



The Beat

A publication of the North American Thrombosis Forum

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 Our website has a new look, but the same high quality information!



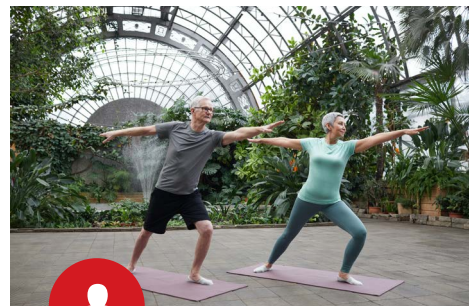
Blood Clots, Travel, and Athletes: What's the Connection?

Over the last few years, the popularity of endurance athletic events such as marathons, triathlons, and Ironman competitions has grown rapidly, with many athletes traveling long distances to compete. We spoke with Dr. Amanda Zaleski, Exercise Physiologist in the Department of Preventive Cardiology at Hartford Hospital, about potential risk factors for blood clots and preventive measures that people can take to help protect themselves.

Continued on page 3

Inside

- Blood Clots, Travel, and Athletes: What's the Connection?1
- Blood Clots and the FITT (frequency, intensity, type and time) Principles for Exercise1
- Upcoming Events2
- NATF Board and Staff6



Blood Clots and the FITT (frequency, intensity, type and time) Principles for Exercise

Continued on page 2



Upcoming Events & Support Groups

Virtual Support Groups

February 15, 2022

March 15, 2022

April 19, 2022

May 24, 2022

All support groups are at 7:00 PM EST

To register for these virtual meetings, email events@thrombosis.org or call 617-730-4120.



BLOOD CLOTS AND THE FITT (FREQUENCY, INTENSITY, TYPE AND TIME) PRINCIPLES FOR EXERCISE

Continued from page 1

Note: Before starting a new exercise routine, please consult with your healthcare provider. If you're taking anticoagulant medications, you are at an increased risk of bleeding. If you have a history of falls and have balance issues, you should consider starting a physical therapy program with a focus on balance activities that can help improve your balance and make exercise safer.

FREQUENCY

HOW OFTEN SHOULD YOU EXERCISE?

The American Heart Association recommends exercising at least five times per week for health benefits.

5X



INTENSITY

HOW HARD SHOULD I EXERCISE?

You should exercise at a moderate intensity level. On a scale of 0 to 10, with ten being the most difficult, moderate intensity is a 5 or 6. If this feels too hard, lower the intensity and gradually work your way up to a 5 or 6.



TYPE

WHAT TYPE OF EXERCISE SHOULD YOU DO?

You should do something you enjoy that increases your circulation, particularly to the extremities where most blood clots form (arms or legs). You should also keep in mind your risk for falls, and make sure you pick a safe activity.

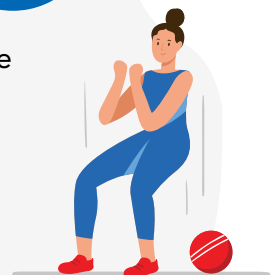


TIME

HOW LONG SHOULD I EXERCISE?

Aim for 30-45 minutes of aerobic exercise per day. If you are sitting for long periods of time, you should aim to get up and walk around (or do ankle pumps in situations where you can't walk around, like on an airplane) once per hour.

30-45 MIN



Continued on page 5



Q. Tell us about your work related to exercise physiology. What got you interested in this topic?

A: My interest is on how exercise can prevent or control risk factors related to heart disease, and I specialize in high blood pressure (otherwise known as hypertension). Our work largely focuses on adults with varying levels of risk across the lifespan, including elite runners and endurance runners all the way to people with established heart disease.

Almost 10 years ago, my colleague, Dr. Beth Taylor, and I became highly interested in the risk of blood clots in endurance athletes. At the time, Dr. Taylor's sister experienced a blood clot when she returned to her home in Seattle after running a half-marathon in Connecticut. Her sister was in her late twenties and otherwise healthy at the time. Both Dr. Taylor and I are marathon runners and her sister's event got us interested in this idea of whether there was any link between exercise and travel that may have played a role in her blood clot. At the time, there weren't a lot of studies about endurance athletes, blood clots, and the impact of travel; however, we did know [through other research] that any travel over four hours can increase the potential risk of a blood clot due to not moving around, being in one position for a long time, etc.

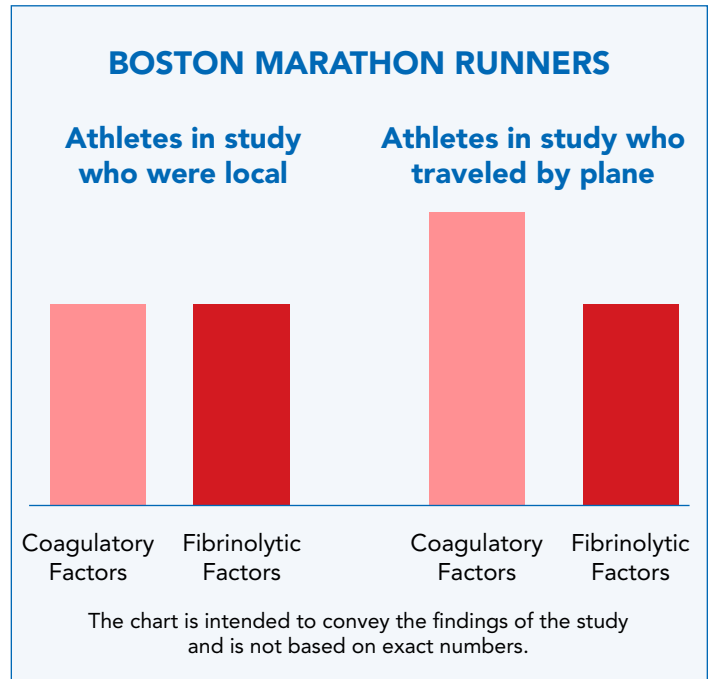
Q. How did you begin to assess the impact of travel on endurance athletes?

A: We recruited 20 individuals running in the Boston Marathon who were flying more than four hours to attend the event. The participants came from Texas, California, and Colorado and then we had a control group of 20 individuals from New England. For those traveling to the marathon, we partnered with Quest Diagnostics to collect traveling marathoners' blood in their home state, and then collected additional blood samples before and immediately following the marathon.

We also measured markers of blood clots (such as D-dimer levels) and blood breakdown (such as coagulatory and fibrinolytic factors) before they traveled, when they landed, and after their race. While none of the athletes in our study had a blood clot, athletes that flew in for the race did have elevated biomarkers for blood clots.

Q. Can you explain what elevated biomarkers means?

A: When you participate in a long-haul running event like a marathon, something called hemostatic system activation occurs. Hemostatic system activation is a normal process where the body responds to injury or inflammation by trying to essentially stop the body from bleeding too quickly. It typically causes an increase in coagulation factors (which help blood clot) and fibrinolytic factors (which help to break down blood clots). These factors typically increase at the same rate but the athletes that flew to the Boston Marathon had higher coagulatory factors than fibrinolytic factors – meaning they were potentially at higher risk for a blood clot.



Q. What should athletes keep in mind as they consider different athletic events?

A: In otherwise healthy athletes, it's important to note that these reports of blood clots are rare. Millions of people run marathons each year and the risk for blood clots is relatively low. But there are some risk factors that all people should keep in mind, especially athletes. We talked about travel as a potential risk factor, but what do you do after you run a marathon? You want to relax, right? Athletes are likely to be more sedentary the next day or two after a major athletic event, and like we



discussed, they may be traveling back home. That drop in movement (or what we call “stasis”) is a risk factor. Other factors include microtrauma (an injury resulting from repetitive stress to tissues) that comes from exercising or other larger injuries. All of these things (decrease in movement, injury, etc.) are risk factors for non-athletes, as well, so in combination, they can potentially create a “perfect storm” and tip the balance in favor of a blood clot.

Interestingly, in a published review of athletes who had blood clots, almost all of them were misdiagnosed initially. In some cases, the athletes misjudged their symptoms, thinking that pain in the leg might be a pull or tear, or that chest discomfort was due to an upper respiratory infection when they actually had a blood clot.

In other cases, a blood clot may not have been the first diagnosis on the radar for the clinician, causing a 20-day delay in diagnosis on average. A lot of athletes will also go to a physical therapist with what they think is a muscle tear or trauma and it's really a blood clot. It's something athletes should be aware of and talk about with their provider.

Q. What are some tips for preventing blood clots in athletes (or in all individuals)?

A: Some recommendations we have for all individuals, including athletes, who are traveling include the following:

- Wear loose fitting clothing and adjustable shoes.
- Make use of cabin overheads to leave yourself plenty of legroom.
- Pass on the salty food, which can contribute to water retention.
- Take a short walk every hour or so. Rotate ankles, point toes, and flex calves while seated. Elevate feet whenever possible.
- Drink plenty of water to prevent dehydration. Drinking lots of fluids can serve as a natural “alarm clock” to ensure you get up and “go” every so often!

- Avoid excessive alcohol consumption, which can contribute to dehydration and/or result in sitting in one position for too long.
- Be cautious of sleep sedatives, which can result in sitting in one position for too long.
- If you've had a blood clot in the past—or have a history of injury—talk to your doctor about medications that might help you manage your blood clot risk.

Another recommendation is to consider wearing compression socks while traveling, which is a relatively easy and inexpensive intervention that all people, including athletes, may derive benefit from. When wearing compression socks, individuals should measure the widest part of their calf and select the socks based on that size (and not necessarily their shoe size) to get the right fit. We also tell individuals to avoid compression sleeves (stockings that don't cover the entire foot), since sleeves can form a band around the ankle and cut off microcirculation.

Knowing the signs and symptoms of a blood clot—such as redness, pain, or swelling in the leg, and shortness of breath or trouble breathing—are important for athletes to help avoid a delay in diagnosis. In addition, athletes should know about the potential risk factors for blood clots and preventive measures that they can take to help protect themselves. ■



POST-BLOOD CLOT EXERCISE PRO TIPS

Dr. Ellen Hillegass, physical therapist, board certified in cardiovascular and pulmonary clinical specialty recommends the following:

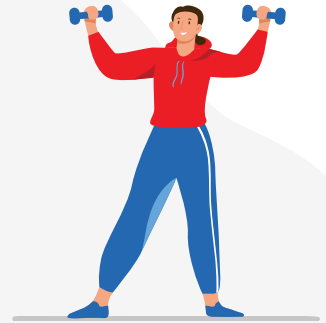
WHY EXERCISE IS IMPORTANT

Exercise is important for overall heart health. It's also important for mental health. Don't be afraid to exercise after a clot. This can be one of the most important interventions in addition to your medication.



BOOST YOUR CIRCULATION

You should perform exercises that will boost your circulation in the affected area. If your blood clot was in your arm, a simple way to start is by simply raising the affected arm over your head. You can then progress from no weights to light weights for an arm exercise within a comfortable range of motion with moderate exertion. Swinging your arms while walking will also help boost circulation.



DON'T UNDERESTIMATE COMPRESSION

Compression can help us, particularly if we have swelling, pain, or tenderness after a blood clot. Compression garments are available for arms and legs. Most compression garments should be worn at all times, except when sleeping. Wearing compression garments can not only help prevent blood clots, but will help reduce swelling. Your healthcare provider can prescribe the right type of sleeve or stocking for you.



USING A PULSE OXIMETER

If you have had a blood clot in your lungs, you might experience difficulty breathing during exercise. It may be helpful to monitor this using a pulse oximeter, which you can buy at your local drugstore. Pulse oximeters can be an easy way to look at whether you're getting short of breath and if your oxygen saturation is dropping. A normal level is about 96, but your normal level may be less than that at rest. Any number below 90 when you are exercising is concerning and should be reported to your healthcare provider. Swinging your arms while walking will also help boost circulation.



HOW TO EXERCISE SAFELY

How do you exercise safely with balance issues or a history of falls? Choose exercises that reduce your risk of falling, such as riding a stationary bike, walking on a treadmill with side rails, or walking with poles. When you're exercising and you have a history of falls or balance issues, remember that you're at a greater risk of bleeding if you're on anticoagulants, so you want to choose safer and low-impact activities.



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