

Deep vein thrombosis

A thrombosis is a blood clot. The clot may block a blood vessel, causing potentially serious health effects. A deep vein thrombosis (DVT) is a blood clot that forms in the deep veins of the leg. A deep vein thrombosis in the thigh carries a risk of pulmonary embolism. This occurs when the clot, or thrombus, loses its attachment to the inside of the vein, leaves the leg and lodges in the pulmonary artery, the main blood vessel to the lungs. If the clot is large enough, it can completely block that artery and cause death.

Blood flow through the leg veins generally requires some mechanical help, since it 'flows' up instead of down. Working calf muscles act as a pump. The contracting muscles compress the veins and force the blood in these veins upwards to the heart. This process is aided by valves in the veins, which direct the flow of blood and counteract the effects of gravity.

Sitting still for long periods of time allows blood to pool in the veins. There is debate over whether or not the confinement of long-distance international flights may contribute to the risk of DVT. This condition is known as 'economy-class syndrome'.

Symptoms of deep vein thrombosis

The symptoms of a deep vein thrombosis (DVT) may include:

- Pain and tenderness in the leg
- Pain on extending the foot
- Swelling of the lower leg, ankle and foot
- Skin that is red and warm.

Blood clotting

Blood contains platelets and compounds called clotting agents. Platelets are sticky and form the basis of the blood's ability to thicken (coagulate). If a blood vessel is cut, platelets collect at the site of the injury. In conjunction with clotting agents, the platelets produce a web or mesh, which traps platelets and creates a plug to seal off the wound. The ability of the blood to clot is essential for survival, but it can also lead to the formation of a thrombus.

Risk factors for DVT

Some of the risk factors that may contribute to the formation of a thrombus include:

- Coronary heart disease
- Being overweight or obese
- Cigarette smoking
- Pregnancy
- A high-dose combined oral contraceptive pill
- A susceptibility to 'stickier' blood and a family history of DVT
- Sitting still for long periods of time
- Recent surgery or injury
- Some types of cancer
- Congestive cardiac failure
- Previous thrombosis.

Complications of DVT

If the DVT remains in the leg vein, it can cause a number of complications, including inflammation (phlebitis) and leg ulcers. However, the real danger occurs if the clot leaves the vein and travels through the circulatory system. A pulmonary embolism means the clot has blocked off the main artery to the lungs or one of its major branches.

It is estimated that 80 per cent of pulmonary embolisms are linked to deep vein thrombosis. Around one third of people who experience a major pulmonary embolism will die. Life-saving treatment includes thrombolytic and anticoagulation drugs that dissolve the clot and restore blood flow.

'Economy class syndrome'

International flights are suspected of contributing to the formation of DVT in susceptible people, although the research evidence is currently divided. For example, a Dutch study found no link between DVT and long-distance travel of any kind, while English researchers proposed, in a paper published in the *Lancet*, that flying directly increases a person's risk.

Some airlines prefer to err on the side of caution and offer suggestions to passengers on how to reduce the risk of DVT. These include:

- Wear loose clothes
- Avoid cigarettes and alcohol
- Drink plenty of fluids
- Move about the cabin whenever possible
- Don't sit with legs crossed
- Perform leg and foot stretches and exercises while seated
- Consult with your doctor before travelling.

Diagnosis of DVT

A deep vein thrombosis can easily be mistaken for other disorders, including lymphoedema and chronic venous disease. The diagnosis of a DVT is confirmed using a number of tests, such as:

- **Venous ultrasound** – a special type of scan
- **Contrast venography** – a dye is injected into the foot and special x-rays are taken of the leg veins.

Treatment for DVT

Treatment includes:

- Hospitalisation
- Intravenous drugs to dissolve the clot
- Long-term treatment with anticoagulant drugs, such as Warfarin, to prevent further clotting
- Blood tests to monitor the 'stickiness' of the blood
- Reducing risk factors such as quitting cigarettes or losing excess body fat.

Prevention strategies

Graduated compression stockings to increase internal pressure have been found to decrease the risk of post-surgery DVT for hospital patients. The use of prophylactic anticoagulants in moderate to high-risk hospital patients is also recommended.

Other methods to reduce the risk of DVT include treatment for coronary heart disease, reducing excess body fat, quitting cigarettes, exercising regularly and switching to a high-fibre, low-fat diet.

Where to get help

- Your doctor

Things to remember

- A deep vein thrombosis (DVT) is a blood clot that forms in the veins of the leg.
- Complications include pulmonary embolism (which can be fatal), phlebitis and leg ulcers.
- Treatment options include hospitalisation and medications to dissolve the clot and prevent further clotting.

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