

# Combining time-restricted eating and HIIT improves health in overweight women

**Time-restricted eating (TRE) combined with high-intensity interval training (HIIT) improves health and blood glucose regulation in overweight and obese women, new research has shown.**

The study, published in *Cell Metabolism*, found combining these two approaches reduced nocturnal glucose in overweight and obese women, lowered average long-term glycemic control measured as HbA1c and led to reductions in visceral fat.

Researchers at ACU's Mary MacKillop Institute for Health Research (MMIHR) have been at the forefront of emerging research showing how time-restricted eating – restricting all meals to an eight to ten-hour window each day and then fasting for 14 to 16 hours – can optimise metabolism and metabolic function.

Study co-author Professor John Hawley, a world-leading exercise biologist and director of MMIHR, said the new findings combining the two approaches was more effective and offered a practical and viable way to improve metabolic health.

“This is great for people who want a simple way of changing their diet and exercise habits to improve their health,” Professor Hawley said.

“The message is that one strategy is good but the two combined is better. TRE is a practical method to lose weight compared with daily calorie counting, while HIIT is tolerable and safe for previously sedentary individuals and can be completed in a time-efficient manner.”

“The study participants had high adherence rates which is important because it means that people can incorporate these interventions easily into their daily lives, so it is a very promising and practical alternative.”

Lead author Dr Trine Moholdt, who is also the head of the Exercise, Cardiometabolic Health, and Reproduction Research Group at the Norwegian University of Science and Technology, and who spent a year's study leave at the MMIHR recently, said the new findings were especially important for people with diabetes who can experience glucose regulation problems.

“Isolated TRE and HIIT have received increasing attention for being effective and feasible strategies for at-risk populations,” Dr Moholdt said.

“We wanted to compare the effects of the combination of TRE and HIIT with their isolated effects and to determine whether together they would act synergistically in improving health in individuals with risk for cardiometabolic disease.

“The finding highlights the importance of changing dietary and physical activity habits for people who wish to rapidly improve their health and lower their disease risk.”

For the study, 131 overweight women were divided randomly into four groups. All were overweight or obese and had risk factors for cardiometabolic diseases such as type 2 diabetes and cardiovascular disease.

For seven weeks one group did TRE – consuming all their nutrients within a 10-hour window of their choosing; another did HIIT in three 35-minute sessions a week; the third did TRE and HIIT; and the fourth acted as a control group.

TRE was defined as consuming all meals within a ten-hour time window. HIIT was defined as exercise undertaken at 90 per cent of maximum heart rate for 35 minutes, three times per week. The exercise sessions were supervised by the investigators, and the participants asked to log their first and last calories every day.

Several measures were taken both before and after the study, including the participants’ blood pressure, body mass index, fat and cholesterol levels in the blood, and several measures of blood glucose and insulin levels.

The researchers found that those who combined TRE and HIIT improved their average long-term glycemic control measured as HbA1c. They also reduced visceral fat and increased their cardiorespiratory fitness measured as peak oxygen uptake.

However, there were no statistically significant differences in blood lipids, appetite hormones, or vital signs after any of the interventions compared with the control group.

Participants will be invited back for follow-up testing two years after completing the study to find out if they have continued with the interventions.

The researchers also plan to determine whether the combination of TRE and HIIT will induce the same health benefits and have equally good adherence rates in a completely home-based setting. This study will include both men and women.

Professor John Hawley is available for interview.

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