



Weight Loss Strategies and Various Treatments Involved in Treating Obesity

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Introduction

Obesity is a huge health and economic problem that the modern world is grappling with. It is linked to prevalent illnesses such as type 2 diabetes, coronary heart disease, and sleep apnea and is associated with increased mortality and morbidity. Obesity and its effects have been treated differently in recent years, with a shift toward more permanent solutions like bariatric surgery. The current nutritional, pharmacological, and surgical treatments for the management of obesity are covered in this study [1].

Dietary therapy: A calorie deficit of kilocalories can be used to lose weight (units of energy). The energy expenditure per adult kilogramme of body weight is estimated to be around 22 kcal.

Macronutrient composition: Fat, carbohydrate, and protein are the three basic dietary macronutrients, providing 9, 3.75, and 4 kilocalories per gramme, respectively. Fat is the most enticing target for weight loss management since it is the least satiating, most easily absorbed, and calorie-dense macronutrient. When compared to baseline intake (-5.41 kg), a recent meta-analysis of low-fat diets indicates considerable weight loss, but not when compared to other dietary interventions, such as high-fat diets. When compared to low-fat diets, low-carbohydrate diets (LCHDs) produce faster outcomes with more initial weight loss (by up to 3.3 kg at 6 months).

However, much of this has been linked to the loss of glycogen stores and water, which can amount to 1–2 kg in the first 14 days until the pace of weight loss slows. Protein is a satiating macronutrient that is utilised in high protein diets (HPDs) to reduce passive overconsumption of other less satiating and energy-dense macronutrients. Recent meta-analyses, on the other hand, have found that HPDs had either no effect on body weight or a tiny but unclear positive effect [2].

Calorie restriction: Another way to achieve a net energy deficit is to restrict calorie intake directly. Low and very low calorie diets (LCD and VLCD), respectively, limit energy intake to 800–1600 kcal/day and 800 kcal/day. When compared to LCDs, VLCDs produce better short-term weight loss (-16.1 kg vs -9.7 kg, respectively). VLCD weight loss is primarily achieved by a reduction in total body fat (7.8 percent total body fat reduction at 6 months). Due to increased rebound weight gain, the long-term effects of VLCDs are less obvious, and weight reduction results are more equivalent to LCDs (-6.3 percent vs. -5 percent, respectively) (61 percent vs 41 percent, respectively). This long-term weight reduction pattern with VLCDs is unaffected by its starting rate.

Pharmacotherapy: In addition to a low-calorie diet and adequate physical activity, NICE also recommends pharmaceutical treatment for weight reduction maintenance. Most pharmacological alternatives available on the NHS are licenced for weight loss maintenance in patients with a BMI of >27 kg/m² and accompanying risk factors, or those with a BMI of 30 kg/m². If you lose less than 5% of your body weight after three months on the medicine, you should stop using it [3].

Intragastric balloon: Since 1985, the intragastric balloon (IGB) has been a popular anti-obesity treatment. It consists of an endoscopically placed silicone balloon that is filled with saline and inflated in the

stomach for 6 months. IGBs are a weight-loss solution for people who refuse or are unable to undergo bariatric surgery.

Bariatric surgery: When all other options have failed, bariatric surgery is the therapy of choice. When compared to non-surgical therapies, the outcomes of bariatric surgery on weight loss and associated co-morbidities are superior regardless of the type of surgery performed.

The discovery that bariatric surgery can cause diabetes remission without causing weight loss has shifted attention to the mechanistic effects of enteric gut hormones like GLP-1 and pancreatic polypeptide YY, which are responsible for maintaining homeostatic mechanisms like appetite, gut motility, nutrient absorption, and plasma nutrient regulation. Indeed, there is mounting evidence that changes in these hormones play a key role in many of the positive outcomes found after bariatric surgery [4].

Prominent therapies: Several pharmacological therapies are now being tested in clinical trials, including.

Monoamine reuptake inhibitors, such as tesofensine (originally developed for neurodegenerative illnesses) and zonisamide–bupropion, are central nervous system agents (where zonisamide was initially developed for epilepsy). There are also new D3 dopamine antagonists, -Opioid inverse agonists, AgRP inhibitors, and neuropeptide YY5 receptor antagonists as veltropin on the market.

Inhibitors of sodium-dependent glucose co-transporters and diglyceride acyltransferase, as well as cetilistat (pancreatic lipase inhibitor), oxyntomodulin (dual agonist of GLP-1 receptor and glucagon receptor precursor), and sodium-dependent glucose co-transporters and diglyceride acyltransferase inhibitors (DGAT-1).

Obesity is still a developing problem with serious health and economic consequences, especially in low- and middle-income nations and among juvenile and adolescent populations. Traditional therapies such as lifestyle modification (diet and exercise) and medication are still useful, but their weight loss results are limited. Many worldwide associations have validated bariatric and metabolic surgical treatments as a viable treatment for weight loss that also improves associated co-morbidities such as T2DM [5].

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Received December 08, 2021; Accepted December 22, 2021; Published December 29, 2021

Citation: Green K (2021) Weight Loss Strategies and Various Treatments Involved in Treating Obesity. *J Obes Weight Loss Ther* 11: 480.

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