

# PATIENT EDUCATION



The American College of  
Obstetricians and Gynecologists  
WOMEN'S HEALTH CARE PHYSICIANS

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## Preventing Deep Vein Thrombosis

**D**ep vein thrombosis (DVT) is a condition in which a blood clot forms in deep veins in the legs or other areas of the body. DVT affects about 2 million people in the United States each year. Although anyone can develop DVT, women who have had major surgery, who have had trauma, or who are pregnant are at higher risk.

*This pamphlet explains*

- *causes of DVT*
- *who is at risk*
- *steps you can take to prevent DVT*
- *signs and symptoms*
- *diagnosis and treatment*

### Causes of DVT

Veins are the blood vessels that carry blood from the body's tissues to the heart. Deep veins are located deep in the body, away from the skin's surface. The term "DVT" most often refers to blood clots (or thrombi) that form in deep veins in the legs, but clots also can form in the pelvis and other parts of the body.

Clotting is a normal process that helps stop bleeding, such as from a cut in the skin. A clot also can form if

- blood flow is too slow
- the lining of a vein is damaged
- a problem in the blood makes it clot more easily

When a clot forms in a deep vein, blood flow in the vein slows down and causes the vein to swell. If a

piece of a clot breaks free and moves through the blood vessels to the lungs, it is very serious. This condition, called pulmonary embolism (PE), can be fatal. Nearly one third of people who have DVT develop PE. It is important to find and treat DVT early in order to prevent PE.

### Who Is At Risk?

DVT can occur in anyone, but some factors can increase your risk (see box). Having more than one risk factor further increases the risk.

Surgery is a key risk factor. When tissues or veins are cut or moved, blood normally clots. The flow of blood may slow to a point that lets large clots form. The **anesthesia** that is used can dilate veins, which also can cause blood to pool and clot. Bed rest after the procedure slows blood flow.

## DVT Risk Factors

Events or conditions that increase the risk of DVT include the following:

- Surgery
- Trauma
- Long periods of not moving (bed rest, sitting, long car or airplane trips)
- Cancer and cancer therapy
- Past history of DVT
- Increasing age
- Pregnancy and the 4–6 weeks after giving birth
- Use of birth control methods that contain **estrogen** or hormone therapy for menopause symptoms
- Certain illnesses, including heart failure, inflammatory bowel disease, and some kidney disorders
- Obesity
- Smoking
- Varicose veins
- Having a tube in a main vein (sometimes needed to give medications over a period of time)
- Having a **thrombophilia**, one of several diseases in which the blood does not clot correctly

Pregnancy also is a key risk factor. Changes in the blood during pregnancy make it easier for clots to develop. As the baby grows, pressure builds in the deep veins in the legs, which can increase the risk of clots. The risk of DVT is nearly 10 times higher during pregnancy. It remains high for 4–6 weeks after giving birth.

Women who use birth control pills face a higher risk of DVT than women who do not use birth control pills. The risk of DVT also is increased in women who take **hormone therapy** after menopause. Smoking and older age add to the risk for these women.

Sitting or not moving for long periods of time, such as during long-distance travel, can increase your risk of DVT. Any type of travel lasting 4 or more hours—whether by car, train, bus, or airplane—doubles the risk of DVT. If you already have risk factors for DVT, traveling may further increase your risk.

## Prevention

If you are at risk of DVT, your health care provider may suggest ways to prevent it. For example, because your risk increases if you have surgery, certain preventive steps may be taken before or after surgery. Also, it is a good idea to take preventive measures if you will be traveling long distances, especially if you have other risk factors, such as pregnancy.

## Before and After Surgery

Your doctor may prescribe medications to prevent blood clots from forming before or after surgery. You also may be told to stop taking certain medications before surgery. At the hospital, you may wear special elastic stockings or inflatable boots. These devices squeeze the muscles to help keep blood flowing. You may need to wear them until you leave the hospital. You may be urged to get up and walk around soon after the procedure. Your feet or the foot of your bed may be raised.

## Pregnancy

If you are pregnant, medication or other treatments may be prescribed to prevent DVT if you have certain risk factors:

- Strong family history of DVT
- An inherited thrombophilia
- Need for bed rest
- Likely to have a **cesarean birth**

If medication is prescribed for you, your health care provider will make sure you know how to take the medication and what you should avoid while taking it.

## Traveling

When planning a long trip, the following preventive steps are recommended, especially if you are pregnant or have other risk factors for DVT:

- Drink lots of fluids.
- Wear loose-fitting clothing.
- Walk and stretch at regular intervals (for example, when traveling by car, make frequent stops to allow you to get out and stretch your legs).
- Special stockings that compress the legs below the knee may help prevent blood clots from forming. However, talk to your health care provider first before you try these stockings, because some people should not wear them (for example, those with diabetes or problems with blood circulation).

## Recognizing Signs of DVT and PE

Only about one half of people who have DVT show any signs or have symptoms. Signs and symptoms of DVT in the ankle, calf, or thigh include

- warmth or tenderness
- pain or sudden swelling
- redness of the skin
- constant pain in one leg while standing or walking

PE can be life-threatening. If you have any of the following signs or symptoms, you should contact your health care provider or go to the emergency room:

- A sudden cough, which may produce blood

- Sudden shortness of breath
- Pain in the ribs when breathing
- Sharp chest pain under the breast or on one side
- Burning, aching, or dull heavy feeling in the chest
- Rapid breathing
- Rapid heart rate

## Diagnosis

DVT can be hard to diagnose. The following tests can help your health care provider tell if you have DVT or if you are at increased risk:

- Blood tests—You may be tested for blood disorders that are known to increase the risk of DVT (see box “DVT Risk Factors” on the next page).
- Doppler ultrasound—A handheld device is placed over veins and uses sound waves to check blood flow. Pressure is applied to see if the vein responds normally. This test is most often used to confirm DVT in the legs.
- Magnetic resonance imaging (MRI)—MRI, a special type of imaging test, can show clots in the legs or pelvis.
- Venogram—In this test, dye is put into a vein, and an X-ray is taken. The dye can show whether there is a clot in the vein.

Other tests may be done if the clot is thought to be in the lungs:

- Spiral computed tomography (CT)—This imaging test is done to see if any clots have moved to the lungs.
- Ventilation/perfusion (V/Q) scan—This imaging test measures how well air and blood move through the lungs. It is used to diagnose PE.

## Treatment

DVT is most often treated with medications. Drugs may include anticoagulants to prevent clots or, less commonly, thrombolytics to dissolve them.

## Finally...

Certain situations unique to women, such as pregnancy and hormone therapy use, can increase the risk of DVT. It can be hard to diagnose, but it can be treated with success. It is important to tell your health care provider if you have any symptoms that suggest DVT.

## Glossary

**Anesthesia:** Relief of pain by loss of sensation.

**Cesarean Birth:** Birth of a baby through incisions made in the mother’s abdomen and uterus.

**Estrogen:** A female hormone produced in the ovaries.

**Hormone Therapy:** Treatment in which estrogen, and often progestin, is taken to help some of the symptoms caused by low levels of these hormones.

**Thrombophilia:** A group of several diseases in which the blood does not clot correctly.

This Patient Education Pamphlet was developed by the American College of Obstetricians and Gynecologists. Designed as an aid to patients, it sets forth current information and opinions on subjects related to women’s health. The average readability level of the series, based on the Fry formula, is grade 6–8. The Suitability Assessment of Materials (SAM) instrument rates the pamphlets as “superior.” To ensure the information is current and accurate, the pamphlets are reviewed every 18 months. The information in this pamphlet does not dictate an exclusive course of treatment or procedure to be followed and should not be construed as excluding other acceptable methods of practice. Variations, taking into account the needs of the individual patient, resources, and limitations unique to the institution or type of practice, may be appropriate.

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