

## The great cartilage conundrum

### Does pounding the pavement really degrade knee cushioning?

by: Jill Barker

It's a rare runner whose knees haven't felt the brunt of their running habit. It has a reputation for being tough on the joints: peak loading at the knee is three times that of walking and eight times more than standing. It's not unusual for the well-intentioned to suggest retiring your running shoes in favour of an activity that's more knee-friendly.

Before you start researching the cost of a good road bike, it's worth noting that long-distance runners have a lower risk of osteoarthritis than the general population. So while it's easy to assume that kilometre after kilometre of pounding the pavement slowly degrades the cartilage - the cushioning that keeps bone from rubbing against bone - running might actually be an ounce of prevention. In fact, sports such as soccer and weightlifting have a higher incidence of osteoarthritis among their athletes than the running community - even when taking into account traumatic knee injury, which raises the risk of developing osteoarthritis.

Keeping in mind the cause of osteoarthritis isn't totally understood and is probably caused by a combination of factors rather than a single lifestyle choice, the debate about why runners are less likely to experience a loss of cartilage is ongoing.

One hypothesis is that the cartilage is stiffer during activity than during periods of inactivity, which decreases the impact stress on the joint while running. In practice, that means the cartilage is under more stress when standing for 30 minutes than while running for 30 minutes, which might explain why osteoarthritis is higher among those who stand for a living versus runners who log training hours. It might also be the reason athletes who put excessive amounts of load on their joints but in a more static position (such as weightlifters) and those who walk around day after day carrying excess weight have higher rates of osteoarthritis.

It's also possible the cartilage becomes conditioned to the stress of running, provided it has enough rest and nutrition to recover from the effects of a long run. Perhaps physical activity such as running promotes the growth and health of cartilage along with strengthening the stabilizers around the knee, which distributes the stress more evenly across the joint.

Then there's the assumption that runners are leaner than non-runners, which means less day-to-day stress on the knee.

Jeffrey Geller, chief of the division of hip and knee reconstruction at Columbia University Medical Center, points out that blood flow to the knee cartilage occurs only during physical activity.

"Activity and weight-bearing forces the nutrients in the joint fluid to diffuse into knee cartilage, and that is its main source of nutrition," he says in a quote in the Journal of the American Medical Association (JAMA) article [Can Exercise Prevent Knee Osteoarthritis](#).

Keep in mind that running is less likely to stress the joints of healthy runners, but might not offer the same protective benefits for runners who have other risk factors related to osteoarthritis, like suffering a traumatic knee injury (meniscus or anterior cruciate ligament tear). About 10 per cent of adult-onset knee osteoarthritis is related to previous injury, experts suggest.

Like all studies, the results can't be extended to all runners. This elite crowd might push the limits of the protective benefits of running, crossing the line into overuse. But be wary of associating an aggressive training schedule with damage to the soft tissue surrounding the knee or the likelihood of experiencing knee pain later in life.

Bottom line: Don't be put off when someone tells you a cautionary tale about running exposing your knees to stress. The same goes for runners north of middle age. There's no evidence that running is any less protective of the knee joint as the decades add up. And the final piece of good news is that you don't need to be a current runner to benefit from the protection it offers the knees. Studies show that anyone with a history of running is less likely to suffer knee pain than non-runners.

Photo: Adrian Shellard / The knee takes its fair share of the impact during a run, and while pain deserves attention, don't be too quick to hang up your shoes.;

© 2018 Postmedia Network Inc. All rights reserved.