

# Carbs, not fats, boost half-marathon race performance, study finds

December 15 2015

---

Carbohydrates are the body's main energy source during high-intensity, prolonged running, a new study published in *Journal of Applied Physiology* reports.

Muscles use carbohydrate and [fat](#) stored in the body as fuel during exercise, but the fuel sources differ in availability. Carbohydrates can be used immediately but have limited stores. Fats require additional processing steps before they can be used but have larger reserves in the body. Although carbohydrates are the main energy source during high-intensity exercise, recent studies have examined strategies to improve the muscles' ability to burn fat instead of carbohydrates during prolonged exercise, proposing that this approach will enhance performance because fat stores in the body are larger than carbohydrate stores and can supply significantly more energy.

Researchers at Australian Catholic University's Mary Mackillop Institute for Health Research tested the importance of fuel source to endurance sports performance by blocking the body's use of fat. Male competitive half-marathon runners ran on a treadmill until exhausted at a pace 95 percent of their best half-marathon time. They ate a calorie-free or carbohydrates meal before and during the run and took nicotinic acid to prevent the use of fat stores.

The researchers found that blocking the body's use of fat did not affect the distance the runners covered before becoming exhausted. Blocking fat use also did not affect the use of carbohydrates. Carbohydrates

contributed 83 to 91 percent of the total energy used, the research team wrote. The study shows that for high-intensity, long-duration runs, exercising muscles prefer carbohydrates as their [fuel source](#), regardless of whether the runner has eaten or not, says Jill Leckey, primary author of the study.

"Competitive runners should focus on dietary strategies that will increase carbohydrate availability before and during competition to optimize race performance in events lasting up to 90 minutes in duration," according to Leckey.

Although the study was conducted in competitive runners, the findings apply to recreational runners as well, says Leckey. "It's the relative exercise intensity, for instance the percentage of an individual's [maximal oxygen uptake](#) or [maximum heart rate](#), that determines the proportion of carbohydrate and fat fuels used by the exercising muscles, not simply the pace they are running."

The article "Altering fatty acid availability does not impair prolonged, continuous running to fatigue: Evidence for [carbohydrate](#) dependence" is published ahead-of-print in *Journal of Applied Physiology*.

**More information:** J. J. Leckey et al. Altering fatty acid availability does not impair prolonged, continuous running to fatigue: Evidence for carbohydrate dependence, *Journal of Applied Physiology* (2015). [DOI: 10.1152/jappphysiol.00855.2015](#)

Provided by American Physiological Society

Citation: Carbs, not fats, boost half-marathon race performance, study finds (2015, December 15) retrieved 27 April 2024 from <https://medicalxpress.com/news/2015-12-carbs-fats-boost-half->

[marathon.html](#)

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.