



Spring Conference 2017, 28–29 March 2017, Nutrition and exercise for health performance

## The impact of intermittent fasting on body composition and cardiovascular biomarkers: a systematic review and meta-analysis

L. Francis, J. Young and J. Lara

Department of Applied Sciences, Faculty of Health and Life Sciences,  
University of Northumbria at Newcastle, NE1 8ST, UK

This abstract was awarded the student prize.

Results of the Health Survey for England 2015 showed that 62.9% of adults (67.8% of men and 58.7% of women) were overweight or obese<sup>(1)</sup>. Such obesity epidemic requires effective management and prevention strategies to tackle it. Some studies<sup>(2)</sup> have reported benefits of adopting intermittent fasting, a relatively novel weight loss approach currently attracting media attention. This systematic review and meta-analysis aimed to evaluate the effectiveness of intermittent energy restriction (IER) for weight loss and improvement of blood-borne biomarkers of cardiovascular disease (CVD).

A systematic review of human clinical trials involving IER was undertaken. Web of Science, Medline and Scopus were searched from inception, using specific search terms. A meta-analysis was conducted using RevMan software and statistical heterogeneity was evaluated using the Chi squared and  $I^2$  statistic with the 95% CI for  $I^2$  values. The protocol was registered with the International Prospective Register of Systematic Reviews (PROSPERO registration number: CRD42017055434).

The searches yielded 316 publications after removal of duplicates and after screening, 15 papers were included in the qualitative synthesis and nine of these in the meta-analysis. Of the included studies, six originated in North America (USA  $n = 5$ , Canada  $n = 1$ ), two in Australia, four in Europe (UK  $n = 2$ , Denmark  $n = 1$  and Sweden  $n = 1$ ) and three in Asia (Malaysia  $n = 3$ ), and involved 746 individuals in total. Meta-analysis showed significant decreases in body fat ( $p = 0.02$ ) and BMI ( $p = 0.05$ ), alongside non-significant decreases in body weight ( $p = 0.19$ ), waist circumference ( $p = 0.06$ ), total cholesterol ( $p = 0.40$ ), LDL ( $p = 0.27$ ), triglycerides ( $p = 0.08$ ), systolic blood pressure ( $p = 0.79$ ), diastolic blood pressure ( $p = 0.36$ ), serum glucose ( $p = 0.51$ ) and serum insulin ( $p = 0.14$ ), with non-significant increases in HDL levels ( $p = 0.16$ ).

This review identified a small number of trials reporting on IER, highlighting the need for further robust research. Although results are modest, they are in line with other recent reviews and intervention trials showing that IER does have an impact on body composition and blood-borne biomarkers of CVD.

1. PHE. UK and Ireland prevalence and trends (2015) Available from: [https://www.noo.org.uk/NOO\\_about\\_obesity/adult\\_obesity/UK\\_prevalence\\_and\\_trends](https://www.noo.org.uk/NOO_about_obesity/adult_obesity/UK_prevalence_and_trends) (Accessed January 2017).
2. Harvie MN, Pegington M, Mattson MP *et al.* (2011) *Int J Obes (Lond)*. **35**, 714–727.