



Vascular Disease
Foundation

Keeping In Circulation™

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Important Reader
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A Not-So-Ordinary Day: How DVT Almost Cost One Women Her Foot

It was an ordinary Wednesday morning in August for Linda F. when she went to the barn to check on her horse “Snickers.” She bent down to pick up a bucket, and when she stood up she suddenly couldn’t breathe. The side effects for the new prescription she was taking suddenly flashed through her mind and a wave of anxiety fell over her; *“Warning: If this medication causes sudden onset of shortness of breath, seek emergency attention immediately.”*

Linda’s mind raced. She was in the horse barn alone without a phone and her husband was at work. She sat down and took slow deep breaths to calm down. Eventually she calmed down enough to walk to the house and call the doctor, who instructed her to go to the emergency room (ER) right away.

Once in the ER she felt better and wondered if she had made too much of her symptoms. Little did she know that her sudden loss of breath had been caused by several pulmonary emboli (PE) in both of her lung arteries.

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Linda and Snickers out riding again a year after her foot and rotator cuff surgeries. Photo courtesy of Linda F



Vascular Disease
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Our Mission

To improve health for all by reducing death and disability from vascular diseases.

Keeping In Circulation™

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“The doctor told me I was very lucky to be sitting there talking to her and, if I hadn’t come to the ER when I did, I probably wouldn’t still be alive,” said Linda. “What started out as an ordinary day turned out to be not so ordinary. I was fortunate to have read and paid attention to the warnings on the package insert for the prescription I was taking.”

Fifty-two-year-old Linda had no prior risk factors or family history of deep vein thrombosis (DVT) or blood clots except for being a smoker during her college years. Doctors suspect that the clot was caused by a prescription for birth control pills given to her by her health-care provider, on the Saturday before she experienced the PE, to manage some peri-menopausal symptoms she was having. Other than the sudden shortness of breath, she had none of the other usual warning signs: leg pain, swelling, discoloration or heat.

She was placed on Coumadin® (or warfarin, a blood thinner used to prevent the formation of clots), taken off the birth control pills, and told it would take about six months for her body to absorb the clots in her lungs as well as the initial clot in her calf. Seven months later Linda was still taking warfarin and had resumed her normal activities. She had no after-effects from the blood clot or symptoms.

One afternoon the following March, Linda was riding Snickers when a sudden accident happened. The horse lost footing and fell on his left side, trapping Linda’s left foot underneath him.

“It was such a freak accident. He went down so quickly, for one or two seconds, and then regained his balance,” she said. “When a horse falls, it gets to its feet immediately, but I had over 1,100 pounds of horse fall on my foot and the sheer force of the impact, even for an instant, crushed my foot and broke the ankle in two places.”

It took Linda about an hour and a half to get home after putting the horse back into the paddock. By the time she took off her riding boot, her foot was swollen, purple in color, had blisters, and, in her words, “was huge.” Linda went to the doctor, who took x-rays and treated the blisters. A traveling nurse came to check on her several days later,

she became very concerned when she noticed that Linda's leg was red, hot to the touch, swollen up to her knee, and that her foot was giving off a putrid odor. Linda had developed celluloids (skin infection) and gangrene (tissue death caused by poor blood flow, usually a black color, often with a foul odor) from the fall, compounded by being on warfarin. She was immediately taken to the hospital where a limb-recovery team was waiting for her.

"I couldn't believe this was happening," said Linda. "Just a few days after the fall, they were talking about the possibility of amputating my foot. It was unbelievable."

The limb-recovery team could not perform surgery immediately because of the risk of bleeding, because Linda was on warfarin. They had to give her intravenous vitamin K for three days to reverse the effects of the blood-thinning medication prior to the surgery. An ultrasound (Doppler) was performed as well as a CT scan to assure the surgical team that the blood clots in Linda's lungs and right leg were no longer present to pose a risk during surgery. The clots had been totally absorbed and she was clot-free.

While doctors were able to save her foot, Linda spent six weeks attached to a wound VAC (a device that uses negative pressure by forming an airtight seal over an open wound to promote healing) to try to rebuild enough healthy tissue around the injury to perform a skin graft to cover the open wound. While she was at home resting from her injury, she woke up one morning with pain in both of her calves. A D-dimer test (a blood test that measures recent clotting) showed high results indicating that she now had blood clots in both of her legs because she had been immobile for two weeks.

She was immediately restarted on warfarin and she was also given Lovenox[®] shots until the warfarin reached a therapeutic level to reduce the risk of further clotting in her legs. She was fortunate that the clots did not break loose and cause another PE. It was then the doctor told her she would be on warfarin for a least a year, possibly for life.

As her body started to recover, she was given a skin graft to the injured area and her leg started to heal. A year later, after many months of physical therapy, Linda was back to riding and walking again. She still had minor pain, but her life was returning to normal.

A year after the initial incident, Linda was scheduled for shoulder surgery to repair her left rotator cuff, which was successful. She asked the doctor to take her permanently off the warfarin after the surgery. Considering her lifestyle and that she had no other risk factors and that her D-dimer levels were normal, he agreed that she did not have to go back on the blood-thinning medication.

Linda was told that she had a 25 percent chance of having another DVT within the first year of being off warfarin. A year later, she has had no recurrence of DVT and is pain free. For Linda, her DVT was an ordeal that she never would have imagined. She considers herself lucky to be alive.

"I really want people to know two things. First, they shouldn't think they're being foolish about going to the doctor if they're worried about something, even if it seems stupid. I thought I was being stupid going to the ER, had I not gone, I wouldn't be here today," said Linda. "Second, if they're on blood thinners such as warfarin, consider their sports, activities and lifestyle. Warfarin has permanently changed my life and I am fortunate to be alive today to tell my story."



A photo of Linda's photo right after her initial surgery, prior to the Wound VAC. Photo courtesy of Linda E.

Excellence in Care

If you know of a health-care provider or medical professional who has shown you or your family special kindness or care that deserves recognition, nominate him or her for VDF's Excellence in Care Award! Tell us who you would like to nominate and why you feel he or she deserves recognition. We will acknowledge these individuals in a future issue of *Keeping in Circulation* and on VDF's Web site. Just drop us a note with a tax-deductible donation of \$50 or more to **VDF Excellence in Care, 1075 S. Yukon Street, Ste 320, Lakewood, CO 80226.**

What Are Blood Clots?

Blood clots are common, potentially life-threatening, *but treatable and generally preventable disorders* that include two related conditions:

1. Deep vein thrombosis (DVT) – abnormal clotting of the blood in a deep vein, generally in one or more veins of the leg or pelvis,
- and
2. Pulmonary Embolism (PE) – when a DVT breaks free from its original site in a vein and then travels through the bloodstream into the lungs

Why should I be concerned about blood clots?

- Up to one million Americans suffer from blood clots every year, often resulting in hospitalization
- More than 100,000 Americans die from PE every year, which is more than the combined deaths from breast cancer, AIDS and traffic accidents Blood clots can kill quickly, or they may result in long-term pain, swelling of the affected leg and difficulty walking

DVT and PE are considered medical emergencies that require immediate care if any of the symptoms below are present:

Symptoms of possible DVT:

- Recent swelling of one leg
- Unexplained pain or tenderness in one leg

Symptoms of possible PE:

- Recent or sudden shortness of breath
- Sharp chest pain, especially when breathing in
- Coughing up blood
- Sudden collapse

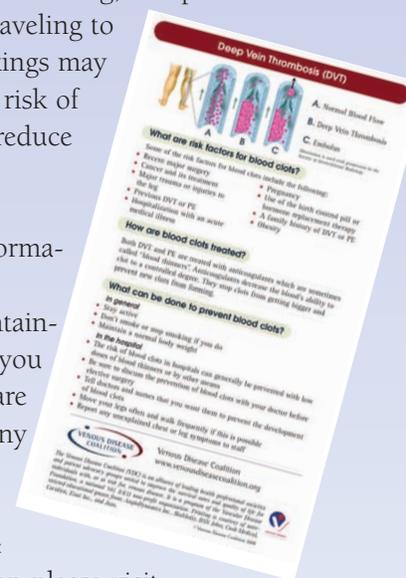
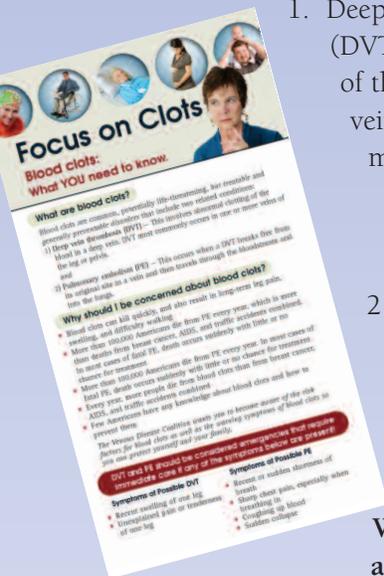
What are the major risk factors for blood clots?

- Recent major surgery
- Cancer and its treatment
- Major trauma or injuries to the leg
- Previous DVT or PE
- Hospitalization with an acute medical illness
- Recent immobility
- Pregnancy
- Use of birth-control pills or use of hormone-replacement therapy
- Family history of DVT and PE
- Obesity

DVT and PE are treated with anticoagulants, which are sometimes called “blood thinners,” which decrease the blood’s ability to clot. They stop clots from getting bigger, prevent new clots from forming, and prevent clots from breaking off and traveling to the lungs. Compression stockings may be prescribed to decrease the risk of venous valve damage and to reduce long-term pain and swelling.

You can help prevent the formation of blood clots by staying active, not smoking and maintaining a normal body weight. If you are scheduled for surgery or are admitted to the hospital for any reason, remember to discuss treatment and prevention options with your health-care provider. For more information please visit www.vdf.org.

Excerpted from the Venous Disease Coalition’s “Focus on Blood Clots” educational card. To get your free copy, please visit www.vdf.org or call 888.VDF.4INFO (888.833.4463). The Venous Disease Coalition is a division of the VDF.



Critical Limb Ischemia and Amputations: A Growing Problem

Critical Limb Ischemia (CLI) is a severe obstruction of the arteries which seriously decreases blood flow to the extremities (hands, feet and legs) and has progressed to the point of severe pain and even skin ulcers or sores. The risk of gangrene is imminent. CLI or end-stage lower extremity ischemia continues to be a growing problem in the United States with the number of amputations resulting from CLI increasing by 10 percent each year.

CLI remains a poorly understood, rarely reported and an inconsistently treated major health-care epidemic. As our population in the United States ages, the occurrence of CLI is expected to increase significantly, especially in those with diabetes. Currently, it is estimated that one percent of the population aged 50 and older has or will develop CLI. The number doubles in those individuals aged 70 and over, and increases faster for those aged 80 and older.

Of the 20 million people with diabetes in the United States, one out of every four will face CLI in their lifetime and are at up to 40 times greater risk for amputation than non-diabetics. Within one year of a CLI diagnosis, 40-50 percent will experience an amputation and 20-25 percent will die.

CLI is commonly diagnosed by a podiatrist, vascular medicine, surgeon, wound-care specialist or other referring health-care provider as the result of a poorly healing wound. The actual diagnosis may be confirmed by non-invasive vascular test such as the ankle-brachial index (ABI) test or duplex ultrasound.

Treatment of CLI is important in reducing the risk of amputation, which remains the most common outcome. It is often managed through antiplatelet or statin therapy, wound healing and management of diabetes. However, it usually involves a procedure such as vascular bypass surgery and/or angioplasty/stenting. Appropriate wound care after blood supply is restored or improved should help with healing. At the Fourth Annual CLI Summit held in New Orleans last year, several other treatment options were discussed, including the use of vitamin C, multivitamins, zinc, B12, B6 and folic acid to improve wound healing.* Specific surgical procedures were also discussed, including angioplasty, stenting and atherectomy, with new treatment options being expanded.

**These treatments have not been approved by the FDA.*

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Photo A below shows a foot that was scheduled for amputation. Photo B shows the foot after two months of teamwork among podiatry, orthopedic, diabetes, plastic surgery, nursing, nutritional and wound care specialists who used a variety of therapies to obtain good results and prevent amputation of the entire foot.

Photos courtesy of David E. Allie, MD and Kelly M. Tilbe, NCMA, NCPT



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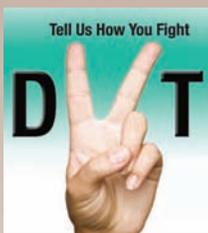
- Yearly, 160,000-180,000 major and minor amputations are performed each year in the United States due to CLI. Since 1985, the amputation rate in the United States has increased from 19 to 30 per 100,000 persons each year with a 4-to 5-fold increase in those over the age of 80.
- Worldwide, an amputation is performed every 30 seconds on a person with diabetes.
- Overall, fewer than half of all CLI patients achieve full mobility after an amputation and only one of four above-the-knee amputees will ever wear a prosthesis.
- 30 – 40 percent of all amputees will undergo a second limb amputation within three to five years of their first amputation.
- The 30-day mortality (death) and morbidity (complication) rate after an amputation remains high, which can range for death from 4 – 30 percent and for morbidity from 20 – 37 percent.
- It has been estimated that the total costs of treating CLI in the United States alone is 10 to 20 billion dollars per year.

What you can do to prevent amputation:

- Stop smoking (or never start)
- Keep your cholesterol and blood pressure under control
- If you have diabetes, manage it carefully, check your blood sugar often, and see your health-care provider regularly
- If you know you have diabetes or narrowing of the arteries in your leg due to plaque buildup (PAD), you should be aware that these conditions put you at a higher risk for foot ulcers and infection
- The way to help prevent ulcers or infection is to practice good foot care and hygiene

There is much hope for patients with CLI as new treatment options continue to expand that can help prevent amputation. If you have PAD and/or have a wound that has not healed, please see your health-care provider immediately. CLI is a very severe condition and needs comprehensive treatment by a vascular surgeon or vascular specialist. This condition will not improve on its own.

About the Author: *David E Allie, MD is the Medical Director and Director of Cardiovascular and Endovascular Surgery at the Louisiana Cardiovascular and Limb Salvage Center, A.P.M.C. Lafayette, Louisiana.*



DVTeam Care Hospital Award

Eisai Inc. and the North American Thrombosis Forum (NATF) have established a new award to recognize hospitals that have made a significant commitment to preventing DVT. Any hospital in the United States is eligible to be nominated by any hospital staff member. For more information, please visit www.dvteamcareaward.com.



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 or 888.VDF.4INFO.

Frequently Asked Questions

*Excerpted from recent VDF's Live "Ask the Doctor" Chats with Drs. King and Gornik,
Transcripts of all chats may be found online at www.vdf.org.*

Question: I was wondering if there is a particular type of exercise, other than walking, that I can do for PAD?

Answer: The best form of exercise to improve poor blood-vessel function of the legs (PAD) is exercise using the legs, especially exercise that is weight bearing, such as walking or using a treadmill. Exercise such as bicycling or swimming is good cardiovascular exercise and helps with risk factors for blood-vessel disease, but walking helps relieve the symptoms of claudication (leg pain from decreased circulation) since it helps those specific blood vessels and muscles.

Question: My doctor told me that I have venous stasis. My legs are painful just above my ankles. They are swollen and the skin is discolored. I have been wearing support stockings with not much help. Is there anything else that I can do?

Answer: There are a number of treatment options for venous stasis. First of all, it is important to be sure that your compression stockings are the correct strength and that they fit properly. There are actually many different types of compression therapy. Next, it is important to determine the cause of the venous stasis. If it is related to severe varicose veins, there may be options to treat the varicose veins, such as sclerotherapy, venous ablation or laser therapy. A vascular specialist should be able to address these issues.



Question: I learned that they called my clot a thrombophlebitis, not a DVT. Is it as dangerous and does it travel to the lungs like DVT can?

Answer: Well, it actually depends on the type of "thrombophlebitis." This is a somewhat older term used to describe blood clots. It could be a deep vein thrombophlebitis (now usually called a deep vein thrombosis or DVT) that does have potential to travel to the lungs. However, thrombophlebitis can also be of a superficial vein, usually of a varicose vein that is very superficial in the skin. These clots are much less likely to break off and travel to the lungs, and are generally treated conservatively unless they are located in an area that is very close to the deep veins of the leg.

Question: If one is diagnosed with DVT, would strenuous exercise be recommended? Is it correct to assume that a clot could "break off" and cause a PE or other damage? Once a clot forms, can it be reduced non-surgically or made more flexible so it doesn't fragment?

Answer: Bed rest is usually recommended for DVT patients for that reason, but clinical studies have shown that strict bed rest is not necessary. Patients with DVT who are on anticoagulation medication ("blood thinners") can walk and do light aerobic exercise, but should generally avoid heavy exercise for at least a few weeks.

Question: Do compression stockings help to reduce the "growth" of the varicose veins or just minimize symptoms? Is there anything I can do to stop them from "growing"?

Answer: Compression stocking can actually do both. They'll help your swelling. In addition, they can help treat the high vein pressures in the legs that might lead to new spider vein formation. Compression stockings are first-line therapy for venous insufficiency or varicose veins.

Abdominal Aortic Aneurysms

An aneurysm (AN-u-rism) is a bulge in an artery due to the weakening of its wall. The bulge or “ballooning” of the artery may grow larger and eventually tear or rupture if it is not diagnosed and treated. One of the most common places for aneurysms to form is in the aorta, which is the main artery that goes from your heart down to the chest, kidneys, intestines and other organs in the abdomen and pelvis. In the abdomen the aorta divides into the arteries that supply the legs. Aneurysms of the abdominal aorta (AAA) occur between the diaphragm (the muscle that divides the chest cavity from the abdomen) and the place where the aorta divides (near the umbilicus, “belly button”). Sometimes aneurysms can extend above and below this area. If the AAA continues to expand, it will eventually rupture and cause death.

About 15,000 people die of a ruptured AAA in the United States per year. It is the 10th leading cause of death in men over 50. A ruptured AAA is a truly life-threatening emergency and must be repaired immediately to prevent death and disability.

Causes of AAA

Proteins in the wall of the aorta, called elastin and collagen, provide strength and flexibility to this large artery. Aneurysms are caused by the breakdown of these proteins that then lead to a weakness of the wall. This can cause the walls to expand like a balloon. These proteins, collagen and elastin, may gradually deteriorate with age. Inflammation that often accompanies atherosclerosis (hardening of the arteries) helps to speed up this degenerative process, even in younger people. Some of the body’s naturally occurring enzymes may also cause the breakdown of collagen and elastin in the wall of the aorta. An excess of these enzymes or conditions that activate the enzymes may cause the formation of an aneurysm, or lead to its sudden growth in size. In rare cases an aneurysm may be caused by infection or injury.

Symptoms of AAA

Usually there are no symptoms associated with AAA. Sometimes a patient will notice a particularly strong pulse in the abdomen, but this is also noticeable in a thin person with a normal aorta. When symptoms do

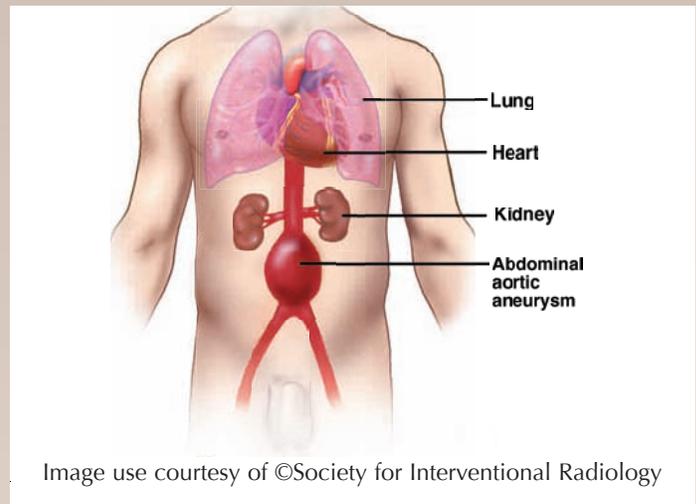


Image use courtesy of ©Society for Interventional Radiology

occur, they are generally lower abdominal or back pain. Most AAAs are found during tests (particularly x-rays) that are performed for other reasons.

Risk factors of AAA

The older you are, the higher your risk of AAA. Men are also more likely to have an AAA than women. Smoking greatly increases your risk eight-fold.

Risk Factors Include:

- Age over 60 years
- Family history of AAA
- Tobacco use
- History of heart disease or peripheral arterial disease (PAD)
- High blood pressure (hypertension)

If you have a family history of AAA, you should discuss this with your health-care provider, especially if you have any of the other risks for AAA.

Diagnosis of AAA

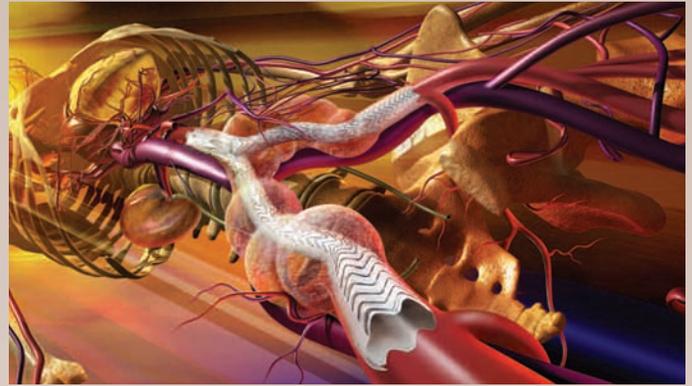
Early diagnosis of AAA is essential to prevent rupture, death or disability. Knowing your risk factors and discussing them with your health-care provider are very important. Tests to diagnose AAA are simple and require an ultrasound or CT scan to identify the aneurysm and also measure its size. AAA can also be identified by physical examination, but this is difficult if the person is overweight.

Treatment of AAA

Treatment before rupture is very important. AAAs that are 5-6 centimeters (lemon-sized) need to be repaired. Those that are smaller and cause no symptoms can be watched carefully, so that if they grow, they can be repaired. The method of repair depends upon the size and place of the AAA as well as on the general health of the person needing the repair. Only your doctor can decide which method is appropriate for you.

For over 50 years, the standard treatment of AAA has been to replace the area with a synthetic graft in the operating room under anesthesia. These are very durable and permanently cure the AAA. Most patients stay in the hospital for up to 10 days and enjoy full recovery in several months.

More recently, less invasive methods of AAA repair have emerged. Now, endovascular grafting technology repairs AAA by inserting a graft through small incisions in the groin. The endovascular method delivers the graft through a catheter or tube inserted in the groin arteries. X-ray guidance is then used to position the graft accurately in the AAA. The graft is then expanded inside the aorta and held in place with metallic hooks rather than sutures. The hospital stay is usually only one or two



Pictured above is an endovascular graft used for the treatment of AAA. Image use courtesy of W.L. Gore & Associates.

days, and most patients can return to work or normal daily activities in about a week. Endovascular grafts are followed regularly with scans to check on the status of the repair.

Not everyone is a candidate for endovascular repair. Grafts may not be a good fit for some AAAs and open surgery may be the only option.

With early detection and treatment, an AAA is a very treatable problem. Be sure to discuss risk factors with your health-care provider and ask questions.

Legislation Introduced to Expand Medicare Benefit for Aneurysm Screening

The Vascular Disease Foundation is a member of the National Aneurysm Alliance which is working to broaden the availability of screening tests for aneurysms. Legislation has been introduced (H.R. 1213) to make the Screening Abdominal Aortic Aneurysms Very Efficiently (SAAAVE) Act available to more Medicare beneficiaries.

H.R. 1213 unlinks abdominal aortic aneurysm (AAA) screening from the Welcome to Medicare Physical Exam and expands the one-time screening to 65-75 year-old Medicare beneficiaries who are at-risk for AAA. These include male-ever smokers and men and women with a family history.

Please request your member of Congress to sign onto the Screening Abdominal Aortic Aneurysms Very Efficiently (SAAAVE) Act as a co-sponsor by sending a letter. For a sample letter that you can send to your representative, please visit www.vdf.org. To find your Representative, go to www.house.gov.

Foot Pain Is Never Normal



How often do we suffer from foot and/or ankle pain at the end of the day, in the morning, or while playing sports? For some people it is a daily problem, and they may try to rationalize the pain by making excuses such as “I’m just getting old.” Many of us are on our feet all day and work on hard surfaces, etc., but persistent and unrelenting FOOT PAIN IS NEVER NORMAL! Keep in mind that pain may be an indicator that something is not right.

Sometimes foot or ankle pain can be a sign of a serious medical problem. There are diseases which show their first outward signs on the foot. These diseases include peripheral arterial disease (PAD), diabetes and arthritis. Patients with PAD may experience a sensation of cold feet or may see color changes such as a bluish discoloration in the toes. The lack of foot hair can also be a sign of poor circulation. The skin will look “tense” and will not look healthy.

Consistent pain in your calves or in the arch of your feet while walking or resting could indicate PAD, which is also referred to as poor circulation or hardening of the arteries. Intermittent claudication (pain while you walk and goes away with rest) may be a symptom of PAD. There have been many advances in the fields of vascular disease management that may be able to restore blood flow to the affected foot.

Many cases of diabetes have been first diagnosed by a podiatrist, a healthcare provider who specializes in the care of the feet. Patients show up with a wound on the foot that has not healed for some time, which may or may not be infected. Usually there is no pain associated with the wound. If you have a foot wound that is not

healing, please visit your health-care provider as soon as possible. There are many treatment options available and a vascular specialist can choose the best treatment for the wound.

Neuropathy is the loss of sensation in the feet and is another common complication of diabetes. This lack of feeling can lead to ulcers or sores on the toes and feet. In many cases, a trauma to the foot, for example, a pin or needle stuck in the foot, may not be felt by a person with diabetes. On numerous occasions, an ill-fitting

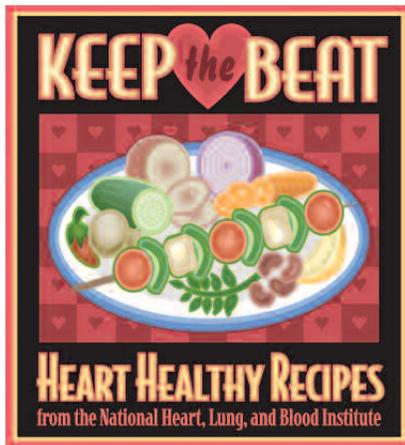
pair of new shoes may be the cause. Patients may realize it only when they see blood on their sock or the floor. In extreme cases, the patient will realize it only when the foot becomes infected and swollen and begins to emit a foul smell. This illustrates the importance of daily foot inspections, which should be a daily routine for all persons with diabetes. Shaking out shoes before putting them on will also prevent the risk of starting a wound from a foreign object which has inadvertently fallen in the shoe. Properly fitting shoes are a must. An ounce of prevention may save a foot!

Another disease that shows itself in the feet and ankles is arthritis. Hammertoes and bunion deformities can be caused by arthritis. Bone spurs on the feet can also be a possible outcome of arthritis, as can gout, which is a form of inflammatory arthritis. Gout often occurs in the big toe joint.



About the Author: *Joseph M. Caporusso, DPM* is a clinical associate of the University of Texas Health Science Center's Department of Orthopedics in San Antonio, Texas, and is the treasurer of the American Podiatric Medical Association (APMA) and the Vice Chair of the P.A.D. Coalition. He is also a past president of the Texas Podiatric Medical Association (TPMA).





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, or by phone at **888.833.4463** to order your copies today.

Here’s a yummy side dish that is heart healthy and uses lemon juice and herbs for a tangy taste.

Vegetables with a Touch of Lemon

1/2 head small cauliflower, cut into florets
 2 C broccoli, cut into florets
 2 Tbsp lemon juice
 1 Tbsp olive oil
 1 clove garlic, minced
 2 tsp fresh parsley, chopped

1. Steam broccoli and cauliflower until tender (about 10 minutes).
2. In small saucepan, mix the lemon juice, oil, and garlic, and cook over low heat for 2 or 3 minutes.
3. Put vegetables in serving dish. Pour lemon sauce over them. Garnish with parsley.

Yield: 6 servings
Serving size: 1/2 cup
Each serving provides:
 Calories: 22

Total fat: 2 g
 Saturated fat: less than 1 g
 Cholesterol: 0 mg
 Sodium: 7 mg

Total fiber: 1 g
 Protein: 1 g
 Carbohydrates: 2 g
 Potassium: 49 mg

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What Is Lymphedema?



The leg above became swollen after an operation to remove a tumor growing near the left groin. The tumor, and the surgery to remove it, damaged the lymph vessels and produced severe swelling.

Although many people have never heard of this condition, lymphedema is a common cause of leg or arm swelling due to the collection of too much lymph fluid. Nearly one million Americans are affected by this condition, and the number of people worldwide with it may soon approach 100 million. The swelling produced by lymphedema is usually not painful, but it may cause a heavy, aching discomfort and limit a

person's ability to use his or her arms or legs, increase the risk of certain infections, or cause emotional distress due to the severe swelling of the arm or the leg.

Causes: There are three types of blood vessels in the body. Arteries deliver oxygen and nutrient-rich blood from the heart to the tissues and organs of the body and the veins return blood back to the heart to be re-oxygenated by the lungs. The lymph vessels are a third type of blood vessel that carries fluid from the tissues and organs of the body back to the veins. The lymph vessels are long, thin-walled tubes that form a very intricate network in the arms and the legs. In some cases, these lymph vessels are absent or are damaged or destroyed, and lymph fluid accumulates in the tissues of the arm or leg causing severe swelling. Many things can damage the lymph vessels and cause lymphedema, including cancer and treatment for cancer, such as surgery or radiation therapy, infections, other surgical procedures and certain injuries. In some cases, lymphedema is an inherited condition that is present at birth or develops during the early years of life or puberty. In these inherited cases, there is commonly a family member who also had lymphedema. In the United States, treatment for breast cancer, including surgery and radiation therapy, is one of the most common causes of lymphedema. Interestingly, the most common cause of lymphedema world wide is a certain type of infection known as filariasis.

Symptoms: Lymphedema usually manifests as severe swelling of an arm or leg. For patients who have developed lymphedema as a complication of cancer treatment, the swelling is almost always on the same side as the treatment. In some cases, lymphedema may involve both of the limbs, typically the legs. The swelling commonly extends from the arm or leg into the fingers or the toes. In the early stages of lymphedema, the swelling is soft, and pressing on the limb may result in movement of the fluid. This is called "pitting edema." In the later stages of lymphedema, scar tissue and fibrous tissue may develop in the swollen limb causing a more dense texture of the swelling and a cobblestoned or orange-peel like appearance of the skin. Patients with lymphedema may experience heaviness of the effected arm or leg and have difficulty with exercise or participation in other activities. In the most severe cases of lymphedema, swelling may be disfiguring and may lead to emotional distress and even difficulty wearing clothes or shoes.

In addition to swelling, patients with lymphedema are at risk for developing certain types of skin infection in the swollen arm or leg known as cellulitis and lymphangitis. In mild to moderate infections, the skin will become warm, red, tender and the patient may feel flu-like symptoms. Oral antibiotics and careful skin care should be started as soon as symptoms develop. In severe cases, high fevers and even shock may develop and require immediate hospitalization for intravenous antibiotics and close observation. Patients with severe, long-standing lymphedema are at increased risk for developing certain types of cancer, including certain skin cancers and lymphoma, although this is very rare.

Risk Factors: Cancer treatment, particularly lymph node dissection at the time of mastectomy for breast cancer and radiation therapy for breast, prostate or other cancers, are risk factors for the development of lymphedema in the future. Other risk factors include major trauma or burns, a family history of lymphedema, and exposure to filarial infection, which is a mosquito-borne illness common in Asia and Africa.

Diagnosis: Lymphedema is generally diagnosed on the basis of medical history and physical examination. Lymphedema must be differentiated from other causes of limb swelling, including venous insufficiency, deep vein thrombosis (blood clot), congestive heart failure,

Continued on page 14



In the News

Board of Director's Update

The Vascular Disease Foundation is very fortunate to have such a wonderful and dedicated Board of Directors to support our mission. We are proud to welcome our newest members and sad to say farewell to others.

Welcome:



We welcome **Dr. Ashraf M. Mansour**, who is professor of surgery at Michigan State University and program director for the Vascular Surgery Fellowship, Grand Rapids Medical Education and Research Center.

We are also pleased to welcome **Joseph M. Caporusso, DPM**, who is a clinical associate of the University of Texas Health Science Center's Department of Orthopedics in San Antonio, Texas, and is a past president of the Texas Podiatric Medical Association (APMA).



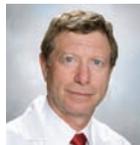
Our Thanks to:

With grateful appreciation, VDF bids farewell to **Dr. Alain Drooz** for his eight years of service to the Foundation. Dr. Drooz served as Board President from May 2005—April 2007.



Dr. Drooz's contributions to VDF include outreach to the public via interactive enhancements of the Web site, an online version of the newsletter, and oversight of VDF's fundraising campaign.

VDF also extends our appreciation to **Dr. Mark A. Creager**, who served as Board President for the past two years. It was under Dr. Creager's tenure that the Foundation completed its five-year strategic plan, revised our accounting methods, enhanced several of our educational programs, and assisted the Foundation and the P.A.D. Coalition's continuing expansion. Dr. Creager will continue to serve on the VDF Board of Directors.



We would like to introduce **Dr. Anton Sidawy** from Veterans Affairs Medical Center in Washington, D.C., and professor of sur-

gery at both Georgetown University and George Washington University Schools of Medicine in Washington, D.C. Dr. Sidawy will serve as President of VDF for the next two years. We are confident that he will continue VDF's mission with great leadership and vision.



Create a Greeting Card and Benefit VDF:

VDF is proud to announce our new greeting card site! Buy greeting cards online and support VDF. You can send greeting cards, gifts, employee incentives, thank you cards, etc. The quality and cost of the cards is competitive with those available at a card shop but with the added benefit that a portion of sales support VDF. Shop today at www.vdf.org/cardcafe.

VDF's Annual Report is Here:

Read about VDF's and our two Coalition's 2008 highlights. To make efficient use of our resources, we have limited the number of printed copies we have produced. To view a copy of the Annual Report online please visit us at www.vdf.org. If you would like to receive a printed copy by mail, please contact us at **888.VDF.4INFO (888.833.4463)**.



Join us for the annual **AARP Life@50+** convention on October 22—24 in Las Vegas. We'll have a booth offering free PAD screenings and lots of information.

Lymphedema continued from page 12

other medical conditions such as kidney, liver, or thyroid disease, and enlargement of the legs due to extra fat (called lipidema). In some cases, additional diagnostic testing is necessary, such as a lymph scan known as lymphoscintigraphy. Lymphoscintigraphy can be used to detect blockages in the lymph vessels or the absence of lymph vessel. This test requires a small amount of radioactive material to be injected through a small needle into the hand or foot. Except for minor discomfort, this test is not otherwise dangerous or painful. Other tests may be performed to exclude the other causes of leg swelling, such as a CT scan or MRI, blood tests, or an ultrasound to exclude the presence of a blood clot.

Treatment: Lymphedema is a chronic condition that can be diagnosed by a health care provider. There are many effective treatments of lymphedema. Although it is unusual to completely cure lymphedema, most people who receive proper treatment can lead normal, active lives.

The most important therapy for lymphedema is wearing compression garments such as prescription-strength stockings or gloves or short-stretch bandages. These compression garments need to be worn daily, but should be removed at night for sleeping. Over-the-counter support stockings do not provide adequate compression for the treatment of lymphedema, and these garments must be prescribed by a health care provider.

Probably the most effective treatment for reducing swelling due to lymphedema is known as complete decongestive physiotherapy that involves a combination of therapeutic massage (known as manual lymphatic drainage) and the use of compression bandages. Complete decongestive physiotherapy involves intensive treatment over a limited period of time, such as multiple treatments per week for two or three weeks. At the end of therapy, a compression stocking or glove is fitted for long-term maintenance.

Certification programs are available to assure adequate training of lymphedema therapists, and listings of credentialed therapists are available (see National Lymphedema Network Web site for more information at www.lymphnet.org). In some cases, a health care provider may provide a pneumatic compression pump that is used on the arms or legs at home for additional treatment of lymphedema.

In rare cases, surgical treatment may be recommended for patients with advanced lymphedema that has not responded to complete decongestive physiotherapy and compression therapy. It is very unusual for lymphedema to require surgical treatment, and this should be performed only in experienced centers.

About the Author: *Thom W. Rooke, MD* is the Krehbiel Professor of Vascular Medicine and Section Head of Vascular Medicine at the Mayo Clinic, Rochester, MN. He has published many articles and books and is a popular lecturer. Dr. Rooke specializes in peripheral vascular medicine, sclerotherapy for varicose veins, lymphedema and erythromelalgia.



Personal Care

Personal hygiene and avoidance of injury are essential in the prevention of lymphedema-related problems, especially skin infection. Follow these simple personal care measures to help keep skin healthy and reduce the risk of infection or swelling to worsen.

1. Keep skin as clean as possible. Dry skin thoroughly, but gently, especially between toes.
2. Wash hands frequently, applying lotion after each hand-washing to avoid over-drying the skin.
3. Wear compression support garments as prescribed during waking hours, removing for sleep. Perform skin care before and after use. Wash gently and hang to dry; have spare garments for alternate use.
4. Avoid blood pressure cuffs, needle sticks, injections or procedures on the affected limb. Wear a "lymphedema alert" bracelet.
5. Immediately report any new swelling or signs of infection such as redness, pain, warmth, streaks, rash, blisters, fever or flu-like symptoms.
6. Avoid tight clothing.
7. Avoid excess heat – overly hot showers, sun, hot tubs/saunas. Avoid sunburn and keep as cool as possible in summer weather.
8. Wear cotton-lined household gloves for housework; use garden gloves for gardening.
9. Carefully trim nails; see a podiatrist if necessary. Check feet with a mirror for wounds, fungal infections or cracked skin. Wear extra-wide, extra-depth shoes.
10. Avoid trauma – pet scratches, insect bites, burns, sports injuries or bruising. Seek appropriate care immediately. Wash all cuts with soap and water and apply antibiotic ointment.
11. Maintain normal body weight. Follow a low-fat, low salt, high-fiber diet plan. Exercise daily as ability allows – walking, swimming, light aerobics, biking, yoga and stretching are recommended.

Excerpted from Lymphedema: A Patient's Guide by Patricia A. Lewis, MSN, FNP, Bassett Healthcare, 1 Atwell Road, Cooperstown, NY 13326. Used with permission by the author.

US ★ AGAINST ★ ATHERO™

Fighting Atherosclerosis with Knowledge

Raising Awareness of a Leading Cause of Coronary Heart Disease

Atherosclerosis – the progressive build-up of plaque in the inner walls of the arteries - is a leading cause of coronary heart disease and stroke, which together afflict more than 2.01 million Americans every year.

To increase the nation's awareness of atherosclerosis and how this chronic, progressive disease can destroy the health of our arteries, the US AGAINST ATHERO patient education campaign, is bringing the educational Artery Explorer, a multi-sensory motion simulator that allows consumers to experience the stages of atherosclerosis, to various locations around the country. The Artery Explorer enables individuals to travel alongside red blood cells through the circulatory system, witnessing firsthand the difficulty red blood cells face when arteries are narrowed and blocked due to plaque build-up.

For the second year in a row, AstraZeneca and the US AGAINST ATHERO campaign are hitting the streets with the Artery Explorer. Join the US AGAINST ATHERO campaign at the following tour stops:

Seattle, WA	July 9 - 22	Cleveland, OH	August 28 - September 9
San Francisco, CA	July 26 - August 9	Nashville, TN	September 14 - 27
Indianapolis, IN	August 14 - 25	Phoenix, AZ	October 3 - 18

For more information about the US Against Athero Tour, please visit www.usagainstathero.com.



all aspects of vascular disease. Our guests are the leading scientific and clinical experts in their respective fields.

Here is the latest HealthCast episode and topic:

Episode 30:

DVT: A Serious Yet Preventable Health Problem

This episode features Dr. Samuel Z. Goldhaber, Professor of Medicine at Harvard Medical School and cardiologist at

VDF HealthCasts Continue

Brigham and Women's Hospital in Boston. This 30th milestone episode covers the "Call for Action," the role of the VDC in educating the public about venous disease and an update on the latest treatment for this health condition, how to prevent it, and how to recognize its symptoms.

HealthCasts may be found on VDF's Web site at: www.vdf.org/resources, iTunes, Feedburner, Yahoo and other sites. Listening instructions and a complete description of each episode may be found on VDF's Web site.



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September is National PAD Awareness Month Free Vascular Screenings are Available in Many Cities

Visit the P.A.D. Coalition Web site (www.PADCoalition.org) to learn about PAD or find a free screening in your area. Stay in Circulation and Take Steps to Learn about PAD at www.aboutpad.org.

Free Vascular Screenings in September:
 The annual Legs for Life® screenings will be conducted across the country during the month of September. Most locations provide free screenings for peripheral arterial disease, abdominal aortic aneurysms, carotid and venous disease. Screening locations will be posted in August at www.vdf.org or at www.legsforlife.org.

Thanks to our Sponsors

