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Metabolic Health & Nutrition

The Effect of Time-Restricted Eating Combined with Exercise on Body Composition and Metabolic Health: A Systematic Review and Meta-Analysis

ZIHAN DAI, KEWEN WAN, MASASHI MIYASHITA, ROBIN SZE-TAK HO, CHEN ZHENG, ERIC TSZ-CHUN POON, STEPHEN HEUNG-SANG WONG
JOURNAL: ADVANCES IN NUTRITION (BETHESDA, MD.) 2024;15(8):100262

Reviewed by OUR EXPERTS **With Expert Review from Gail Brady**

Intermittent fasting (IF) has emerged as a novel approach beyond simple calorie restriction to reduce body weight and improve metabolic health. Time-restricted eating (TRE) is a form of IF that has emerged as a popular dietary strategy in recent years and involves confining the eating window to a specified number of hours per day and fasting with zero-calorie beverages for the remaining hours of the day.

This study's aim was to consolidate and quantify the available data on the combination of TRE and exercise, and assess its efficacy in improving body composition and metabolic health compared with following a controlled diet with exercise.

This study was a systematic review and meta-analysis of 19 randomised controlled trials with a total of 568 participants.

Results showed that TRE combined with exercise led to reductions in body mass (mean difference = -1.86 kg) and fat mass (mean difference = -1.52 kg) compared to control diets with exercise. Furthermore, improvements in lipid profile were also observed.

Authors concluded that the combination of TRE and exercise appears effective in improving body composition and metabolic health. However, further research is needed to fully understand its impact ■

The effect of curcumin and high-content eicosapentaenoic acid supplementations in type 2 diabetes mellitus patients: a double-blinded randomized clinical trial.

Reviewed by OUR EXPERTS

KIMIA MOTLAGH ASGHARI, PARVIZ SALEH, YAGHOUB SALEKZAMANI, ET AL.
JOURNAL: NUTRITION & DIABETES 2024;14(1):14

With Expert Review from Nicky Ester

due to their anti-inflammatory and cardioprotective properties. This study aimed to determine the effect of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), and curcumin therapeutic supplements on anthropometric indicators, glucose homeostasis, and cardiometabolic risk markers, in DM2 patients. This research was a double-blinded randomised controlled trial. Results showed that after 12 weeks of taking EPA + Nano-curcumin supplements, the patients experienced a statistically significant reduction in insulin levels in their blood. This decrease was significantly greater than the changes observed in the placebo group. The EPA + Nano-curcumin had a noteworthy decrease in high sensitivity C-reactive protein levels compared to the placebo. Additionally, the EPA + Nano-curcumin experienced a substantial increase in total antioxidant levels compared to the placebo. Authors concluded that their findings offer compelling indication of the prospective benefits of EPA, Nano-curcumin, and their combination in improving insulin sensitivity, reducing inflammation, modulating lipid profiles, and enhancing vascular health in individuals with DM2 ■

Reviewed by OUR EXPERTS

Effect of weight-maintaining ketogenic diet on glycemic control and insulin sensitivity in obese T2D subjects

AURORA MEROVCI, ANDREA HANSIS-DIARTE, EUGENIO CERSOSIMO, ET AL.
JOURNAL: BMJ OPEN DIABETES RESEARCH & CARE 2024;12(5):

With Expert Review from Chloe Steele

This study aimed to determine the effect of the ketogenic diet on glucose metabolism in individuals with T2D in the absence of weight loss. 29 overweight/obese subjects with T2D were given either 1) standard diet (SD), 2) low carbohydrate, ketogenic diet (KD) or 3) low carbohydrate, ketogenic diet with keto ester supplementation (KD+) for 10 days.

Researchers found that the KD and KD+ diets were shown to induce metabolic changes, with carbohydrate oxidation decreasing (KD p=0.019; KD+ p=0.003) and fat oxidation increasing (KD p=0.020; KD+ p=0.002) whereas the standard diet did not. Fasting plasma glucose modestly declined in all three groups but failed to reach significance (SD p=0.465; KD p=0.525; KD+ p=0.137). In the absence of weight loss, a ketogenic diet may have very little benefit for individuals who are trying to improve blood glucose control ■

High-Intensity Interval Training Reduces Liver Enzyme Levels and Improves MASLD-Related Biomarkers in Overweight/Obese Girls

Reviewed by OUR EXPERTS **With Expert Review from Sarah Cassar**

WISSAL ABASSI, NIDHAL JEBABLI, NEJMEDDINE OUERGHI, ET AL.
JOURNAL: NUTRIENTS 2025;17(1):

This randomised controlled trial of 33 adolescent girls with overweight/obesity aimed to determine the impact of high-intensity interval training (HIIT) on liver health. Participants were divided into two groups: one group engaged in a nine-week HIIT programme, while the other group did not participate in any exercise intervention.

The results showed that the girls who took part in the HIIT programme had reduced levels of liver enzymes and improved markers related to MASLD. Improvements were seen in systolic blood pressure, plasma lipids, and blood sugar. Fitness was also seen to improve. It was concluded that HIIT may be beneficial for improving liver health in this population. Although dietary changes were not required to see benefits, diet optimisation may have synergistic effects ■