Dear Alice,

I started treadmilling 3 - 4 miles a day, 6 - 7 days a week, for 30 minutes a day. Recently someone told me this could have adverse effects on my knees and joints. Is this true?

Kneed to know

Answer

Dear Kneed to know,

It’s great that you’re incorporating physical activity into your week and also thinking about safety when it comes to these habits. Several factors contribute to runners’ knee and joint health, such as the way a person trains, their mileage, rest, recovery, diet, and the structure of their bones and joints. Research shows, however, that runners have no greater amount of joint destruction or incidence of arthritis than do non-runners. In fact, people who are inactive tend to have more mobility problems later in life than their running counterparts. Don’t run away just yet though — more on treadmills and protecting your knees and joints to come!

First, it can be helpful to start with how running on a treadmill differs from running on a typical road running surface (such as concrete or asphalt). Most road surfaces people run on are unable to absorb the impact of a stride, which may have a long-term impact on the knees. The variable terrain that comes with outdoor surfaces can also increase the risk of injury due to them being uneven. It’s also worth noting that running outdoors often results in a higher energy expenditure over shorter strides, which can contribute to higher rates of fatigue. With that said, road running does allow runners to build foot strength and balance, and because the terrain is variable, there’s less risk of repetitive motion injury.

How do treadmills compare? The treadmill’s cushioned platform absorbs more of the impact than running on a typical road, which may create less tension in the feet and help prevent knee injury. That said, research suggests that running on a treadmill doesn’t perfectly replicate a runner’s natural running stride, which can negatively impact foot health. Specifically, people tend to bounce up and down or reach their legs too far forward when they run on treadmills more than they do on roads. This may happen for a few reasons: for example, it could be because they’re...
trying to save energy by spending less time on the belt, or that the treadmill itself is actually at a height that doesn’t replicate natural terrain. This motion may decrease efficiency while increasing the strain, tension, and force on knees and feet. What’s more, risk of these problems are heightened with the use of lower-quality treadmills that often provide less padding for shock absorption.

There are advantages and disadvantages to both running outdoors and running on a treadmill. And running in general, regardless of the surface, poses some risks — particularly if your muscles aren’t getting the rest and recovery needed to repair and strengthen, which is possible with daily running. Engaging in repetitive motion exercises may put you at risk of injury if your joints, muscles, and connective tissue (e.g., ligaments and tendons) aren’t strong enough to support all of this work. If you’re dedicated to doing some kind of physical activity every day, consider using the treadmill a few times a week and working on other activities that utilize muscles not involved in running. In doing this (for example, by incorporating upper-body weight training, swimming, or cycling into your weekly routine), you’ll challenge and strengthen your muscles in different ways, and reduce the risk of muscle overuse. Varying the type of physical activity you do can also prevent you from getting bored or burned out from doing the same activity day after day. If you’re set on running daily, it might be good to try a progressive training program that increases duration or intensity by no more than ten percent per week. This means that if you begin by running 20 minutes the first week, you’d increase your time by two minutes the second week, and so on. These changes gives your body a chance to adapt to the growing demands of the activity.

Whether or not you’re running every day or a few times a week, it can be helpful to consider weight training for your legs, which can help strengthen the muscles, tendons, and ligaments that support the knee. It’s also good to incorporate knee stretches that help shape the legs; many people neglect these because they mistakenly think their legs are getting all the physical activity they need from aerobic work. Speaking with a professional, such as a personal trainer or a health care provider, may help you find the appropriate stretches for your body.

However you run, wherever you run, here’s to hoping you’re running safely!

Alice!

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