

How much should we fast?

A new study by the Fontana group suggests that intermittent fasting may be too mild for humans.

When a calorie is not a calorie: metabolic and molecular effects of intermittent fasting in humans; exploratory outcomes of a randomized clinical trial. Tosti et al. Aging Biology

Editorial by Vera Gorbunova

Dietary restriction without malnutrition is the first intervention found to extend lifespan in rodents and other organisms. Dietary restriction also has benefit in humans by reducing body weight, alleviating inflammation, and improving insulin sensitivity, among many other cardiometabolic and hormonal benefits. However, continuous dietary restriction is difficult for people to maintain. A more tolerable alternative to dietary restriction is intermittent fasting, where fasting happens every other day or on certain days of the week. Intermittent fasting extends lifespan and reduces inflammation in rodents, but whether it is equally beneficial in humans is unclear. A new study by Luigi Fontana, who is currently the Scientific Director of the Charles Perkins Centre Royal Prince Alfred Clinic at the University of Sydney, show that intermittent fasting is not as effective in humans. In this randomized clinical trial that was conducted at Washington University in St. Louis where Fontana was a Professor of Medicine, overweight men and women were assigned to either intermittent fasting or Western-like diet for 6 months. In the second 6 months of the study, all participants underwent intermittent fasting. In the fasting group participants were asked to eat non-starchy vegetable salads for lunch and dinner for two or three days a week. This novel 'vegetable fasting-mimicking' approach helped to markedly improve compliance, and most of the participants completed the study, which is often not the case with more restrictive protocols. The study findings were unexpected, while the intermittent fasting regiment induced an 8% weight loss and 16% reduction in total body fat, it did not alleviate inflammation, and modestly improved insulin sensitivity. The results underscore that results from animal models cannot be easily extrapolated on humans. A day without food may provide a strong impact on a mouse with its fast metabolism, while having a milder effect on a much larger human. More studies are needed to understand the impact of different degrees of dietary restriction on health in humans.