Stress, Diabetes, and High Blood Pressure

When you have been diagnosed with diabetes, you realize how much of a lifestyle change you have to undertake. You must learn to eat a well-balanced diet with appropriate portion control. In addition, you must find time for moderate exercise. Both diet and exercise are vital for good blood sugar control and prevention of diabetic complications. But there are a third set of skills you must learn: the skills required helping you manage stress.

Acute Stress

Everyone experiences stress at one time or another. What you experience as stress is your body's response to something you consider threatening. For example, if you encounter what looks like a poisonous snake in your garden, you have an immediate physiological response. Your body produces stress hormones that equip you to take quick action. These stress hormones affect many parts of your body. Your heart rate, blood pressure and breathing increase to give you more oxygen. Your muscles constrict so you can move quickly. The arteries in your arms and legs narrow so that, if you are hurt, you won't lose a lot of blood. Your blood will clot more quickly in case you are wounded. Your liver pours out stored sugar so you have the energy you need to respond to the threat. This is an *acute stress response*, and it is your body's way of adapting to something dangerous in your environment. It is also called the *fight-or-flight response*, because your body prepares you to fight or flee. You are on high alert.

Chronic Stress

This acute stress response is designed to keep you safe when confronted with an immediate threat. However, it becomes a problem when acute stress becomes chronic stress. Your body is not designed to remain on high alert for a long period. Chronic stress:
Elevates blood pressure causing high blood pressure
Increases the likelihood of blood clots
Compromises the immune system, making you more prone to disease
Elevates blood sugar levels, increasing your risk of complications
Increases the possibility for depression or anxiety

Stress and high blood pressure

How is stress related to high blood pressure? When your nervous system is exposed to a stressful stimulus, your body releases stress hormones that increase blood pressure so you can respond to the stressor. However, with chronic stress, this sustained rise in blood pressure can damage arteries, causing them to form plaque that decreases the amount of blood that flows through the artery, raising blood pressure. Additionally, diabetes can lead to changes in the blood vessel walls making them thicker and stiffer. This thickening and stiffening of the blood vessel wall increases blood pressure also.

Other factors linking stress and high blood pressure include coping skills and personality traits. Individuals who are "high stress reactors" tend to be reactive in coping with stress; they release more of the stress hormones needed to activate the stress response. This, in turn, elevates blood pressure and makes the individual at greater risk for high blood pressure. Additionally, individuals who are highly achievement-oriented but don 't possess the resources they need to achieve are also prone to high blood pressure.[1] Additionally, a subset of individuals who may be classified as Type A personalities are at risk for high blood pressure. Individuals with so-called "Type H" personalities who are chronically angry but tend to suppress their anger are believed to be at greater risk for high blood pressure.[2] Similar personality traits like cynicism, lack of trust, and competitiveness also place individuals at higher risk for high blood pressure. [3]

Relationship between high blood pressure and diabetes

Individuals with diabetes, much like all individuals who are coping with a chronic illness, experience a wide range of emotions. At diagnosis, emotions may range from anger to fear. Living with the disease and its attendant limitations may result in grief, depression, feelings of helplessness and loss of control that a chronic illness may produce. These emotions are also associated with high blood pressure.[4] When not properly managed, the double-whammy of diabetes and high blood pressure can cause significant damage to your body.

Stress and Diabetic Complications

How is stress related to diabetic complications? The surge of sugar that your body produces when it needs to fight or flee is designed for an immediate threat. However, when your body is producing sugar on an ongoing basis, your body can 't metabolize the excess sugar and it remains in your bloodstream, causing elevated blood sugars. The excess sugar in the bloodstream can eventually damage the heart's arteries, kidneys, eyes, and peripheral nerves.

Coronary artery disease (CAD) is one of the more devastating complications that can afflict diabetics. Unfortunately, stress can contribute to the seriousness of CAD. Coronary arteries affected by Diabetes can develop plaque, which narrows the arteries and reduces blood flow. The affected arteries are over-responsive to stress, and they are more likely to constrict than healthy arteries. Chronic stress, particularly mental stress, can cause *ischemia*, a significant constriction of blood flow in the coronary arteries, which could lead to a heart attack. In a research study published in the journal *Circulation*, researchers reported that blockages related to stress were just as serious as those related to smoking or high cholesterol were.[5]

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5 See *Mental stress is linked to blocked blood vessels* retrieved from http://www.apa.org/monitor/feb98/blood.html on June 20, 2006.

Clinical depression is also a potential problem for people with diabetes. Research suggests that depression is three times more likely to occur among diabetics than in the general population. However, only one-third of diabetics are diagnosed and treated. The research also suggests that 40% of people with diabetes have depressive symptoms that aren't serious enough to be diagnosed at the clinical level, but are still distressing for the sufferer. This is often referred to as *sub-clinical depression*.

While it may seem that stress and depression aren't related, being depressed can be stressful. The symptoms of depression include:
Depressed mood for two or more weeks
Loss of interest in daily activities or pleasures
Significant changes in weight or appetite
Significant changes in sleep habits
Chronic agitation
Fatigue
Feelings of worthlessness, excessive guilt
Difficult concentrating
In the most extreme cases, thoughts of suicide

Depression can also cause significant challenges in family relations. Depressed people tend to become self-absorbed and withdrawn. Even though they may realize it is part of the illness, family members may get angry or resentful, wanting the depressed person to "snap out of it."

Sources of Chronic Stress

What kind of things might create chronic stress for diabetics?
Ongoing problems in relationships, like marriage or with children
Difficulties at work
Unemployment
Recent life changes, such as a job change or the last child leaving home
Positive changes, like a promotion or a big vacation

What kind of stressors might be unique to diabetics?
Medical expenses
Routine frustrations with medical insurance, doctors' offices, or government agencies
Worry about less-than-perfect adherence to a management regimen
Worry over possible complications
Restrictions resulting from complications or the disease itself

Strategies for Managing Stress

Exercise
In addition to being an essential part of blood sugar management, exercise is also vital for successful stress management. Some research suggests that exercise increases a chemical in the brain that reduces stress and anxiety, and can even make the brain's response to

stress more efficient.[6] However, the type of exercise is important. Exercise that is "forced," or unenjoyable, is not as effective as exercise that is enjoyable. In other words, it is important to find an exercise you like. If you think walking on the treadmill is drudgery, then see if walking around a track outside is more enjoyable. If walking itself is unappealing, perhaps a recumbent bicycle would be appealing. Exercise that involves others has double benefits. For example, if you choose to play badminton, you get both exercise and social contact.

Mental Fitness

Like physical fitness, mental fitness is vital for stress management. One aspect of mental fitness is to recognize problematic personality traits. The "Type A" personality has been linked to coronary artery disease, most specifically anger, hostility, and cynicism. If these traits are a prominent part of your personality, then it is important that you find alternative ways to cope with things that upset you. You may want to consider talking with a counselor about ways to cope with these traits.

A second aspect of mental fitness is learning to recognize stressful thinking patterns. Stressful thinking patterns are patterns that are inaccurate but increase your mental stress. Some psychologists call these *cognitive distortions*.[7] Some examples of cognitive distortions include:

All-or-nothing thinking – This is the kind of thinking that creates perfectionism. It says, "If I can't manage my blood sugar perfectly, than why bother?" All-or-nothing thinking must be countered with **good-enough thinking**. While a blood sugar of 110 is optimal, a blood sugar of 150 may be good enough for one test, with the determination to decrease it for next time. What it shouldn't do is encourage you to eat a whole package of cookies.

Catastrophic thinking – This is the kind of thinking that takes a specific problem and blows it into an all-pervasive crisis. This is also the kind of thinking that makes catastrophic judgments without having all the facts. There is an element of *fortune telling* in this kind of thinking, where you predict a catastrophe in the future based on a few bits of evidence in the present.

Emotional reasoning – This kind of thinking equates how you feel with what is true. For example, if you feel lonely and unloved, then it must be true – even when you have evidence to the contrary.

In his book *Learned Optimism*, psychologist Martin Seligman provides a method you can use to counter cognitive distortions.[8] This involves a new look at your ABC's.

A = Adverse event, the event that causes distress

B = Belief about the event; what you tell yourself about the event. This is where cognitive distortions creep in

C = Consequences, which can include stress, or distressing and painful emotions

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6 From *Exercise fuels the brain's stress buffers* retrieved from http:// helping.apa.org/neurala.html on May 9, 1998.

7 Burns, D. (1999). *Feeling Good*: *The New Mood Therapy*. Avon Publishing.

8 Seligman, M. (1998). *Learned Optimism*. Free Press.

Most of us tend to skip from A to C, forgetting about B. However, Seligman contends that it is B that produces our distressing emotions, not A. Therefore, Seligman suggests a strategy of *detection* and *disputation*. *Detection* involves identifying the cognitive distortions or other dysfunctional beliefs. *Disputation* involves using existing evidence to dispute the belief. It can also involve identifying potential alternative causes related to the belief. For example, instead of believing you have a high A_1C because you're incompetent and can't manage your diabetes, you review the last three months and identify alternative reasons for the elevation. Perhaps it was a prolonged illness, or a death in the family, or extended travel. You can also look at previous A_1C levels to compare them. If this is unusual, then the evidence suggests you are capable of managing your diabetes.

Social Support

Researchers are continuing to recognize the links between social support and physical health. A network of family, friends, a faith-based community, or other naturally occurring support networks.[9] These friendships based on common interests can assist diabetics in warding off stress-related illnesses.

Routines

This may seem surprising, but routines provide a degree of predictability that is necessary to minimize stress. Routine habits particularly help diabetics manage all the additional aspects of their disease – blood sugar testing, insulin administration, medications, exercise, etc. It takes more time being a diabetic, and routines help reduce stress associated with forgotten injections or medications or other consequences of disorganization.

Sleep

Adequate sleep is key to successful stress management. Sleep deprivation can have all kinds of consequences, from reduced mental sharpness to an increase in cravings for simple sugars. It also reduces your tolerance for stress and increases your vulnerability to illness. At times, a sleep disorders like sleep apnea can contribute to chronic sleep deprivation. People who are overweight are particularly susceptible to obstructive sleep apnea. Sleep health is essential to good stress management, and, contrary to popular belief, you *can* make up for lost sleep.[10] If you suspect you have a sleep disorder, consult a doctor who specializes in sleep medicine.

Play

Play is not only for children. Leisure is an opportunity for you to pursue your interests for no other reason than you enjoy them. This is kind of self-care provides you an opportunity to recharge yourself while engaging in something you enjoy.

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9 See *Friendlier ties to good health* retrieved from http://www.apa.org/monitor/oct04/goodhealth.html on June 20, 2006.

10 Dement, W. C. (2000). *The Promise of Sleep*. Dell Publishing.

Perspective
One of the things that psychiatrist and holocaust survivor Viktor Frankl noted in his book *Man's Search for Meaning* is that finding meaningfulness in hardship often distinguished those who survived form those who perished. Placing your circumstances, your suffering, in a larger meaningful framework allows you gain perspective on your sufferings. Some people find such perspective through their faith or other transcendent belief system.

Professional Help
Sometimes, stress and its related problems can exceed your ability to manage it. When this happens, and because of its impact on your diabetes, consider seeking professional help. A counselor can help you identify coping strategies for dealing with chronically stressful situations. Occasionally, medication may also be helpful in managing stress-related problems, including depression and anxiety.

Conclusion

If you're human, stress is inevitable. While it is universal, its impact on a diabetes and blood pressure can have a vital impact on healthy disease management. Applying some of the behavioral and cognitive concepts described here can help you manage your diabetes more successfully and enhance your quality of life.