

# **COPING WITH STRESS FOR HEALTH AND WELLNESS**

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## INTRODUCTION TO THIS JOURNEY TO INCREASE YOUR ABILITY TO COPE WITH STRESS

To begin I want you to understand why my focus is on stress and why my teaching you about stress coping is important to your mental and physical health throughout your life.

The first reason is that this is what I know a lot about. I have done leading basic science research that has contributed to our understanding of how stress affects health. The second reason is that I have been fortunate to have led many successful programs that help people reduce the effect of stress on their health. I have taken what we learned in the laboratory and successfully moved it to the real world where I now help people increase the likelihood of remaining health as they go thru the aging process and to become meaningful role models for those who are important to them.

The following are a few comments from participants in my programs that I share with you to let you know that I have done a lot more than research in the area of stress and health. I've helped people:

- The class has taught me to use stress management techniques proactively instead of reactively. I still have stress in my life and in the workplace, but I am in control of my response to it.
- In my opinion, *everyone* should have the opportunity to experience this training.
- The classes have taught me invaluable skills that will continue to enrich and enhance not only the quality of my existence, but also that of my family. I wish this opportunity had come to me earlier in life.
- Sometimes our jobs do create stress within our lives. Being able to recognize these stresses and manage them help us to be more productive in our jobs and our home life.
- Your class has helped me to cope with stresses of everyday life, and I will continue to use the strategies for wellness that you have shown me. I am richer for having had this experience.
- In addition to the “advertised” benefits, I have had other positive side effects. I have had no cold sores (which I used to have almost constantly).
- I have greatly improved my relationships with my family and friends, and almost nothing which goes wrong seems to be a big deal to me anymore.
- I have noticed less of a need to eat sweet and salty snacks and an increased desire to walk and move around.
- At first I was hesitant about the “Wellness” Program that was offered to us, I knew I was stressed out, but I never thought anything could be done about it. Now I know it was truly a blessing and that the participants are truly thankful that this program has been offered to us, a wonderful “Gift”.
- At home, these techniques have helped me relate better with my children.

Consider what you will be learning as a journey involving education and practical ways to reduce the effect of stress on your health. Stress will always be there, it is not going away. To reduce the effect of stress on your health you must change the way your brain responds to stress. We call this an increased ability to cope with stress. By being better able to cope with stress you will reduce the effect of stress on your mental and physical health.

Use what you will learn to keep your stress hormone concentrations low and be rewarded by increasing the likelihood of a better quality of mental and physical health as you continue to age.

I ask you to:

- Use what you learn in this journey as often as possible so that it becomes part of your life. The more often you use the behaviors and techniques you will be taught, the more effective they will become.
- Share the information with those who are important to you.

- Tell others how the quality of your life is better when you increase your ability to cope with stress. They will listen to you and look upon you as a meaningful role model.
- Believe that you will succeed

Important things I want you to be aware of are:

- When children are born they do not know which behaviors are health promoting and which are not. They do not know right from wrong. Children learn their behaviors from the people that are important to them.
- The behaviors we learn and use when we are young become our default behaviors, i.e., the behaviors we tend to use throughout life. These default behaviors are critical for our long term mental and physical health.
- If we used healthy lifestyle behaviors from the earliest stages of life, these would likely be the behaviors we use throughout life. Then we would not have to be concerned about changing from unhealthy to healthy lifestyle behaviors. The healthy behaviors would be those we use throughout life.
- For the reasons I have just stated it is critical that children use healthy lifestyle behaviors from the youngest ages and learn these behaviors because their parents and other family members are using them.
- The healthy lifestyle behaviors include:
  - Coping with stress
  - Not smoking
  - Being physically active
  - Not being excessively overweight
  - Including fruits, vegetables, and grains into your diet to the best of your ability ( I use the phrase ‘to the best of your ability’ because I know that doing this can cost more than one has the financial resources for. This, in my opinion, is not fair).

Who will benefit from this stress coping journey?

- Healthy individuals who want to increase their likelihood of staying healthy as they age
- Pregnant women who want to decrease the concentration of stress hormones in their blood
- Individuals with young children to help them cope with the stress of raising children
- Parents, grandparents, and teachers who can use the lessons they learn to help children cope with stress and for their own benefit
- Individuals with disease caused by the immune system including:
  - Rheumatoid arthritis
  - Multiple sclerosis
  - Psoriasis
  - Ulcerative colitis
  - Crohn’s disease
- Individuals with:
  - Depression
  - Chronic fatigue syndrome
  - Fibromyalgia
  - Cancer

## MOTIVATION

It's hard to imagine that most people are not aware that smoking cigarettes increases the risk of developing lung cancer. Or that being overweight and not physically active increases the risk of developing diabetes. Or that driving while drunk puts people, other than the drunk driver, at risk of being harmed. Yet, people still smoke, children are overweight and sedentary, and people drive drunk.

My point is that knowledge alone may not be enough to convince people to engage in healthy lifestyle behaviors. Thus, the importance of motivation. If you are not motivated to want to increase the likelihood of a high quality of mental and physical health as you age, you may not do anything to increase your use of healthy lifestyle behaviors.

To motivate you to want to increase your ability to cope with stress I want you to understand how stress can have an effect on the quality of your mental and physical health and the specific aspects of health that are affected. I'll apologize now but I will be telling you this several time during this journey. I want you to keep hearing about the importance of coping with stress.

Also remember that it is often difficult to change from using an unhealthy lifestyle behavior to a healthy behavior if it is for our own benefit. But when we become a healthy lifestyle role model for those we love and care about, it becomes easier to sustain behavior change.

I need to define stress in a way that will allow you to visualize how stress can alter the quality of your health. For our purpose the definition of stress is, "something that happens to you or something that you experience exceeds the capability of your brain to effectively cope with the event".

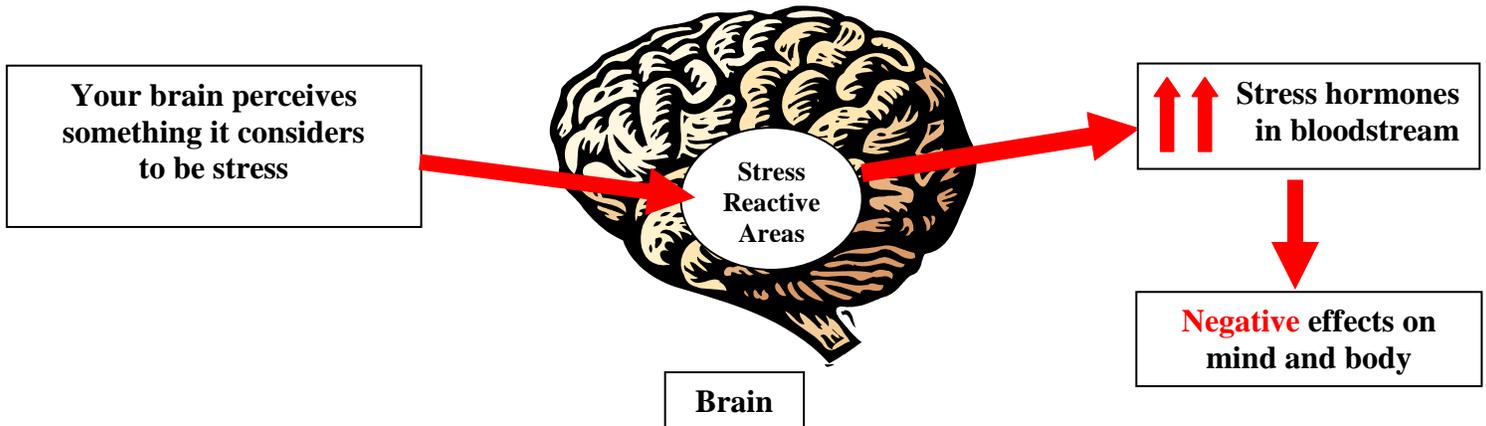
- What is meant by 'exceeds the capability of your brain to effectively cope with the event'?
  - Being able to cope with stress means having the ability to reduce the effect of stress on mental and physical health.
  - When your brain cannot effectively cope with the event, areas of your brain that we call 'stress-reactive areas' become activated. There are several areas of the brain that we refer to as the 'stress reactive areas' (see diagram below).
  - When these areas are activated by stress, there is an increase in the concentration of several hormones in your blood. These stress reactive brain areas control the amount of these hormones in your blood. The principal hormones are cortisol, epinephrine, and norepinephrine.
  - When the brain can effectively cope with whatever is activating the stress reactive brain areas, there is less activation and a lower concentration of stress hormone is released into the blood
- **The effect of stress on mental and physical health are due to the elevation in the concentration of the stress hormones that occur when the stress reactive areas of the brain are activated.**

### **THIS IS SO CRITICAL TO UNDERSTAND THAT I WILL SAY IT AGAIN:**

- **The effect of stress on mental and physical health are due to the elevation in the concentration of the stress hormones that occur when the stress reactive areas of the brain are activated.**
- When we learn how to cope with stress there is less activation of the stress reactive brain areas and less of an elevation of the stress hormones. When the hormones don't go up as much, there is less of an effect on your mental and physical health.

In the diagram below, the brain is shown to be affected by a stress which comes from outside of the body or by a stress that is internal to the body. Either of these stresses will cause areas of the brain that respond to stress (the stress reactive brain areas) to become active. The principle stress reactive brain areas are called the paraventricular nucleus of the hypothalamus and the locus coeruleus (no need to

memorize these names, just know that you have them in your brain). When these brain areas are activated by stress there will be an elevation in the concentration of several hormones in your blood (the names are glucocorticoid (also known as cortisol) and catecholamine (also known as epinephrine and norepinephrine). It is the elevation of these hormones that will have an effect on both your mental health and your physical health.



**Coping** with stress means that you use behaviors and techniques (that you will learn as you proceed thru this journey) to keep the stress reactive areas of your brain calm when your brain considers something to be stress. If the stress reactive areas are less active, the concentration of stress hormones will not increase as much and it will be less likely that an alteration of mental and physical health will occur.

Please remember that sometimes the stress may be so strong that none of our stress coping skills will work. However, our goal is to decrease the effect of events we encounter throughout the day on activating the stress reactive brain areas. Increasing our ability to cope with stress is how we will have a better quality of mental and physical health. That is what you want.

### **If stress is capable of impairing our health why not just avoid it?**

Sometimes we can avoid stress. If we know that someone is angry with us, we can avoid seeing them until they calm down or simply not take what someone says personally. However, much of life's stress is unavoidable, such as divorce, losing one's job, an angry employer, children that get into trouble, caring for a relative with a serious disease, preparing for an exam at school. Even positive life enhancing experiences like moving to a new home or getting a new job can cause stress. When we change the conditions and circumstances of our lives, we have to learn new skills which often produce stress.

### **Is there only one way that I can use my mind to lower the concentration of the stress hormones in my blood?**

There are several techniques that you can use to get your mind to decrease the concentration of stress hormones in blood. We will teach these to you.

- Some have a rapid onset and are useful when you need a quick calming effect. An excellent example is deep breathing.
- Others train your mind to become less responsive to stress and readjust your mind so that your baseline level of stress hormones is lower. Regular relaxation results in long-term changes that counteract the harmful effects of stress throughout the day. Examples are meditation and guided imagery.

**Do I need to do all of the things that you will teach me?**

The journey you are participating in is designed to give you a chance to experiment with different techniques. For many, a combination of techniques becomes part of a personal health regimen. For others, one or two of the techniques will prove to be most helpful. Be aware that not every technique may be suitable for you. Different individuals will be more comfortable and find it easier to do different techniques. **THERE IS NO RIGHT OR WRONG WAY. WHAT IS IMPORTANT IS DOING IT!!!!**

**What else is important to know about the techniques we will practice?**

- Use them when you are calm and happy. Do this for practice. It will be easier to use them when needed if you practice them when you are calm. It will also be easier to remember to use them when you need them.
- Have no fixed expectations or goals—otherwise the cure becomes the stressor! Allow the techniques to just happen....and observe the difference.

**Is stress always bad?**

Some aspects of the stress response have an important function. If you were stressed because of a dangerous situation, the changes in your body would help you flee to safety. When you experience stress, blood flow to muscle increases and the concentration of sugar in blood increases. This gives us the strength and energy to escape danger.

Always Remember: Learning to relax will not make you a less effective person or negatively affect your work performance. In fact, learning to relax will make you more efficient in your everyday life, increase your feeling of being calm, and will enhance your interaction with others.

## THE HEALTH ALTERING EFFECTS OF STRESS ON BOTH THE BRAIN AND THE BODY

I want you to know how stress alters both your mental and physical health to increase your motivation to not only reduce the effect of stress on your health but to increase the likelihood that you will help those you love and who love you to increase their ability to cope with stress.

Please remember that these are POSSIBLE effects and do not happen to everyone who experiences stress. Some people experience more health changes than others, and some have little if any health changes. As we go on you will understand how stress you experienced when you were young and your coping skills influence the effect of stress on your health. Therefore, do not assume that the following information is happening to you. Keep a positive attitude, see the glass as half-full rather than half-empty, be physically active, enjoy your friends, and as we proceed through this journey, know that the healthy lifestyle behaviors you learn to use will have the capability of maintaining and enhancing the quality of your mental and physical health.

### The effects of an elevation of stress hormones on the mind

- **You have difficulty thinking clearly and focusing and may be more likely to act impulsively-** when your brain perceives something as stress there is a rapid rise in the concentration of a hormone called norepinephrine. This occurs within seconds. This hormone interferes with your ability to focus and think clearly. It may increase the likelihood that you will act on an impulse rather than thoughtfully. We have all experienced this. When someone or something is upsetting or someone cuts you off while driving have you ever said or done something (such as make a gesture) that is very unlike you. Well, it's not you; it's what the elevation of the hormone does to you.
- **You become depressed and have the 'blues'**-the development of feeling depressed when experiencing stress occurs for 2 reasons:
  1. A sustained elevation of cortisol (one of the hormones whose concentration increases when your brain perceives something as stress) will damage brain cells in an area of the brain called the hippocampus. When the number of hippocampal brain cells is reduced the result is that you will experience depression. Fortunately, the hippocampus is capable of generating new brain cells. When the concentration of cortisol is lowered the brain cells increase in number with the lessening of your feeling depressed.
  2. When the immune system is activated there are chemicals, called cytokines, that are released from cells of the immune system. The primary purpose of these chemicals is to regulate the function of the immune system. However, in addition, the cytokines gain access to the brain. When they get to the brain they are capable of inducing feelings of depression, fatigue, and an increased feeling of pain.

That is why, when you have an upper respiratory viral infection you feel tired, down in the dumps, and everything aches. However, when the cytokines get to the brain there is a mechanism that allows them to shut off their release from the immune system. They do this by causing an elevation in the concentration of cortisol in blood. If this system doesn't work properly, because the cytokines getting to the brain don't cause an elevation of cortisol, the feelings of depression, fatigue, and an increased perception of pain may persist for a long time. This is something that often occurs in someone who has experienced a lot of stress early in life, such as physical, mental, or sexual abuse, or

neglect. As I will soon explain, high levels of stress early in life alter certain control processes that regulate the function of the immune system, sometimes resulting in an increased risk of disease development.

- **Your ability to remember things may decrease** at a younger age than would occur if you could cope with stress- a sustained elevation of cortisol can damage brain cells in areas of the brain involved with memory. These include the hippocampus and the amygdala. Thus, this is a mechanism, other than Alzheimer's dementia or vascular problems that can cause you to have memory problems as you age.

### **The effects of an elevation of stress hormones on the body**

- **Your heart beats more rapidly**- Heart rate is regulated by the two branches of the nervous system. The sympathetic nervous system and the parasympathetic nervous system. When experiencing stress the sympathetic nervous system increases heart rate which override the effects of the parasympathetic nervous system that tries to slow heart rate. It is the balance of these two nervous systems that regulates your heart rate. When heart rate increases you may experience dizziness, shortness of breath, light headedness, or chest pain.
- **Blood pressure increases**- Stress hormones cause blood vessels to constrict and decrease their diameter. When this occurs blood is squeezed into a reduced space and the only thing that can happen is that the pressure inside the blood vessels must go up. Using stress coping behaviors and techniques to reduce the concentration of stress hormones will help to reduce blood pressure by reducing the concentration of the hormone that narrows blood vessels.
- **There is an accelerated accumulation of cholesterol into the blood vessels of the heart** which causes narrowing of blood vessels- The accumulation of cholesterol in the blood vessels of the heart is called atherosclerosis. Cholesterol movement into the walls of the blood vessels of the heart involves cholesterol containing white blood cells, sticking them onto the walls of the blood vessels of the heart, and their migrating into the blood vessels. This process is predominantly mediated by an increase in the concentration of molecules that are just like Velcro on the cells lining the blood vessels. An increase in the concentration of stress hormones stimulates an increase in the concentration of these Velcro molecules so that the white blood cells bind more tightly to them and their migration into the walls of the blood vessels is enhanced.
- **Blood platelets, whose purpose is to help stop bleeding when you have a cut, stick to each other** when the concentration of stress hormones is elevated. They form clumps, which if they flow into a narrowed blood vessel in the heart, may plug it up, restricting the flow of blood to the heart muscle and possibly causing a heart attack. When stress hormone concentrations are low blood platelets do not stick to each other and circulate individually in the blood stream.
- **The function of the immune system is altered**- There are several components to the immune system, which when functioning properly, help to rid the body of bacteria and viruses and make large concentrations of antibodies when we are immunized, for example, to the flu. The antibodies help to prevent infections. The alteration of the function of the immune system by stress hormones is why many people notice that when they are experiencing stress the likelihood of developing a cold increases.

Interestingly, while less capable of fighting off infections, **the immune system becomes more capable of reacting to your body** and producing diseases we call ‘autoimmune diseases’.

Examples of these diseases are psoriasis, multiple sclerosis, rheumatoid arthritis, Crohn’s disease, and ulcerative colitis. These diseases tend to get worse when experiencing stress. Using behaviors and techniques to lower the concentration of stress hormones will help to keep the immune system functioning normally and control the clinical symptoms of these diseases in comparison to when the stress hormones are in high concentration. The frequency of relapse when in remission may also be decreased by keeping stress hormone concentrations low.

- **The ability of the body to heal cuts decreases** because the stress hormones interfere with the process of wound healing.
- **Diabetes is more difficult to manage** because the stress hormones raise the concentration of glucose in the blood and hemoglobin A1c (a measure of the average level of blood sugar over several weeks) becomes elevated. Using behaviors and techniques to lower the concentration of stress hormones will make glucose management less difficult than when the stress hormones are in high concentration.
- **Weight is more difficult to manage either** because you tend to eat tasty but unhealthy foods high in fats or you are too tired to be physically active. It is possible that fatty foods act as an antidepressant which contributes to the desire to eat them.
- **Telomeres** are the protective components that stabilize the ends of chromosomes and modulate cellular aging. Each time a cell divides the telomeres get shorter. If the telomeres get too short, cells will stop dividing and tissue wears out. Short telomeres have been associated with an increased risk of developing cancer, dementia, and a shorter duration of life.

However, there are enzymes in cells that can partially restore the length of the telomeres. Cortisol, one of the stress hormones decreases the activity of the enzyme that restores the length of the telomere. Thus, stress will be associated with shorter telomeres and an increased risk of disease development. Using behaviors and techniques to lower the concentration of stress hormones will be associated with lengthening of telomeres.

- **There is an increase in the amount of inflammation in your body-** We are all familiar with the word ‘inflammation’ because we constantly are encouraged to purchase anti-inflammatory medications. Therefore, inflammation must be bad.

If you have a disease such as rheumatoid arthritis, ulcerative colitis, Crohn’s disease, or psoriasis, inflammation is the reason damage is occurring in the involved tissue. The treatment of these diseases involves medications that reduce the amount of inflammation.

However, there are positive aspects to inflammation. When you get a splinter it is inflammation that identifies the presence of the splinter and brings white blood cells to remove any bacteria that are on the splinter. You know this because the place where the splinter is becomes red, warm, and swollen.

Inflammation involves chemical molecules, called cytokines that are released into the blood. In addition to focusing inflammation where it is needed or where it causes disease, cytokines travel to the brain. In the brain they may make us feel tired, decrease our appetite, cause feelings of depression, or enhance our perception of pain.

We now know that stress causes cytokines to be elevated in blood. A marker of inflammation that can be determined by a blood test is called C-reactive protein (abbreviated CRP). Prolonged stress (chronic stress) may cause a sustained elevation of cytokines in blood. There is accumulating evidence that when continuously elevated, cytokines have a negative effect on health.

The negative effects on inflammation on health include:

- Feeling tired all the time. A low level of energy
- Moving (walking) slowly
- Decreased strength, feeling weak.
- A low desire to be physically active
- Greater risk of developing a malignancy, heart disease, type 2 diabetes, osteoporosis, dementia
- Shortened longevity

Lower levels of inflammation are found in individuals who are physically active, socially interactive, joyful, and cope well with stress. A diet containing fruits, vegetables, and nuts also contributes to low levels of the chemicals associated with inflammation. It is important, for long term mental and physical health to keep the amount of inflammation in the body low.

Higher levels of inflammation are present in individuals who are under stress without stress coping skills. Coping with stress contributes to keeping inflammation low and a better quality of health.

Please remember that engaging in healthy lifestyle behaviors and techniques will have a beneficial effect on many aspects of health.

For motivation, let's review the health benefits again because it is important to remember the benefits of increasing your ability to cope with stress. When you keep your stress hormones low by coping with stress, each of the health factors listed below improves. Everything gets better:

- You have less difficulty thinking clearly and focusing
- You are less likely to act impulsively
- You will be less likely to become depressed and have the 'blues'
- Your ability to remember things will increase
- Your heart will beat less rapidly
- Blood pressure will be lower
- There is less accumulation of cholesterol into the blood vessels of the heart
- Blood platelets will not stick to each other reducing the risk of having a heart attack
- The function of the immune system is improved reducing the risk of infection and improving the course of autoimmune disease
- The ability of the body to heal wounds increases
- Diabetes is easier to manage
- Weight is easier to manage
- Telomeres on the ends of your chromosomes become longer and are associated with better health
- The amount of inflammation in the body decreases

If you use the behaviors and techniques you will learn in this journey and you keep the concentration of stress hormones in your body low, the likelihood of your staying healthy as you age will be more likely than if your stress hormones are high. You will have less risk of developing a chronic disease and the course of a disease that you already have, may be less progressive. Also remember that the longer you stay health as you continue to age will leave less time to develop a chronic disease before you die. Therefore, the goal is to stay health, grow older, and then have a short demise. That is the blessing you want to achieve.

How much time have you put into a lifestyle that will help assure that you will be functional and healthy as you age? Probably not as much as the amount of time you have put into worrying about your financial health and activities that provide a rapid pleasurable response. It's time to start thinking about the healthy lifestyle behaviors as pleasurable as they will increase the likelihood of your staying healthy as you age and having a rapid demise. Then, instead of having a fear of growing older, which I'll call gerophobia, you can focus on gerophilia, looking forward to enjoying the health benefits associated with healthy lifestyle behaviors and techniques.

## CAN RETHINKING YOUR AGE AFFECT YOUR HEALTH

One of my favorite quotes is from Satchel Paige because it has important meaning:

**"How old would you be if you didn't know how old you were?"**

Think about the significance of that saying. If you are mentally and physically healthy, the age that you think you are may be much less than your actual (chronological) age.

Who needs to know your chronologic age? The government, for example, to let you know when you can vote or collect social security. You certainly do not need to know your chronologic age. What is important is how you feel. Chronologic age is not the most important way to consider your age.

In agreement with Satchel Paige I believe that the best way to consider age is the concept of perceived age, how old do you feel you are? It is important because it can have a meaningful effect on your health.

The younger you feel the greater the likelihood you will be mentally and physically healthy as you grow older. As you are already becoming aware, the better you cope with stress the greater the likelihood you will be mentally and physically health as you grow older. Thus, if you increase your ability to cope with stress the chance of feel younger and remaining healthy as you age becomes more a reality. Not a bad combination, increasing the likelihood of staying healthy and continuing to chronologically age.

Whenever you think about your age I hope you will stop thinking about the number of years old you are as your age.

What does it really mean to be 70? To quote the song "Old Friends" by Simon and Garfunkel, "it's terribly strange". But try telling that to the 80 year old person who is constantly on the go, running a career, running a home, and being physically active. The active 80 year old is exercising regularly, laughing a lot, talking about his or her feelings with friends, and, it is easy to speculate, enjoying life. Then there's the 80 year old who has 80 candles on their birthday cake, but who has trouble blowing them out. This person may have difficulty walking because of poor balance, arthritis, or profound mental depression, and may require the care and kindness of others for their most basic human needs. Obviously, the number of years old you are tells you very little about your health and function.

Your perceived age consists of factors such as how you feel about your physical and mental health, your happiness with your daily life activities, your involvement with others, and your physical limitations.

**Your perceived PHYSICAL and MENTAL age can be:**

**Younger** in comparison to your chronologic age

**The same** in comparison to your chronologic age

**Older** in comparison to your chronologic age

Please now answer the following 2 questions:

1. Do you feel **mentally** younger, the same, or older than your chronologic age?
2. Do you feel **physically** younger, the same, or older than your chronologic age?

Now let's look at some data from a study where people answered those 2 questions.

The study group consisted of 395 men and 770 women age 65-84 and the number of deaths over the 13 years after answering the 2 questions was determined.

The number of deaths over 13 years for perceived **PHYSICAL** age was:

Men: 65 whose perceived physical age was **the same** as their actual age  
 99 whose perceived physical age was **older** than their actual age  
 59 whose perceived physical age was **younger** than their actual age

Women: 54 whose perceived physical age was **the same** as their actual age  
 81 whose perceived physical age was **older** than their actual age  
 36 whose perceived physical age was **younger** than their actual age

The number of deaths over 13 years for perceived **MENTAL** age was:

Men: 63 whose perceived mental age was **the same** as their actual age  
 139 whose perceived mental age was **older** than their actual age  
 64 whose perceived mental age was **younger** than their actual age

Women: 55 whose perceived mental age was **the same** as their actual age  
 82 whose perceived mental age was **older** than their actual age  
 44 whose perceived mental age was **younger** than their actual age

Feeling older than one's chronological age increased the risk of mortality even after adjusting for age, gender, educational status, existing disease, self-rated health.

The bottom line is that you're not going to feel younger than your chronological age if you are not healthy. Increasing your ability to cope with stress will contribute to your staying healthy as you go thru the aging process and your feeling younger than your chronologic age. I hope this is another motivation for you to increase your ability to cope with stress.

Anytime during aging that you start to use healthy lifestyle behaviors you will increase the likelihood of better mental and physical health. Always think of yourself as a functional, active individual who is contributing to the happiness and well-being of others and at the same time receiving happiness from your interaction with others. I know that if you learn to increase your ability to cope with stress, you will increase the likelihood of staying healthy as you continue thru the aging process. That is what you want for yourself.

## **THERE ARE EVENTS THAT ARE EXPERIENCED EARLY IN LIFE THAT INFLUENCE THE QUALITY OF MENTAL AND PHYSICAL HEALTH AS WE AGE**

This is not a pleasant subject to discuss but it is important to know that behavior, learning ability, and mental and physical health are often influenced by aversive experiences that occur early in life.

Children who are abused (physically, mentally, sexually, or neglected) are at risk for alteration of their physical and mental health when young and as they age. Often, one or more types of abuse are experienced by a child.

- Examples of physical abuse are hitting, kicking, shaking, burning, or other use of force that causes pain and/or damage to tissue.
- Examples of mental abuse are verbal abuse that damages a child's self-worth or emotional well-being. Making fun of a child's behavior, telling them they are stupid, causing them to feel shame, withholding affection.
- Examples of sexual abuse are inducing or coercing a child to engage in sexual activities thru coercion or force.
- Examples of neglect are the failure to meet a child's physical or emotional needs thru lack of access to kind and warm parental contact and lack of adequate food, shelter, clothing, social interaction with peers, and medical care.

Of course, not every mental or physical health issue is related to early life abuse. However, many more are than you may have imagined.

Here is an example of the effect of early life abuse on health and longevity. The data is obtained from a study called the Adverse Childhood Experiences (ACEs) study.

Data on health behaviors, health status, and exposure to ACEs were collected from 17,337 adults who were older than 18 years of age during 1995–1997. These were predominantly white middle class individuals with health insurance. What is important is that they were not from underserved communities where individuals may not have had access to adequate health care resources.

The ACEs included abuse (emotional, physical, and sexual); witnessing domestic violence; parental separation or divorce; and growing up in a household where members were mentally ill, substance abusers, or sent to prison.

The ACE score (count of the positive responses to 10 questions of ACEs listed below) was used as a measure of cumulative exposure to traumatic stress during childhood.

Deaths were identified during follow-up assessments using mortality records obtained from a search of the National Death Index. 1539 people died during follow-up. People with six or more ACEs died nearly 20 years earlier on average than those without ACEs (60.6 vs 79.1 years).

In regard to health risk, 9,500 adults who had four or more ACEs during childhood had up to 12 times the risk for alcoholism, drug abuse, depression and suicide, with a two- to four-fold increase in smoking and poor self-rated health. Those who experienced adversity as children also had more sex partners and sexually transmitted diseases with higher levels of physical inactivity and severe obesity.

The study also found that ever higher ACE scores progressively increased the risk in adulthood of heart disease, cancer, chronic lung disease, skeletal fractures and liver disease.

The 10 questions asked were:

1. Did a parent or other adult in the household often or very often... Swear at you, insult you, put you down, or humiliate you? or Act in a way that made you afraid that you might be physically hurt?  
YES \_\_\_\_\_ NO \_\_\_\_\_
2. Did a parent or other adult in the household often or very often... Push, grab, slap, or throw something at you? or Ever hit you so hard that you had marks or were injured?  
YES \_\_\_\_\_ NO \_\_\_\_\_
3. Did an adult or person at least 5 years older than you ever... Touch or fondle you or have you touch their body in a sexual way? or Attempt or actually have oral, anal, or vaginal intercourse with you?  
YES \_\_\_\_\_ NO \_\_\_\_\_
4. Did you often or very often feel that ... No one in your family loved you or thought you were important or special? or Your family didn't look out for each other, feel close to each other, or support each other?  
YES \_\_\_\_\_ NO \_\_\_\_\_
5. Did you often or very often feel that ... You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you? or Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?  
YES \_\_\_\_\_ NO \_\_\_\_\_
6. Was a biological parent ever lost to you through divorce, abandonment, or other reason?  
YES \_\_\_\_\_ NO \_\_\_\_\_
7. Was your mother or stepmother:  
Often or very often pushed, grabbed, slapped, or had something thrown at her? or Sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard? or Ever repeatedly hit over at least a few minutes or threatened with a gun or knife?  
YES \_\_\_\_\_ NO \_\_\_\_\_
8. Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs?  
YES \_\_\_\_\_ NO \_\_\_\_\_
9. Was a household member depressed or mentally ill, or did a household member attempt suicide?  
YES \_\_\_\_\_ NO \_\_\_\_\_
10. Did a household member go to prison?  
YES \_\_\_\_\_ NO \_\_\_\_\_

My strong view is that we must direct more attention to reducing early life abuse if we want to have a population that is mentally and physically more healthy than our current population. It doesn't help to pretend that abuse is not occurring. Its effects are too important to be ignored.

### **There's more.**

Bullying is something that some people experience that can have a long term effect on both mental and physical health. Bullying is repeated acts involving a real or perceived imbalance of power with the more powerful individual or group abusing those who are less powerful.

- Nearly one-fifth of adults report having experienced bullying when they were at school. Those reporting that they had been bullied experience significantly poorer mental and physical health compared to those who have not been bullied. Thus, the effects of bullying on health are long-term.
- Many psychosomatic and psychosocial health problems follow an episode of bullying victimization.
- Compared to subjects who had never been bullied, those exposed to bullying in school were at a significantly increased risk of having been diagnosed with depression between the ages 31-51 years.
- Bullying does not only involve young school age individuals. The prevalence of workplace bullying is approximately 10%.

Here are the findings from a study of the long term effects of being bullied. Being bullied was determined in children between the ages of 7 and 11 years. 27% were occasionally bullied and 15% were frequently bullied.

50 years later the concentration of the markers of inflammation in the blood was significantly higher if bullied than if not bullied. Inflammation is associated with an increased risk of poor mental and physical health. Women who were bullied had significantly higher body weight than those not bullied. These findings were not related to parental social class, having emotional problems in childhood, adult social class, smoking, diet, or exercise. Thus, having been bullied has long term effects on health.

There's even more to the story of early life influences on long term mental and physical health.

### **Maternal stress**

Stress experienced by a pregnant woman may have an effect on the mental and physical health of the child. Thus, it is important for pregnant women to engage in the behaviors and use the techniques (that are described as you continue to read) that will help to keep the concentration of stress hormones low.

This raises the question of whether the development of disease is programmed in utero when a pregnant woman experiences stress. The answer is that yes, it is very likely.

In humans, a high level of maternal stress hormones may reduce birth weight and cause an increased risk of the child having:

- disrupted emotional regulation
- impaired cognitive performance
- decreased brain volume in areas associated with learning and memory
- hypertension, diabetes, heart disease

Let's look at the 2 extremes when we consider stress in early life. There are 3 things to consider:

- The level of maternal stress
- Whether abuse occurs
- Whether bullying occurs

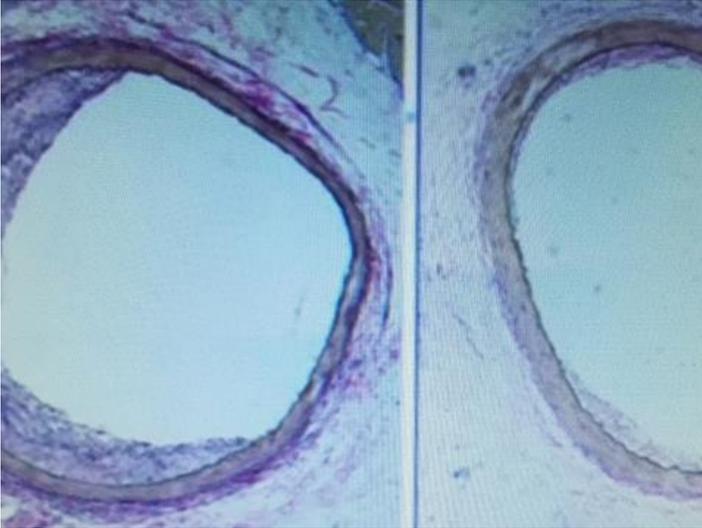
<b>CHILD 1</b>	<b>CHILD 2</b>
Low level of maternal stress	High level of maternal stress
Not abused	Abused
Not bullied	Bullied

If you looked at these 2 children it is unlikely that there would be any external differences. Indeed, they would likely look like 2 normal children. However, you now know that there are important difference in regard to their ability to learn, their behavior, whether they develop depression, their risk of developing heart disease and high blood pressure, their risk of developing diabetes, and even their risk of developing cancer.

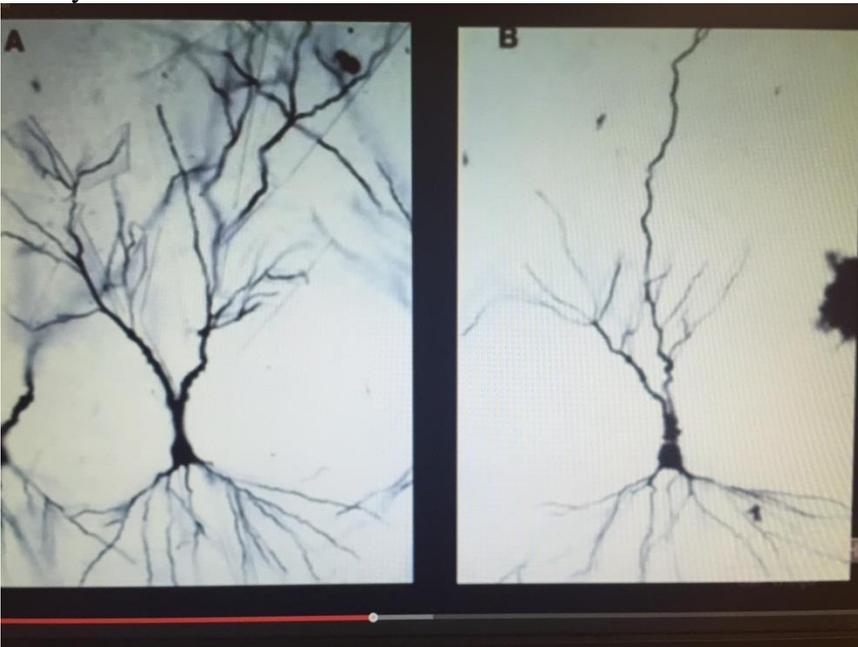
I want you to realize how important early life is in determining who someone becomes. As you proceed thru this journey and improve your ability to cope with stress it is likely that you will have meaningful health improvements as you continue to age. However, just as importantly you will realize the importance of healthy lifestyle behaviors for all those who you are close to.

**Visual motivation. Look at the pictures and the descriptions. You will understand the negative effects stress has on your mental and physical health.**

The pictures below are the coronary blood vessels of 2 monkeys living in the same pen and fed the same diet. They could eat all the food they wanted. The blood vessel on the left is from a low ranking monkey who was under a lot of stress. There is considerable atherosclerosis. The picture on the right is from a dominant monkey who was under little stress. There is little atherosclerosis. The important point is that they were in the same living conditions and ate the same food. Think about the arteries in your heart. Do you want them to look like the arteries on the left?



The picture below is of brain cells of 2 rats. The picture on the left is a rat that was NOT stressed. The picture on the right is from a rat that experienced stress. Note the difference in projections from each brain cell. You want your brain cells to look like the picture on the left. You will have a better ability to remember and think clearly.

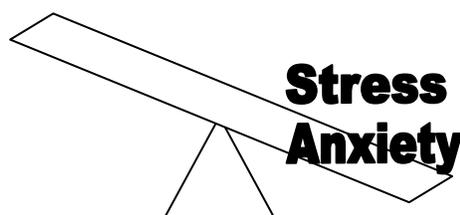


What do you want the blood vessels in your heart and your brain cells to look like? I hope this motivates you to increase your ability to cope with stress.

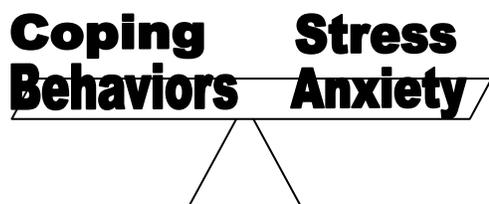
## BEHAVIORS THAT CAN HELP YOU INCREASE YOUR ABILITY TO COPE WITH STRESS

The following provides information about behaviors that will decrease the response of your brain to stress. Less of a response of the stress reactive areas of the brain mean that the stress hormones will not go up as high and that stress will have less of an effect on your health. This diagram shows what I mean:

- Imagine a See-Saw. One end of the see-saw is pushed down by the stress and anxiety that you experience in your daily life.



- To get the see-saw back into balance, the other end must be pushed on by behaviors that will restore your equilibrium. Scientists call this 'homeostasis'.



- The stress coping behaviors will help prevent an elevation of stress hormones when one experiences a stressor.
- Remember, keeping stress hormone levels low is associated with an enhanced quality of mental and physical health.

A way many people have found helpful to remember the behaviors that are important to get the see-saw back into balance is to think of the word **RELAX**:

**Religion:** Enjoying participation in spiritual or religious activities, or simply taking time to reflect on the things that add meaning, purpose, and joy to your life *helps to reduce the negative influence of stress on health*

**Expectations:** Being high in optimism, seeing the glass as half full rather than half empty *helps to reduce the negative influence of stress on health*

**Laughter:** Having a sense of humor and being able to laugh at some of the things you do *helps to reduce the negative influence of stress on health*

**Acquaintances:** Being socially active and spending time with people you enjoy being with *helps to reduce the negative influence of stress on health*

**eXercise:** Being physically active (walking as often as you can) and not just sitting around watching television or playing games on a computer **helps to reduce the negative influence of stress on health**

Let's take a closer look at each of these behaviors and how to increase these behaviors in your daily life.

#### **RELIGION: INCREASING YOUR PARTICIPATION IN RELIGIOUS ACTIVITIES OR REFLECTING ON AND INCREASING YOUR ENJOYMENT OF ACTIVITIES THAT CALM YOU**

- Religiosity
  - Being a religious person, enjoying prayer and/or attendance at religious services is associated with an enhanced quality of health and better stress coping ability. Remember, you must enjoy your participation in religious activities for them to have an effect on health. Even if you don't enjoy the religious aspects of religiosity, attendance at religious services is a wonderful way to increase social interaction.
  - To increase your religiosity:
    - If you find comfort in prayer, make an effort to pray each day.
    - Consider becoming more involved in your religious community and contributing to programs that promote social interaction and support of those in need
- Spirituality- I define spirituality as whatever you do and find effective to calm yourself when you are under stress.
  - You do not have to be religious to be spiritual. It may work for you through listening to pleasing music, reading a book you enjoy, going for a walk, being physically active, spending time with friends, meditating, or seeing beautiful objects in nature. Spirituality is personal and cannot be measured. It is what an individual finds calming and relaxing. Spirituality produces a lowering of stress hormone levels, which enhances the quality of health.
  - Reflect on your own spirituality and what you enjoy doing to relax and calm yourself. Try to increase the amount of time you spend in spiritual activities, especially when you experience stress. The more often you do this, the easier and more effective it will become.

#### **EXPECTATIONS: INCREASING YOUR FEELINGS OF OPTIMISM**

- Optimism is the tendency to take a favorable or hopeful view of whatever comes your way. It is commonly described as seeing a glass as half-full instead of half-empty.
- Being optimistic is associated with less illness, including heart disease and depression, and more rapid recovery from disease. Those high in optimism may be more likely to have friends, a sense of humor, and be physically active.
- To increase your optimism when you are facing one of life's many obstacles:
  - Remember and focus on all of the good things that you do throughout the day rather than the negatives. Train yourself to do this by repeatedly thinking of the things that you are proud of. Sometimes the glass does look half-empty, but remember that this is only temporary as a

- half-empty glass of water can be filled with other things. In other words, even if you made a mistake, use other things that you are proud of to fill your half-empty glass.
- Each day, if you wish, write about the good things you did and the interactions with others that you enjoyed.
- Realize that when you are being blamed for not doing well, it is often the person that is unhappy with you that is having the problem.
- Remember that not being optimistic can have a negative effect on your health. Accept that sometimes you make mistakes, we all do. But there are many more good things that you do than negative things.
- It is OK to make mistakes. Making a mistake does not mean that you are not a good person. Good people make mistakes.

### **LAUGHTER: INCREASING YOUR SENSE OF HUMOR**

- A sense of humor and being able to laugh helps to keep stress hormone levels low when experiencing stress. When we are worried or feeling down in the dumps, having someone who, or something which makes you laugh helps to restore balance.
- This happens because there are areas of the brain which become active when you think of something funny. These brain areas are connected to the areas of the brain that are activated by stress. When the humor responsive areas are activated they decrease the activation of the stress areas and less stress hormones are released.
- An individual with a good sense of humor may not perceive an event as stressful as would someone without or with a low sense of humor.
- Interestingly, individuals with a good sense of humor are usually high in optimism. Having a positive outlook and a sense of humor may be excellent stress buffers.
- To increase your sense of humor:
  - Spend time with someone who makes you laugh.
  - Watch a funny show or movie.
  - Later I will teach you an easy way to use humor to buffer acute stress.

### **ACQUAINTANCES: PARTICIPATION IN SOCIAL INTERACTIONS**

- Individuals who enjoy interacting with others have less stress hormone elevation when they experience stress than individuals who are lonely.
- Of course, there are individuals who are content without a social support system. This does not apply to them. The issue is loneliness. Therefore, if someone is alone and not lonely they are fine. However, also be aware that even if someone is with people they may still be lonely.
- If someone is lonely we encourage them to become involved in a volunteer activity of something they have an interest in. For example, if they enjoy gardening, consider volunteering at the local botanical garden. Many people enjoy volunteering at a hospital or nursing home. It is important to think of what you would like to do and be bold enough to look for volunteer opportunities in that type of activity.
- Having social support and interactions may contribute to our sense of well-being by adding ‘meaning’ to life by being wanted and appreciated by others. This helps to keep stress hormones low.
- Individuals who engage in social interactions through marriage, close friends, religious activities, and group associations have lower mortality rates than do individuals without such interactions.

To get a feeling about your level of loneliness how do you answer these following questions?

- I do not feel in tune with the people around me **or** I feel in tune with the people around me
- I lack companionship **or** I have all the companionship I want
- There is no one I can turn to when I need support **or** I have people to turn to when I need support
- I feel alone **or** I do not feel lonely
- I do not feel part of a group of friends **or** I am part of a group of friends

- I am no longer close to anyone **or** I have close friends
- There are few people I feel close to **or** I have friends I feel close to
- I feel left out **or** I have friends who include me in their activities
- My social relationships are superficial **or** I have meaningful and satisfactory social relationships
- I can't find companionship when I want it **or** companions are readily available to me

## **EXERCISE:**

There is strong evidence that inactivity increases risk of:

- Cardiovascular disease
- High blood pressure
- Colon cancer
- Non-insulin dependent diabetes mellitus
- Osteoporosis
- Obesity
- Depressive illness
- Lipid disorders
- Fall-related injuries in older adults
- Functional decline in older adults
- Sleep problems
- Stroke
- Gall bladder disease
- Possibly breast cancer

If you have not been physically active it is always worthwhile to start to increase your physical activity regardless of your age. Please don't be naive and think that you're ever too old to benefit from engaging in healthy lifestyle behaviors.

It is interesting that physical activity activates the same parts of the brain as does stress. It appears that the more times these brain areas are activated by physical activity it become more difficult for psychologic stress to activate them.

- It's up to you to engage in physical activities. Don't depend on community programs and the recruitment efforts of others. Get out and get moving. Take the initiative. Do it to increase the likelihood of your staying health as you age.
- Do it regularly, make it a habit. Engage in physical activity each day. After a while you will notice that not being active will make you feel uncomfortable.
- Do what you can do, even if you have aches and pains. A little is better than none.

What do I meant by physical activity? I'll give you a list but you can and should make up your own. These are just examples and I've included precautions that you not only should be aware of but show that regardless of any physical limitations you have, you can still be physically active. PLEASE NOTE: I AM NOT USING THE WORD EXERCISE, I AM TALKING ABOUTY PHYSICAL ACTIVITY.

EXAMPLES OF PHYSICAL ACTIVITY	EXAMPLES OF ISSUES RELATED TO YOUR HEALTH AND CAPABILITIES
Clean your house	<p>Can you bend over? If so, be careful and only bend as far as you are comfortable.</p> <p>Can you carry a bucket of water? If you have trouble only put as much water in the bucket as you can comfortably carry.</p> <p>If you want to sit on the floor to clean something can you easily stand up? If not, make sure there is something, or someone, to help support you.</p> <p>Do you have arthritis and can't reach over your head? If so, only reach as far as you can.</p> <p>Do you easily get short of breath and have to rest? Fine, cut back when you feel short of breath.</p>
Take a walk (you don't have to walk far or fast-you just have to do it regularly)	<p>Do you have sidewalks that are level? Be concerned about tripping and falling if the sidewalks are not level. You can go to a shopping mall to walk, the zoo, or a local high school track.</p> <p>How far can you walk without getting short of breath or having leg pains? If that occurs, stop or slow down. If you get short of breath is there a place to sit? If you need a bathroom are they accessible?</p> <p>Do you have someone to walk with? It makes it a lot easier to do.</p> <p>If you can't leave your home is there a pathway through your house that you can walk? Don't worry about how long it takes you to do this. Just do it if you are able.</p> <p>If the weather is not good is there a nearby shopping mall you can go to?</p>
Wash your car, or help a friend wash their car	Only do what you can. Somewhat clean is better than not clean.
Stretch to increase your ability to move comfortably and be flexible.	<p>Start slowly.</p> <p>Don't produce pain if you have arthritis. Reduce what you are doing if you have pain. When comfortable resume what you were doing.</p> <p>Having flexibility will help with your balance</p>

- To increase your physical fitness:
  - If you are currently inactive, a great way to start is to take a walk. Find a pace that is comfortable for you. Go for a walk whenever you can.
  - If you already exercise, ask a friend to be your workout partner to keep you in a weekly routine. If you like, join a fitness class at the local gym. Whatever you decide, develop a schedule to suit your needs and interests.
  -

**PLEA:**

If you currently do not use behaviors that help you increase your ability to cope with stress I am asking you to change your behavior.

There is a reason why it is hard to change behaviors. We know that our behaviors are defined by the connections between cells of the brain. We also know that the structure of the brain can be changed (we use the term rewired) by events and learning we engage in. This is called ‘neuroplasticity’, the ability of the brain to transform itself.

When we stop using the behaviors associated with existing connections between brain cells and try to replace the behavior with a new one that is defined by a new pattern of connections, the old connections disconnect. This is a difficult process to do effectively. It may take months to occur, requires optimism that one can successfully achieve it, and benefits by social support that helps to stay on the new path and not go back to the old behavior.

Remember, when I mention increasing your ability to cope with stress I am talking about your use of behaviors and techniques that reduce the activation of the areas of your brain that are activated by stress. This results in a reduction of the amount of stress hormones released when your brain perceives something as stress. If the hormones don’t go up as much, there is less of an effect on altering your health.

The RELAX behaviors we just learned will help you keep your stress hormone levels low and increase your mental and physical health.

- Religion:
- Expectations:
- Laughter:
- Acquaintances:
- Exercise

Contemplate your strengths and weaknesses with regard to these behaviors.

1. Think of ways to increase these behaviors into your life.
2. Look at your schedule and determine a way to participate in each of these behaviors as often as you can this week and in your future.
3. Write down your long term goals of why you will benefit by increasing your use of these behaviors and how you are going to achieve your goals.

**Remember:** We cannot make the stress in your life go away but we can change the way your brain responds to stress. By being better able to cope with stress you will have less of an elevation of stress hormones. It is the elevation of the stress hormones that alters your mental and physical health.

Be aware that not all of the material that we are providing may work for you. Everyone is different. Not everyone likes modern art, or a New York strip steak, or Sushi. All we can do is hope you find the information

life changing so that as a result you will not only achieve a better quality of mental and physical health but by becoming a role model for healthy lifestyles you will also help others to achieve the same.

For motivation, let's review the health benefits again because it is important to remember the health benefits of increasing your ability to cope with stress. When you keep your stress hormones low by coping with stress, each of the health factors listed below improves. As is clear, the quality of both mental and physical health gets better:

- You have less difficulty thinking clearly and focusing
- You are less likely to act impulsively
- You will be less likely to become depressed and have the 'blues'
- Your ability to remember things will increase
- Your heart will beat less rapidly
- Blood pressure will be lower
- There is less accumulation of cholesterol into the blood vessels of the heart
- Blood platelets will not stick to each other reducing the risk of having a heart attack
- The function of the immune system is improved
- The ability of the body to heal wounds increases
- Diabetes is easier to manage
- Weight is easier to manage
- Telomeres on the ends of your chromosomes become longer and are associated with better health
- The amount of inflammation in the body decreases

Look at the list again; everything on it is a meaningful factor in the quality of your mental and physical health. Also remember that children learn their behaviors from those they love. Make sure you are a meaningful role model for the children who are important to you. Your use of healthy lifestyle behaviors will be meaningful to them as they see you are happy and healthy.

## THE FOLLOWING PROVIDES THE TECHNIQUES THAT WILL INCREASE YOUR ABILITY TO COPE WITH ACUTE STRESS

You now know when you experience stress there is a rapid elevation in the concentration of stress hormones that makes it difficult for you to focus and to think clearly. When this happens you will not remember to do a technique that will lower the concentration of your stress hormones. Therefore, there is more to it than just learning the techniques that will rapidly lower the concentration of your stress hormones. You have to remember to use them.

**REMEMBER:** Acute stress interferes with your ability to think clearly and to focus.

- 2 hours later you will suddenly remember that you should have used one of the techniques that rapidly lower the concentration of stress hormones.
- That is why it is so important to share this information with family, friends, and colleagues at work.
- One way to remember to do a technique to lower the concentration of stress hormones is to share this information with family, friends, and colleagues. When they see you are upset about something they can remind you to calm yourself and when you see they are upset, you can remind them to do the same.
- Another thing you can do is to put sticky notes everywhere you may be with messages reminding you to breathe when upset or you can put a rubber band on your wrist to remind you to breath.

**ACUTE STRESS** is unanticipated, has a sudden onset, and is of a short duration.

If you feel your blood pressure rise when you scream at the driver who cuts you off, argue with your teenagers about curfew, or mutter about an assignment by the boss, you have experienced examples of acute stress. I want to point out that not everyone responds to acute stress in the same way. Some show little change of behavior when experiencing acute stress and others may go into a rage reaction. Often the difference of how one responds to acute stress is influenced by how much stress an individual experienced when they were young.

Individuals who have high levels of stress early in life may become sensitized to stress. This means that when they experience stress later in life they may react more rapidly with a higher level of stress hormones being released. This may cause them to lose control and have a rage reaction. When this occurs remember that the rage is usually a reflection of what the individual experienced when they were young. This is a good reason why we must do all we can to reduce the amount of high levels of stress children experience.

## **COPING WITH ACUTE STRESS: DEEP BREATHING FOR CALMING YOURSELF WHEN EXPERIENCING AN ACUTE STRESSOR**

Deep breathing is a technique that you will be able to use to calm your mind, reduce the concentration of stress hormones in your blood, and contribute to an enhancement of your health. Deep breathing is the technique for coping with acute stress that many people use.

### **What is deep breathing?**

When we experience stress or something unexpected happens we often hold our breath or decrease how deeply we inhale. When we do this carbon dioxide increases in our blood and causes the brain to release a stress hormone that interferes with our ability to think clearly. Getting more oxygen into your blood by breathing deeper will decrease the amount of stress hormone released.

Deep breathing is exactly what it says. Take a deep breath to get more air into your lungs which will allow more oxygen to enter your blood. When you increase the amount of oxygen in your blood, your brain will detect the increased oxygen and will respond by decreasing the concentration of stress hormones in the blood.

Use the following to learn how to increase the volume of air flowing into the lungs. The essential point is that by pushing the wall of your abdomen out, your diaphragm will drop, increasing the space that the lungs can expand into. This maximizes the flow of air into the lungs and of oxygen into the blood.

### **DEEP BREATHING INSTRUCTIONS:**

1. Take a deeper inhalation than usual. You should feel your stomach pushing out as you breathe in, and returning as you exhale and push the air out.
2. Breathe through your nose or mouth. Whichever is more comfortable.
3. Do not take more than five deep breaths. If you feel a little dizzy, take fewer deep breaths. Usually you will feel calm and thinking clearly before taking 5 deep breaths.
4. If you still feel that you need to do more wait 15 minutes before doing it again. However, it is unlikely you will have to repeat it.
5. Do not feel that you must take 5 deep breaths. Often 2 or 3 is sufficient to produce relaxation allowing you to be calm and to think clearly.

It is important to emphasize that you should PRACTICE this technique when you are calm and relaxed to increase your ability to do it when needed. It is hard to do a relaxation technique without practicing it. So please practice when you are calm. Then it is there for your use when you need it. You will become more efficient in your everyday life and better equipped to deal with life's stresses and challenges.

- Please remember: When your mind perceives something as stress it is difficult to think clearly. Thus, you may not remember to take 3-5 deep breaths.
- Therefore, remember to share this technique with your family and friends. When they see that you are upset they can remind you to deep breath and when you see that they are upset you can remind them.

**Take your time, there is no hurry, spend as much time as you like on this section, the goal is to learn and increase your ability to cope with stress, don't cause stress for yourself, patience and repetition will benefit you**

**Remember:** We cannot make the stress in your life go away but we can change the way your brain responds to stress. By being better able to cope with stress you will have less of an elevation of stress hormones. It is the elevation of the stress hormones that alters your mental and physical health.

Testimonials about deep breathing from people who have participated in our stress coping program:

- As soon as I feel stressed, I think oh I need to belly breathe and I do and instantly it helps to calm me.
- I give credit to my class for saving my relationship at home. It is amazing how important it is to breathe and walk away from a situation when one gets really angry and hurt.
- I have already experienced relief physically and emotionally from changes in my breathing alone.
- I am able to breathe when I get upset and not respond so quickly without thinking
- This past week I had a hospital procedure, as I lay on the operating table I was feeling anxious. Automatically I began to breathe and visualize. The procedure was done before I knew it and I realized how effective and useful the techniques I learned were.
- The littlest things would stress me out and I would say things that I really didn't want to say out loud and I use to be very impatient. I have learned to be way more laid back and to walk away and take a couple deep breaths
- Benefits that I've experienced: much less aggressive driving; less bothered by rush hour traffic; able to be calmer in interactions with others; better listener; able through deep breathing to reduce post-surgical back pain; and improved sleep.
- Just taking a few seconds to do something as easy as "breathing" can make such a difference in your day to ease the stressors. I also find myself enjoying the "moment" more often, taking the time to appreciate situations that are very important in my life.
- I have taken the knowledge I received and have taught it to my husband who was very reluctant at first, but now I see him taking a few seconds to breathe before he deals with difficult situations, I even got him to "Write
- Learning to breathe has helped me with stressful situations at home and at work.
- I find myself continually using the deep breathing technique to get me through excessively busy times
- I forget to just breathe at times, and I didn't realize the impact this had on my health. I am now focusing on my breathing, which I needed with a busy schedule and the demands of a 10 month old baby.

For motivation, let's review the health benefits again because it is important to remember the health benefits of increasing your ability to cope with stress. When you keep your stress hormones low by coping with stress, each of the health factors listed below improves. Everything gets better:

- You have less difficulty thinking clearly and focusing
- You are less likely to act impulsively
- You will be less likely to become depressed and have the 'blues'
- Your ability to remember things will increase
- Your heart will beat less rapidly
- Blood pressure will be lower
- There is less accumulation of cholesterol into the blood vessels of the heart
- Blood platelets will not stick to each other reducing the risk of having a heart attack
- The function of the immune system is improved
- The ability of the body to heal wounds increases

- Diabetes is easier to manage
- Weight is easier to manage
- Telomeres on the ends of your chromosomes become longer and are associated with better health
- The amount of inflammation in the body decreases

## COPING WITH ACUTE STRESS: HUMOR

Another way to rapidly become calm and lower the concentration of stress hormones when experiencing an acute stressor is to find something to laugh. Humor will reduce the production of the stress hormones.

**The areas of the brain that are activated by humor are linked to the stress reactive areas. When the humor reactive areas are activated they decrease the activity of the stress reactive area.**

- Of course when you are stressed it is difficult to think of something funny, so it is a good idea to have something ready.
- To do this, when you are calm think of some things that make you laugh. It may be an episode of a TV show, a movie, or things you have experienced.
- Select 1 or more memories that make you laugh and store them away in your mind.
- You can call the place in your mind where you keep your funny memories your “funny relaxer”.
- Then when something is upsetting you and causing stress and you don’t feel like doing deep breathing, go to your “funny relaxer” and think of what you put there. As soon as you do this you will decrease the production of stress hormones and feel calm and be able to focus and think clearly.

Try this technique often. It is easy to do and has the biologic mechanism described above.

Remember, it will be difficult to think of something funny when you are upset. That is why it is important to already have the funny thought you will use stored away ahead of time. It will be there when you need it.

## COPING WITH ACUTE STRESS: CHANTING

Another technique that is effective to help reduce the response of the brain to an acute stress is to train your brain to associate a few words with your being calm. This is known as a classical Pavlovian conditioning response. Dr. Pavlov rang a bell when he fed dogs. After several times doing this the dogs associated the sound of the bell with being fed. Then, when the dogs heard the sound of the bell their stomachs reacted as if they had been actually fed.

**This is how you can use this conditioning response to reduce the production of stress hormones when you experience an acute stressor.**

- Select the words you will use. If you wish you can set them to a simple tune, one that you find pleasant or one that has a religious feeling to it, such as the tune of a Gregorian chant. If you don't want to use a tune, don't.
- Some examples are: "I am a good person", or, "All will be well", or "I will be well". You decide what phrase you want to use.
- Practice this for several days, saying your chant to yourself when you are calm and relaxed. You want your mind to associate the chant with your being calm and relaxed.
- When you say your chant to yourself while you are calm, you are training your brain to associate the chant with being calm. That is why you have to say it many times on many days when you are calm. Your brain will learn that the chant means it is time for it to calm down.
- When you are upset and THINK the chant, your brain will remember that the chant is associated with being calm. Your brain will then drop the concentrations of stress hormones and you will, indeed, feel calm.

You have now learned about 3 ways you can rapidly calm your brain and lower the concentration of stress hormones. At different times when you experience stress you may decide to take a few deep breaths, go to your "funny relaxer", or do your chant. All may be effective for you, or just one or two of them. Decide what works best for you. Use what is effective for you to calm yourself.

## PLEASE REMEMBER

- When you need to use one of the three techniques to calm yourself after experiencing acute stress, **YOU MAY NOT REMEMBER TO DO IT.**
- Acute stress interferes with your ability to think clearly and to focus.
- 2 hours later you will suddenly remember that you should have taken 3-5 deep breaths, or used humor, or used your chant.
- That is why it is so important to share this information with family, friends, and colleagues.
- When they see you upset about something they can remind you to calm yourself and when you see they are upset, you can remind them to do the same.

**Take your time, there is no hurry, spend as much time as you like on this section, the goal is to learn and increase your ability to cope with stress, don't cause stress for yourself, patience and repetition will benefit you**

**Remember:** We cannot make the stress in your life go away but we can change the way your brain responds to stress. By being better able to cope with stress you will have less of an elevation of stress hormones. It is the elevation of the stress hormones that alters your mental and physical health.

## ACUTE VS CHRONIC STRESS

What is the difference between acute and chronic stress?

**ACUTE STRESS** is unanticipated, has a sudden onset, and is of a **short duration**. It ends after a short time, usually because the event causing the stress is no longer present.

**CHRONIC STRESS** however, is what it says it is. **IT IS CHRONIC**. It is there for a long time and while your brain is perceiving whatever it is as stress, the stress reactive brain areas are active and the stress hormones are elevated **AFFECTING YOUR MENTAL AND PHYSICAL HEALTH**.

It is important to understand that our brain will only consider something as stress if our brain perceives it as stress. This has 2 aspects:

1. Our brain believes that whatever the event is, is stress. This may be because, for example, (1) we have previously experienced the event and it caused us stress, (2) we don't understand why the event is happening and we are frightened, (3) we think the event will cause us to do something inappropriate, (4) it is physically painful.
2. We think of the event as stress, even if it may not actually be something that will cause stress. This is important because of the difference between stress and anxiety.
  - a. Stress is real; it is something we have to deal with.
  - b. Anxiety is in our imagination. Whatever caused stress is over. However, we keep thinking about it. "Why did I do what I did", "I should have done it in a different way", "I embarrassed myself". The point is that it's over; we need to learn to let things go when they are over. If not, we will keep activating the stress reactive brain areas and have an effect on our health.

## TECHNIQUES FOR COPING WITH CHRONIC STRESS

Now let's direct attention to reducing the effect of chronic stress on our mental and physical health. Chronic stress is any aspect of your daily life that activates the stress reactive areas of your brain. As you now know, when that happens there is an increase in the concentration of several hormones that alters your mental and physical health.

### EXPRESSIVE WRITING: A TECHNIQUE FOR COPING WITH CHRONIC STRESS

Interestingly, writing can contribute to the prevention of illness and help you move ahead by reducing the anxiety associated with things that are of concern to you. The technique that we are going to ask you to use is different than keeping a daily diary, often called "Journaling". When you keep a Journal you may write about the things that happen to you or that you find meaningful. You may keep your journal so you can refer to it again. If you would like to keep a daily Journal, please do so. However, in addition, please consider doing the following writing technique that we call, 'Expressive Writing'.

Expressive writing helps to let go of those things that cause you anxiety but are no longer events that are real but are in your imagination. We need to be able to let go of the things that are over and to learn from them. The technique of Expressive Writing, that will be described, is very helpful for this.

You can use Expressive Writing to write about things that have bothered you for years or something that occurred yesterday and are bothering you. It is simple to do, and it is. However, the beneficial effects are usually dramatic.

The beauty of Expressive Writing is that no one will ever see what you write about. After you finish doing Expressive Writing you will tear the paper into small pieces and flush it away:

- Expressive Writing allows you to write about your most private, personal, and intimate issues.
- Expressive Writing allows you to write about the things you cannot discuss with anyone.
- Expressive Writing allows you to write about the things you do not want anyone to judge you about.
- Don't be afraid to write about highly personal and private issues. Nobody will ever see what you write.

Whatever you write about will not go away. However, you will have the feeling of it becoming less meaningful, less recurrent, and less stress or anxiety producing. You will be calmer. You may notice that you are sleeping better and having the 'blues' less often.

While doing expressive writing you may cry. It is normal, don't worry about it.

### **EXPRESSIVE WRITING DIRECTIONS:**

Take a sheet of paper and something to write with. You cannot use a keyboard, you must write. Find a quiet place where you will not be disturbed for 15 minutes:

- Pick any issue of concern to you to write about
- The only rule is that you write continuously for 15 minutes. If you run out of things to say, just repeat what you have already written. Don't worry about grammar, spelling, or sentence structure.
- While writing **DO NOT READ** what you have already written
- Your writing is completely confidential.
- **When you finish writing, tear up what you have written and flush it away toss it out so that no one will ever see what you wrote.**
  - Write as often as you want to. If you find it helpful, and I believe you will, keep doing it. Why would you want to stop.

### **Why does this work?**

The answer is that we don't know. It doesn't matter that we don't know. It just works.

### **AN ADDITIONAL WRITING EXERCISE YOU MAY WANT TO TRY:**

Whenever you wish, write about something you are grateful for. It may be as few or many words as you want. Then whenever you are feeling "blue", think about some of the things that you are grateful for.

## GUIDED IMAGERY: A TECHNIQUE FOR COPING WITH CHRONIC STRESS

Guided imagery is something that you listen to that uses your imagination to create beautiful and comfortable thoughts and pictures in your mind where the temperature, smell, sounds, people, sights, are defined by you and therefore you select what you find relaxing. It's beautiful and calming because you create what you want to be beautiful and calming.

When you are doing guided imagery the thoughts that are disturbing to you are set aside as you direct your attention away from those thoughts to the imaginary world you create for yourself allowing the stress reactive areas of your brain can calm itself.

Once again, for motivation, let's review the health benefits again because it is important to remember the health benefits of increasing your ability to cope with stress. When you keep your stress hormones low by coping with stress, each of the health factors listed below improves. Everything gets better:

- You have less difficulty thinking clearly and focusing
- You are less likely to act impulsively
- You will be less likely to become depressed and have the 'blues'
- Your ability to remember things will increase
- Your heart will beat less rapidly
- Blood pressure will be lower
- There is less accumulation of cholesterol into the blood vessels of the heart
- Blood platelets will not stick to each other reducing the risk of having a heart attack
- The function of the immune system is improved
- The ability of the body to heal wounds increases
- Diabetes is easier to manage
- Weight is easier to manage
- Telomeres on the ends of your chromosomes become longer and are associated with better health
- The amount of inflammation in the body decreases

The more you listen to Guided Imagery, the more effective it becomes. Your brain will become conditioned to calm down when you think of the guided imagery, just as with conditioning your brain to a chant. If you listen often, when you are calm and happy, and then think about it when you are upset, your brain will quickly take you back to a state of calmness.

You can listen to our Guided Imagery at:

- <http://healthylifestyle.podbean.com>
- Please listen to the track labeled "MENTAL JOURNEY"

**If you prefer, rather than listening to a guided imagery you can read the following to yourself and practice it. Do this slowly. Read each line and pause for as long as you like. It can be for 5 seconds or 5 minutes. You decide. After a while all you will have to do is think about it and you will decrease the activity of the stress reactive brain areas:**

- Breathe slowly and deeply.
- Think of an ideal place that you find peaceful and relaxing. It doesn't have to be real. Make it the most relaxing place you can imagine.
- When you are in that place leave any worries or concerns behind. They will still be there, they won't go away, but for a short time don't be concerned about them.

- Focus on the peacefulness that you experience in this special place you have created for yourself. While you are in this imaginary place there is nothing you are going to do to address the things that worry you, so find a few minutes not thinking about them.
- When you are ready put a smile on your face and think how lucky you are to be engaging in behaviors and techniques that are contributing to improving and maintaining your health.

**Take your time, there is no hurry, spend as much time as you like on learning and practicing. The goal is to learn and increase your ability to cope with stress, don't cause stress for yourself, patience and repetition will benefit you.**

**Remember:** We cannot make the stress in your life go away but we can change the way your brain responds to stress. By being better able to cope with stress you will have less of an elevation of stress hormones. It is the elevation of the stress hormones that alters your mental and physical health.

## MEDITATION: A TECHNIQUE FOR COPING WITH CHRONIC STRESS

Meditation is another technique you can use to increase your ability for coping with stress. Meditation can be used when you experience an acute stress and will also help you increase your ability to cope with chronic stress. As with all of the stress coping techniques, the more use it the more effective it becomes. Also remember to do the techniques when you are calm and relaxed so it will be easier to use when you are experiencing stress.

I am going to explain a simple meditation technique that you can use. Just like everything else you are learning, it may or may not work for you. If it doesn't there are the other techniques that you have learned. The main thing that is important is that you make a commitment to work to achieve a better quality of mental and physical health for yourself and that you become a role model for those who are important to you.

### What is meditation?

Meditation is a technique to take your attention and focus it on something that has no emotional meaning to you. If you are not thinking about things that cause you stress the stress reactive areas of your brain will calm down. When they are calm the concentration of stress hormones decreases and many aspects of health increase as I constantly am describing.

Meditation is similar to Guided Imagery but in Guided Imagery you have something to listen to (<http://healthylifestyle.podbean.com>; in addition I provided a short guided imagery for you to read). With meditation you use your mind to produce calmness and relaxation.

The goal of meditation is to find a way for you to **NOT** to pay attention to thoughts that may activate the stress pathways in your brain. Indeed, that is the goal of all stress coping techniques.

You probably will not learn to do this quickly. You must practice and repeat all of the techniques being taught to you. If you have taken piano lessons, you know that without practice your mind could not get your fingers to where you wanted them to be. Your mind gets better with practice. The more you practice relaxing your mind, the easier and more effective it will become.

### Will meditation help with anxiety?

- Stress is real; it is something we have to deal with.
- Anxiety is in our imagination. Whatever caused stress is over. However, we keep thinking about it. "Why did I do what I did", "I should have done it in a different way", "I embarrassed myself". The point is that it's over; we need to learn to let things go when they are over. If not, we will keep activating the stress reactive brain areas and have an effect on our health.

The answer is yes. When you are dealing with an issue that causes you anxiety being able to not think about it by doing a meditation is helpful for calming the stress reactive brain areas.

**Meditation technique:** Below is a simple meditation technique for you to read and practice. Of course, once you get the idea of what you need to do, you may wish to make up your own meditations.

- Do this in a place that is quiet and private so that you are not disturbed by noise or people.
- Select a word that you will use as a focus of your attention. The word should not have any meaning to you. Some examples are CALM or PEACE or RELAX, are good choices but you can choose your own.
- Focus your attention on your breath as you breath in and out. You already know that this will help you to be calm and to think clearly.
- Remember, that meditation is a trick that for a few minutes helps you focus on a neutral event rather than thoughts that activate the stress reactive areas of your brain. Knowing that there is nothing that you

are going to do about the thought that is disturbing you for the brief time that you are meditating, will help you to not think about it.

- The importance of the word and paying attention to your breathing is to get your attention away from the thoughts that are disturbing to you.
- Allowing the stress reactive areas of your brain to relax for a few minutes will help you become more calm and have lower levels of stress hormones with the associated health benefits.
- Sit, be comfortable, you can close your eyes or leave them open, whatever you prefer.
- Meditate only do so as long as you are comfortable doing it. Even 2-3 minutes is better than not at all.
- That's it. Just do it and practice. Remember, the more you practice something, the easier it becomes to do it and the more effective it becomes. Practice when you are calm.

It may take several weeks before you begin to feel comfortable with meditation and realize that the technique is helping you to feel calm. Don't give up by being disappointed if you do not feel that the technique is working for you after your first or second try. Keep at it.

Always Remember: Learning to relax will not make you a less effective person or negatively affect your work performance. In fact, learning to relax will make you more efficient in your everyday life, increase your feeling of being calm, and will enable you to interact with others better.

**Take your time, there is no hurry, spend as much time as you like on this section, the goal is to learn and increase your ability to cope with stress, don't cause stress for yourself, patience and repetition will benefit you:**

**Remember:** We cannot make the stress in your life go away but we can change the way your brain responds to stress. By being better able to cope with stress you will have less of an elevation of stress hormones. It is the elevation of the stress hormones that alters your mental and physical health.

## THE IMPORTANCE OF A SMILE

Our facial expressions can have an influence on our brain.

The simple act of smiling can increase the positive feeling of joyfulness.

Here's an example:

Scrunch up your face, make the most awful look you can....hold it ...now think.. "I am happy"...

Were you able to think happy thoughts? Most people are unable to achieve that.

Now, let's do the opposite. Put a big happy smile on your face. While holding that smile think of something sad.

Is it easy to think of something sad when you have a big smile on your face?

Such a simple physical act of just smiling can have an effect on our mind.

Wouldn't it be wonderful to walk around all day with a smile on your face.

Uh, Oh. You better not because people may ask whether there is something wrong with you because you are always smiling. I wish we could change that so it would be normal for people to be smiling more often and hopefully influencing others to do the same.

## **SOMETIMES YOUR MIND PERCEIVES SOMETHING AS STRESS EVEN IF YOU ARE NOT AWARE OF IT**

Most times when our brain perceives something as causing stress we are aware of it. We can't focus, we may feel something that is inappropriate, we feel ourselves getting angry, our stomach feels funny or we may feel our face getting warm.. However, sometimes our brain will consider something to be stress but will not make us aware of it. At this time the effect of having an elevation of stress hormones on our health is occurring.

When this occurs our body often will react in a specific way that can tell us our brain is responding to stress.

If we learn to recognize how our body responds to stress you can use one of the relaxation techniques that you have found to be effective to calm your brain and lower the concentration of stress hormones.

Therefore, it is important to learn to use the signals from your body to help relieve stress.

If you wish, someone can read the following to you or you can practice on your own:

- Sit comfortably
- Take 3 deep breaths to feel relaxed and clam
- Take your time
- Now, think about something that causes you stress. Think about it for at least 15 seconds.
- When you are thinking about something that causes you stress, how do you feel?
- Do you feel tightness in your forehead, jaw, or chin?
- What about the back of your neck, your shoulders, somewhere else?
- Do you find yourself holding your breath or clenching your fist?
- Do you feel a knot in your stomach?
- Pay attention to how your body is responding

What is happening is called a 'conditioned response'. If you have ever had food poisoning, and you think of the food that made you ill, you may experience nausea. That is an example of a conditioned response.

We want you to be aware of your body's reactions to stress so that you can use the signals to let yourself know that you are experiencing stress. Once you are comfortable with stress coping techniques and you detect your body telling you that you are experiencing a stressor, you will want to use one of the coping techniques you are learning. The most common technique that is used for this is to take 1-3 deep breaths.

## MINDFULNESS IS LEARNING TO PAY ATTENTION TO WHAT YOU ARE DOING AT THE PRESENT TIME AND KEEPING YOUR MIND FROM WANDERING

Mindfulness can be defined as paying attention to where you are and what you are doing and not having many thoughts running through your mind. The reality is everything you have learned qualifies as mindfulness. Everything you have learned will decrease the concentration of the hormones that interfere with your focusing and thinking clearly.

How often do we multi-task, doing one thing while thinking of 3 other things. The promotion of the concept of mindfulness is to clear the mind of extraneous thoughts so that attention can be directed to what you need to do. That is what all of the techniques you have learned aim to do.

Everything you have learned will help you to focus and think clearly. You know why. You are decreasing the concentration of the stress hormone that interferes with focusing and thinking clearly. What do you want to do?

- Slow down so you can complete your thought before going on to a new thought
- Do one activity at a time and get it done before going on to a new activity
- Be conscientious and carefully consider your capabilities so that you don't take on tasks that will cause you stress. Conscientious people do more things to protect their health and engage in fewer activities that are risky. They are careful in planning for the future.
- When you are tired make sure you rest before engaging in additional activities. You will be able to think more clearly when you do this.
- Don't be afraid to let go of activities that you find too difficult to do. Find activities that fit within your capabilities so that you can clearly focus on them.
- Let go of uncomfortable events from the past that they no longer activate the stress reactive areas of your brain. Stewing over them will not do you any good. Expressive writing is a wonderful way to do this.

Prioritize what you need to do or think about:

Maybe you would benefit by doing the most complicated first to get it out of the way and get it done when you are most fresh. That may help you relax as the other things you have to do are easier.

Maybe you would benefit by doing the easiest first so you have a feeling of accomplishment. Getting the easier things out of the way lets you focus on the most difficult with fewer other things to think about.

Some people have better mental function earlier in the day, mid-day, or later in the day. Try to do difficult tasks when you function the best.

Don't waste time when you are tired, overwhelmed, and can't focus. Set the thing you are having difficulty with aside and come back to it later.

Don't be afraid to relax. If you do something to decrease the concentration of your stress hormones you will find it easier to focus.

There are many ways to maintain full awareness from moment to moment. One of the simplest and most effective ways is to **PAY ATTENTION TO YOUR BREATHING**. Remember, that when we increase the amount of oxygen in our blood we are able to focus and think more clearly.

**Remember:** Some people like to play the piano and others the violin. Some like to play football and others squash. People differ in the behaviors that are comfortable and enjoyable for them. You will find that we offer a variety of behaviors for you to use to help you cope with stress. This provides you with the opportunity to pick those that are comfortable and enjoyable for you. You do not need to use them all; rather you need to find what works for you so that it is something that you will use.

## CLOSING THOUGHTS

- Increasing our ability to cope with stress by using behaviors and techniques that minimize the reactivity of the brain to stress can have a positive effect on your health and longevity.
- Learning to relax will not make you a less effective person or negatively affect your work performance. In fact, learning to relax will contribute to your being more efficient in your everyday life.
- We cannot make the stress in your life go away but by taking the journey that has been provided to you your brain will be less responsive to stress.
- By using your training from this journey, you and members of your family can lessen the influence of stress on your mental and physical health. You can do this by increasing your ability to cope with your stress.
- By being better able to cope with stress you will have LESS of an elevation of stress hormones when your brain perceives something as stress. It is the elevation of stress hormones that alters your mental and physical health.

Make your life more meaningful by:

- Using what you learned in the program all the time so that it becomes part of your life.
- Sharing this information with those who are important to you.
- Tell others how the quality of your life is better.
- Change your culture to one where healthy lifestyle behavior is used on a routine basis to enhance the quality of mental and physical health.
- Be patient
- Believing that you will succeed

Retake this journey as often as you wish. The goal is learning and using techniques and behaviors that can improve the quality of your health and quality of life. As your life changes for the better, those near and dear to you will reap the benefits as well

Let's review the health benefits again because it is important to remember the benefits of increasing your ability to cope with stress. When you keep your stress hormones low by coping with stress, each of the health factors listed below improves. Everything gets better:

- You have less difficulty thinking clearly and focusing
- You are less likely to act impulsively
- You will be less likely to become depressed and have the 'blues'
- Your ability to remember things will increase
- Your heart will beat less rapidly
- Blood pressure will be lower
- There is less accumulation of cholesterol into the blood vessels of the heart
- Blood platelets will not stick to each other reducing the risk of having a heart attack
- The function of the immune system is improved reducing the risk of infection and improving the course of autoimmune disease
- The ability of the body to heal wounds increases
- Diabetes is easier to manage
- Weight is easier to manage
- Telomeres on the ends of your chromosomes become longer and are associated with better health
- The amount of inflammation in the body decreases

**PLEASE EMAIL ANY QUESTIONS TO: [bsr@pitt.edu](mailto:bsr@pitt.edu)**

**To further motivate you to increase your ability to cope with stress and let you know that this journey really works the following messages from people who have participated in this stress coping journey are provided**

- I am immensely enjoying the benefits. It solidified my appreciation for the mind-body connection.
- After the training as I was walking towards my car I had the feeling that I had been at a day spa. I was very relaxed and had no pain in my back, which is not usually the case. I would like to incorporate these techniques in my daily life. Thank you.
- My heartfelt thanks for helping me learn to cope effectively with the stress I thought was so overwhelming. Life is so much better because of learning to cope with stress.
- The classes have taught me invaluable skills that will continue to enrich and enhance not only the quality of my existence, but also that of my family. I wish I had this opportunity earlier in life.
- I sleep better, and can now reduce my reaction to stressful situations. This has also opened my eyes as to how detrimental stress is to our bodies, and our ability to maintain a greater quality of life as we age.
- One of my main realizations has been that I don't GIVE myself the time to relax! I'm always focused on some problem of the day. By realizing this, I have been providing myself the time to THINK about the things that are IMPORTANT to ME in my life. By giving myself this time to reflect, I have avoided making hasty decisions that would affect both my professional and personal lives. I feel that I have more of an overall sense of "well-being".
- I cannot express enough what a difference this class has made in my overall life.
- You introduced us to deep breathing and it has changed the way I got about my daily life. It has given me a tool to calm myself down in the most stressful situations (dealing with three young kids, sickness, etc). It's amazing that we all have the ability to do this and the results are so quick and profound.
- I forget to just breathe at times, and I didn't realize the impact this had on my health. I am now focusing on my breathing, which I needed with a busy schedule and the demands of a 10 month old baby.
- I have taken the knowledge I received and have taught it to my husband who was very reluctant at first, but now I see him taking a few seconds to breathe before he deals with difficult situations, I even got him to "Write
- Learning to breathe has helped me with stressful situations at home and at work.
- I am able to breathe when I get upset and not respond so quickly without thinking
- This past week I had a hospital procedure, as I lay on the operating table I was feeling anxious. Automatically I began to breathe and visualize. The procedure was done before I knew it and I realized how effective and useful the techniques I learned were.
- The class has taught me to use stress management techniques proactively instead of reactively. I still have stress in my life and in the workplace, but I am in control of my response to it.
- At home I've been sharing what I've learned with my family, neighbors and at church.
- I've noticed that I'm spending more time with friends and laughing more.
- I share what I learn with EVERYONE.
- The 15 minute writing method is a great way of screaming silently. I plan on using this method quite often.
- I know I feel better organized and better able to handle anything that is "thrown" at me at work and at home.
- One of my favorite things that I was taught was the writing lesson. It has always been a challenge for me to tell people how I felt and I would usually write them a letter. But when I learned to write my anger out and then rip it out it made me feel so much better.
- Sometimes our jobs do create stress within our lives. Being able to recognize these stresses and

manage them help us to be more productive in our jobs and our home life.

- By using guided imagery, I have begun to “permit” myself to take time to think about myself...and not work, family, etc...In doing so, I have begun to work on some of the issues that I have “uncovered”.
- Before going to sleep I use the guided imagery.
- I am able to fall asleep easier and I don’t wake up in the middle of the night as often. (And if I do wake up, I am able to fall asleep again.)
- Oh my goodness, I never could have imagined how effective that CD would be, besides relaxing, it totally took away my pain! I'm looking forward to listening again. Thank you so much.
- Everything I did the past couple of months were suggestions I got from your seminar. You helped me a lot. I now realize how important it is to manage your stress. Thank you for everything!
- I have fewer “down” times which don’t last as long.
- My blood pressure which was regularly around 120/80 is now down to 100/74.
- At first I was hesitant about the “Wellness” Program that was offered to us, I knew I was stressed out, but I never thought anything could be done about it. Now I know it was truly a blessing and that the participants are truly thankful that this program has been offered to us, a wonderful “Gift”.
- Just taking a few seconds to do something as easy as “breathing” can make such a difference in your day to ease the stressors. I also find myself enjoying the “moment” more often, taking the time to appreciate situations that are very important in my life.
- I practice the things I’ve learned regularly from belly breathing (my favorite, to smiling more, taking myself to a calm place and just moving around move (exercising).
- As soon as I feel stressed, I think oh I need to belly breathe and I do and instantly it helps to calm me.
- I have already experienced relief physically and emotionally from changes in my breathing alone.
- I went to my counselor yesterday; she said because of my stress techniques, it is NOT necessary to continue our sessions any longer. WOW! This should say it all.
- I sleep better, and can now reduce my reaction to stressful situations. This has also opened my eyes as to how detrimental stress is to our bodies, and our ability to maintain a greater quality of life as we age.
- In my opinion, *everyone* should have the opportunity to experience this training.
- The classes have taught me invaluable skills that will continue to enrich and enhance not only the quality of my existence, but also that of my family. I wish this opportunity had come to me earlier in life.
- The littlest things would stress me out and I would say things that I really didn’t want to say out loud and I use to be very impatient. I have learned to be way more laid back and to walk away and take a couple deep breaths
- Your class has helped me to cope with stresses of everyday life, and I will continue to use the strategies for wellness that you have shown me. I am richer for having had this experience.
- Benefits that I've experienced : much less aggressive driving ; less bothered by rush hour traffic; able to be calmer in interactions with others; better listener; able through deep breathing to reduce post surgical back pain; and improved sleep.
- In addition to the “advertised” benefits, I have had other positive side effects. I have had no cold sores (which I used to have almost constantly).
- I have greatly improved my relationships with my family and friends, and almost nothing which goes wrong seems to be a big deal to me anymore.
- I have noticed less of a need to eat sweet and salty snacks and an increased desire to walk and move around.
- I am teaching the techniques to my friend who has MS. She is falling asleep much easier and she has been able to handle her busy life with more energy and fewer flare-ups.
- At home, these techniques have helped me relate better with my children.

- I find myself continually using the deep breathing technique to get me through excessively busy times both at work and at home and deal with situations more calmly.
- At work I am not as reactionary and I feel I am able to make better, more thoughtful decisions
- At home I am currently the primary care taker for my elderly parent who has Alzheimer's. I find that the class is helping me cope much better. I am able to let other family members know that I need help in a thoughtful more constructive way.
- I forget to just breathe at times, and I didn't realize the impact this had on my health. I am now focusing on my breathing, which I needed with a busy schedule and the demands of a 10 month old baby.
- By using guided imagery, I have begun to "permit" myself to take time to think about myself...and not work, family, etc...In doing so, I have begun to work on some of the issues that I have "uncovered".
- One of my main realizations has been that I don't GIVE myself the time to relax! I'm always focused on some problem of the day. By realizing this, I have been providing myself the time to THINK about the things that are IMPORTANT to ME in my life. By giving myself this time to reflect, I have avoided making hasty decisions that would affect both my professional and personal lives. I feel that I have more of an overall sense of "well-being".
- I can not express enough what a difference this class has made in my overall life.
- You introduced us to deep breathing and it has changed the way I got about my daily life. It has given me a tool to calm myself down in the most stressful situations (dealing with three young kids, sickness, etc). It's amazing that we all have the ability to do this and the results are so quick and profound.
- I have a 5 year old son and I use the "blowing out the candles" technique with him. It does work, many times he forgets what he was upset about by the time he is done. He and I have deal that he will do this, but I must do it too when he sees me upset and he loves to remind me to "blow out the candles".
- Oh my goodness, I never could have imagined how effective that CD would be, besides relaxing, it totally took away my pain! I'm looking forward to listening again. Thank you so much.
- Everything I did the past couple of months were suggestions I got from your seminar. You helped me a lot. I now realize how important it is to manage your stress. Thank you for everything!
- I am immensely enjoying the benefits. It solidified my appreciation for the mind-body connection.
- After the training as I was walking towards my car I had the feeling that I had been at a day spa. I was very relaxed and had no pain in my back, which is not usually the case. I would like to incorporate these techniques in my daily life. Thank-you