

## Blood Clot Risk in People with Spinal Cord Injury

### What are blood clots?

A blood clot is a clump of thickened blood. Normally, blood clots form to stop bleeding when you get hurt. Sometimes blood clots form at the wrong time and place.

- A blood clot that forms inside a vein is called **venous thrombosis**.
- **Deep vein thrombosis (DVT)** is a blood clot in one of the deep veins of the body, usually the legs and less often the arms
- **Pulmonary embolism (PE)** is a blood clot that has traveled from the legs to the arteries in the lungs.
- Prevention and early diagnosis of DVT and PE is important because a DVT can expand or cause other problems such as limb swelling, repeated or persistent clot, and PE can sometimes lead to sudden death. People with SCI may be more vulnerable to these consequences.

### What are the signs and symptoms of Deep Vein Thrombosis (DVT)?

- Warmth, swelling, redness or pain in an arm or a leg, with or without fever
- More frequent episodes of autonomic dysreflexia
- DVTs can be difficult to detect in people with SCI because constant mild leg swelling is common, and you may not be able to feel the symptoms.

### What are the signs and symptoms of Pulmonary Embolism (PE)?

- Sudden chest pain especially with taking a breath, shortness of breath, rapid breathing, bloody phlegm, and fever.
- Again, some people with SCI may not be able to feel chest pain, and the symptoms are not always obvious. Watch for unusual changes in breathing.

### When am I most at risk for blood clots?

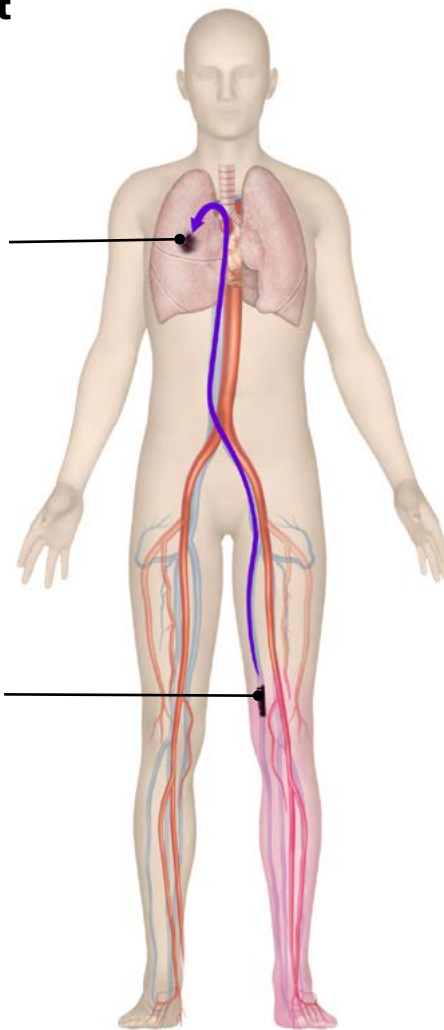
People with SCI are at the highest risk for developing DVT or PE usually within the first 2-3 months following their injury. Studies suggest the risk is high in the first two weeks because:

- You are suddenly not moving around much, which allows blood to pool and clot.
- You may have injuries to the blood vessels or temporary changes in your blood that may make it easier to form a clot.

### Blood Clot Locations

Pulmonary embolism (PE)

Deep vein thrombosis (DVT)



## How are blood clots prevented after SCI?

Blood clots can usually be prevented by blood thinners. Unless there is a compelling reason (such as dangerous bleeding) to avoid using blood thinners, most people with SCI receive blood-thinning medications for at least two months after injury, and use graduated compression stockings with leg compression pumps for the first two weeks. Your medical provider may recommend differently if you have a personal or family history of blood clots, problems with clotting your blood, or develop a persistent clot. You can find detailed recommendations in the Consortium for Spinal Cord Medicine's Clinical Practice Guidelines.

## I have had my SCI for many years. Am I still at increased risk for blood clots?

In people who do not have a clotting disorder, the risk for clot formation right after SCI drops after 8 weeks. However, it remains slightly higher than in people who do not have SCI. Long-term use of blood thinners is not usually necessary, but your medical provider can make recommendations based on your condition. You can be at higher risk for blood clots again if you become immobilized for a lengthy period, such as:

- during bed rest to heal a pressure injury or ulcer
- while hospitalized for a medical illness
- after a new fracture of a hip, thigh, or leg bone
- after surgery

In these situations, your healthcare provider may start you on a blood-thinning medication for a brief time.

## How are DVTs diagnosed?

The most commonly used test to diagnose a DVT is a type of ultrasonography called a venous duplex scan, which detects abnormal blood flow within the veins of the body, including the arms or legs.

## How are PEs diagnosed?

The most common tests to diagnose a PE are:

- Computed tomography (CT) scan, which shows the arteries in the lungs to see if there is a clot.
- Ventilation/perfusion (VQ) scan, which measures both the air and blood flow to the lungs. If there is a mismatch between the air and blood flow in a particular area, there may be a blood clot.

## Is there anything I can do to prevent DVT and PE?

Yes. Exercise, weight loss, quitting smoking, and use of compression stockings can reduce your risk of developing a DVT or PE. Talk to your healthcare provider about whether compression stockings are appropriate for you. If you have had more than one DVT, or have a personal or family history of a condition that makes you prone to forming clots, talk with your healthcare provider about whether you may need blood thinning medication for the rest of your life.

### Resource for health care providers:

Consortium for Spinal Cord Medicine. (2016). *Prevention of Venous Thromboembolism in Individuals with Spinal Cord Injury: Clinical Practice Guideline for Health Care Providers*, 3rd ed. Washington, DC: Paralyzed Veterans of America.

### Authors:

**Shawn Song, MD**  
**Deborah A. Crane, MD, MPH**  
**Maria Regina Reyes, M.D.**  
**UW Medicine SCI Core Group**

**Maria Regina Reyes, MD- Editor/Project Director**

**Disclaimer:** This information is not meant to replace the advice from a medical professional. You should consult your health care provider regarding specific medical concerns or treatment.

The SCI Empowerment Project is funded by a grant from the **Craig H. Neilsen Foundation** to the Department of Rehabilitation Medicine, University of Washington, Seattle, WA.

