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Review article

Intermittent Fasting as a Dietary Strategy for Obesity Management: A Mini Review

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Abstract
Obesity is a chronic, multifactorial disease and a major global public health challenge, associated with increased morbidity and mortality from diabetes, cardiovascular disease, cancers, and metabolic syndrome. Traditional continuous calorie restriction (CCR) has long been the standard dietary approach, but its long-term sustainability is limited by metabolic adaptation and weight regain. Intermittent fasting (IF) has emerged as a promising alternative strategy, shifting the focus from food choice to timing of intake. This narrative mini-review synthesizes evidence published since 2015 on the efficacy, safety, and mechanisms of IF in obesity management. Common IF regimens include alternate-day fasting, the 5:2 diet, and time-restricted eating. Randomized controlled trials and meta-analyses consistently show that IF produces clinically meaningful weight loss and cardiometabolic improvements comparable to CCR, with modest advantages in certain protocols. Evidence also suggests potential benefits for body composition, lipid metabolism, and insulin sensitivity, though findings remain heterogeneous. IF appears safe for most adults with overweight or obesity, but is not recommended for vulnerable groups such as children, pregnant women, or individuals with eating disorders. Overall, IF represents a flexible, evidence-based dietary option for obesity management, with long-term adherence and personalized application being critical determinants of success. Future research should address sustainability, weight regain, and population-specific outcomes.
Keywords. Intermittent Fasting, Obesity Management, Weight Loss, Dietary Strategy.

Introduction

Obesity is a chronic, multifactorial disease characterized by excessive accumulation of body fat that adversely affects health [1]. It represents one of the most public health challenges globally, affecting both developed and developing countries [1,2]. In 2022, more than one billion adults worldwide were living with obesity [2]. It is projected that by 2025, about 167 million people will experience adverse health outcomes attributable to overweight or obesity [3]. This growing burden spans high-income countries as well as low- and middle-income nations, reflecting a global epidemiological transition [2,3]. The trend affects both high-income nations and many low- and middle-income countries. If current patterns continue, projections suggest 12 to 13 percent of adults worldwide, more than one billion people, will live with obesity by 2025 [4]. The health consequences of obesity are wide-ranging. Excess body weight is a major risk factor for multiple chronic diseases and is associated with increased morbidity and mortality [3]. This rapid rise has made excess weight a central public health issue, linked to Diabetes, Cardiovascular disease, several Cancers, and a growing burden of metabolic syndrome [4,5].

A diagnosis of overweight or obesity is made by measuring people's weight and height and by calculating the body mass index (BMI): weight (kg)/height² (m^2). The body mass index is a surrogate marker of fatness, and additional measurements, such as waist circumference, can aid in the diagnosis of obesity. The BMI categories for defining obesity vary by age and gender for adults, adolescents, children, and infants. WHO defines for adults, overweight is a BMI greater than or equal to 25, and obesity is a BMI greater than or equal to 30. In response, health authorities continue to stress urgent changes in diet and daily habits. This urgency has driven growing interest in newer weight-management approaches, including different forms of intermittent fasting, as potential tools to address the expanding obesity crisis [5]. For many years, a common approach to managing obesity has been to cut back on daily calorie intake through continuous energy restriction (CER), reducing it by 15-40%. This method can work well in the short run, but in the long term, it often runs into hurdles due to our body's natural responses. When sticking to low-calorie diets, human bodies adapt to the lower calorie intake by slowing down the metabolism, making it tough to keep losing weight. This cycle often leads to people regaining the weight they lost.

It's clear that we need new ways to tackle obesity that not only focus on calories but also consider the hormones and body clock that play a role in decreasing weight [6,7]. A wide range of strategies has been implemented to control obesity. Successful obesity treatment typically integrates long-term lifestyle modifications, including a balanced diet, regular physical activity, and behavioral interventions, while pharmacological therapy or bariatric surgery may be considered in cases of severe obesity [8]. Globally, obesity continues to rise; identifying effective, sustainable, and evidence-based interventions has become increasingly urgent. Among different dietary strategies, Intermittent fasting has gained considerable attention for obesity management.

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Intermittent fasting (IF) has emerged as a scientifically supported alternative to traditional calorie restriction for managing obesity. Rather than focusing on what to eat, IF shifts the focus to when you eat, leveraging the body's natural metabolic processes to promote fat loss and improve cardiovascular health [9]. However, existing findings remain inconsistent. Therefore, this Mini review aims to summarize current studies on intermittent fasting as a dietary strategy for obesity management, based on biological mechanisms, clinical outcomes, and real-world applications.

Concept and Types of Intermitting fasting

Intermittent Fasting (IF) has gained increasing attention as a dietary approach for weight management and metabolic health improvement. In its simplest form, IF refers to alternating periods of fasting with periods of eating [10,11]. It is an eating pattern that alternates free intake with voluntary fasting, involving either total or partial calorie restriction [12]. The most common forms of IF include alternate-day fasting, the 5:2 diet, and time-restricted eating. Complete Alternate-Day Fasting involves alternating days of complete fasting, during which high-energy foods and beverages are avoided, with unrestricted ad libitum eating days. Alternate-Day Fasting allows limited consumption of about 20–25% of daily energy requirements on fasting days. A popular variation is the 5:2 diet, which prescribes severe energy restriction for two consecutive days each week, followed by unrestricted eating for the remaining five days [13]. Another example is 4:3 IF, which restricts energy intake for three consecutive days weekly while permitting ad libitum eating on the other four days. A study by Catenacci et al. (2025) comparing daily caloric restriction with 4:3 IF found modestly greater weight loss among overweight and obese adults enrolled in a 12-month, high-intensity behavioral weight loss program [14].

Time-Restricted Feeding focuses on consuming meals within a defined “food window” lasting several hours. The most common modification is the 16:8 pattern, where individuals eat during an 8-hour window and fast for the remaining 16 hours. Variations exist, with fasting and eating windows adjusted according to individual preferences and goals [13].

Linking intermittent fasting to weight loss

Intermittent fasting (IF) has emerged as an effective dietary strategy for weight loss and obesity management primarily by creating a calorie deficit and promoting fat mass reduction through increased use of glycogen and adipose tissue stores. This energy deficit leads to depletion of hepatic glycogen stores and a metabolic shift toward increased lipolysis and utilization of adipose tissue, with enhanced fatty acid oxidation and ketone production during fasting periods [15,16]. Consequently, IF promotes reductions in body weight and fat mass, with outcomes comparable to or, in some cases, superior to continuous daily caloric restriction [16]. The Antoni et al. (2018) study in the British Journal of Nutrition found that intermittent energy restriction (IER) improved postprandial lipid metabolism more than continuous energy restriction (CER) in overweight/obese individuals, showing greater reductions in triglycerides (TAG) and C-peptide, suggesting better insulin sensitivity even with similar weight loss, although some results varied by IER type (like 5:2). While IER didn't consistently outperform CER on all metabolic markers, its benefits on postprandial fat handling highlight potential advantages beyond simple weight loss, though longer studies are needed [17]. Khalafi et al. (2016) demonstrate the Effects of eight weeks of time-restricted feeding (16/8) on basal metabolism, body composition, and strength. Showed fat mass reduction with preservation of lean mass during time-restricted feeding [18].

The Safety and Efficacy of Intermittent Fasting for Weight Loss

According to Hoddy KK et all (2015) and Catenacci *et al.* (2016) that demonstrate an Alternate-day fasting is a safe, tolerable, and efficient short-term weight-loss strategy in adults with obesity, producing weight and metabolic benefits comparable to standard daily calorie restriction, with potential advantages for body-composition maintenance over time [15,16]. Overall, IF require further investigation, especially among normal-weight individuals [20]. Intermittent fasting appears safe and equally efficient as continuous calorie restriction for achieving clinically meaningful weight loss in overweight/obese adults, with possible additional metabolic benefits, but lower tolerability and higher dropout rates mean it may not suit everyone [17]. Intermittent fasting is not recommended for pregnant or lactating women, children or adolescents during maturation, the elderly or underweight people, and individuals vulnerable to eating disorders [21].

Intermittent Fasting vs Continuous Calorie Restriction: Weight Loss Efficacy

Recent randomized trials generally indicate that intermittent fasting (IF) and continuous calorie restriction (CCR) result in comparable weight loss when calorie intake is controlled. For example, Sundfør et al. (2018) assigned obese adults to either an alternate-day fasting regimen—two very low–calorie days per week—or daily calorie restriction, observing nearly identical 12-month weight loss (~8.0 vs 9.0 kg) [22]. Likewise, Liu et al. (2022) found that over the course of a year, participants on an 8-hour time-restricted eating (TRE) plan lost about 8.0 kg, compared to approximately 6.3 kg in the daily calorie restriction group—a non-significant difference of –1.8 kg [23]. Lin et al. (2023) also observed approximately 5% body weight reductions in both an 8-hour TRE group and a 25% daily CR group after 12 months, with no significant difference between the groups [24]. Overall, large clinical trials lasting 3–12 months suggest that IF regimens often produce weight

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loss similar to that of traditional dieting. However, some evidence indicates modest benefits for certain IF patterns. For example, a JAMA study found that adding early TRE (eating within 7–14 hours of waking) to a CR diet led to significantly greater weight loss than a normal eating schedule: 6.3 kg versus 4.0 kg [25]. Meta-analyses support this nuance, with one pooled analysis indicating a small overall advantage of IF in weight change.[26] Conversely, other reviews report no significant results [27]. In practice, any additional weight loss from IF is typically modest (about 1–2 kg) and may depend on the timing and duration of fasting. The overall evidence suggests that the key factor in weight loss is calorie deficit, not the timing or pattern of diet.

Body Composition and Metabolic Effects

Intermittent fasting (IF) and continuous calorie restriction (CCR) lead to similar changes in body composition and metabolic risk when weight loss matches between approaches. In the Sundfør trial, both groups showed comparable drops in waist circumference, blood pressure, triglycerides, and HDL cholesterol [22]. Liu et al. (2022) reported the same pattern, with time-restricted eating (TRE) and daily calorie restriction producing parallel improvements in BMI, fat mass, and cardiometabolic markers [23]. Some research suggests IF preserves lean mass slightly better or shifts fat use differently, but results stay inconsistent. The JAMA TRE trial by Lowe et al. (2020) found greater absolute lean-mass loss in the TRE group, yet strength and functional outcomes did not worsen [28]. Animal studies and mechanistic research point toward higher fat oxidation and increased autophagy during fasting, but human trials fail to show clear, repeatable advantages for fat loss. Secondary markers such as blood lipids, glucose, and insulin usually improve with weight loss under either strategy. Meta-analyses show meaningful reductions in LDL cholesterol, triglycerides, and insulin resistance with IF, and similar improvements appear with CCR when calorie intake drops to the same degree [26,27]. Hunger and adherence differ between approaches. Sundfør et al. reported higher self-rated hunger on fasting days compared with steady daily restriction [22]. Some people prefer the structure of set fasting windows, while others stick more easily to consistent daily calorie targets. Overall, results depend less on the pattern of restriction and more on long-term adherence and total energy intake.

Mechanisms and Practical Considerations

From a physiological standpoint, both intermittent fasting (IF) and continuous calorie restriction (CCR) work through the same core driver, a sustained caloric deficit. The key difference lies in timing. IF introduces longer fasting windows, which push the body toward a metabolic switch marked by ketosis and higher fat oxidation. These fasting periods also interact with circadian biology. Insulin sensitivity and clock-gene alignment often improve when food intake stays within earlier daylight hours. Early time-restricted eating, in particular, aligns food intake with natural hormonal rhythms and shows modest benefits for metabolic efficiency in some trials. CCR, by contrast, maintains a steady energy shortfall across days, which often reduces the risk of compensatory overeating after prolonged fasts. Across recent high-quality trials, weight-loss outcomes remain broadly similar between IF and CCR. Most studies report about a 5–10 percent reduction in body weight over six to twelve months with either approach [22,28]. Certain IF protocols, especially early time-restricted eating, show slightly greater losses in some trials, yet these differences stay small compared with overall weight change. The larger pattern stays consistent: long-term success depends more on maintaining a caloric deficit over time than on the specific eating schedule [27]. Taken together, the evidence points toward flexibility rather than superiority. Both strategies work when followed consistently. Intermittent fasting offers structure and potential metabolic timing benefits for some people, while continuous restriction suits those who prefer regularity. Adherence, lifestyle fit, and sustainability matter more than whether calories are reduced daily or intermittently.

Evidence from different studies

Intermittent fasting (IF) has emerged as a popular dietary strategy for managing obesity by emphasizing eating schedules rather than constant daily calorie restriction. Common approaches include alternate-day fasting (ADF), the 5:2 diet, and time-restricted eating (TRE). Since 2015, numerous randomized controlled trials and systematic reviews have examined the effects of IF on weight reduction and metabolic outcomes in adults with overweight or obesity. Initial studies showed that IF can lead to clinically relevant weight loss. Research by Harvie et al. found that the 5:2 diet achieved weight and fat mass reductions similar to continuous calorie restriction (CCR), with added benefits for insulin sensitivity [29]. A 2025 BMJ meta-analysis of 99 trials confirmed that alternate-day fasting (ADF) achieved superior body weight reduction (−1.29 kg) over continuous energy restriction, with moderate evidence certainty [30]. Subsequent long-term trials supported these conclusions.

Sundfør et al. observed similar weight loss and cardiometabolic improvements between intermittent and continuous restriction over one year [22]. Trepanowski et al. likewise found no significant differences between ADF and CCR in weight loss, body composition, or cardiovascular markers after 12 months [13]. Steger et al. found that participants who maintained eTRE ≥5 days per week consistently showed greater improvements in body weight, body fat, heart rate, insulin resistance, and glucose levels compared to those in the control group who adhered less. These participants also reported better mood improvements, such as

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reduced fatigue and anger. However, they also reported sleeping less and taking longer to fall asleep [31]. More recent high-quality trials have further refined these findings. A year-long study published in The New England Journal of Medicine demonstrated that TRE combined with calorie restriction did not outperform calorie restriction alone. Systematic reviews and meta-analyses align with individual trials. Evidence syntheses conclude that IF leads to significant weight loss compared with no intervention, but not consistently greater than continuous calorie restriction. Reviews also note modest improvements in body composition, lipid levels, and insulin resistance, with generally moderate-to-high quality evidence [32-34].

Conclusion

Current research shows intermittent fasting works as a safe and effective option for obesity management. Weight loss under IF mainly comes from maintaining a consistent calorie deficit, not from the fasting schedule itself. Randomized trials and meta-analyses show that common IF approaches lead to weight loss and cardiometabolic improvements similar to continuous calorie restriction when overall calorie intake stays the same. Future studies should focus on long-term trials with consistent IF designs to better assess sustainability, weight regain, and safety across different populations. Research also needs to identify who benefits most from IF by examining metabolic traits, circadian patterns, and behavioral responses. Intermittent fasting works best as a flexible alternative rather than a substitute for continuous calorie restriction, supporting personalized strategies for obesity treatment.

Conflict of interest. Nil

Reference

1. Ullah MI, Tamanna S. Obesity: clinical impact, pathophysiology, complications, and modern innovations in therapeutic strategies. Medicines. 2025;12(3):19.
2. Ahmed SK, Mohammed RA. Obesity: Prevalence, causes, consequences, management, preventive strategies and future research directions. Metabolism Open. 2025 Jun 12:100375.
3. UNICEF, World Health Organization, World Bank Group. Joint child malnutrition estimates: levels and trends – 2023 edition [Internet]. Geneva: World Health Organization; 2023 [cited 2026 Jan 5]. Available from: https://www.who.int/publications/i/item/9789240073791
4. World Health Organization. Obesity and overweight [Internet]. Geneva: World Health Organization; 2025 [cited 2026 Jan 5]. Available from: https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight
5. World Health Organization. One in eight people are now living with obesity [Internet]. Geneva: World Health Organization; 2024 Mar 1 [cited 2026 Jan 5]. Available from: https://www.who.int/news/item/01-03-2024-one-in-eight-people-are-now-living-with-obesity
6. Song DK, Kim YW. Beneficial effects of intermittent fasting: a narrative review. J Yeungnam Med Sci. 2023;40(1):4-11.
7. Welton S, Minty R, O'Driscoll T, Willms H, Poirier D, Madden S, et al. Intermittent fasting and weight loss: systematic review. Can Fam Physician. 2020;66(2):117-25.
8. Chamarthi VS, Daley SF. Comprehensive behavioral modification and counseling strategies for obesity management. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 [cited 2026 Jan 5]. Available from: https://www.ncbi.nlm.nih.gov/books/NBK580487/
9. Zhang S, Sun B, Sun L, Zou S, Chen Q. Effect of intermittent fasting on obesity and metabolic indices in patients with metabolic syndrome: a systematic review and meta analysis. BMC Endocr Disord. 2025;25(1):130.
10. Varady KA, Cienfuegos S, Ezpeleta M, Gabel K. Clinical application of intermittent fasting for weight loss: progress and future directions. Nat Rev Endocrinol. 2022;18(5):309-21.
11. Patterson RE, Laughlin GA, LaCroix AZ, Hartman SJ, Natarajan L, Senger CM, et al. Intermittent fasting and human metabolic health. J Acad Nutr Diet. 2015;115(8):1203-12.
12. Vasim I, Majeed CN, DeBoer MD. Intermittent fasting and metabolic health. Nutrients. 2022;14(3):631.
13. Trepanowski JF, Kroeger CM, Barnosky A, Klempel MC, Bhutani S, Hoddy KK, et al. Effect of alternate-day fasting on weight loss, weight maintenance, and cardioprotection among metabolically healthy obese adults: a randomized clinical trial. JAMA Intern Med. 2017;177(7):930-8.
14. Catenacci VA, Ostendorf DM, Pan Z, Kaizer LK, Creasy SA, Zaman A, et al. The effect of 4:3 intermittent fasting on weight loss at 12 months: a randomized clinical trial. Ann Intern Med. 2025;178(5):634-44.
15. Byrne NM, Sainsbury A, King NA, Hills AP, Wood RE. Intermittent energy restriction improves weight loss efficiency in obese men: the MATADOR study. Int J Obes (Lond). 2018;42(2):129-38.
16. Catenacci VA, Pan Z, Ostendorf D, Brannon S, Gozansky WS, Mattson MP, et al. A randomized pilot study comparing zero-calorie alternate-day fasting to daily caloric restriction in adults with obesity. Obesity (Silver Spring). 2016;24(9):1874-83.
17. Antoni R, Johnston KL, Collins AL, Robertson MD. Intermittent v. continuous energy restriction: differential effects on postprandial glucose and lipid metabolism following matched weight loss in overweight/obese participants. Br J Nutr. 2018;119(5):507-16.
18. Khalafi M, Habibi Maleki A, Mojtahedi S, Ehsanifar M, Rosenkranz SK, Symonds ME, et al. The effects of intermittent fasting on inflammatory markers in adults: a systematic review and pairwise and network meta-analyses. Nutrients. 2025;17(15):2388.

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19. Hoddy KK, Kroeger CM, Trepanowski JF, Barnosky AR, Bhutani S, Varady KA. Safety of alternate day fasting and effect on disordered eating behaviors. Nutr J. 2015;14:44.
20. Harvie M, Howell A. Potential benefits and harms of intermittent energy restriction and intermittent fasting amongst obese, overweight and normal weight subjects—a narrative review of human and animal evidence. Behav Sci (Basel). 2017;7(1):4.
21. Aoun A, Ghanem C, Hamod N, Sawaya S. The safety and efficacy of intermittent fasting for weight loss. Nutr Today. 2020;55(6):270-7.
22. Sundfør TM, Svendsen M, Tonstad S. Effect of intermittent versus continuous energy restriction on weight loss, maintenance and cardiometabolic risk: a randomized 1-year trial. Nutr Metab Cardiovasc Dis. 2018;28(7):698-706.
23. Liu D, Huang Y, Huang C, Yang S, Wei X, Zhang P, et al. Calorie restriction with or without time-restricted eating in weight loss. N Engl J Med. 2022;386(16):1495-504.
24. Lin S, Cienfuegos S, Ezpeleta M, Pavlou V, Chakos K, McStay M, et al. Effect of time-restricted eating versus daily calorie restriction on mood and quality of life in adults with obesity. Nutrients. 2023;15(20):4313.
25. Jamshed H, Steger FL, Bryan DR, Richman JS, Warriner AH, Hanick CJ, et al. Effectiveness of early time-restricted eating for weight loss, fat loss, and cardiometabolic health in adults with obesity: a randomized clinical trial. JAMA Intern Med. 2022;182(9):953-62.
26. Zhang Q, Zhang C, Wang H, Ma Z, Liu D, Guan X, et al. Intermittent fasting versus continuous calorie restriction: which is better for weight loss? Nutrients. 2022;14(9):1781.
27. Alfahl SO. Evaluation of the effectiveness of intermittent fasting versus caloric restriction in weight loss and improving cardiometabolic health: a systematic review and meta-analysis. J Taibah Univ Med Sci. 2025;20(2):159-68.
28. Lowe DA, Wu N, Rohdin-Bibby L, Moore AH, Kelly N, Liu YE, et al. Effects of time-restricted eating on weight loss and other metabolic parameters in women and men with overweight and obesity: the TREAT randomized clinical trial. JAMA Intern Med. 2020;180(11):1491-9.
29. Harvie MN, Pegington M, Mattson MP, Frystyk J, Dillon B, Evans G, et al. The effects of intermittent or continuous energy restriction on weight loss and metabolic disease risk markers: a randomized trial in young overweight women. Int J Obes (Lond). 2011;35(5):714-27.
30. Semnani-Azad Z, Khan TA, Chiavaroli L, Chen V, Bhatt HA, Chen A, et al. Intermittent fasting strategies and their effects on body weight and other cardiometabolic risk factors: systematic review and network meta-analysis of randomised clinical trials. BMJ. 2025;389:e082007.
31. Steger FL, Jamshed H, Bryan DR, Richman JS, Warriner AH, Hanick CJ, et al. Early time-restricted eating affects weight, metabolic health, mood, and sleep in adherent completers: a secondary analysis. Obesity (Silver Spring). 2023;31 Suppl 1:96-107.
32. Siles-Guerrero V, Romero-Márquez JM, García-Pérez RN, Novo-Rodríguez C, Guardia-Baena JM, Hayón-Ponce M, et al. Is fasting superior to continuous caloric restriction for weight loss and metabolic outcomes in obese adults? A systematic review and meta-analysis of randomized clinical trials. Nutrients. 2024;16(20):3533.
33. Semnani-Azad Z, Khan TA, Chiavaroli L, Chen V, Bhatt HA, Chen A, et al. Intermittent fasting strategies and their effects on body weight and other cardiometabolic risk factors: systematic review and network meta-analysis of randomised clinical trials. BMJ. 2025;389:e082007.
34. Khalafi M, Maleki AH, Ehsanifar M, Symonds ME, Rosenkranz SK. Longer-term effects of intermittent fasting on body composition and cardiometabolic health in adults with overweight and obesity: a systematic review and meta-analysis. Obes Rev. 2025;26(2):e13855.

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