

## Does hill running help or harm? Studies lean toward help

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Running hard down hills has a bad reputation, but this seems to be exaggerated, according to a review by John Unger, D.C., C.C.S.P., in Montrose, Colo.

Hill running is good training as long as you begin cautiously and build up conservatively.

Unger uncovered 12 studies of hill running and injuries, and focused on discussions of downhill running. Reports mostly during the 1980s tended to associate downhill hill running with injuries, but there were several flaws in these studies' designs.

More recent studies, which were well-designed, used controls, and evaluated statistical significance found no association between downhill or hill running and injury risk.

The experiences of the American Running Editorial Board Members tend to support the value of hill running as long as it is done cautiously.

"Running hills is usually good training," says Jack Daniels, Ph.D. "The problem is the need to be somewhat conservative in early sessions (as you would be in any new type of training).

"It's probably easier to overdo downhill running than uphill running," Daniels says. "In other words, easier to over-stress your landing shock systems downhill, which is not a big problem in uphill running."

"My experience and personal beliefs are consistent with this," says Douglas Lenz, C.S.C.S. "The biggest problem with hill training is insufficient preparation, too much volume, and/or too little recovery time."

As well as good training, hill running can be protective.

"A single bout of controlled downhill running leads to reduced soreness from subsequent downhill running, according to a study led by Priscilla Clarkson, Ph.D, at the University of Massachusetts," says Pete Pfitzinger.

"This protective effect lasts for up to six months, so if you run hills regularly, the soreness will be greatly reduced (independently of an injury)."

And if you don't run hills cautiously, "I see lots of patello-femoral chain pain syndromes from hill running," says Marvin Bloom, M.D., "so, to protect you knees, I say run up and walk down hills. If you have pain, you'll have to stop before you reach the full training benefit."

There is no doubt that fast downhill running pounds your leg muscles. You don't need a scientific study to know that; you can feel it for yourself. You also know you become more sore after hill running than a comparable run on the flat.

But there is no reliable evidence that this kind of soreness leads to injury, presuming that you allow for adequate recovery before another hard effort.

Hills are good for your character and they strengthen your legs after you recover from the soreness. Emphasize that last point; the most important part of your training is recovery. That is the time your body experiences adaptation to hard efforts.