

Keto diet has potential in military, researchers say

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A new study has researchers hopeful that a ketogenic diet could prove useful in the military, where obesity is an ongoing challenge, both in terms of recruiting soldiers and keeping them fit for service.

The Ohio State University study included 29 people, most of whom were members of the campus ROTC. For three months, 15 of the participants followed a ketogenic [diet](#) and a comparison group of 14 peers ate their normal diet.

Ketogenic diets are low in carbohydrates and emphasize moderate consumption of protein, with fat consumed to satiety. They aim to create a state of nutritional ketosis—which occurs when the body burns fat, rather than carbohydrates, for energy. The ketogenic diet is often used to control seizures in epilepsy and also is being studied and applied in a variety of other areas, including endurance sports and diabetes management.

In the study, which appears in the journal *Military Medicine*, participants on the keto diet lost an average of almost 17 pounds and were able, with

support of counselors, to maintain ketosis for 12 weeks. As a group, they lost more than 5 percent of their body fat, almost 44 percent of their belly, or visceral, fat and had a 48 percent improvement in insulin sensitivity—a marker that predicts risk of diabetes.

The comparison group of participants, who consumed diets that were at least 40 percent carbohydrates (based on [food diaries](#) they kept), experienced none of those changes.

Although a relatively small research project, this is the largest published study of a well-formulated ketogenic diet in [military personnel](#), said study senior author Jeff Volek, a professor of human sciences.

The ketogenic diets in the study included no caloric restrictions, just guidance about what to eat and what to avoid. Carbs were restricted to about 30 to 50 grams daily, with an emphasis on nuts and non-starchy vegetables. Food was also provided, either as groceries the keto dieters could use to prepare meals themselves or as pre-prepared frozen meals.

Keto diet participants had near-daily check-ins during which they reported blood ketone measurements from a self-administered finger-prick test and received feedback, usually through text messages, from the research team. Ketosis was defined as a blood concentration of ketones, chemicals made in the liver, between 0.5 and 5.0 mM (millimolar).

"Depending on their readings, we would talk about their food and drink choices and suggest they adjust their diet to maintain ketosis," said lead author Richard LaFountain, a postdoctoral researcher at Ohio State.

Both groups, whose schedules included regular resistance training, showed comparable physical performance levels at the end of the study. This

was important because it's difficult to lose weight without losing some lean muscle mass and physical function, Volek said.

Provided by The Ohio State University

"We showed that a group of people with military affiliation could accept a ketogenic diet and successfully lose weight, including visceral adipose tissue, a type of fat strongly associated with chronic disease. This could be the first step toward a bigger study looking at the potential benefits of ketogenic eating in the armed forces," said Volek, who has authored books on the benefits of low-carb diets and is a founder of a company seeking to help people with type 2 diabetes through ketogenic diets and a virtual health care model.

The study results come with caveats. The group that followed the ketogenic diet chose to be in the test group, something that scientists call self-selection. Studies in which participants are randomized are preferred, but the research team said they wanted to do this pilot study in a group eager to adhere to the diet. The keto group also had a higher average body mass index at the start of the study—27.9 versus 24.9 in the comparison group—meaning they had more fat to lose.

About seven in 10 people who are otherwise eligible to enter military service in the United States are considered unfit because of their weight, LaFountain said.

Officers or trainees on military bases likely could maintain a [ketogenic diet](#) based on the various foods that are already offered at typical meals, but more options could be added to support this weight-loss strategy, he said.

Added Volek, "The military has called obesity a national security crisis. One of the [potential benefits](#) of this diet in the military is that you can lose weight without having to count calories, which could be difficult in training or while on active duty. In this study, they ate as much as they wanted—they just ate differently."

More information: Richard A LaFountain et al, Extended Ketogenic Diet and Physical Training Intervention in Military Personnel, *Military Medicine* (2019). [DOI: 10.1093/milmed/usz046](https://doi.org/10.1093/milmed/usz046)

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