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Phys Ed: Can Running Actually Help Your Knees?

By Gretchen Reynolds

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An article in Skeletal Radiology, a well-respected journal, created something of a sensation in Europe last year. It reported that researchers from Danube Hospital in Austria examined the knees of marathon runners using M.R.I. imaging, before and after the 1997 Vienna marathon. Ten years later, they scanned the same runners' knees again. The results were striking. "No major new internal damage in the knee joints of marathon runners was found after a 10-year interval," the researchers reported. Only one of the participants had a knee that was truly a mess, and he'd quit running before the 1997 marathon (but had been included in that study anyway). His 1997 knee M.R.I. revealed cartilage lesions, swelling and other abnormalities. In the years that followed, the knee became worse, showing augmented tissue damage and more serious lesions. His exam prompted the researchers to wonder whether he would have been better off persisting as a runner, because, as they speculate, "continuous exercise is protective, rather than destructive," to knees.

You can't be a runner past the age of 40, as I am, without hearing that running will ruin your knees, by which doomsayers usually mean that we'll develop "degeneration of the cartilage in the kneecap, which reduces its shock-absorbing capacity," says Ross Tucker, a physiologist in South Africa and co-author of the new book "The Runner's Body: How the Latest Exercise Science Can Help You Run Stronger, Longer and Faster." In other words, we'll be afflicted with arthritis.

It's not an unreasonable supposition; other sports have been linked with early-onset arthritis in knees. In a British study, almost half of the middle-aged, formerly elite soccer players were found to have crippling, bone-on-bone arthritis in at least one knee. Former weight lifters also have a high incidence of the condition, as do retired N.F.L. players.

But despite entrenched mythology to the contrary, runners don't seem prone to degenerating knees. An important 2008 study, this one from Stanford University, followed middle-aged, longtime distance runners (not necessarily marathoners) for nearly 20 years, beginning in 1984, when most were in their 50s or 60s. At that time, 6.7 percent of the runners had creaky, mildly arthritic

knees, while none of an age-matched control group did. After 20 years, however, the runners' knees were healthier; only 20 percent showed arthritic changes, versus 32 percent of the control group's knees. Barely 2 percent of the runners' knees were severely arthritic, while almost 10 percent of the control group's were. "We were quite surprised," says Eliza Chakravarty, an assistant professor at the Stanford University School of Medicine and lead author of the study. "Our hypothesis going in had been that runners, because of the repetitive pounding, would develop more frequent and more severe arthritis."

Instead, recent evidence suggests that running may actually shield somewhat against arthritis, in part because the knee develops a kind of motion groove. A group of engineers and doctors at Stanford published a study in the February issue of The Journal of Bone and Joint Surgery that showed that by moving and loading your knee joint, as you do when walking or running, you "condition" your cartilage to the load. It grows accustomed to those particular movements. You can run for miles, decades, a lifetime, without harming it. But if this exquisite balance is disturbed, usually by an injury, the loading mechanisms shift, the moving parts of the knee are no longer in their accustomed alignment and a "degenerative pathway" seems to open. The cartilage, like an unbalanced tire, wears away. Pain, tissue disintegration and, eventually, arthritis can follow.

So, the best way to ensure that your knees aren't hurt by running is not to hurt them in the first place. "The biggest predictor of injury is previous injury," Tucker says, and one of the best deterrents against a first (or subsequent) knee injury is targeted strength training. "The hip stabilizers, quads, hamstrings and core must all be strong enough. As soon as there is weakness, some other muscle or joint must take over, and that's when injuries happen."

If you've injured your knee in the past, particularly if you've ever torn an A.C.L. (an injury that, in the Stanford gait study, was closely associated with misalignment and cartilage degeneration), talk to your physician before running. But for most runners, the scientific observations of Chakravarty will ring true. "What struck me," she says, "is that the runners we studied were still running, well into their 70s and 80s." They weren't running far, she says. They weren't running frequently. They averaged perhaps 90 minutes a week. "But they were still running."