

Is running barefoot better than running in shoes?

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STORY ARCHIVE

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Barefoot Running

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TRANSCRIPT

Comments

Ruben Meerman

Human beings were running for hundreds of thousands of years before we ever invented a shoe. So some people think that's how we should still be running today, barefoot.

Prof Joseph Hamill

Well the recent evidence in the last ten years or so is showing that shoes are not doing what we thought they were doing. There is no evidence that shoes prevent injuries, there's no evidence that shoes improve performance. But the other argument is that barefoot running has no evidence either. We're not used to walking around barefoot. We're certainly not used to running around barefoot. The prime thing is in my research is that barefoot running forces you to change the things that you normally do.

NARRATION

So what does happen when you go barefoot?

Dr George Murley

So bottom up this end.

NARRATION

Well I'm going to be the guinea pig and do some running in the lab to find out.

Dr George Murley

Okay Ruben I'm going to put a sensor on your skin. Like that.

Ruben Meerman

So what are we going to be measuring here?

Dr George Murley

Okay Ruben so we're measuring muscle activity from your lower leg. To do that we've got two sensors, we've also got a couple of sensors on your feet. Now these sensors are purely there to record when your foot hits the ground and when you push off during running.

Ruben Meerman

So let's go for a run.

Dr George Murley

Ready. Go. Okay Ruben we've got enough data from running in the shoes. I'll get you to take your shoes off now and we'll do some barefoot running.

Ruben Meerman

So George I'm covered in dots, what's next?

Dr George Murley

Well we've put a series of reflective markers on your legs Ruben because we want to capture movement of your joints around your knee and your ankle. And see whether there's differences between when you're running barefoot to when you're running in the shoes.

Ruben Meerman
Okay so I've got to go running again?

Dr George Murley
You do.

Ruben Meerman
Excellent.

Prof Joseph Hamill
And you see his toe was, his left foot was right on that.

NARRATION

I feel like I've run a marathon already and I still have to do this test barefoot.

Daniel Bonanno
So we've got the results from the motion analysis and this first video you can see is you running in your shoes, so you're shod and you'll note that as you make contact with the ground you can see that you're landing on your heel. And then when we switch across to you when you're barefoot running, you can clearly see that you're no longer striking with your heel, you're now landing with your full foot.

Also of interest if we switch across to the second screen is we're now measuring ground reaction force and whilst in shoes we're seeing a greater initial impact force. When you're running barefoot that impact force is lessened.

Ruben Meerman
Yeah so when you land on your heel you hit the ground hard.

Daniel Bonanno
Yeah.

Prof Joseph Hamill
The reason why people change is because mainly landing on your heel barefoot is painful. So people then change to a forefoot. Well when you change to a forefoot your stride length gets reduced significantly. The further consequence of that is we've shown in our laboratory that if you reduce your stride length your metabolic cost of running goes up. The whole thing, it just escalates up from a very, very minor change.

Ruben Meerman
So then what happened in the next part of the experiment? What have we got over here?

Dr George Murley
Yeah so moving onto your, your muscle activity. The two muscles that we tested were the, the calf muscle and the muscle on the front of your leg. Now if we look at the calf muscle first you can see that when you're running barefoot your calf muscle is working harder. And it's actually coming on slightly earlier. So there's a bit of pre-activation compared to running in a, in the, in the jogging shoe, in the running shoe that you've got here.

Ruben Meerman
Yeah right so this is interesting because I could feel when I'm running without shoes my calf muscle is pulling on the back of my heel harder.

Dr George Murley
And if we look at the, the muscle on the front of your leg, we can see that when you're running barefoot there's actually a decrease in activity of this particular muscle relative to running you know in, in a running shoe.

Daniel Bonanno

I guess the interesting point Ruben is in all three screens we're looking at kinematical motion, force and impact and muscle activity that you're quite different in all three areas. So when you're changing from shoes to barefoot you can expect to use different muscles and different structures.

Prof Joseph Hamill

What we've shown is that transition time is probably you're at the greatest risk of being injured. What happens to people who transition from shoes to barefoot running they change to the foot fall pattern. And in fact when you ran you changed. And foot fall patterns like a heel/toe pattern, those are very, very, very deeply engrained in your motor program. It's hard to change that.

And so when you're forced to change that I think that there's a greater possibility for certain types of injuries.

Ruben Meerman

So if you are thinking of ditching your shoes and running barefoot remember you'll be using your muscles differently and it's a big change, so take it slow.

Topics: Health

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