

Deep Vein Thrombosis (DVT)

Blood clots can occur anywhere in the body, but deep vein thrombosis (DVT) occurs when a blood clot forms in one of the body's deep veins. Deep veins are located in the muscles of the body, and DVT most commonly occurs in the legs, thigh or pelvis. DVT can partially or completely block a vein, causing the flow of blood to slow down or completely stop.

One of the most dangerous complications of DVT is the development of a pulmonary embolism. This happens when a blood clot breaks away from the wall of a vein and travels to the lungs.



Blood clot in vein

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A pulmonary embolism (PE) occurs when the clot lodges in the lungs and blocks the pulmonary artery or one of its branches. A pulmonary embolism can be life threatening.

It is important to receive treatment for a pulmonary embolism quickly. When the condition is diagnosed and treated quickly, a person's chance of survival greatly increases.

Risk Factors

Certain factors and medical conditions may place you at greater risk for developing DVT. If several factors or conditions are present at the same time, your risk increases even more.

Risk factors include:

- Being over the age of 65
- Being overweight or obese
- Being a smoker
- Sitting for a long time on a long flight
- Having varicose veins
- Having an inherited blood clotting disorder (personal or family history)
- Having a history of DVT or PE
- Having congestive heart failure (CHF), chronic obstructive pulmonary disease (COPD) or acute infection/inflammation
- Taking birth control pills or hormone replacement therapy
- Being pregnant or having recently given birth, especially the first six weeks after delivery
- Having cancer and undergoing active treatment (depends on the type of cancer and the treatment received)
- Having a central venous catheter or long-line catheter
- Having a pacemaker
- Recent surgery or hospitalization, such as a hip or knee joint replacement

- Recent injury, trauma or condition that has reduced your movement, such as a broken hip, pelvis, or leg; serious car accident; fall or spinal cord injury
- Recent stroke

Signs and Symptoms



DVT can appear with little or no warning and be difficult to detect. Most people with DVT have symptoms. If you experience any of the following signs or symptoms, call your doctor **right away**.

- Pain, tenderness or swelling in one leg (pain worsens when standing or walking)
- Increased warmth in the leg that is painful, tender or swollen
- Visibly large veins
- Red or discolored skin

Diagnosis

Because several other conditions – including muscle strains, skin infections and phlebitis (inflammation of veins) – can display symptoms like those of DVT, the condition can be difficult for your doctor to diagnose. Your doctor will begin with taking a medical history and doing a physical exam. Imaging tests are often done. The most common imaging tests to diagnose DVT include:

- A blood test for D-dimers that are increased when there is increased clotting.
- **Doppler ultrasound** uses sound waves to evaluate the flow of blood in the veins. A gel is applied to the skin in the affected area. A hand-held device is placed on the skin and is moved back and forth over the affected area. This device sends sound waves to an ultrasound machine, and a computer turns the sound waves into a picture that can be seen on a monitor. The picture shows how well the blood is flowing in the veins.
- **MRI (magnetic resonance imaging)** and **CT (computerized tomography) scan** may also be used. An MRI uses magnetic fields and radio (sound) waves to create computerized images. It can provide information that may not show up on an x-ray. A CT scan uses an x-ray machine and a computer to create detailed pictures of the body, including 3-D images.
- **Venography** may be done if other imaging tests do not provide a diagnosis. During this procedure, a dye is injected into a vein, and then an x-ray is taken of the affected area. The x-ray will show if the flow of blood is slow or if it has stopped.

Treatment

If left untreated, DVT can cause serious complications. Those who receive early treatment, however, reduce their chances of developing pulmonary embolism. When DVT treatment is successful, it may:

- Stop the clot from getting bigger
- Prevent the clot from breaking away and traveling to the lungs
- Reduce the chance of developing another blood clot in the future

Treatments for DVT may include:

- **Medicines** most often used to treat DVT are anticoagulants or blood thinners – heparin, low-molecular-weight heparins, warfarin (Coumadin®) – or newer blood thinners called direct oral anticoagulants.
- **Vena cava filters** are used when patients cannot take medicines that thin the blood or when blood thinners are taken, but clots continue to form anyway. Vena cava filters are used to prevent blood clots from going to the lung.
- **Very rarely, surgery** is required to remove the clot or **thrombolytic agents** are used to dissolve the clot.
- To reduce pain and discomfort, your doctor may be recommended:
 - Begin walking as soon as possible after treatment starts.
 - Elevate the affected area.
 - Avoid long periods of sitting or not moving.
- Wear compression stockings on both legs. The purpose of wearing these stockings is to prevent a DVT from recurring and to reduce the risk of post-thrombotic syndrome – chronic leg swelling and ulcers. If you have cancer, **compression stockings immediately after a DVT diagnosis are not recommended.** Ask your doctor if you should use heat packs.

Prevention

Preventive measures will depend on your risk for developing DVT and whether you have had a history of blood clots in the past. Your risk of developing clots can be prevented with the following measures:

- Talk with your doctor about your risk factors and any medical conditions that place you at risk for developing blood clots.
- Avoid smoking, maintain a healthy weight and avoid activities that would cause serious injury or bleeding.
- Exercise your lower leg muscles and move around often when sitting for a long time, such as when on a long car ride or flight.
- Drink plenty of fluids, preferably water, to avoid dehydration.
- Get out of bed and move around as soon as you can if you have been sitting or not moving for a long time (after surgery or illness).
- Use small doses of anticoagulation medicines, elastic support stockings, graduated compression stockings or pneumatic compression as ordered by your doctor.
- Follow up with your doctor to discuss any changes in your health, for all scheduled blood tests, and to discuss and any medicine changes that may be needed.

If you are already taking a blood thinner for the treatment or prevention of a DVT, you should:

- Take the prescribed anticoagulant or blood-thinning medicines correctly as prescribed by your doctor. Talk with your doctor about taking your prescribed anticoagulant or blood-thinning medicines with any other medicines, especially over-the-counter medicines.
- Talk with your doctor about your diet. Also, talk with your doctor about what amount of alcohol is safe to drink if you are taking medicine.



Medical Alert ID

In an emergency, when you might not be able to speak for yourself, **a medical ID bracelet, necklace or wallet card** can speak for you. A brief description of vital medical facts on a medical ID bracelet, necklace or wallet card will ensure appropriate and timely medical care from a doctor or medic.

People taking blood thinners/anticoagulants should wear a medical ID. A medical ID bracelet, necklace or wallet card can be obtained from your pharmacy.