



## Deep Vein Thrombosis (DVT) / Blood Clots

### What is a DVT?

A deep vein thrombosis (DVT) is a blood clot in a vein, deep in the body. Veins are blood vessels with valves that help blood flow in one direction. When your muscles contract the blood is pushed through the veins in your legs and arms. Blood clots can block the flow of blood through the body. This can cause swelling and other problems in your body. Another concern is that the clot may break loose, travel through the bloodstream and block blood flow in the lungs, heart, or brain.

A pulmonary embolism (PE) occurs when a blood clot travels to the lungs. The blood clot stops or severely slows the exchange of oxygen and carbon dioxide between the lungs and the heart. This may cause permanent damage or even death.

### What are the causes of a DVT?

Anything that damages the blood vessel can cause the blood to clot. Some things that can damage blood vessels are:

- Smoking
- Not having enough oxygen in the blood
- Having an injury or surgery to your body

Many people with spinal cord injury and brain injury lose some function or movement in their legs and/or arms or are less active than before the injury. Because you aren't moving around as much, circulation of blood through the body slows down. The slower the blood moves, the higher the risk that a blood clot will form.

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Certain situations will make it even harder to move around after spinal cord injury putting you at even greater risk for a blood clot to develop. These situations include being sick, being on bed rest (e.g. skin sore), or sitting in one position for a lengthy period of time (e.g. airline travel).

If you have certain health problems you may have a higher risk that a blood clot will form. Some of these are:

- Family history of a DVT
- Varicose veins
- Cancer
- Heart attack or failure
- Stroke
- Pregnancy
- Taking hormone replacement therapy or birth control medication
- Trauma - fractures or breaks to bones or joints
- Have a port or IV delivering medications directly to your veins
- Sepsis
- Blood disorders
- Obesity or being overweight
- Surgery

## What are the symptoms of a DVT?

Typically, blood clots develop in legs and arms. The signs and symptoms of a blood clot or deep vein thrombosis (DVT) are:

- Swelling in the limb
- Warmth or coolness on the skin of the affected limb
- Discoloration – red, purple, pale, white, or bluish colors of a leg or arm
- Tenderness or pain in a leg or arm
- Fever and chills
- Increased muscle spasms

The signs and symptoms of a pulmonary embolism (PE) or blood clot in the lungs are nonspecific and can include:

- Sudden chest pain
- Shortness of breath
- Difficulty breathing or rapid breathing
- Coughing up blood
- Loss of consciousness (fainting)

**CALL 911** right away if you have these symptoms or if you think you have an emergency.

## How are DVT's diagnosed?

The doctor will ask about your symptoms and medical history as well as do a physical exam. They may order some tests including blood tests to look for blood clotting proteins. Another common test is a "duplex venous ultrasound" which uses sound waves to detect changes in blood flow. Your doctor may also order a "venography" which is an x-ray taken after dye is injected into a small vein to show areas of normal and abnormal blood flow.

## How do you prevent DVTs?

To prevent blood clots and DVTs your doctor may prescribe an anticoagulant, often called a blood thinning medication. Examples of blood thinners are Heparin, Lovenox (Enoxaparin), Fragmin (Dalteparin), Innohep (Tinzaparin), Arixtra (Fondaparinux), and Coumadin (Warfarin). You may be on these for three to six months. Depending on the medication that is ordered, your doctor may order routinely scheduled blood tests. Monitoring these blood tests helps the doctor keep your blood thinner from being too high (which can put you at risk for bleeding) or too low (which can put you at risk for blood clots).

Because blood clots often cause swelling in your legs, for initial rehabilitation, after surgery, or during inpatient upgrade program at Craig Hospital, your legs will be measured every night. Measuring your legs can help early detection of blood clots. Because the risk for blood clots decreases with time after your initial injury, your legs will not have to be measured forever. Talk to your nurse and doctor about how long your legs will be measured and about your risk for developing DVTs.

## How do you treat DVT's?

If you're diagnosed with a DVT, treatment will begin immediately. The purpose of treatment is to stop the clot from growing and to prevent a pulmonary embolism or stroke.

If you are not already on an anticoagulant or blood thinner you may be started on one. Treatment may last for several months and regularly scheduled blood tests will be ordered to make sure you are getting the right dose.

As their name implies, blood thinners thin your blood making it harder for your body to form a clot. This puts you at increased risk for bleeding if you are injured. You will want to avoid cuts or injury. Report any easy bruising and bleeding, for example if your gums bleed when brushing your teeth.

Maintaining the medication at a certain level is important to work properly. Plan ahead for medication refills so that you don't run out.

If you are taking blood thinners it is important that you discuss with your doctor all medications, herbal medication, over-the-counter medications, as well as your diet. There are certain foods that affect how blood thinners work, too. Make sure you know what you can and cannot eat. Always check with your doctor before taking a new medication even if you consider the drug safe.

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In some cases, a filter may be placed to trap any blood clots that break loose so they don't travel up to the lungs, brain, and heart. The filter is usually placed in the inferior vena cava which is a major vein in which the blood from your lower body goes back up to the heart. If needed, the filter is usually inserted in a vein through the groin under fluoroscopy. A fluoroscopy is a special type of x-ray that allows the doctor to place the filter easily and without surgery.

You may also have to rest in bed, elevate the affected limb above the heart, and wear compression stockings.

## Conclusion

You are an important member of the healthcare team. Know the signs and symptoms of blood clots so that you can talk with your doctors and nurses about what is normal and not normal for you. After all, you know your body better than anyone.

A deep vein thrombosis (DVT) is a blood clot in a vein, deep in the body. Injury, decreased movement, and slower blood flow through the body can put people with SCI and TBI at increased risk for DVTs. Medications and physical activity can help prevent them. If they are detected they can be treated.

If you have more questions about DVTs, talk with your doctors and nurses about your specific health concerns and condition.