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## Format: Abstract

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# Intermittent fasting interventions for the treatment of overweight and obesity in adults aged 18 years and over: a systematic review protocol.

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### Abstract

**REVIEW QUESTION/OBJECTIVE:** Are intermittent fasting interventions an effective treatment for overweight and obesity in adults, when compared to usual care treatment (continuous daily energy restriction - reduced calorie diet) or no treatment (ad libitum diet)?

**BACKGROUND:** Overweight and obesity (classified as Body Mass Index [BMI] of greater than or equal to 25 and 30 respectively) is a global public health concern, with more than 1.9 billion adults worldwide being overweight in 2014 (over 600 million of whom are obese), and resulting in more deaths than underweight. A raised BMI in adulthood is associated with an increased risk of developing a number of chronic diseases which include diabetes, cardiovascular disease, muscular skeletal disorders and some cancers. In addition to this substantial impact on individual health and well being, there are also significant wider costs, for example, in England the annual direct cost to the national health service for treating overweight, obesity and associated morbidity is estimated at over £5 billion pounds, with costs to the wider economy estimated at £27 billion. Therefore effective weight management is essential. As overweight and obesity results from an accumulation of excess body fat arising from an energy imbalance - consuming more energy (kcal) than is expended - the majority of weight management approaches center around behaviors to address this imbalance, i.e. reducing energy intake through caloric restriction and

increasing energy expenditure through physical activity. However, the aetiology of overweight and obesity is highly complex, involving an interplay of biological, psychological, societal and environmental drivers. Consequently, effective weight management is challenging, and whilst there exists a plethora of available weight loss programs, not all are comprehensively evaluated and compared, and many weight loss attempts result in weight regain and poor long term results. It is therefore vitally important to review the effectiveness of all new approaches to support an evidence-based approach to weight management. Intermittent fasting (IF), also known as alternate day fasting (ADF), periodic fasting or intermittent energy restriction (IER) is a relatively new dietary approach to weight management that involves interspersing normal daily caloric intake with a short period of severe calorie restriction/fasting. In terms of the possible underlying biological benefits of intermittent fasting, there is some evidence, predominantly from animal studies, to demonstrate beneficial effects on weight loss and cardio-metabolic risk factors. Whilst the underpinning mechanistic evidence is limited, there is some evidence to suggest that the benefits may be explained mechanistically through fat utilization and nutritional stress. However current National Institute for Health and Care Excellence (NICE) guidance on the treatment of adult obesity does not recommend the routine use of very low calorie diets (VLCD) (defined as a hypocaloric diet of 800 or less kcal/day) for the treatment of adult obesity. The National Institute for Health and Care Excellence states that this approach should only be recommended if there is a clinical rationale for rapid weight loss and must be nutritionally complete, part of a multi-component weight management strategy, including ongoing support, and should be undertaken for a maximum of 12 weeks (followed continuously or intermittently). Furthermore, the British Dietetic Association raises concerns that rapid weight loss associated with fasting may largely be due to loss of water and glycogen rather than fat, and may result in fatigue, dizziness and low energy levels. Essentially IF involves the intermittent use of a VLCD, and there remain questions about the side effects of this approach, whether there is an optimal fasting pattern or calorie limit, and how sustainable it is for long term weight management. Intermittent fasting has recently gained much popularity following significant media attention. In the UK this dietary approach reached mainstream after a BBC Horizon documentary aired in August 2012, featured an IF approach called the 5:2 diet, which involves five days of regular eating patterns interchanged with two days of fasting (max 500kcal for women and 600kcal for men). However other IF patterns are used such as alternate day fasting. Despite the recent popularity of intermittent fasting and associated weight loss claims, the supporting evidence base in humans remains small and there is only one published systematic review examining the health benefits of this approach. However the aim of this review was to

examine the impact of this intervention on wider health benefits (not specifically as a treatment approach for overweight and obesity), and did not provide a comprehensive methodology or meta-analysis of RCT data. This proposed review will hence address these gaps in the evidence base.

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