

# Do you really need compression socks on long flights?

June 6 2024, by Michael Merschel

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Since the dawn of the jet age, travelers have been warned about the risks of dangerous blood clots while flying. In recent years, those warnings have often been accompanied by advice to wear compression socks.

But the case for keeping them on your packing list isn't as clear-cut as you might expect.

"It's perfectly fine to use them," said Dr. Joshua Beckman, director of vascular medicine at UT Southwestern Medical Center in Dallas, but science can't say exactly how much they might help travelers.

Compression socks—sometimes referred to as graduated [compression socks](#) or stockings—squeeze at the ankles, with pressure gradually decreasing further up the leg. The squeezing helps keep blood flowing by forcing blood in the legs to return to the heart.

An estimated 666,000 people in the U.S. were hospitalized with [deep vein thrombosis](#), or DVT, in 2020, according to the most recent [statistics](#) from the American Heart Association. DVT occurs when a [clot](#) forms in a large vein, usually in a leg. An additional 432,000 were hospitalized for pulmonary embolism, where a clot travels to the lungs. In 2021, those problems—collectively known as venous thromboembolism, or VTE—were mentioned as a cause of nearly 81,000 deaths.

DVT symptoms include leg pain, swelling or skin that feels warm to the touch. Pulmonary embolism symptoms include shortness of breath, coughing and chest pain.

A long-haul flight makes VTE from 1.5 to four times more likely, according to a [review of research](#) in the Cochrane Database of Systematic Reviews that was updated in 2021.

At the same time, those dangerous blood clots are rare. A [2007 research review](#) in the *Journal of Internal Medicine* estimated there are 4.8 cases of severe pulmonary embolism per million flights longer than 12 hours. The risk of DVT within four weeks of a flight of at least four hours was 1 in 4,600 flights.

Dr. Eri Fukaya, a vascular medicine specialist at Stanford University in California, said flying can indeed create "a perfect storm for a clot." But other factors come into play first.

People who are older, smoke, have obesity or have a family history of severe clots are at higher risk of VTE, as are people who have previously had such clots, she said. So are people who have recently been treated for cancer or take estrogen.

Fukaya likens such risks to water in a bucket. Someone whose bucket is nearly filled by those factors will be at higher risk than someone with an empty bucket. And if someone's bucket is nearly full, air travel might make it overflow.

Immobility, the kind that comes from sitting in a cramped seat for hours, raises the risk, she said. And flyers may avoid drinking water because they don't want to have to get up to use the bathroom. That can lead to dehydration, which can thicken the blood.

Even so, the risk of developing severe blood clots specifically from flying remains so low that studying it is a real challenge, Beckman said.

He noted a [study published in 2022](#) in the *American Journal of Obstetrics and Gynecology: Maternal-Fetal Medicine* that looked at VTE in a high-risk group: women who were pregnant or had just given birth. Women who flew did have more risk compared with those who did not fly. But the difference was "very tiny," he said—0.07% versus 0.05%, respectively.

Such numbers illustrate why it's almost impossible to say whether compression socks make any difference in preventing blood clots among flyers, Beckman said, "because if the risk is really low, and you go from really low to really, really low, you can't have enough people in a study to

actually figure it out."

The Cochrane review looked at data from 2,918 people in 12 randomized clinical trials. It found high-certainty evidence that wearing compression stockings reduced the risk of symptomless DVT when traveling on a flight of more than four hours. But it could not offer conclusions about any effect on the odds of death, [pulmonary embolism](#) and symptomatic DVT because no trial participant had those problems.

American Society of Hematology guidelines do not recommend compression socks for low-risk travelers on short flights and recommend socks on longer flights only for people at high risk of blood clots.

Studies in hospitals do show that compression socks prevent blood clots in people who have had surgery, Beckman said. But among people who are on bed rest for non-surgical illnesses, the benefit is less clear, he said, and "if it's hard to establish in sick people at [bed rest](#) in a hospital, then it is very, very hard to establish a benefit for ambulatory people who are well and going on vacation in a plane or even a car."

That said, if a doctor recommends that you wear compression socks for any reason, you "absolutely" should do so, he said.

But his advice to travelers worried about blood clots is to "get up and walk every couple of hours. Drink lots of water."

To that, Fukaya adds that while seated, passengers should flex their calf muscles and roll their ankles around in "big circles, both directions. Then take off your shoes, and wiggle your toes. All of that motion gets the blood moving."

And if you've been wearing compression socks and like them—don't throw them out just yet.

Like Beckman, Fukaya said they don't do any harm. Unlike Beckman, she's a fan who wears them regularly.

Compression has been used since ancient times, she said. The socks stimulate calf muscles when you move and can help prevent swelling.

"I wear them almost every day," Fukaya said. She started doing so because wanted to understand her patients' experiences and discovered that "my legs feel a lot better wearing them."

People with poor circulation from [peripheral artery disease](#) should wear compression socks with caution, she said. But others can experiment to see what works best.

You'll find all kinds of choices, Fukaya said. Some compression socks are marketed toward athletes, and others are for medical use. Medical-grade compression socks are rated by their amount of pressure as measured in millimeters of mercury, but Fukaya doesn't pay much attention to those numbers. The actual pressure would vary based on how big someone's leg is, and there are no regulations on how to rate a sock.

So, it's relative. "It's kind of like going to a restaurant and saying, 'Do you want mild, medium or spicy?'" Fukaya said. She suggested starting out with a medium sock, and switching to "mild" or "spicy" depending on how it feels.

"You could wear it on one leg and not the other and see if one leg feels better than the other at the end of travel," she said. Fukaya suggests knee-high as opposed to thigh-high versions. But if you get a knee-high that's a little too long, don't roll it down. "That makes a tourniquet effect at the top."

Compression socks are fine for people who like them, Beckman said.

But when it comes to safe travel, he said there are more important things to pack. Like sunscreen.

"There are so many things that people have to think about" to protect their health, he said. "It's also important to get them to not have to think about things they don't need to think about."

Provided by American Heart Association

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