

Sleep deprivation, pacing protect runners' muscles in 200-mile long mountain race

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Runners who complete one of the world's most challenging ultra-marathons experience less neuromuscular fatigue, muscle damage and inflammation compared to those who run distances half to one quarter as long, according to the results of research published June 26 in the open access journal *PLOS ONE* by Jonas Saugy and colleagues from the University of Lausanne, Switzerland.

The researchers tested the effects of sleep deprivation as well as blood and muscle markers of inflammation in runners who completed the Tor des Geants, an over 200-mile mountain ultramarathon with 24,000 m of elevation changes. Compared to participants at a shorter Alpine ultramarathon approximately 103 miles in length, runners at Tor des Geants had fewer alterations in neuromuscular functions and lower levels of [muscle damage](#) and inflammation, despite running nearly double the distance.

The authors suggest that protective pacing strategies employed by these runners in the first half of the race, combined with sleep deprivation effects in the second half may induce a relative muscle preservation process.

More information: Saugy J, Place N, Millet GY, Degache F, Schena F, et al. (2013) Alterations of Neuromuscular Function after the World's Most Challenging Mountain Ultra-Marathon. PLoS ONE 8(6): e65596. [doi:10.1371/journal.pone.0065596](https://doi.org/10.1371/journal.pone.0065596)

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