

If you have been diagnosed with [deep vein thrombosis](#) or pulmonary embolism, you will be treated with blood-thinning (*anticoagulant*) medication to stop the clot from growing and prevent new clots from forming. These same medications are also used to prevent DVT in women at high risk for blood clots (see [Am I at Risk for DVT?](#)). Click on any of the medications below to learn how they are used to treat and prevent blood clots in the veins:

- [Low Molecular Weight Heparin](#)
- [Heparin](#)
- [Warfarin](#)

Because the body naturally breaks down and reabsorbs blood clots, blood thinners to prevent new clots are usually the only treatment necessary. However, some women may benefit from treatment with an additional type of medication called clot-busters (*thrombolytics*) to speed the breakdown of the clot. This may be necessary if you have a very large DVT, or if you have a large pulmonary embolism that is causing heart or breathing problems. Click here to learn more about how [clot-busting drugs](#) are used to treat DVT and PE.

See also: [DVT and Pulmonary Embolism Treatment Overview](#)

What is low molecular weight heparin?

Low molecular weight heparin (LMWH) is a newer form of the blood thinner [heparin](#) . LMWH makes the blood less sticky, preventing new clots from forming and stopping existing clots from growing. It is given through an intravenous (IV) line in the arm or injected under the skin.

In many hospitals, LMWH has replaced standard heparin for the initial treatment of DVT and pulmonary embolism. LMWH is very effective at preventing clots, is less likely to cause dangerous bleeding, and does not require regular blood tests to measure how long it takes your blood to clot.

Low Molecular Weight Heparin (LMWH)

Generic names:	dalteparin sodium, enoxaparin		
Brand names:	Fragmin, Lovenox		
How it is given:	Injected under the skin (<i>subcutaneous</i>) or injected through a needle		

What it is used for:

- To treat DVT or pulmonary embolism
- To reduce the risk of DVT or PE in women undergoing surgery or immobilized in the hospital
- For long-term prevention of blood clots in women who cannot take warfarin

You should not be treated with it if:

- You are currently bleeding, such as from a bleeding stroke or stomach ulcer
- You have a low count of platelets in your blood (), detected on a routine blood test
- You have had an allergic reaction to heparin in the past
- You have received the clot-buster tPA in the last 24 hours

Pregnancy/nursing: The safety of dalteparin sodium during pregnancy and nursing is unknown.

Who might receive LMWH to treat or prevent DVT and PE?

LMWH has mostly replaced standard heparin as the treatment of choice for women with DVT. Women treated with LMWH are less likely to die and have a lower risk of excessive bleeding than those treated with standard heparin.² Because LMWH has very predictable effects on blood clotting, you will not need regular blood tests to measure how long it takes your blood to clot. Another advantage of LMWH is that it can be given outside the hospital,

reducing the average hospital stay after a DVT to 1 or 2 days, compared with more than a week for women treated with standard heparin.

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You will usually need to take LMWH once or twice a day for 7 to 10 days.

LMWH is also used to treat blood clots in the veins that traveled to the lungs (pulmonary embolism), but it is not clear if it is any better than standard heparin. LMWH can prevent blood clots in women undergoing surgery, when it is as effective as standard heparin and reduces clot risk by 70% to 80%.⁵

In special cases, LMWH is an alternative to [warfarin](#) for long-term blood clot prevention. LMWH may work better than warfarin in women who:

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- Are pregnant (pregnant women should not take warfarin because of risks to the baby)
- Have cancer
- Have trouble keeping their blood clotting time in a safe range while taking warfarin

What are the risks of LMWH?

The major risk of LMWH is excessive bleeding, especially with higher doses. However, LMWH is less likely to cause dangerous bleeding than standard heparin, and doctors will choose the dose that is most effective at preventing clots while minimizing the risk of bleeding problems.³ Call your doctor immediately if you notice any of these signs of bleeding problems while taking LMWH:

- Unusual or excessive bleeding from a minor injury
- Unusual bruising
- A rash or dark spots under the skin
- Muscle weakness
- Tingling or numbness, especially in the legs
- Bloody or dark urine or stool
- Severe headache or stomach pain

Common minor side effects of LMWH include diarrhea, nausea, and mild pain, irritation, redness, or bruising at the injection site. These are usually not serious, but talk to your doctor if they are bothersome or become worse.

I am receiving LMWH. What should I know?

Before taking LMWH, make sure your doctor knows about all medications you are taking, including prescription drugs, over-the-counter medications, and any dietary supplements including vitamins, minerals, or herbal supplements. Some medications can increase your chance of bleeding when you take LMWH, including aspirin and other non-steroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen (Motrin, Advil) and naproxen (Aleve).

Be sure to tell your doctor or dentist you are taking LMWH before you have any type of surgery or dental procedure, and before you start taking any new medication.

If you are taking LMWH for long-term blood clot prevention, you may need to inject it yourself at home. Your doctor, nurse, or pharmacist will give you instructions on where, how, and how often you should inject the medication. Ask questions if there is anything you do not understand. Be sure you know the proper way to store your medication and how to dispose of used needles and syringes.

What is heparin?

Heparin is a fast-acting blood thinner that is given through an intravenous (IV) line in the arm or injected under the skin. Heparin makes the blood less sticky, preventing new blood clots from forming and stopping existing clots from growing larger.

Standard heparin, called *unfractionated heparin*, was once the standard initial treatment for DVT and PE. Although effective, standard heparin has mostly been replaced by a new kind of heparin called [Low Molecular Weight Heparin](#).

Heparin

Names:

Heparin

How it is given:

Injected under the skin (*subcutaneous*) or injected through a needle

What it is used for:

- To treat DVT and pulmonary embolism
- To prevent blood clots in patients undergoing high-risk surgeries
- To treat stroke caused by blood clots

You should not be treated with it if:

- You are currently bleeding, such as from a bleeding stroke or stomach ulcer
- You have had an allergic reaction to heparin in the past
- You have received the clot-buster tPA in the past 24 hours

Pregnancy/nursing:

The safety of this medication during pregnancy is unknown; you and your doctor should discuss the risks and benefits.

Who might receive heparin?

While heparin can be used as an initial treatment for DVT, it has mostly been replaced by [Low Molecular Weight Heparin](#) (LMWH) for this purpose. Research has shown that LMWH is better at preventing clots and is less likely to cause dangerous bleeding.

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Either standard heparin or LMWH may be used to treat pulmonary embolism (PE), a blood clot that formed in the arm or leg veins and traveled to block an artery in the lungs.

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Heparin is usually given in the hospital for 5 to 10 days after a DVT or PE.

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If you are at risk for blood clots because you are having certain types of surgery (such as knee or hip surgery) or because you are immobilized in the hospital, you may receive heparin to

prevent blood clots. When given in this way, heparin reduces the risk of DVT or PE by 60% to 70%.⁶ For general surgery patients at high risk for blood clots, both standard heparin and LMWH are equally effective.⁵

What are the risks of heparin?

Because heparin has an immediate effect on the blood's ability to clot, it can lead to dangerous excessive bleeding. The risk of bleeding increases as the dose of heparin increases. If you are given too much heparin you may bleed too much, but if you are not given enough heparin your blood may continue to form dangerous clots.

Women, especially older women, are at a higher risk for bleeding complications from blood-thinning medications, including heparin. To make sure you are receiving the right dose of heparin, you will need regular blood tests to measure the time it takes for your blood to clot. If your blood is taking too long to clot, your heparin dose will be lowered. Blood tests are usually done 6 hours after starting heparin, and then once daily for as long as you are taking it.

Call your doctor immediately if you notice any of these signs of bleeding problems while taking heparin:

- Unusual or excessive bleeding from a minor injury
- Unusual bruising
- A rash or dark spots under the skin
- Muscle weakness
- Tingling or numbness, especially in the legs
- Bloody or dark urine or stool
- Severe headache or stomach pain

Another possible side effect of heparin is loss of bone density: long-term use of heparin has been linked to an increased risk of osteoporosis.⁷ However, most women being treated for DVT or PE will receive heparin for only a short time, and will be switched to another type of blood thinner (usually warfarin) for long-term blood clot prevention.

I am receiving heparin. What should I know?

Before receiving heparin, make sure your doctor knows about all medications you are taking, including prescription drugs, over-the-counter medications, and any dietary supplements including vitamins, minerals, or herbal supplements. Some medications can increase your chance of bleeding when you take heparin, including aspirin, ibuprofen (Motrin, Advil), naproxen (Aleve), and other NSAIDs (*non-steroidal anti-inflammatory drugs*).

Be sure to tell your doctor or dentist you are taking heparin before you have any type of surgery or dental procedure, and before you start taking any new medication.

See also: [Heparin & Stroke](#)

What is warfarin?

Warfarin (Coumadin) is a blood thinner that makes the blood less sticky, preventing new clots from forming and stopping existing clots from growing. Warfarin acts more slowly than [heparin](#) and [LMWH](#), but unlike these other medications it can be given as a pill instead of an injection. Warfarin is the most commonly used drug for long-term blood clot prevention in women at risk.

Warfarin is also given to women who have had a [DVT](#) or pulmonary embolism (and sometimes a [heart attack](#) or [stroke](#)) to reduce the risk of blood clots in the future. It can also prevent blood clots after surgery or while you are confined to bed in the hospital.

Warfarin

Generic names:	warfarin
Brand names:	Coumadin
How it is given:	Pill
What it is used for:	

- To treat or prevent DVT or pulmonary embolism
- After a heart attack or stroke to reduce the risk of dying or having another heart attack or stroke (le
- To prevent blood clots and reduce the risk of stroke in women with atrial fibrillation or replacement

You should not be treated with it if:

- You have had a bleeding (hemorrhagic) stroke
- You have open wounds or an ulcer
- You have severe liver or kidney disease
- You have received tPA in the last 24 hours

Pregnancy/nursing: Warfarin should not be used in women who are pregnant or may become pr

Who might receive warfarin to treat or prevent DVT and PE?

After initial treatment with other blood-thinning drugs such as [LMWH](#) , you will usually be prescribed warfarin to take at home to prevent blood clots. Taking warfarin reduces your risk of future blood clots by more than 90%.

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How long you need to take warfarin depends on how likely you are to have another blood clot. Most women who have had a DVT or pulmonary embolism should take warfarin for at least 3 months.² If you have [risk factors for blood clots](#) that are no longer present (such as recent surgery or pregnancy), 3 months is usually long enough. If you have conditions that continue to put you at risk, you will need to take warfarin for 6 months or more.

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Women who have had more than one DVT in the past, or who have [blood clotting problems](#) or other conditions that put them at very high risk for clots, may need to take warfarin for the rest of their lives.

Warfarin may also be given to prevent DVT if you are undergoing a surgical procedure that carries a high risk of blood clots, such as hip or knee surgery.⁵ Warfarin is less convenient than LMWH because you need to have frequent blood tests to measure your blood's clotting ability.

Who should not receive warfarin?

Warfarin should not be used in pregnant women because it can cause birth defects or excess bleeding during delivery.² Other blood thinning drugs such as LMWH are less likely to cause these problems and may be the treatment of choice for pregnant women.

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Warfarin may be less effective at preventing blood clots in women with cancer, or who have trouble maintaining safe blood clotting levels while taking warfarin.² These women may need to take a different type of blood-thinning drug to prevent clots.

What are the risks of warfarin?

The main risk of warfarin is excess bleeding, which occurs in about 3% of patients each year. Because women who have had a DVT or PE have a 5% to 7% risk of dying of DVT or pulmonary embolism within a year, the benefits of preventing clots usually outweigh the risk of bleeding problems.²

I am receiving warfarin. What should I know?

If you have been prescribed warfarin, you will need to have regular blood tests to prevent your blood from becoming too thin or too thick. You will be tested daily for the first few days, then two or three times a week for a few weeks, and less often after your blood clotting has stabilized. This process can be frustrating and bothersome, and it may take several weeks of adjustments before finding the best dose for you.

Warfarin can cause excessive bleeding from even minor cuts such as a razor nick. If you have to take warfarin, you will be advised to avoid activities that might cause injury. Your diet can affect how well warfarin works: getting too much vitamin K in your diet makes bleeding problems more likely while taking warfarin, so you may need to restrict foods that contain vitamin K. These include green vegetables (such as lettuce and broccoli), avocado, and egg yolks. Ask your doctor about other dietary considerations while you are taking warfarin.

Women taking warfarin for 3 to 10 weeks or longer may develop purple toe syndrome, in which the toes and feet turn a dark, purple, blue, or mottled color. This side effect may be reversible, but if left untreated, it may cause gangrene.

Warfarin Warning Signs

Talk to your doctor immediately if you experience any of these symptoms:

- Bruising or unusual bleeding
- Black or bloody stool
- Vomit that contains blood or looks like coffee grounds
- Fever, chills, or flu-like symptoms
- Joint or muscle aches
- Pale skin
- Your toes or feet turn a dark, purple, blue, or mottled color that fades if you raise your legs (purple)

Seek emergency medical attention if you experience any of these signs of an allergic reaction:

- Hives, rash, or itching
- Swelling
- Faintness, dizziness, or loss of consciousness
- Difficulty breathing
- Numbness or tingling
- Chest pain or pressure

Learn more: [Blood-Thinning Pills: How to Use Them Safely](#)

What are clot busters?

Clot busters (*thrombolytics*) are a type of medication used to dissolve blood clots. In most cases your body can break down and reabsorb a DVT blood clot on its own. However, your doctor may use clot busters to speed up this process if you have a large clot that is causing heart or breathing problems. Because clot busters increase the risk of dangerous bleeding, they will only be used when absolutely necessary.

The most common type of clot-busting drug used to treat DVT or PE is called *tissue plasminogen activator* (tPA), but other medications may also be used. tPA is also used to break up clots that caused a blocked-vessel stroke or heart attack.

See also: [Immediate Stroke Treatment: tPA](#)

How are clot-busters given?

Clot busters are usually given as an injection in the hospital. In some cases, the medication may be injected directly onto the clot during a procedure called *catheter-directed thrombolysis*. In this procedure, a long, thin tube called a catheter is inserted into a small cut in your groin or arm and guided through your blood vessels to the location of the clot using X-ray images. Once in place, the clot-busting drug is released onto the clot to dissolve it and restore blood flow. To learn more about the catheterization procedure, see [cardiac catheterization](#).

Who might need clot busters to treat DVT or PE?

For most women with DVT or PE, blood-thinning drugs (such as [LMWH](#)) are enough to prevent further blood clots and reduce the risk of dying. However, some women with large blood clots,

especially those that have broken off to block an artery in the lungs (pulmonary embolism) may benefit from clot busters to speed the breakdown of the clot.

Clot busters are rarely used to treat DVT, but women with extensive blood clots in the veins of the abdomen or upper legs may benefit from clot busters as long as they have a very low risk of bleeding problems.⁹ Because blood clots that travel to the lungs are more likely to cause serious complications, clot busters are more often used to treat pulmonary embolism. You may benefit from clot busters if you have been diagnosed with pulmonary embolism and you:

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- Lose consciousness
- Are not getting enough oxygen because the clot is blocking blood flow to a large part of the lungs
- Have very low blood pressure (*hypotension*)
- Develop [heart failure](#)
- Already have heart or lung disease

Who should not receive clot busters?

You should not receive clot busters if you are currently bleeding (such as because of a recent injury or surgery, stomach ulcer, or bleeding stroke) or if you have other conditions that make bleeding more likely. Certain other medications, such as [warfarin](#) and [aspirin](#), can make bleeding problems worse when combined with clot busters.

If you are unable to take clot busters because the risk of bleeding is too high, the clot may need to be removed with surgery or other methods. See [DVT Treatment Overview](#) to learn more.

What are the risks of clot busters?

As with other drugs to treat DVT and PE, the main risk of clot busters is excess bleeding. Because of this risk, clot busters are only used in life-threatening situations. If you are being treated with clot busters, your doctor has determined that the benefits of restoring blood flow quickly outweigh any bleeding risks.

If you are having a procedure in which the clot buster is injected directly onto the clot through a catheter, there is a small risk of complications including:

- Infection of the incision where the catheter was inserted
- Damage to your arteries from the catheter
- An allergic reaction to the X-ray dye used in the test

References

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