

Whoa there! A quick switch to 'barefoot' shoes can be bad to the bone

March 6 2013



Minimalist five-finger running shoes, subject of a new BYU exercise science study.

(Medical Xpress)—For the growing number of runners who are considering trying "barefoot" five-finger running shoes, researchers at BYU have a message for you: Take it slow!

A new study from a team of [exercise](#) science professors found that

runners who transition too quickly to minimalist shoes suffer an increased risk of injury to bones in the foot, including possible [stress fractures](#).

With minimalist shoes now making up 15 percent of the \$6.5 billion running shoe market, the findings are nothing to run from.

"Transitioning to minimalist shoes is definitely stressful to the bones," said Sarah Ridge, study lead author and assistant professor of exercise science at BYU. "You have to be careful in how you transition and most people don't think about that; they just want to put the shoes on and go."

The research, appearing online ahead of print in the journal *Medicine & Science in Sports & Exercise*, studied 36 experienced runners over a 10-week period.

Each runner first underwent MRIs on their feet prior to the study period. Half of the runners were then asked to gradually transition into five-finger minimalist shoes while the other half continued to run in traditional [running shoes](#).

Subjects in the experimental group followed an industry suggested protocol. They did one short (1-2 mile) run in the minimalist shoes the first week, and added an additional short run each week so that they ran at least 3 miles in the new shoes by week three. They were then told to add mileage in the minimal shoes as they felt comfortable, with the goal of replacing one short run per week in traditional shoes with the new shoes.

At the end of the 10-week period, MRIs were again conducted. The MRIs revealed that those who had transitioned to the minimalist shoes suffered greater increases in bone marrow edema (inflammation causing excessive fluid in the bone) and more stress injuries than those in

traditional shoes.

"Whenever a bone is impacted by running (or some other repetitive action), it goes through a normal remodeling process to get stronger," Ridge said. "Injury occurs when the impact is coming too quickly or too powerfully, and the bone doesn't have a chance to properly remodel before impact reoccurs."

Interestingly, the study found the majority of those who suffered stress injuries were women.

Ridge and her coauthors, which include BYU exercise science faculty Wayne Johnson, Ulrike Mitchell and Iain Hunter, said the study does not mean minimalist shoes are bad.

Rather, to minimize the risk of injuries, [runners](#) should transition over a longer duration than 10 weeks and at a lower intensity (miles per week).

"People need to remember they've grown up their whole life wearing a certain type of running shoes and they need to give their muscles and bones time to make the change," Johnson said. "If you want to wear minimalist shoes, make sure you transition slowly."

This is the first of many studies looking at minimalist running shoes, the authors said. Over the next several months they plan to publish enough research to begin to establish clear recommendations for anyone considering making the switch.

More information: [journals.lww.com/acsm-msse/Abs ...sition_to.98436.aspx](http://journals.lww.com/acsm-msse/Abs...sition_to.98436.aspx)

Provided by Brigham Young University

Citation: Whoa there! A quick switch to 'barefoot' shoes can be bad to the bone (2013, March 6)
retrieved 26 April 2024 from

<https://medicalxpress.com/news/2013-03-whoa-quick-barefoot-bad-bone.html>

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