with moderate and high intensity, but not with low-intensity, exercises.

#### **How to decrease inflammation**

Chronic inflammation is a serious threat to your health. It has been linked to nearly every chronic disease, including cancer.

Many health experts consider inflammation to be a better predictor of heart disease than cholesterol levels, with heart attacks occurring in athletes at the same rate as in sedentary individuals. Often underlying chronic inflammation is a contributing factor.

A simple blood test for C-reactive protein can assess if you have dangerous levels of inflammation. But whether you have inflammation or just want to avoid it, here are six healthy steps you can take to fight it right now:

**Avoid refined carbs.** Cut out sugar and processed carbohydrates, especially wheat products and other refined flours, even those that are gluten-free, because they encourage inflammation.

**Eliminate vegetable oils.** Don't consume polyunsaturated omega-6 vegetable oils like peanut, safflower, soy, corn, canola and others, as these also promote inflammation. Vegetable fats are hidden in many packaged and other junk foods and also in many skin-care products. Read labels.



**Assess workouts.** Use the **180 Formula** to keep it aerobic and don't overdo with intensity or duration, which can encourage inflammation.

**Go fish.** Add EPA fish oil and wild-caught coldwater fish to your diet. EPA provides anti-inflammatory effects without disrupting the body's own anti-inflammatory system the way aspirin and other NSAIDS do.

**Spice it up.** Some herbs and spices have powerful anti-inflammatory effects. These include ginger, turmeric and red chili peppers.

**Veg out.** Some vegetables also help fight inflammation, especially garlic, onion, and shallots, but also most greens, vegetables and some fruits like blueberries can help keep it at bay.

**Chronic inflammation could lead to disease and often undetected condition. These steps can help you keep it in check, and are great general guidelines for good health as well.**

### **Some final thoughts on Stress**

- You will be surprised by how much a thought can influence your body chemically, emotionally and physically. Observe your thoughts, do not judge them.
- Finding control in life is huge. If a person cuts us off in traffic, the tendency is to curse and become hysterical. Then latching onto the act and turning it into a thought that eats us up inside.
- Take a thought for what it is - just a thought. Let it come, acknowledge it and let it go.
- The only thing that happened was the act, it is now over. Gain control by breathing and maybe tell yourself a story. "Maybe he/she was late for an appointment. I
- It's silly to try to escape other people's faults. They are inescapable. Just try to escape your own.
- Find a great social support network. We are the average sum of the 5 people we spend the most time. Associate with jealousy, greed and laziness - become jealous, greedy, and lazy. Associate with empathy, intelligence, and love - become empathic, intelligent, and loving.

## **Exercise ... It does a body good: 20 minutes can act as anti-inflammatory**

**One moderate exercise session has a cellular response that may help suppress inflammation in the body**

***Date:* January 12, 2017 *Source:* University of California - San Diego**

***Summary:* It's well known that regular physical activity has health benefits, including weight control, strengthening the heart, bones and muscles and reducing the risk of certain diseases. Recently, researchers have found how just one session of moderate exercise can also act as an anti-inflammatory. The findings have encouraging implications for chronic diseases like arthritis, fibromyalgia and for more pervasive conditions, such as obesity.**

### **FULL STORY**

It's well known that regular physical activity has health benefits, including weight control, strengthening the heart, bones and muscles and reducing the risk of certain diseases. Recently, researchers at University of California San Diego School of Medicine found how just one session of moderate exercise can also act as an anti-inflammatory. The findings have encouraging implications for chronic diseases like arthritis, fibromyalgia and for more pervasive conditions, such as obesity.

The study, recently published online in *Brain, Behavior and Immunity*, found one 20-minute session of moderate exercise can stimulate the immune system, producing an anti-inflammatory cellular response.

"Each time we exercise, we are truly doing something good for our body on many levels, including at the immune cell level," said senior author Suzi Hong, PhD, in the Department of Psychiatry and the Department of Family Medicine and Public Health at UC San Diego School of Medicine. "The anti-inflammatory benefits of exercise have been known to researchers, but finding out how that process happens is the key to safely maximizing those benefits."

The brain and sympathetic nervous system -- a pathway that serves to accelerate heart rate and raise blood pressure, among other things -- are activated during exercise to enable the body to carry out work. Hormones, such as epinephrine and norepinephrine, are released into the blood stream and trigger adrenergic receptors, which immune cells possess.

This activation process during exercise produces immunological responses, which include the production of many cytokines, or proteins, one of which is TNF -- a key regulator of local and systemic inflammation that also helps boost immune responses.

"Our study found one session of about 20 minutes of moderate treadmill exercise resulted in a five percent decrease in the number of stimulated immune cells

producing TNF," said Hong. "Knowing what sets regulatory mechanisms of inflammatory proteins in motion may contribute to developing new therapies for the overwhelming number of individuals with chronic inflammatory conditions, including nearly 25 million Americans who suffer from autoimmune diseases."

The 47 study participants walked on a treadmill at an intensity level that was adjusted based on their fitness level. Blood was collected before and immediately after the 20 minute exercise challenge.

"Our study shows a workout session doesn't actually have to be intense to have anti-inflammatory effects. Twenty minutes to half-an-hour of moderate exercise, including fast walking, appears to be sufficient," said Hong. "Feeling like a workout needs to be at a peak exertion level for a long duration can intimidate those who suffer from chronic inflammatory diseases and could greatly benefit from physical activity."

Inflammation is a vital part of the body's immune response. It is the body's attempt to heal itself after an injury; defend itself against foreign invaders, such as viruses and bacteria; and repair damaged tissue. However, chronic inflammation can lead to serious health issues associated with diabetes, celiac disease, obesity and other conditions.

"Patients with chronic inflammatory diseases should always consult with their physician regarding the appropriate treatment plan, but knowing that exercise can act as an anti-inflammatory is an exciting step forward in possibilities," said Hong.

**Story Source:** Materials provided by **University of California - San Diego**. Original written by Michelle Brubaker. *Note: Content may be edited for style and length.*

#### **Journal Reference:**

1. Stoyan Dimitrov, Elaine Hulteng, Suzi Hong. **Inflammation and exercise: Inhibition of monocytic intra-cellular TNF production by acute exercise via  $\beta$ 2-adrenergic activation.** *Brain, Behavior, and Immunity*, 2016; DOI: 10.1016/j.bbi.2016.12.017

## The Year of Conquering Negative Thinking, By LESLEY ALDERMANJAN. 3, 2017

**All humans have a tendency to be a bit more like Eeyore than Tigger, to ruminate more on bad experiences than positive ones. It's an evolutionary adaptation that helps us avoid danger and react quickly in a crisis. Here's a New Year's challenge for the mind:**

But constant negativity can also get in the way of happiness, add to our stress and worry level and ultimately damage our health. And some people are more prone to negative thinking than others. Thinking styles can be genetic or the result of childhood experiences, said Judith Beck, a psychologist and the president of the Beck Institute for Cognitive Behavior Therapy in Bala Cynwyd, Pa. Children may develop negative thinking habits if they have been teased or bullied, or experienced blatant trauma or abuse. Women, overall, are also more likely to ruminate than men.

"We were built to overlearn from negative experiences, but under learn from positive ones," said Rick Hanson, a psychologist and senior fellow at the Greater Good Science Center at the University of California, Berkeley.

But with practice you can learn to disrupt and tame negative cycles.

The first step to stopping negative thoughts is a surprising one. Don't *try* to stop them. If you are obsessing about a lost promotion or the results of the presidential election, whatever you do, don't tell yourself, "I have to stop thinking about this."

"Worry and obsession get worse when you try to control your thoughts," Dr. Beck said.

Instead, notice that you are in a negative cycle and own it. Tell yourself, "I'm obsessing about my bad review." Or "I'm obsessing about the election."

By acknowledging your negative cycle and accepting it, you are on your way to taming your negative thoughts. Acceptance is the basic premise of [mindfulness meditation](#), a practice that helps reduce stress and reactivity. You don't necessarily have to close your eyes and meditate every day to reap the benefits of mindfulness.

You can remind yourself to notice your thoughts in a nonjudgmental manner, without trying to change or alter them right away.

Accepting negative thoughts can also help lessen their weight. Getting mad at yourself for worrying or telling yourself to stop worrying only adds fuel to the negativity fire.

After you've accepted a negative thought, force yourself to challenge it. Let's go back to the setback at work. Perhaps not getting the promotion made you worry about your overall competence and you were berating yourself about your skills. Ask yourself, "Why would one setback mean that I am incompetent?" Or you might ask, "What have I done in the past that shows I am actually a very competent worker?"

If you're having trouble challenging your negative thoughts, try this approach. Imagine that your friend is the one who received the bad news. What advice would you give him or her? Now think of how that advice might apply to you.

A [study](#) conducted at Ohio State University found that this method — known as Socratic questioning — was a simple way to reduce depressive symptoms in adults. In the study, 55 adults were enrolled in a 16-week course of cognitive therapy sessions. Researchers studied videotapes of the sessions and found that the more frequently therapists used Socratic questioning, the more the patients' depressive symptoms lessened. The study's authors theorized that Socratic questioning helped patients examine the validity of their negative thoughts and gain a broader, more realistic perspective on them.

There will be times when your bleak thoughts are actually valid, but your projections about what's next are not. Consider this scenario: Your partner has left you for someone else. "My partner doesn't love me anymore," might be accurate, said Dr. Beck, but "No one else will ever love me," is probably not.

Now move from a place of inaction to action to counteract the negative thought. If you are worried about feeling unloved, check in with friends and family members. If you are feeling insecure at work, make a list of your accomplishments. Perhaps ask your best friend to write you a letter telling you all the ways in which you are a good, kind person. Reread the letter daily.

Dr. Hanson, author of "[Hardwiring Happiness: The New Brain Science of Contentment, Calm, and Confidence](#)," said it may be helpful to ask yourself if you are accomplishing anything by dwelling on your negative thoughts. If you're ruminating on your financial problems during a run around the track in hopes of finding a solution, then that is useful. But fretting for lap after lap about the president-elect or a foreign crisis is not going to accomplish anything.

When your negative thoughts are making you feel agitated and overwhelmed, take a

deep breath, and then another. Practicing [controlled breathing](#) can help lower the stress response and calm anxious thoughts.

Finally, if your thoughts are making you feel seriously distressed and interfering with your ability to work and relax, consider seeing a mental health professional. Therapists who specialize in cognitive therapy, which teaches practical ways to cope with persistent and unwanted thoughts, may be particularly helpful. If the underlying source of your thoughts is clinical depression or intense anxiety, you might want to talk with a professional about the root cause of your negative thinking patterns and discuss medications that can be helpful.

While you are sorting out what approach works best for you, give yourself a break and have compassion for your overwrought thoughts.

“The more you dwell on the negative, the more accustomed your brain becomes to dwelling on the negative,” said Dr. Hanson, who suggests asking yourself, “Are my thoughts helping to build me up, or tear me down?”