



Deep Vein Thrombosis (DVT) & Pulmonary Embolism (PE)

What are blood clots?

When a clot forms in the deep veins of the body, it is called **deep vein thrombosis**, often referred to as DVT for short. DVT occurs most commonly in the leg; although it can occur anywhere in the body, such as the veins in the arm, abdomen, or around the brain.

A potentially life-threatening complication of deep vein thrombosis (DVT) is **pulmonary embolism**, often referred to as PE for short. A PE occurs when a blood clot breaks off, travels through the blood stream and lodges in the lung.

Symptoms of Deep Vein Thrombosis (DVT):

- Pain
- Swelling
- Discoloration (bluish, purplish or reddish skin color)
- Warmth

Symptoms of Pulmonary Embolism (PE):

- Shortness of breath
- Chest pain (which may be worse with deep breath)
- Unexplained cough (may cough up blood)
- Unexplained rapid heart rate

What causes blood clots?

Blood clots may form when either the flow of blood in a vein slows, damage to a vein occurs, or the blood is more clottable. Many factors can increase a person's risk for developing a blood clot in a vein. **Common risk factors for developing a blood clot include:**

Immobility:

- Hospitalization
- Being paralyzed
- Prolonged sitting

Surgery and Trauma:

- Major surgery (especially of the pelvis, abdomen, hip, knee)
- Bone fracture or cast
- Catheter in a big vein (PICC line, central venous catheter, or port)

Increased estrogens:

- Birth control pills, patches, rings
- Pregnancy, including up to 6 weeks after giving birth
- Estrogen and progestin hormone therapy

Medical conditions:

- Cancer and chemotherapy
- Heart failure
- Inflammatory disorders (lupus, rheumatoid arthritis, inflammatory bowel disease)
- The kidney disorder called nephrotic syndrome

Other risk factors:

- Previous blood clot
- Family history of clots
- Clotting disorder (inherited or acquired)
- Obesity
- Older age
- Cigarette smoking
- Varicose veins



How are blood clots diagnosed?

DVT is generally diagnosed using:

- **Doppler ultrasound (Duplex)**, a painless and noninvasive test. During a Doppler ultrasound, sound waves are used to generate pictures of the blood vessels.

PE is generally diagnosed using:

- **CT scan (Computed tomography)**, which uses a combination of x-rays taken from many different angles to produce detailed pictures of inside the body.
- **V/Q scan (Ventilation/perfusion lung scan)** is a nuclear medicine scan that uses a small amount of radioactive material to study the airflow (ventilation) and blood flow (perfusion) in the lungs.

How are blood clots treated?

The primary treatment for blood clots is blood-thinning medication, known as an **anticoagulant** or **'blood-thinner'**.

- Blood-thinners increase the time it takes for blood to clot. They prevent new clots from forming and existing clots from growing larger.
- Blood-thinners do not dissolve a clot. Over time, the body absorbs a clot.
- Blood-thinners may be given as:
 - an oral pill
 - an injection (shot) into the skin
 - by injection into a vein (IV)

The treatment of DVT and PE is similar. The goals of treatment are:

- To prevent an existing clot from growing in size
- To prevent the formation of new clots
- To prevent a DVT from breaking off, traveling through the blood stream and becoming a PE
- To prevent or minimize long-term complications.

The length of time you will need to take a blood-thinner will depend upon a number of factors such as:

- The location of the clot
- Why the clot formed (what risk factors contributed to your clot)
- How well you have tolerated the blood thinner
- Your risk for bleeding

How can blood clots be prevented?

- Stay active. Immobility increases the risk of developing clots. If you've been sitting for a long period of time (such as long-distance travel) stop and take a break to stretch your legs.
- Maintain an ideal body weight.
- Know your risk factors for developing a clot (above) and discuss these with your doctor.
- Know your family medical history. Make sure your doctor knows about any history of blood clots.
- If you are hospitalized or planning for surgery, ask your doctor: 'What will be done to prevent blood clots?' You may be given a blood-thinning medication (anticoagulant) or special stockings designed to prevent blood clots. These blood clot prevention measures are called 'DVT prophylaxis'.