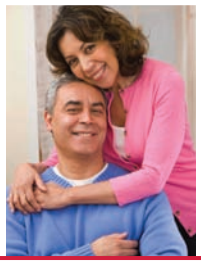
Wellness Track





Understanding the Risk Factors of Stroke

MDVIP
LONG LIVE HEALTHY

Stroke is a potentially life-threatening and devastating occurrence that affects many people. It is the third leading cause of death and the number one cause of serious, long-term disability in the United States. Studies suggest a stroke occurs every 40 seconds, equaling about 785,000 strokes each year, of which 600,000 are first-time strokes, and almost 144,000 people die each year of a stroke. Although a stroke can occur at any age, about 75 percent affect people older than 65, and the risk doubles each decade after age 55. Men have a higher risk of stroke than women, but more women die of stroke. African Americans have a higher risk than Caucasians.

Strokes occur when the blood supply to the brain is compromised. Because the brain does not store oxygen, it relies on blood vessels to deliver a constant supply of oxygen and nutrient-rich blood. When an artery becomes blocked or ruptured, it disrupts blood flow to the brain, causing a stroke. Brain cells that are deprived of oxygen and nutrients for four minutes begin dying. Nerve cells, which send messages to different parts of the body, also die in this process and cause a myriad of neurological problems, such as:

- Muscular weakness, numbness and/or loss of movement
- Loss of speech or language skills
- Loss of memory and/or confusion
- Emotional issues like depression, overly cautious behavior and outbursts
- Loss of vision, spatial and depth perception
- Double vision
- Dizziness and poor balance
- Difficulty swallowing
- Constant pain
- Inability to read and/or write
- Loss of math and reasoning skills
- Loss of organizational abilities
- Loss of ability to perform personal hygiene tasks
- Loss of ability to live independently

Experts believe that up to 80 percent of strokes are preventable by reducing stroke-related risk factors like smoking, high blood pressure and high cholesterol levels. Being a member of an MDVIP-affiliated practice provides you with highly personalized, proactive care which can help prevent and/or manage your risk for stroke. Included in your MDVIP Wellness Program are comprehensive, early-detection screenings such as the advanced lipid profile (VAP) and Myeloperoxidase blood tests to assess your risk of stroke and heart attack. Another diagnostic tool available to MDVIP-affiliated practices is the ArterioVision™ CIMT test used to help identify patients who are at higher risk for atherosclerosis, a serious condition that can lead to heart attack and stroke.

TYPES OF STROKES

Ischemic Strokes

Ischemic strokes are the most common, accounting for 83 percent of all strokes.

A weak and damaged artery is the basis of these strokes. Aging, high blood pressure and genetics can cause hardening of the arteries (arteriosclerosis), and a high cholesterol diet, obesity, smoking, high blood pressure and stress cause further damage to arteries and can lead to atherosclerosis. Atherosclerosis is the build-up of fatty material along the *(Continued on next page)*

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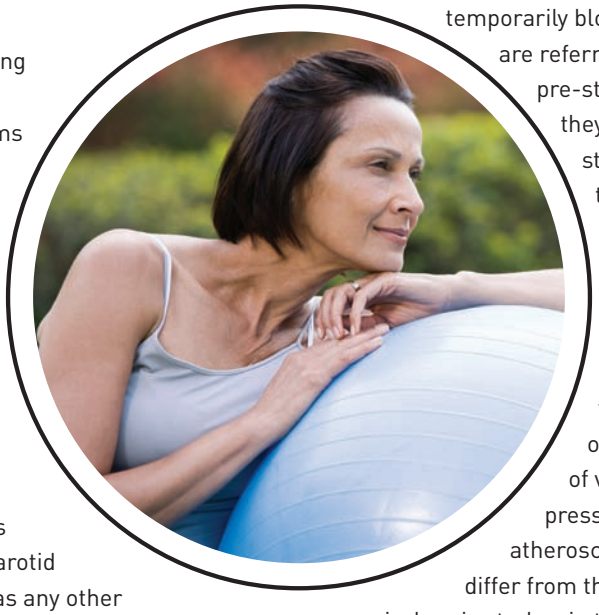
inner lining of the arteries. Over time, the fatty material thickens, hardens and forms plaque. Plaque impedes blood flow which places stress on the arteries, ultimately weakening them. This increases the risk for artery damage ranging from microscopic lacerations to ruptures which can lead to bleeding and blood clots. In some cases, natural body functions such as sneezing and coughing can cause a weakened artery to rupture, and a stroke can occur when a blood clot or fatty debris from atherosclerosis partially or fully blocks a blood vessel in the head or neck and reduces or stops blood flow. Symptoms of ischemic strokes vary from person to person. Symptoms can be mild enough to go unnoticed, but other times symptoms are obvious, begin suddenly, occur on the opposite side of the body having the stroke and can include:

- Numbness
- Tingling
- Paralysis
- Loss of vision
- Difficulty speaking
- Confusion
- Balance problems



There are three subtypes of ischemic strokes:

1. **Thrombotic Stroke** can occur when a blood clot or fatty debris from atherosclerosis occludes the carotid artery as well as any other artery carrying blood to the neck or brain.
2. **Embolic Stroke** can occur when a blood clot or fatty debris from an atherosclerotic artery anywhere in the body detaches from the artery. The detached clot or debris travels through a blood vessel towards the brain, becomes lodged and obstructs blood flow. Many clots originate from the inner lining of the heart and often are caused by atrial fibrillation, a common type of irregular heartbeat in which blood pools in the atria chambers of the heart instead of moving through the ventricles. Many patients diagnosed with atrial fibrillation are prescribed blood thinners for this reason.

3. **Transient Ischemic Attack (TIA)** can occur when a blood vessel is temporarily blocked. TIAs are referred to as mini or pre-strokes because they often precede full strokes. In addition to blood clots and fatty debris, TIAs can stem from severe anemia, carbon monoxide poisoning, thickened blood or a combination of very low blood pressure and atherosclerosis. TIAs differ from the other types of ischemic strokes in that symptoms only last about 15 minutes and any lasting effects from the TIA are resolved in about one hour.

Receiving medical care within one hour of the onset of symptoms can minimize the amount of permanent damage and disability. Emergency medical treatment often involves administering medications to dissolve clots and/or reduce stroke-related brain damage. Two-thirds of ischemic stroke patients require rehabilitation to improve their functioning and enable them to achieve the best possible quality of life.

Hemorrhagic Strokes

Hemorrhagic strokes occur when a weakened, damaged blood vessel in the brain leaks or ruptures. The bleeding irritates the surrounding brain tissue causing the tissue to swell and blood to collect into a mass, called a hematoma. The swelling and hematoma increase the pressure in the brain and cause the brain to press against the skull which can pinch blood vessels, impede blood flow and cause a stroke. These strokes tend to be more severe than ischemic strokes and have different symptoms, such as:

- Abrupt onset of a severe headache that feels like the worst headache of your life
- Muscular problems such as weakness, numbness and/or paralysis
- Double vision and/or loss of peripheral vision
- Nausea
- Seizures
- Balance and/or coordination problems
- Communication difficulties - speaking and/or understanding others

Common causes of hemorrhagic strokes include head trauma, high blood pressure, aneurysms, abnormal connections between arteries and veins, *(Continued on next page)*

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brain tumors, cancer that has spread to the brain, abuse of certain drugs or alcohol and blood-thinning medications. Diseases such as hemophilia, von Willebrand's, sickle cell anemia, leukemia and alcoholic or non-alcoholic fatty liver disease can raise the risk of a stroke. There are two subtypes of hemorrhagic strokes:

1. **Subarachnoid Hemorrhage** is bleeding between the surface of the brain and the skull wall and is commonly caused by the rupturing of an aneurysm, which is a balloon-shaped bulge in a weakened portion of a blood vessel. Most aneurysms occur in the Circle of Willis, the group of arteries located in the base of the head that supplies blood to the brain. Emotional stress, high blood pressure, heavy lifting and some medications can cause an aneurysm to rupture and bleed onto the surface of the brain, instead of into capillaries, potentially causing a stroke. An aneurysm is often present at birth; however, it can form later in life after age 40. In this case, the risk factors include diabetes, obesity, high blood pressure, high cholesterol, tobacco use, alcoholism and advancing age. Studies also link aneurysms to copper deficiency, which can stem from bariatric surgery and zinc toxicity.

2. **Intracerebral Hemorrhage** is bleeding deep within the brain caused by a weakened blood vessel that has ruptured. High blood pressure is often associated with these strokes; however, other causes include blood vessel abnormalities like an aneurysm, blood vessel deterioration from protein deposits called amyloids and head injuries.

LEARN YOUR RISK FACTORS

Uncontrollable Risk Factors

- **Age** increases stroke risk, particularly after age 55. Risk for atherosclerosis and high blood pressure also increases with age, and both weaken blood vessels. Generally, blood pressure rises in men during the onset of middle age and in women after menopause.
- **Heredity** increases stroke risk if someone in your family suffered from a stroke.
- **Gender** increases stroke risk for men but women have a higher risk of death from a stroke.
- **Being of African Descent** increases stroke risk because African Americans tend to have genetically related high blood pressure which wears on the blood vessels.
- **Personal Medical History** increases stroke risk if you have one or more of the following diseases:
  - → ***Diabetes*** – because it often goes hand-in-hand with high blood pressure and high cholesterol, and both wear on the blood vessels and promote atherosclerosis.
  - → ***Sickle Cell Anemia*** – because the sickled red blood cells carry less oxygen to the organs and can stick to blood vessel walls, blocking the flow of oxygen-rich blood to the brain.
  - → ***Personal History of a TIA*** – because TIAs are warning strokes and experiencing one increases the risk of a full stroke tenfold.
  - → ***Family or Personal History of Strokes and/or Heart Attacks*** – because there is a lifestyle or genetic susceptibility to atherosclerosis.
  - → ***Bleeding Disorders (hemophilia, von Willebrand's disease and thrombophilia)*** – because these rare conditions interfere with the normal blood clotting process. Hemophilia and von Willebrand's disease can cause excessive bleeding, including bleeding in the brain, and thrombophilia can cause excessive clotting. *(Continued on next page)*

UNDERSTANDING THE RISK FACTORS OF STROKE (Continued)

- → ***Fibromuscular Dysplasia*** **–** because this rare condition involves abnormal cell growth in the walls of medium to large arteries, which can narrow the arteries and reduce blood flow to the brain.
- → ***Sleep Apnea*** **–** because it decreases blood flow to the brain and raises blood pressure.

Controllable Risk Factors

- **High Blood Pressure** is the leading risk factor of stroke; statistics suggest that 70 percent of all strokes are related to high blood pressure. There are two categories of high blood pressure – primary and secondary.

  Primary high blood pressure accounts for 90 to 95 percent of all high blood pressure cases. A cure for primary high blood pressure does not exist as there is no known cause. However, the following risk factors are associated:

  - → ***Being Overweight or Obese*** **–** causes a gradual rise in blood pressure. Extra weight that settles in the abdominal area poses an even greater risk for stroke than evenly proportioned weight. We can work together to manage your weight through diet and exercise.
  - → ***Too Much Sodium and Not Enough Potassium*** **–** causes a rise in blood pressure. Control your sodium intake by choosing fresh foods over canned, jarred or frozen kinds. Consider flavoring foods with herbs such as rosemary, thyme and oregano instead of salt. Select low-sodium variations of snacks like chips, crackers and popcorn. Although breads and other baked goods do not seem salty, they usually contain a moderate amount of salt. Balance your sodium intake with foods high in potassium such as fresh fruits, vegetables, pinto beans, lentils, dried peas, tuna, halibut and salmon. The USDA recommends consuming less than 2,300 mg of sodium per day. I often recommend the DASH (Dietary Approaches to Stop Hypertension) eating plan to patients trying to control their blood pressure.

The DASH Eating Plan

Food Group	Daily Servings	Serving Sizes
Grains and grain products	7 – 8	1 slice bread 1 cup ready-to-eat cereal ½ cup cooked rice, pasta or cereal
Vegetables	4 – 5	1 cup raw leafy vegetable ½ cup cooked vegetable 6 ounces vegetable juice
Fruits	4 – 5	1 medium fruit ¼ cup dried fruit ½ cup fresh, frozen or canned fruit 6 ounces fruit juice
Low-fat/fat-free dairy foods	2 – 3	8 ounces of milk 1 cup yogurt 1½ ounces cheese
Lean meat, poultry and fish	2 or fewer	3 ounces cooked lean meat, skinless poultry or fish
Nuts, seeds, dry beans	4 – 5 per week	⅓ cup or 1½ ounces nuts 1 tablespoon or ½ ounce seeds ½ cup cooked dry beans
Fats and oils	2 – 3	1 tablespoon soft margarine 1 tablespoon low-fat mayonnaise 2 tablespoons light salad dressing 1 teaspoon vegetable oil
Sweets	5 per week	1 tablespoon sugar 1 tablespoon jelly or jam ½ ounce jelly beans 8 ounces lemonade

The DASH Eating Plan is based on 2,000 calories per day.
Servings vary based on caloric needs.

- *Servings are defined as being ½ cup to 1¼ cups. Refer to the product's nutrition label.*
- *Fat content changes serving counts for fats and oils. For example, one tablespoon of regular salad dressing equals one serving, one tablespoon of low-fat salad dressing equals ½ serving and one tablespoon of fat-free salad dressing equals zero servings.*

Source: National Institutes of Health; National Heart, Lung and Blood Institute

Secondary high blood pressure has an underlying cause and, once identified, high blood pressure can be controlled and possibly cured. Common causes of secondary high blood pressure are conditions of the kidneys, arteries, thyroid or heart. Other causes can include pregnancy, persistent pain, excessive sodium consumption, obesity, anxiety, alcohol abuse, birth control pills, certain over-the-counter and prescription medications and sleep apnea. Factors that increase the risk of secondary high blood include:

- Increasing age
- Having a family history of high blood pressure
- Living in Alabama, Arkansas, Georgia, Louisiana, Mississippi or Oklahoma, which are the six southeastern United States considered the stroke belt
- Living at a lower socioeconomic level
- Being male
- Being African American

African Americans are prone to primary and secondary high blood pressure; statistics suggest that 41 percent of African Americans have high blood pressure compared to 27 percent of Caucasian Americans. The cause may be a genetic tendency to have high levels of aldosterone, a hormone released by the adrenal glands that affects the kidney's management of blood pressure.

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UNDERSTANDING THE RISK FACTORS OF STROKE (Continued)

- **Sedentary Lifestyle** causes the circulatory system to weaken over time and this can raise blood pressure. Exercise strengthens the heart, enabling it to pump blood with less effort, which reduces the strain on the blood vessels and lowers blood pressure. Studies suggest there is an inverse relationship between high levels of physical activity and high blood pressure. Aerobic activity is the most effective type of activity for controlling blood pressure; however, strength and flexibility training can also help. To help prevent high blood pressure, an exercise program should include the following:

→ *Moderate-Intensity Aerobic Activity* – includes exercise such as swimming, cycling or an aerobics class; recreational activities like basketball, tennis or a dance class; and tasks such as climbing stairs, mowing a lawn or scrubbing a floor. Most people need at least 30 minutes of aerobic activity most days of the week. Use a talk test to monitor your intensity; you should be able to speak, but not have a nversation, while engaged in the aerobic activity.

→ *Strength Training* – includes free weights, weight machines and body weight training like push-ups, pull-ups and crunches. Most people need to do a single set of 12 repetitions for 8 to 12 exercises at least two to three days per week. You should feel fatigued by the end of each set.

→ *Flexibility Training* – includes relaxation stretches, intense sport stretches and yoga. Most people need to stretch two or three days per week. Hold each stretch between 10 and 30 seconds and repeat several times.

To control moderately high blood pressure, I sometimes recommend regular exercise as a stand-alone treatment. More commonly, I suggest combining exercise with dietary modifications and/or medication if necessary. Exercise can also lower your risk of a stroke by helping control weight, cholesterol, blood sugar and stress. An exercise program for lowering blood pressure should be less intense than an exercise program to prevent high blood pressure. Weight training generally elevates blood pressure; however, light weight training can still elevate blood pressure but it's temporary and decreases over time.

Let's discuss your physical activities at your next appointment. We can work together to develop or update your wellness plan.

- **Stress** affects blood pressure because it triggers your hypothalamus to signal your adrenal glands to release the hormone adrenaline. This elevates your heart rate and causes blood vessels to narrow which increases blood pressure. Therefore, long-term, unresolved stress can increase the risk of a stroke. You can help control your stress by practicing relaxation techniques, reducing your commitments, taking up a hobby, volunteering for a cause or reading.

- **High Cholesterol** is a risk factor because high levels of cholesterol are strongly associated with atherosclerosis. Good cholesterol helps remove excessive cholesterol from the blood stream and lowers your risk for stroke. Bad cholesterol is the key component of the plaque that forms atherosclerosis and increases your risk of stroke. Control cholesterol levels by exercising, managing your weight, quitting smoking and limiting alcohol intake. It is essential to eat a heart-healthy diet that includes fruits, vegetables, whole grains, lean protein, low-fat dairy products and good fats (olive oil, canola oil, nuts and seeds) and eliminating chips, crackers, bakery products, some margarines and vegetable shortening.

Those with high cholesterol often have high triglycerides, another type of blood fat that receives much less attention than cholesterol but can be just as much of a risk factor of stroke. Like high cholesterol, high triglycerides are linked with atherosclerosis and are controlled in the same manner.

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UNDERSTANDING THE RISK FACTORS OF STROKE (Continued)

- **Cigarette Smoking** is the primary preventable risk factor of stroke. Smoking causes a 10 to 15 percent temporary rise in blood pressure which damages the blood vessels. This accelerates the atherosclerosis process and increases the risk of stroke. Researchers believe that acrolein, a toxin in cigarette smoke, offsets the balance of cholesterol by raising bad cholesterol levels and impairing the function of good cholesterol.
- **Unmanaged Heart Disease and Diabetes** are risk factors because individuals with either of these diseases tend to have high cholesterol, high blood pressure and excess weight that, when uncontrolled, progress atherosclerosis. In addition to taking medication, these diseases are controlled by managing weight, exercising regularly, eating a heart-healthy diet, handling stress, quitting smoking and limiting alcohol intake.
- **Long-Term Hormone Therapy** is a risk factor based on results from a major clinical study suggesting that it increases the risk of stroke as well as related conditions like blood clots and heart disease. There are benefits and risks of hormone therapy which we can discuss as necessary.
- **Abuse of Stimulant Drugs (amphetamines, cocaine and appetite suppressants)** is a risk factor because they can raise blood pressure.
- **Excessive Alcohol** is a risk factor because it harms the liver which produces six clotting-factor proteins that can help control bleeding, including bleeding in the brain. To control alcohol-related impaired blood clotting, the American Heart Association suggests limiting the number of alcoholic drinks to between one and two per day for men and one per day for women.

EARLY DETECTION METHODS

You can develop risks of stroke despite living a healthy lifestyle, and symptoms are not always apparent. There are several early-detection tests including the VAP Advanced Lipid Profile, CardioMPO and ArterioVision™ CIMT test.

1. VAP Advanced Lipid Profile is a sophisticated blood test that measures the levels, particle size and subclasses of good and bad cholesterol. This provides a much better understanding of your risk of stroke and heart disease.
2. CardioMPO screens for myeloperoxidase, which is an enzyme secreted by white blood cells that kills harmful bacteria. However, when it is elevated in your blood it can cause a host of problems. For instance, it reduces the effectiveness of good cholesterol which can lead to atherosclerosis. It also releases a bleach-like substance that erodes arterial walls which can cause the plaque in the arteries to become unstable and possibly rupture. A blood clot forms to patch the area, which can occlude blood flow to the brain. CardioMPO is 95 percent accurate for predicting a heart attack, the need for aggressive treatment or a heart-related death within the next six months.
3. ArterioVision™ CIMT is a non-invasive ultrasound test that uses technology developed from NASA's space program. Without using radiation, it can determine your risk of stroke and heart disease by measuring the thickness of the carotid artery wall. This provides a good indication of the degree of atherosclerosis that can affect blood flow to the brain and heart.

In conclusion, stroke is a life-threatening medical condition that can cause permanent disability. We can work together to help prevent a stroke by managing your risk factors and using early-detection tests. You can learn more about strokes by visiting the American Stroke Association at www.stroke.org.