



Vascular Disease  
Foundation

# Keeping In Circulation®

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## Tonsillectomy Uncovers a Genetic Predisposition for Blood Clots

Eighteen-year-old Caitlin Augustine found herself in the hospital right before Christmas about four years ago for a routine tonsillectomy. The surgery was uneventful and Caitlin was at home resting on the couch when her left leg started to bother her. She thought that maybe she pulled a muscle from sleeping on the couch.

After a week, the pain became so intense that she could not move. Her doctor thought she might have contracted a bladder infection and sent her home with antibiotics. When that treatment failed, she found herself back at the doctor's office, where a CT scan revealed a blood clot in her left iliac vein that stretched from her knee to the major blood vessel that returns blood to the heart, the inferior vena cava. She was seen by a hematologist and treated with blood-thinning medications.

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# A Second Chance

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*Caitlin and her dog Casey*

Caitlin's hematologist investigated why such a young, healthy woman would have a blood clot. Some tests revealed that she tested positive for factor V Leiden (lye-den), an inherited disorder of blood clotting.

## What Is Factor V Leiden?

According to the Surgeon General, factor V Leiden is a relatively common genetic disposition that increases the risk for blood clots or deep vein thrombosis (DVT), blood clots that form in the deep veins, usually of the legs. An estimated 15-20 percent of patients with DVT or pulmonary embolism (PE) have this gene, which is most commonly found in Caucasians.

After Caitlin tested positive for factor V Leiden, other members of her family were tested and the results revealed that several relatives on her father's side of the family also carry the gene. One of Caitlin's uncles, who also tested positive, suffered blood clots when he was younger while working on a construction site.

Caitlin is one of five percent of Caucasians who have the genetic risk for the gene mutation, factor V Leiden. The more risk factors a patient has, the greater the risk for DVT. In Caitlin's case, she had three risk factors that caused her blood to clot at such a young age.

Not only did Caitlin test positive for the genetic mutation that put her at higher risk for blood clots, but her recent surgery and the fact that she had been taking birth control pills for ovarian cysts for the past three years also increased her risk. One risk factor gives an individual a three-fold increase in the risk of clotting; if a person has two risk factors, then he or she is at 15-20 times greater risk. In Caitlin's case, she had three combined risk factors that put her at very high risk for DVT.

*Please see the article on page 4 for more information on DVT and genetic clotting disorders.*

## What Is DVT?

Deep vein thrombosis (DVT) occurs when a blood clot, or thrombus, usually develops in the large veins of the legs or pelvic area, or less commonly in the arms. Only half of those with DVT will have typical symptoms of leg swelling and pain. With prompt diagnosis and treatment, the majority of DVTs are not life threatening. However, if the blood clot breaks loose and travels through the heart to the lung arteries, a condition known as a pulmonary embolism (PE) occurs. If the traveling clot, called an embolus, clogs the main lung artery, it can be fatal.

"I was in a constant state of worry that I would have a PE and would wake up with panic attacks that something would go wrong," said Caitlin. "The quality of my life has changed radically. My leg swells up easily and I have constant leg pain even when I try to do little things."

Although she did not have a PE, the clot is now calcified and cannot be removed. While not everyone requires lifelong anticoagulation medication, Caitlin will be depend-

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ent upon the blood thinner, warfarin, for the rest of her life. She has also developed post-thrombotic syndrome (PTS), which is a long-term complication of DVT that causes chronic pain and swelling in the leg. Her leg swells up and is painful even from minor activities such as walking her dog, Casey. It prevents her from participating in many normal activities for a young woman her age.

This past year, Caitlin experienced another DVT in her right arm and has also tested positive for the lupus anticoagulant which is also associated with an increased risk for DVT. This acquired clotting disorder is generally not inherited like the factor V Leiden. Unfortunately, the combination of the lupus anticoagulant and factor V Leiden significantly increases the risk of future venous thrombotic events. For this reason, it has been recommended that she continue indefinitely the anticoagulation therapy with warfarin.

Despite all of Caitlin's health challenges, she continues to find ways to educate others about DVT. She has participated in numerous health fairs at her college and volunteers for VDF's Venous Disease Coalition to share her experience and alert others about the symptoms and risk factors for DVT. Next year, she hopes to pursue a degree in health communications.

"Many people assume that DVT affects only older people," said Caitlin. "I want everyone to know that your age does not matter when it comes to DVT. What matters are your risk factors and how many you have at any given time."



*Pictured is Caitlin Augustine (center) and her parents Patrick and Eileen in their kitchen at home in New York.*

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# Genetic Aspects of Venous Thromboembolism



Venous thromboembolism (VTE) refers to blood clots that develop in the deep veins of the arms or legs, referred to as deep vein thrombosis (DVT). Clots that break loose and travel to the lungs are referred to as pulmonary embolism (PE). VTE may be either “provoked,” such as following a surgical procedure, a long flight or with prolonged immobilization; or “spontaneous,” occurring without any obvious “trigger” associated with an increased risk for VTE. Many patients with “spontaneous” VTE have an inherited risk factor that increases their likelihood for developing a blood clot, also known as inherited thrombophilia (a group of inherited or acquired disorders that increase a person's risk of developing a blood clot in the veins or arteries).

The most common inherited or genetic risk factor for VTE is factor V Leiden. Factor V is a blood-clotting protein that is essential for normal hemostasis (blood clotting in response to an injury); patients who are missing factor V have an increased risk for bleeding. Factor V Leiden, which was first described at University Hospital in Leiden, The Netherlands, in 1994, is a “mutant” factor V that is resistant to being broken down by normal mechanisms. Factor V Leiden is associated with approximately a three-to 10-fold increased risk for VTE in persons who have inherited one copy of the mutation (“heterozygous”), and approximately an 80-fold risk in persons who have inherited two copies of the mutation (“homozygous”). As many as one in 20

Caucasian Americans are heterozygous for factor V Leiden; factor V Leiden is less common in African Americans.

Another common inherited risk factor for VTE is the prothrombin mutation (“G20210A”). Prothrombin, also called factor II, is another blood-clotting protein that is essential for normal hemostasis, and prothrombin gene G20210A is a specific mutation associated with an increased risk for VTE. Patients with this mutant prothrombin have a similar risk for VTE as patients with factor V Leiden. The prothrombin G20210A mutation is present in approximately one in 100 Caucasian Americans, and is less common in African Americans, similar to factor V Leiden.

Another group of inherited thrombophilias affects one of three proteins (antithrombin, protein C and protein S) involved in the regulation of blood clotting. A deficiency of any one of these proteins results in an increased risk for VTE. Although these disorders are less common than factor V Leiden or prothrombin gene G20210A, they generally result in a slightly greater risk for VTE (ranging from five-to 20-fold, depending on the specific disorder).

Although people with one (or more) inherited thrombophilias are at an increased risk for VTE compared to persons who do not have these inherited risk factors, it is important to recognize that, while these individuals have an increased *relative* risk for VTE, the *absolute*

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risk for VTE remains low. In other words, if the annual incidence for VTE is one in 1,000 individuals, a person who is heterozygous for factor V Leiden will have an annual incidence for VTE of approximately three to 10 in 1,000 individuals (reflecting a three-to 10-fold increased risk). Most people would still consider this to be a relatively low **absolute** risk for VTE.

Individuals without symptoms, but with a diagnosed thrombophilia, may find knowing their predisposition for VTE to be useful for certain clinical decisions. For example, women with factor V Leiden or another thrombophilia who have never had a VTE may elect to avoid using estrogen-containing oral contraceptives or hormone replacement therapy, since estrogens also increase the risk for VTE.

For individuals who have had a VTE and are on anticoagulant therapy, the identification of certain inherited

thrombophilias may help determine how long a patient is kept on anticoagulation medicine. For example, a patient who is heterozygous for factor V Leiden may need to be treated for a standard course of anticoagulant therapy only after a VTE (for example, three to six months of anticoagulant therapy), whereas a patient with antithrombin-deficiency may be maintained on anticoagulant therapy with warfarin indefinitely. More research is needed on the optimal management of patients with VTE and thrombophilic disorders.

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 Dr. Ortel is an Associate Professor of Medicine and Pathology at Duke University Medical Center, Medical Director of the Hemostasis and Thrombosis Center at Duke. He is also Medical Director of the Clinical Coagulation Laboratory and the Platelet Antibody Laboratory at Duke, as well as the Duke Anticoagulation Clinic.



## Wanted: Nominations for Jacobson Award for Physician Excellence

Nominations for the 2010 Julius H. Jacobson II, MD, Award for Physician Excellence are being accepted. This prestigious annual award recognizes outstanding contributions to physician education, leadership or patient care in vascular disease. New nominees for the 2010 award are now being accepted through **Friday, January 29, 2010**. For complete criteria, please contact VDF at [info@vdf.org](mailto:info@vdf.org) or **888.VDF.4INFO**.

## Excellence in Care

Nominations are welcome for the Excellence in Care Award. Please send us a note or e-mail with a tax-deductible donation of \$50 or more telling us whom you are honoring and why he or she deserves the recognition. Nominees can be any medical professional who has helped you or your family or has shown special kindness which you feel deserves recognition.

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# Vascular Screenings Check for Silent Problems



A patient receiving a carotid artery screening.  
Photo use courtesy of Life Line Screening.

Most of us know something about heart disease, but many do not know that we need to take care of our arteries as well. These vessels create a “superhighway” of blood flow that takes oxygen-rich blood from the heart to every area of our bodies. It is the buildup of plaque (which is a combination of fat, cholesterol, calcium and other materials) in the arteries, which can lead to more serious health issues such as peripheral arterial disease (PAD), heart attack or stroke.

One way to monitor what is going on with your arteries is to have a vascular screening, which can aid in the early detection of vascular disease. This can be helpful, as many vascular diseases do not have noticeable symptoms as warning signs.

Vascular screenings check for a variety of issues related to the arteries, are painless, non-invasive and involve no radiation. The screenings typically check the:

- Carotid arteries – This test uses Doppler ultrasound to check for plaque and assess the rate of blood flow in the arteries of the neck which bring blood to the brain.
- Abdominal aorta – This test checks for an enlargement of the abdominal aorta, the largest artery in the body.
- Peripheral arteries – This is a non-invasive blood pressure test called the ankle-brachial index (ABI) that

looks at the systolic pressure (upper number of your blood pressure) in your arms and legs to check for diminished blood flow.

The screenings are most appropriate for those over age 50 with specific risk factors such as smoking, high blood pressure, high cholesterol, or a family history of heart attack, aortic aneurysm or stroke. If you have diabetes, you are at a particularly increased risk for PAD. The American Diabetes Association recommends that every person with diabetes age 50 and older have a screening for PAD.

Screenings are generally not offered as part of a regular physical examination and most health insurance companies will not cover the costs unless you have symptoms. As the conditions for which these tests screen tend to be silent in the early stages, there can be benefits to screening when you are at risk. The good news is that there are hospitals and private companies that offer the screenings in the community at low cost and sometimes for free. Look for a screening event provided in conjunction with your local hospital. Or, look for an event conducted by a private company that has a solid reputation and clearly explains the screenings offered and provides background information on its clinical team.

No screening for any disease is 100 percent accurate all the time. There is always a chance for a false finding. That is why it is important that you share your screening results with your health care provider, who can discuss the findings of the screening with you and make sure you have all of the follow-up that you need.



A patient receiving an ABI test for PAD. Photo use courtesy of Life Line Screening.

# Common Cardiovascular Tests

Here are some of the common tests used to check for cardiovascular disease.

**ABI-Ankle brachial index** — a measure that divides the ankle blood pressure by the brachial (arm) blood pressure and determines if you have peripheral arterial disease (PAD).

**Angiogram** — An invasive procedure that takes detailed x-ray pictures of blood vessels using a special type of dye that is injected into the body, usually through a catheter inserted in the groin area.

**Aortic US** — aortic ultrasound that measures the aorta (the main artery from the heart) to see if it is widened into an aneurysm. This ultrasound is used to see the part of the aorta that is in the abdomen.

**APTT-Activated partial thromboplastin time** — a blood test that measures how quickly the blood clots. Measured before invasive tests or when the patient is on heparin.

**Cholesterol** — measures the LDL (bad) cholesterol and the HDL (good) cholesterol. LDL increases increase heart attack risk and HDL is protective.

**CRP-C reactive protein** — a blood test that measures the indicators of inflammation in the

blood. Elevated levels are associated with increased risk of cardiovascular disease.

**Echocardiogram** — ultrasound of the heart. Shows a visual image of the heart, measures heart function and can detect problems in the four chambers or the heart muscles or heart valves.

**Electrocardiogram or (EKG or ECG)** — the electrical tracing of the heart's actions. This test can show evidence of damage (heart attack) or irregular rhythm.

**Hemoglobin A1c** — a test that shows the average blood sugar over the past three months. Elevated levels indicate an increased risk of complications from diabetes.

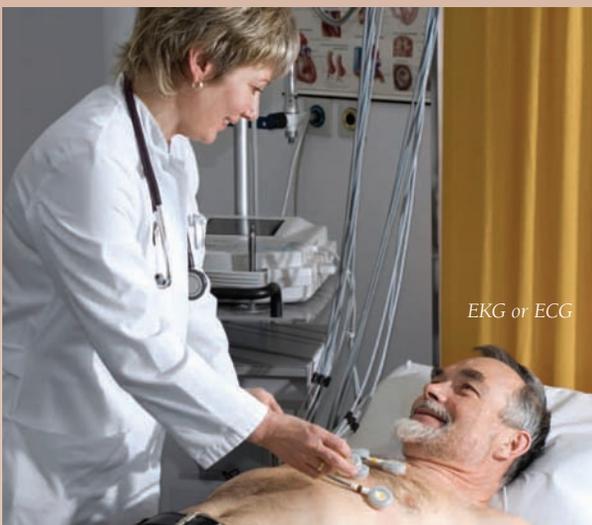
**Holter monitor** — a 24-hour EKG recording. This test can match the EKG tracing when symptoms occur and determine if there is an abnormal heart rhythm (arrhythmias).

**Homocysteine** — a protein metabolized from amino acid in the blood. Elevated levels are associated with a risk for heart attack and PAD.

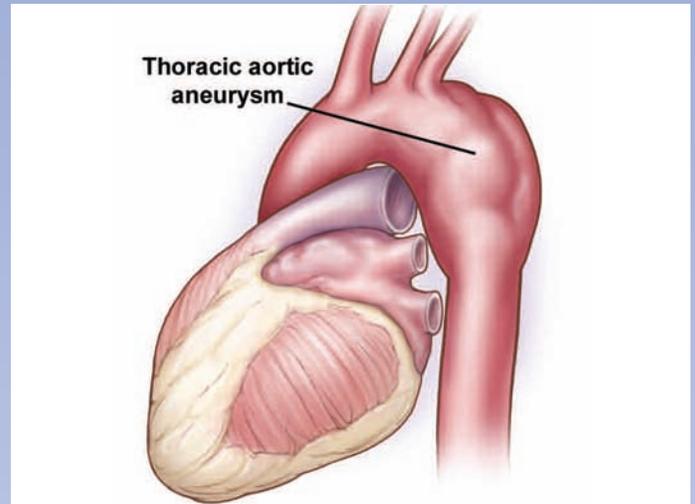
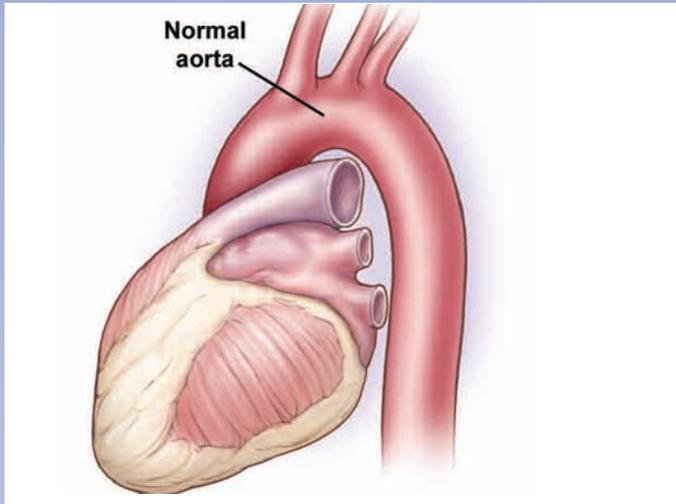
**PT or INR (Protime or international normalized ratio)** — a blood test that measures the blood's ability to clot. The higher the INR, the longer it takes your blood to clot. Usually measured before invasive tests or when the patient is on warfarin.

**Stress test** — a test performed to check your heart function when worked, either by being on a treadmill (or stationery bike) or with medication. Can show evidence of damage, hypertension, arrhythmias or abnormal blood flow to the heart (ischemia) and can test heart function.

**Triglycerides-Increased by blood glucose** — triglycerides that are not stored end up in the blood stream. High levels increase cardiovascular risk.



# Thoracic Aortic Aneurysm



Disease of the aorta is the 12th leading cause of death in the United States. Aneurysms of the aorta can occur in the chest or abdomen, or both at the same time. The aorta is the main blood vessel carrying arterial blood from the heart to the rest of the body. It begins in the chest and ends in the abdomen, and along its course, it branches off to the head and neck, arms, chest, abdomen (including the kidneys, liver and intestines) and finally the legs.

An aneurysm is defined as an enlargement of the arterial wall of more than 150 percent of the diameter of the normal artery. The artery wall is made out of special elastic proteins that can withstand the blood's pressure and be pliable at the same time. The normal consistency of the artery is like a cooked noodle, but when it degenerates and hardens, it becomes stiff and brittle, like an uncooked noodle. This process occurs because of arteriosclerosis, or hardening and degeneration of arteries. The term *arteriosclerosis* comes from the Greek words for blood vessel and hardening. Another term used is *atherosclerosis*: *Athero* means gruel and *sclerosis* means hard. This can lead to enlargement of the artery because of the breakdown in its structure. In turn, this breakdown leads to weakness in the wall, thus leading to further enlargement. In some cases of aortic aneurysm, there is no atherosclerosis, but instead there is an inherited abnormality of the blood vessel wall that causes aneurysms to form, such as a condition known as Marfan syndrome.

When the artery is enlarged, it is like a balloon; The larger it gets, the weaker it is and the higher the chance of its rupturing. Ruptured aneurysms can kill suddenly. Some people are fortunate enough to survive the first

rupture or leak. This is like a punctured tire, which may leak slowly, often allowing you to repair it and fill it before it goes flat, but if the hole is large enough, the tire will go flat immediately. There are other diseases that can occur in the aorta, such as a tear from blunt trauma (most commonly high-speed car accidents), dissection, inflammation (Takayasu's arteritis) or infection. Most patients with TAA have no symptoms, although some patients will experience chest or back pain. If the pain is excruciating, then it is usually associated with a rupture or dissection. In other less common situations, symptoms are often vague, such as shortness of breath, loss of consciousness, high or low blood pressure, heart rhythm irregularity, fluid or blood in the chest or a dull ache.

Thoracic aneurysms generally occur in elderly populations. It is estimated that six to 10 per 100,000 individuals have a thoracic aortic aneurysm (TAA). If the TAA is left untreated, it will probably continue to enlarge. If a TAA ruptures or leads to an aortic dissection, it can kill a person immediately. The death rate from a ruptured TAA can be up to 94 percent. Therefore, most surgeons and specialists recommend repair of a TAA before it ruptures.

The diagnosis of TAA can be made by one of several ways. Sometimes, a plain chest x-ray will hint to its presence. The best methods to image the thoracic aorta are either a CT scan or MRI. Both of these tests can provide comprehensive information about the size of the aneurysm and its relationship to other structures; this information enables the vascular specialist to recommend the most appropriate treatment plan. If the aneurysm is too small to fix, usually a surveillance program to monitor the growth of the aneurysm is

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recommended for the patient so that the physician can recommend intervention at the right time. There are other tests that can be used to diagnose or monitor a TAA, including an angiogram or echocardiogram.

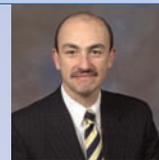
The treatment options for a TAA are largely dependent on the size of the aneurysm, whether it is causing symptoms, and where the aneurysm is located. For example, if the TAA is in the ascending aorta (the first portion of the aorta as it goes out from the heart) or in the transverse arch (the second part of the aorta which gives off branches to the head, neck and arms), then the only treatment available is surgery. This procedure involves opening the chest, just like for patients having heart bypass surgery, and replacing the diseased aorta with a Dacron graft, which is a synthetic (man-made) material, used to replace normal body tissues. Experimental treatments with stent grafts for a TAA are available only in highly specialized research centers. If the TAA is located in the descending aorta (the third part of the aorta that starts in the upper chest and ends at the diaphragm), there are two options available: the conventional open repair with a Dacron graft or the stent graft repair.

When a patient undergoes the open TAA repair, the procedure is performed under general anesthesia. The left side of the chest is opened and the surgeon sews a Dacron graft to replace the diseased part of the aorta. This serious operation carries a mortality rate of five to 10 percent in the best centers. There are also many complications that can occur with this operation, such as paralysis, kidney failure, pneumonia, wound infections and blood clots. Many of the patients who need a TAA

repair have other chronic illnesses putting them to be at higher risk for complications.

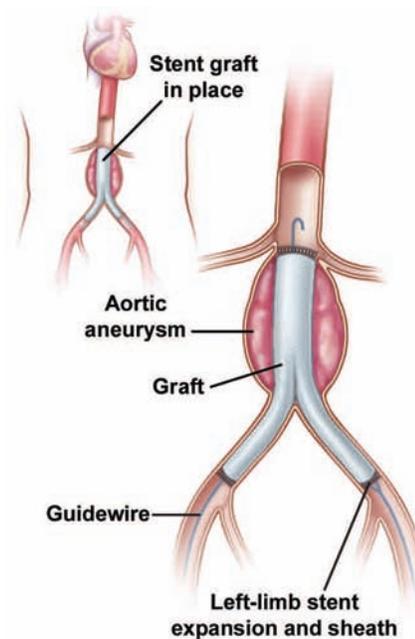
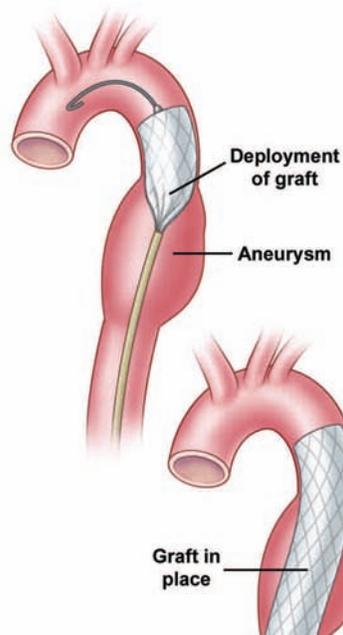
Since 2005, many centers in the United States have been able to offer patients a newer method of repairing a TAA which is called thoracic endovascular aneurysm repair (TEVAR). In this procedure, instead of opening the chest to sew in a graft, a stent graft is placed through an incision in the groin across the aneurysm to treat the diseased aorta. This procedure can be performed in less time, with less blood loss, a shorter hospital stay and faster recovery. The procedure has to be done by specialists trained to perform this, and it requires special x-ray imaging to place the graft. Not every patient can undergo this type of procedure. In many cases, additional preparatory procedures have to be performed to facilitate TEVAR. Once the procedure is completed, patients still need to see their physician for follow-up x-rays to make sure that the stent graft is still working properly. Because this is a relatively new procedure, the durability of TEVAR is not clear as there is not yet long-term follow-up information on patients treated with this approach (i.e., over 10 to 15 years). There are some patients who may be too ill to be considered for any type of repair.

**About the Author:** *Ashraf M. Mansour, MD, FACS* is a practicing vascular surgeon at Spectrum Health in Grand Rapids, Michigan. He is Director of the vascular surgery fellowship and Professor of Surgery, Michigan State University.



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## Endovascular Stent Grafting



# Frequently Asked Questions

**Question:** I had a DVT a few years ago. Now I have scars and scabs around that area of the ankle that I cannot get rid of. Any advice for treatment for this would be appreciated.

**Answer:** You need to see a vascular specialist. It sounds like you have post thrombotic syndrome, which happens sometimes after a DVT. Also consider compression therapy with stockings. Talk about this with your doctor. Walking is good, but standing in one place for extended periods is not. Be sure to see a specialist. Maintaining a normal weight is also important.

**Question:** What are the mechanism and purpose of compression for the treatment of DVT?

**Answer:** It helps to return the blood to the heart and reduce swelling. It keeps the blood from pooling in the legs (and helps to fight gravity) and increasing the clotting problem.

**Question:** I was diagnosed with DVT and am having a difficult time with leg pain. Do you recommend anything to help this pain? I am a sales representative and am on my feet 10 hours a day. Also, is there any chance the DVT could be work-related? I have been doing this type of work for 18 years.

**Answer:** You should wear knee length, prescription-strength compression stockings. Walking is

also better than standing and putting your feet up every few hours will help. It would be impossible to say if it is work-related since you did not have a prior DVT. Maintaining a normal weight is important. You should strongly consider seeing a vascular specialist.

**Question:** I have diabetes and my foot doctor wants me to get special shoes. Is this worth the cost?

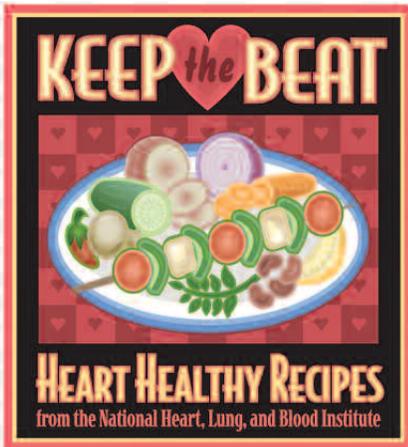
**Answer:** Shoes are always a good recommendation if a person has neuropathy or vascular disease. They may help prevent a foot ulcer which can lead to surgery and infection.

**Question:** I take a statin with my diabetes pills and my wife wants to know if I can donate blood even though I have both diabetes and high cholesterol.

**Answer:** Not only can you donate blood, but we encourage you to. Thank you!

**Question:** If I have neuropathy, will I damage my feet or make the neuropathy worse if I continue to exercise?

**Answer:** Exercise can in fact help neuropathy when under the guidance of your health-care provider, who can perform a good foot exam and help you to find properly fitting shoes.



## Cardiovascular Healthy Recipe

VDF is proud to offer heart healthy recipes for you and your loved ones from the “*Keep the Beat: Heart Healthy Recipes*” cookbook from the National Heart, Lung, and Blood Institute (NHLBI). For a \$25 tax deductible donation to VDF you can get your own copy of this yummy cookbook! Contact VDF by e-mail at [info@vdf.org](mailto:info@vdf.org), or by phone at **888.833.4463** to order your copies today. Here’s a heart-healthy homemade turkey soup to warm you this winter!

### Homemade Turkey Soup

#### Ingredients:

- 6 lb. turkey breast with bones (with at least 2 c. meat)
- 2 medium onions
- 3 stalks celery
- 1 tsp. dried thyme
- 1/2 tsp. dried rosemary
- 1/2 tsp. dried sage
- 1 tsp. dried basil
- 1/2 tsp. dried marjoram
- 1/2 tsp. dried tarragon
- 1/2 tsp. salt, or none
- black pepper, to taste
- 1/2 lb. Italian pastina or pasta

**Yield:** 16 servings (about 4 quarts of soup)

**Serving size:** 1 cup

#### Each serving provides:

- Calories: 201
- Total fat: 2 g
- Saturated fat: 1 g
- Cholesterol: 101 mg
- Sodium: 141 mg
- Total fiber: 1 g
- Protein: 33 g
- Carbohydrates: 11 g
- Potassium: 344 mg

1. Place turkey breast in large 6-quart pot. Cover with water until at least three quarters full.
2. Peel onions, cut into large pieces, and add to pot. Wash celery stalks, slice, and add to pot.
3. Simmer covered for about 2 1/2 hours.
4. Remove carcass from pot. Divide soup into smaller, shallower containers for quick cooling in refrigerator.
5. After cooling, skim off fat, which will solidify at the top as it cools.
6. While soup cools, remove remaining meat from turkey carcass. Cut into pieces.
7. Add turkey meat to skimmed soup, along with herbs and spices.
8. Bring to boil and add pastina. Continue cooking on low boil for about 20 minutes, until pastina is done. Serve at once or refrigerate for later reheating.

To order your copy of this heart healthy cookbook, contact VDF by e-mail at [info@vdf.org](mailto:info@vdf.org), call 888.833.4463, or return this order form to VDF, 1075 S. Yukon St., Ste. 320, Lakewood, CO 80226.

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# Women and PAD: What You Need to Know



Peripheral arterial disease, or PAD, may be the cause of leg pain. And, according to a recent survey conducted by the P.A.D. Coalition, **only 28 percent of American women have ever heard of PAD**, a common and dangerous disease that affects about nine million Americans, half of whom are women. That's one in 20 over age 50 and one in five over age 70.

**PAD occurs when arteries in the legs become clogged with fatty deposits**, reducing blood flow to the legs and causing leg pain when walking. That leg pain you have heard your loved ones complain about cannot be ignored. If left untreated, PAD may lead to disability, amputation (loss of a foot or leg) and a poor quality of life. Having PAD also means that you are at increased risk for having a heart attack or stroke.

**To find out how much you know about PAD, take the following quiz developed by the P.A.D. Coalition:**

## PAD QUIZ

- 1. Who is more likely to get PAD? (Check all that apply)**
  - People over age 50
  - People who smoke or used to smoke
  - People who have diabetes
  - People who have high blood pressure
  - People of African American ethnicity
  - People who have had heart disease, a heart attack or a stroke
  - People who have a family history of PAD, heart attack or stroke
- 2. Who can diagnose PAD? (Check all that apply)**
  - A doctor
  - A nurse
  - A dentist
  - A vascular disease specialist
  - A physician assistant
- 3. What test is often used to diagnose PAD? (Check all that apply)**
  - A blood pressure check
  - An ankle-brachial index (ABI) test
  - A blood test
  - A urine test
- 4. Besides leg pain, which of these are symptoms of PAD? (Check all that apply)**
  - Chest pain
  - Joint pain
  - Feeling tired all the time
  - Skin wounds or ulcers on the feet that are slow to heal
  - Foot or toe pain at rest that often disturbs sleep
- 5. Which of these is a treatment for PAD? (Check all that apply)**
  - Getting massages for leg pain
  - Controlling high blood pressure
  - Getting help to quit smoking
  - Lowering LDL (bad) cholesterol
  - Taking aspirin or other antiplatelet medication
  - Participating in a supervised exercise program

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## 6. What can people do to reduce their risk for PAD?

(Check all that apply)

- Get help to quit smoking
- Control your blood pressure

- Lower your LDL (bad) cholesterol
- Manage your blood glucose (sugar)
- Follow a healthy eating plan
- Get regular exercise

See page 15 for answers to the PAD Quiz.

# In the News

**New Disease Content.** Now available on the Vascular Disease Foundation's Web site, [www.vdf.org](http://www.vdf.org). Learn about Post-Thrombotic Syndrome (PTS) and Vasculitis.

**February is National Heart Month.** Start a walking program and keep your heart healthy. Download a free walking brochure on our Web site at [www.vdf.org](http://www.vdf.org) or call **888.VDF.4INFO** to receive your free brochure by mail.



**March is DVT Awareness Month.** Learn the warning signs and symptoms of deep vein thrombosis (DVT) and pulmonary embolism (PE) at [www.vdf.org](http://www.vdf.org) or call us to receive your free copy of our Focus on Blood Clots brochure. Check our Web site for more information at [www.vdf.org](http://www.vdf.org)



**PAD Atlas.** Developed in partnership with the National Minority Quality Forum (NMQF), the PAD Atlas is a database that maps by zip code PAD prevalence down to the street level. Researchers, patient advocacy groups, legislators and allied-health professionals can use the PAD Atlas to identify the prevalence of PAD at the national, state and local levels to direct educational resources where they are needed most. To access the PAD Atlas, visit [www.mappad.org](http://www.mappad.org)

**DVT Risk Assessment Tool.** New! Find out what your risk is for deep vein thrombosis (DVT) and pulmonary embolism. This quick risk calculator was developed by the Venous Disease Coalition. Visit [www.venousdiseasecoalition.org](http://www.venousdiseasecoalition.org) today and see if you are at risk for DVT.



**Online Patient Support Group.** NEW! Online Patient Support Group Community – Welcome to VDF's new Inspire network, an online community designed to be a safe place for you to discuss your health with like-minded men and women. Topics will include, abdominal aortic aneurysm, Buerger's disease, carotid artery disease, congenital vascular malformation, deep vein thrombosis, lymphedema, PAD, portal hypertension, raynaud's disease, thrombophilia, varicose veins and vasculitis. Visit <http://vdf.inspire.com>

# If You Have DVT or PAD, Your Help Is Needed!

**New Clinical ATTRACT DVT Trial:** A new clinical trial, the ATTRACT Trial, is now open for patient enrollment. **This study will determine if the use of new clot-busting treatments for patients with large blood clots of the leg (deep vein thrombosis or DVT) prevents long-term disability.**

Despite the use of standard blood-thinning drugs, 25-50 percent of DVT patients will develop the post-thrombotic syndrome (PTS), a long-term condition that typically causes daily pain, heaviness, fatigue and swelling of the leg. Because these symptoms are aggravated by standing or walking, affected patients are often forced to alter their daily activities to include periods of rest or leg elevation in order to avoid severe pain and swelling. In the more severe cases, PTS can lead to an inability to walk without pain, inability to hold a steady job or perform household duties, changes in leg skin color and texture, and/or open sores (leg

ulcers). As a result, PTS has been shown to significantly reduce quality of life (QOL) in DVT patients.

Preliminary studies suggest that patients who have their blood clots removed using new clot-busting treatments may be less likely to develop PTS. However, because these procedures are somewhat more invasive and costly up front, doctors do not agree on when to use them. The ATTRACT Trial is being performed to answer this important question

The ATTRACT Trial is primarily sponsored by the National Heart, Lung and Blood Institute, part of the National Institutes of Health and additional support is being provided by BSN Medical, Covidien – Bacchus Vascular, Genentech and Medrad Interventional – Possis. For more information, please visit the ATTRACT Trial Web site at [www.attract.wustl.edu](http://www.attract.wustl.edu) or call **866.974.CLOT (2568)**.



**People with peripheral arterial disease (PAD) are urgently needed to help with an important clinical trial.** This trial will help determine what treatments work best. The trial seeks to identify people who have “intermittent claudication,” which is usually experienced as thigh or calf muscle pain that occurs with walking and that always goes away with rest.

The CLEVER Study (Claudication: Exercise Versus Endoluminal Revascularization) is a clinical trial sponsored by the National Heart, Lung, and Blood Institute (NHLBI) of the National Institutes of Health. Potential participants must have PAD and experience claudication symptoms. This study is comparing the effectiveness of exercise therapy versus endovascular treatment (stent placement) of aortoiliac disease.

If you live in one of the states or province listed below and want more information, visit [www.cleverstudy.org](http://www.cleverstudy.org) or call toll-free **1-877-534-0533**.

Arkansas	Maine	Nova Scotia
California	Maryland	Ohio
Florida	Michigan	Oregon
Illinois	Minnesota	Pennsylvania
Iowa	New York	Rhode Island
Louisiana	North Carolina	Washington
		West Virginia

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*VDF provides information about clinical trials as a public service and does not specifically endorse any of the trials listed. Consumers should thoroughly read consent forms and consult with their physicians before enrolling in any trial.*

*More information about clinical trials may be found at [www.clinicaltrials.gov](http://www.clinicaltrials.gov). New enrollment information for the ATTRACT trial for DVT and the BRIDGE trial will be listed soon on the clinical trial section of the VDF Web site [www.vdf.org/clinical](http://www.vdf.org/clinical). Visit it often to see other trials that are listed.*

**You can help scientists determine better treatments for people with PAD by calling these programs to see if you can help.**

# Thank You to Our 2009 Volunteers!

VDF extends our heart-felt gratitude to those who volunteered for The Vascular Disease Foundation, P.A.D. Coalition and Venous Disease Coalition. Your efforts and hard work have made a difference and helped create our success. Thank you!

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## Answers to the PAD Quiz from pages 12 - 13

1. Answer: All of the types of people listed are more likely to get PAD.
2. Answer: Each of the health care providers listed can diagnose PAD except for a dentist.
3. Answer: PAD can be diagnosed by the ankle brachial index test (ABI), an easy, inexpensive and painless test that compares the blood pressure in the ankles to the blood pressure in the arms.
4. Answer: Besides leg pain or cramping, skin wounds or foot ulcers that are slow to heal or foot or toe pain at rest that often disturbs sleep are symptoms of PAD.
5. Answer: All of the choices listed, except for massages for leg pain, make up the treatment approach for PAD and will also lower a person's risk for heart attack and stroke. If needed, your health care provider can refer to a specialist for procedures or surgery to treat arteries that are severely blocked.
6. Answer: All of the choices listed will help to prevent and to control PAD.



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### NEW! Online Patient Support Group

**Community** – Welcome to VDF's new Inspire network, an online community designed to be a safe place for you to discuss your health with like-minded men and women. Topics will include, abdominal aortic aneurysm, Buerger's disease, carotid artery disease, congenital vascular malformation, deep vein thrombosis, lymphedema, PAD, portal hypertension, raynaud's disease, thrombophilia, varicose veins and vasculitis. Visit

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