



# What Is Venous Thromboembolism?

Venous thromboembolism (VTE) is a blood clot that starts in a vein. It is the third leading vascular diagnosis after heart attack and stroke, affecting about 300,000 - 600,000 Americans each year. There are two types:

- **Deep vein thrombosis (DVT)** — is a clot in a deep vein, usually in the leg, but sometimes in the arm or other veins.
- **Pulmonary embolism (PE)** — occurs when a DVT clot breaks free from a vein wall, travels to the lungs and blocks some or all of the blood supply. Blood clots in the thigh are more likely to break off and travel to the lungs than blood clots in the lower leg or other parts of the body.



## What causes VTE?

DVTs form in the legs when something slows or changes the flow of blood. The most common triggers for DVT and PE are surgery, cancer, immobilization and hospitalization. In women, pregnancy and use of hormones like oral contraceptive or estrogen for menopause symptoms are also important.

Clotting is more likely to happen in people who are older, are obese or overweight, or have conditions such as cancer or autoimmune disorders such as lupus. It's also more likely in people whose blood is thicker than normal because too many blood cells are made by bone marrow.

Genetic causes of excessive blood clotting are also important. These occur when there are changes in the genetic code of some proteins needed for clotting or proteins that work to naturally dissolve blood clots in the body.

VTE is most common in adults 60 and older, but it can occur at any age. VTE is rare in children.

## How is it diagnosed?

Blood work may be done initially, including a test called D-dimer, which detects clotting activity. For DVT, an ultrasound of the leg is most often used.

For PE, computed tomography (CT or CAT scan) is most often used. Sometimes a ventilation-perfusion lung scan is used. Both tests are able to see intravenous dyes in the arteries of the lung, looking for blockages by clots.

## How can VTE be prevented?

VTEs often are preventable, with strategies that stop the development of clots in people “at-risk”. Healthcare professionals discern risk by gathering information about a patient’s age, weight, medical history, medications and lifestyle factors.

Those at risk may take anti-clotting or blood-thinning medications or use mechanical devices such as compression stockings or compression devices. If possible, getting out of bed quickly after surgery is also advised.

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### How is it treated?

Treatment usually includes blood-thinning medications to keep clots from continuing to form and sometimes strong clotbusters to actually break up clots.

Options include:

- Anticoagulants, including injectables such as heparin or low molecular weight heparin, or tablets such as apixaban, dabigatran, rivaroxaban, edaxaban and warfarin. These medications are used for a number of months. If the VTE occurred after surgery, trauma, pregnancy, a hospital stay, or with use of hormone treatments, this is usually given for a fixed number of months. For patients without these provoking factors, treatment can be recommended for longer durations.
- Thrombolytic therapy, which includes drugs such as a tissue plasminogen activator (tPA) — a clot-dissolving enzyme. This can be given through an arm vein, and also by inserting catheters directly into the blood clot in the vein or lung.

Surgical procedures may also be used. This can involve placing a filter in the body's largest vein to prevent blood clots from traveling to the lungs.



It can also involve removing a large blood clot from the vein or injecting clot-busting medicines into the vein or lung artery.

### HOW CAN I LEARN MORE?

- 1 Call **1-800-AHA-USA1** (1-800-242-8721), or visit **heart.org** to learn more about heart disease and stroke.
- 2 Sign up to get *Heart Insight*, a free magazine for heart patients and their families, at **heartinsight.org**.
- 3 Connect with others sharing similar journeys with heart disease and stroke by joining our Support Network at **heart.org/supportnetwork**.

### Do you have questions for the doctor or nurse?

Take a few minutes to write your questions for the next time you see your healthcare provider.

For example:

**Am I at risk for VTE?**

**What changes can I make to prevent it?**

### My Questions:

We have many other fact sheets to help you make healthier choices to reduce your risk, manage disease or care for a loved one. Visit **heart.org/answersbyheart** to learn more.