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Lessons From Ultra Endurance Runners

By [Meredith Melnick](#) Tuesday, November 30, 2010 |

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It's hard to say what the average weekend warrior can take from a study of ultra-athletes who ran thousands of miles in a European foot race — aside from inspiration and a sense of awe. But for those who are interested, researchers



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found that extreme racing leads to significant bodily changes in a short period and that pain while exercising isn't necessarily a reason to stop.

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The researchers wanted to understand how long-distance running affected muscle mass and body fat, so they packed up a mobile MRI machine and headed for southern Italy, to the starting line of the 2009 TransEurope-FootRace. The event took runners through a 4,488-km course that ended in the North Cape of Norway, that country's northernmost point. (**More on [Time.com](#): [Fitness Tech: 10 Cool Ways to Get in Shape](#)**)

That's right, the racers covered 2,788.7 miles in 64 days. (I feel exhausted just typing that.)

For the study, researchers focused on 44 runners — 66% of all the racers. The study participants underwent urine and blood analyses; half of them also received full body MRI scans every three to four days throughout the race, and another subgroup got electrocardiograms. The MRIs were used to measure the runners' musculoskeletal changes, including muscle tissue, fat tissue and cartilage.

Over the course of the event, runners lost an average of 5.4% total body volume, most of it during the first half of the race. Runners lost 50% of their total body fat during the race, but had rid themselves of 40% of total body fat by the midway point. (**More on [Time.com](#): [Photos: Extreme Marathon Running](#)**)

Fat tissue was the first tissue to be affected by the ultra endurance run — particularly visceral fat, which is found deep in the body surrounding the organs and is considered most threatening to cardiovascular health. In fact, runners lost an average of 70% of their visceral fat within the first half of the race.

Fat wasn't all that the runners lost: the group also averaged 7% muscle volume loss in their legs. "One of the surprising things we found is that despite the daily running, the leg muscles of the athletes actually degenerated because of the immense energy consumption," said Dr. Uwe Schütz, the lead researcher on the study and a specialist in orthopedics and trauma surgery in the department of diagnostic and interventional radiology at the University Hospital of Ulm in Germany. (**More on [Time.com](#): [Top 10 Endurance Competitions](#)**)

Overuse of leg muscles can be problematic, and Schütz saw a significant number of stress injuries in the runners. But not every injury was cause to stop running. Intermuscular inflammation, which can affect the upper or lower legs, did not appear to get worse with continued running. Joint inflammation, however, was more likely to worsen — though some runners were able to run through that pain as well.

"The rule that 'if there is pain, you should stop running' is not always correct," Schütz said.

Still, for the recreational runner, it's probably prudent to stop working out if you have pain, and to see a specialist if it becomes chronic.

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