



What happens to your body when you run a marathon?

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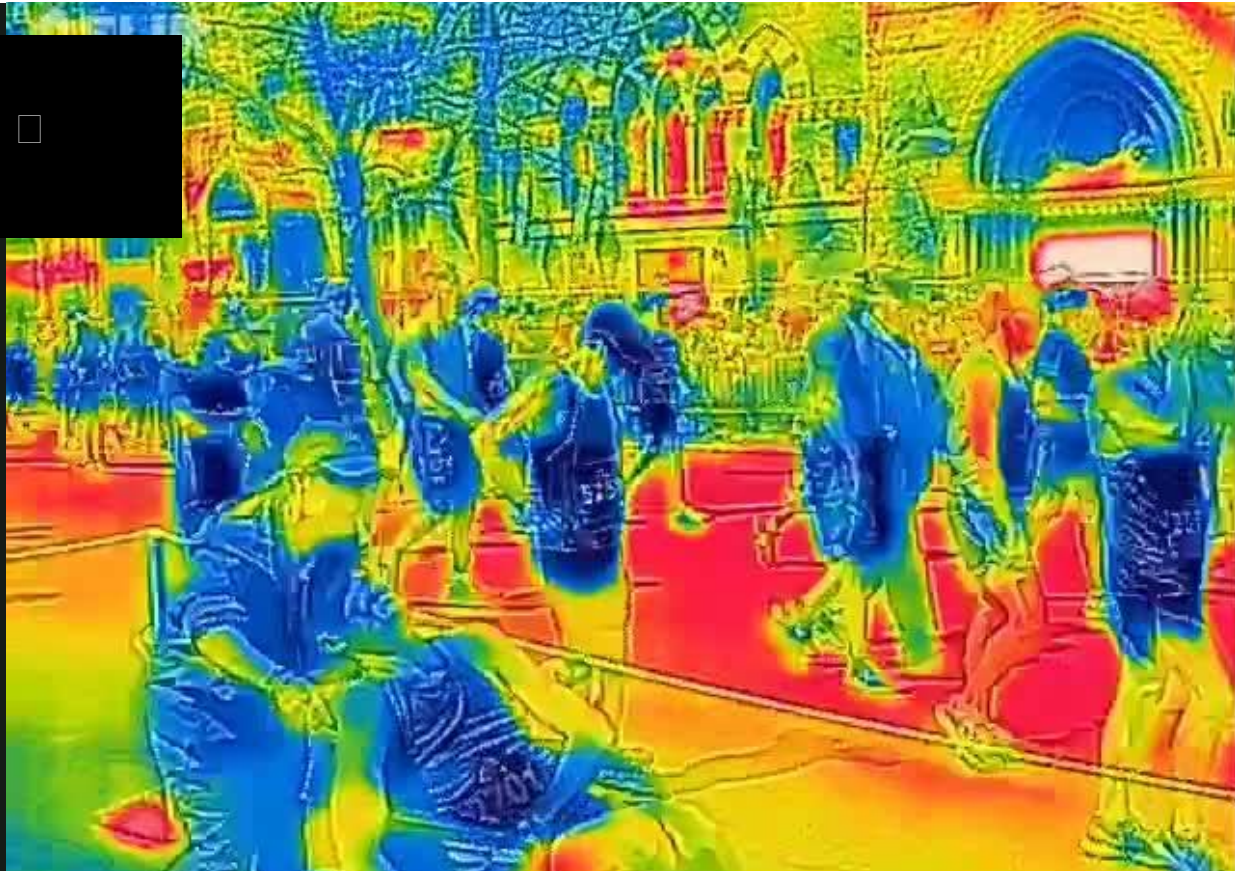
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By [Matt Rocheleau](#)

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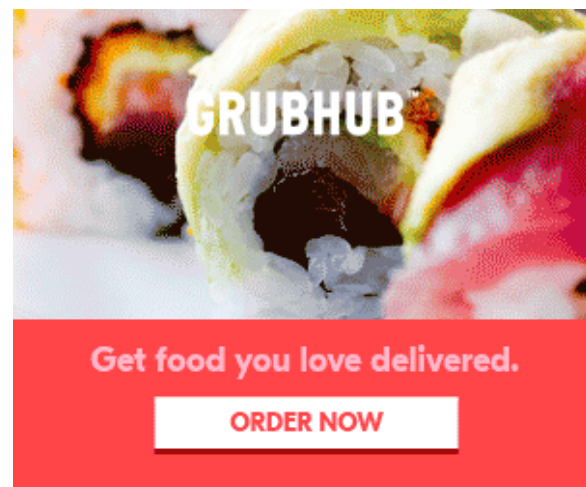
What does a marathon do to your body? Runners who compete in the grueling 26.2 mile race undergo a number of changes, some painful and some surprising.

“Running a marathon is definitely something that is, overall, taxing on your body when you’re doing

it,” said Dr. Malissa J. Wood, co-director of the Corrigan Women’s Heart Health Program at the Massachusetts General Hospital Heart Center and assistant professor of medicine at Harvard Medical School.

“There is a short-term price,” usually in the form of discomfort, she said.

But the temporary consequences might be well worth it.



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The best way to avoid as much pain as possible is to train and prepare properly, and all that training runners put in before tackling a marathon has significant health benefits, she said.

“That preparation is very beneficial for your body,” Wood said. “Especially as a person ages ... that type of training will really help them remain healthy.”

Here’s a rundown of some of the physiological effects of running a marathon:

Leg muscles

Perhaps the most obvious side effect of running such a long distance is that it will stress a person’s leg muscles.

Leg muscles can tire, which can lead to cramping and soreness.



“Muscles in the legs certainly break down a bit,” said Wood.

Marathoners of all kinds, including elite racers, can expect their muscles will become at least somewhat fatigued and achy.

“Even really fit, well-trained people don’t put themselves through that duration of exercise on a regular or daily basis,” said Wood.

Running, like other forms of exercise, causes microscopic tears in the muscles being used. As the body works to heal those tears when a person is resting in the hours after the race, that can cause inflammation and more soreness.

Heart and lungs

The heart and lungs also pick up the pace as they work in tandem to supply more oxygen-rich blood to the muscles being used.

“The heart muscle does get a little fatigued,” said Wood.

Because of that, she recommend that people train and prepare properly before attempting a marathon, and that those at risk for heart complications — those with high blood pressure or cholesterol, diabetes, and smokers, for example — take extra caution

Joints and feet

Running a marathon can take a toll on a person’s joints and their feet as they pound repeatedly on the pavement. Blisters can form due to the friction with socks and shoes, and there can be bleeding under a runner’s toenails — usually because their shoes don’t fit quite right — that eventually can lead to the nail falling off

“You want to make sure you’re running in shoes that fit right and that you’ve trained in,” said Wood.

Body temperature

A runner’s body temperature will typically change a bit when running a marathon. Often it rises due to the body’s increased activity, and that is particularly the case when running in warm weather when the body can struggle to release heat as quickly.

But, on cool days, the temperature of a marathoner’s sweaty body can go down, and can even cause hypothermia, particularly if it is rainy, windy, or the runner is not properly dressed for the conditions.

Digestive system

When running, blood flows toward muscles and away from a person’s digestive system, which can cause its functions to slow.

That can lead to abdominal pain, diarrhea, and bloating.

Kidneys

A person’s kidneys can also suffer short-term injury from running a marathon.

Factors including changes in body temperature, decreased bloodflow to the kidneys, and dehydration are believed to be cause the short-term kidney injuries.

Mucus

People aren’t the only ones who run marathons. Noses do, too.

As runners breathe faster, it can cause excess mucus to flow in their respiratory system.

Weight loss

The average runner loses between 1.5 and 2 pounds due to the water weight they shed as they run and sweat, Wood said. However, there can be a lot of variation. For example, some runners may not be any lighter after a marathon if they drank enough liquid to replace the water they lost.

Hydration

Because running for so long, particularly in warm weather, causes a person's body to lose so much water, it is important for runners to stay hydrated.

But drinking too much water — while rarely a problem — can dilute the amount of sodium in your body, which can lead to severe symptoms, even death. Normally, a person's kidneys would be able to regulate excess water intake, but because running can decrease bloodflow to the kidneys, they may not function as well.

That's why experts recommend drinking both water and drinks with electrolytes while running a marathon.

Skin

In addition to the potential for foot blisters, there can be other injuries to your skin from running a marathon.

There can be chafing, including in the armpit and thigh areas.

And being out in the sun that long can cause sunburns. Wood said runners often overlook the need for applying sunblock before they hit the course.

Brain

While many of the immediate side-effects of running 26.2 miles are negative, there are some positive ones that occur in the brain.

Running long distances can trigger the release of neurotransmitters that can produce feelings of euphoria and can distract from or numb some of the physical pain from running. It's commonly referred to as the "runner's high."

In addition to biological reactions in the brain, Wood said that runners may also feel happy, particularly as they near and cross, the finish because of the excitement of completing such a big task.

"The psychological benefit is profound. There's a great sense of accomplishment for marathon runners," said Wood. She would know: she's run five marathons, including the Boston Marathon three times.

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Carter

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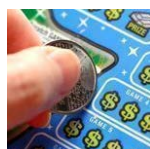
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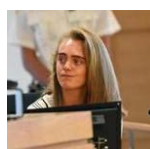
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