

# How to ID and Prevent Blood Clots

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July 20, 2024

## STORY AT-A-GLANCE

- › Up to 900,000 Americans experience deep vein thrombosis or pulmonary embolism each year, and as many as 100,000 die as a result
- › Deep vein thrombosis may cause sudden or gradual pain in one leg or arm, along with swelling, tenderness or redness or discoloration of the skin
- › The most common symptom of pulmonary embolism is sudden shortness of breath
- › Fibrinolytic agents, sometimes referred to as thrombolytic agents, are capable of dissolving blood clots that may block your veins or arteries
- › Lumbrokinase is about 300 times stronger than serrapeptase and nearly 30 times stronger than nattokinase, making it my top recommendation if you are using a fibrinolytic enzyme

A blood clot is a mass of blood that's changed from a liquid to a gel-like or semisolid state. This process, known as coagulation, is crucial for preventing excessive bleeding when you have an injury. However, clots can also form inappropriately within blood vessels, which can lead to serious health problems.

When a blood clot forms inside a blood vessel and obstructs blood flow, it's called a thrombus. If part of the clot breaks off and travels through your bloodstream, it becomes an embolus. Depending on where these clots occur and where they travel, they can cause conditions such as deep vein thrombosis (DVT), pulmonary embolism, heart attack or stroke.

Up to 900,000 Americans experience a DVT or pulmonary embolism each year, and as many as 100,000 die as a result.<sup>1</sup> Knowing the signs and symptoms is important for getting prompt medical care, while taking steps toward prevention can help you avoid blood clots and their complications.

## What Increases Your Risk of Blood Clots?

Venous thromboembolism (VTE), which includes both DVT and pulmonary embolism, can affect anyone, but it's more common if you've recently been hospitalized or had surgery. In fact, 50% of blood clots occur during or soon after hospitalization or surgery, according to the U.S. Centers for Disease Control and Prevention (CDC).<sup>2</sup>

Being immobile for long periods of time, such as during extended bed rest or travel, also increases your risk, and you're more likely to have a blood clot if you've had one previously. In fact, out of 10 people who have had a blood clot, three will have another within 10 years.<sup>3</sup> Certain medical conditions, including diabetes, high blood pressure and chronic inflammatory diseases, increase blood clot risk as well.<sup>4</sup> Additional risk factors include:<sup>5</sup>

Pregnancy and the postpartum period	Older age
Family history of blood clots	Overweight or obesity
Recent or recurrent cancer	Injury
Estrogen-based drugs such as hormonal birth control or hormone replacement therapy	Smoking

## Common Signs and Symptoms of Blood Clots

Signs of a blood clot vary depending on its location in your body. Deep vein thrombosis may cause sudden or gradual pain in one leg or arm, along with swelling, tenderness or

redness or discoloration of the skin. The area may also feel warm. Pain due to DVT can feel like a cramp, often starts in your calf and may get worse when you stand, walk or bend your foot.

"DVT in the leg is the most common type of venous thrombosis, and it can cause serious illness, disability and in some cases death," Dr. Luis Sanchez, chief of vascular surgery at Washington University said in a news release. "Almost anyone can develop this serious and preventable disease, making it incredibly important to know the risk factors and warning signs if you or a loved one develops a DVT."<sup>6</sup>

Pulmonary embolism, a blockage in one of the pulmonary arteries in the lungs, often occurs due to DVT, when a part of the clot breaks off and travels to the lungs. Pulmonary embolism symptoms are often similar to those of a [heart attack](#), and the most common symptom is sudden shortness of breath.<sup>7</sup>

Chest pain that gets worse when breathing, coughing — including coughing up blood — irregular heartbeat and lightheadedness can also occur. Some people also experience a feeling of anxiety, sweating, racing heart and low blood pressure, and you may also have DVT symptoms.<sup>8</sup>

A blood clot in your brain can cause an ischemic stroke, leading to weakness in your face, arms or legs, trouble speaking, vision problems, severe headache and dizziness.<sup>9</sup> Abdominal blood clots can also occur, although they're less common than blood clots in the legs or lungs. Symptoms of a blood clot in the abdomen can include severe abdominal pain, vomiting and diarrhea.

## **The Thrombogenic Hypothesis: Blood Clots May Cause Heart Disease**

In my interview with Dr. Malcolm Kendrick, a board-certified family physician and author of the book, "[The Clot Thickens: The Enduring Mystery of Heart Disease](#)," he explains an alternative hypothesis for what causes heart disease. In 1852, a Viennese researcher,

Karl von Rokitansky, developed what he called the encrustation hypothesis of heart disease.

Today, this hypothesis has been renamed the **thrombogenic hypothesis**. "Thrombo" stands for thrombosis, i.e., blood clots, and "genesis" means the cause of, or the start of. So, the thrombogenic hypothesis is that blood clots are the basic pathology that causes all heart disease.

In a nutshell, when a blood clot forms on your artery wall, which can happen for a number of reasons, it will typically be covered over and dissolved. A problem arises, however, if the blood clot is not fully eliminated and another blood clot forms in the same "vulnerable" area. This then becomes what's conventionally referred to as atherosclerotic plaque.

*"The atherosclerotic plaque is basically a buildup of blood clot, repair, blood clot, repair, blood clot, repair," Kendrick explains. "If the blood clotting process is faster than the repair process, you have a plaque that gradually grows and eventually thickens the artery wall until it narrows sufficiently that the final blood clot, on top of the existing plaque, is the thing that can cause a heart attack or stroke ..."*

*If you cut through the plaque and look at it, it almost looks like tree rings. You can see there's been a clot, repair, clot, repair, clot, repair, clock, repair over the years.*

*It's widely accepted that a blood clot forming on an existing plaque will cause the plaque to grow in size. You can find 10,000 papers saying that this is the case. What the mainstream won't accept is that a blood clot on a healthy artery wall can initiate the whole process.*

*So, to an extent, all I'm saying to people is, well, we know blood clots cause the final event. We know blood clots cause plaques to grow. Why won't you accept that blood clots are the thing that starts it in the first place? Because then we*

*have one process all the way through, and it makes sense, because it fits with what you can see."*

Blood clots don't just keep on growing and growing. If they did, you'd die anytime you had a blood clot. Instead, when a clot forms, other processes step in to prevent it getting too big, which is why every blood clot doesn't cause a stroke or heart attack. Once the clot has stabilized, and has been shaved down, the area is covered over by endothelial progenitor cells, made in the bone marrow, that float around in your blood stream.

When a progenitor cell finds an area that has been damaged, it attaches itself to that area, along with others, forming a new endothelial layer. The remaining blood clot is now lying 'within' the artery wall itself. So, basically, it's the repair process that can lead to plaque buildup within the artery wall. In time, if damage outstrips repair, this can narrow the artery and reduce blood flow.

Blood clots were also a hallmark in [cases of severe COVID-19](#). In many of these cases, patient met criteria for disseminated intravascular coagulation (DIC),<sup>10</sup> which refers to a systemic disorder that affects blood coagulation and can result in organ dysfunction and death. Sepsis, meanwhile, is one of the most common causes of DIC,<sup>11</sup> highlighting the serious repercussions that can occur if blood clotting goes awry in your body.

## **Fibrinolytic Enzymes May Help Break Down Clots**

Fibrinolytic agents, sometimes referred to as thrombolytic agents, are capable of dissolving blood clots that may block your veins or arteries. In general, cleaner arteries are a benefit to your cardiovascular health, which is one reason why fibrinolytic enzymes like lumbrokinase, nattokinase and serrapeptase should be on your radar.

Lumbrokinase, serrapeptase and nattokinase are proteolytic enzymes that act as natural anticoagulants by breaking down fibrin that forms blood clots. Fibrin, a clotting material that restricts blood flow, is found both in your bloodstream and connective tissue such as your muscles. Fibrin accumulation is also responsible for scar tissue.

**Fibrinolytic enzymes** inhibit platelet aggregation and the formation of blood clots similarly to aspirin. In an animal study, a 500 milligram per kilogram (mg/kg) dose of nattokinase fully prevented a blocked artery, as did aspirin at a dose of 30 mg/kg, demonstrating its effectiveness at improving blood flow.<sup>12</sup>

Lumbrokinase is about 300 times stronger than serrapeptase and nearly 30 times stronger than nattokinase,<sup>13</sup> making it my top recommendation if you are using a fibrinolytic enzyme. Extracted from earthworms, lumbrokinase is a highly effective antithrombotic agent that reduces blood viscosity and platelet aggregation<sup>14</sup> while also degrading fibrin.

Fibrinolytic enzymes are ideal for targeted usage. If you intend to use them daily, be sure to alternate lumbrokinase with other types, including nattokinase and serrapeptase, so you don't develop a sensitivity or allergy to them. Also, they need to be taken on an empty stomach, at least one hour before or two hours after meals containing protein.

## **Additional Tips to Lower Your Risk of Blood Clots**

In addition to fibrinolytic enzymes, the following strategies may also help lower your risk of blood clots:

- **Avoid unnecessary use of nonsteroidal anti-inflammatories (NSAIDs) such as ibuprofen and naproxen** — While they effectively inhibit inflammation, they can cause platelet aggregation by blocking COX-2. In other words, they activate your blood clotting system, making blood clots more likely.
- **Get plenty of sensible sun exposure** — Sun exposure triggers nitric oxide (NO) that helps dilate your blood vessels, lowering your blood pressure. NO also protects your endothelium, and increases mitochondrial melatonin to improve cellular energy production.
- **Avoid seed oils and processed foods** — Seed oils are a primary source of the omega-6 fat **linoleic acid** (LA). Excessive intake is associated with most all chronic diseases, including high blood pressure, obesity, insulin resistance and diabetes.

LA gets embedded in your cell membranes, causing oxidative stress, and can remain there for up to seven years. Oxidative linoleic acid metabolites (OXLAMs) are what's causing the primary damage, including endothelial damage, which can increase the formation of blood clots.

- **Address chronic stress**, which raises both blood sugar and blood pressure, promotes blood clotting and impairs your repair systems. Cortisol, a key stress hormone, reduces endothelial cell production.
- **Quit smoking.**

## Sources and References

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