

Dietary management of obesity and type 2 diabetes: What advice should we be giving?



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Despite strong evidence that weight loss improves metabolic outcomes in people with type 2 diabetes (Wilding, 2014), cynicism about the efficacy of dietary interventions in primary care for inducing and maintaining meaningful weight loss remains (Haslam, 2014). Multicomponent lifestyle interventions (diet, physical activity and behavioural strategies) are considered the first option for treatment, although there is no strong evidence to support a specific dietary regimen (NICE, 2014).

Dietary strategies for weight loss

A variety of dietary strategies for weight loss in people with type 2 diabetes have been investigated, but there are very few head-to-head trials, so it is impossible to draw firm conclusions on the most effective approach (Diabetes UK Nutrition Working Group, 2011). The following diets have all been recommended recently for weight loss: low-fat, high-fibre diets (often known as healthy eating); low-carbohydrate diets; Mediterranean diets; low-glycaemic-index (GI) diets; meal replacements; commercial programmes; and intermittent fasting (5:2 diets). What is the evidence to support these interventions?

Low-fat, high-fibre diets (healthy eating)

Healthy eating strategies have generated the most evidence, and they have historically been the default diet for weight loss in type 2 diabetes. Several large studies, including the Look AHEAD study, incorporated this approach and, at 10-years' follow-up, healthy eating (combined with increased physical activity) reduced body weight by 6%, improved glycaemic control and reduced cardiovascular risk factors, although this did not translate to a reduction in cardiovascular events (Wing et al, 2014). Healthy eating, particularly the low-fat element, has recently fallen into disfavour and has been widely criticised without much supporting evidence (Kromhout, 2016; National Obesity Forum, 2016). Healthy eating diets can continue to be recommended to

people wishing to lose weight, although the concept of portion control is a key feature.

Low-carbohydrate diets

Low-carbohydrate diets have been widely promoted as the default strategy for weight loss and for improving glycaemic control in people with type 2 diabetes (Feinman et al, 2015). Although low-carbohydrate diets are effective for weight loss, recent systematic reviews and meta-analyses have consistently failed to demonstrate the superiority of low-carbohydrate diets over other dietary strategies (Castañeda-González et al, 2011; Ajala et al, 2013; van Wyk et al, 2016). In terms of glycaemic control, the evidence is conflicting but the most recent meta-analysis states that, although low-carbohydrate diets reduce HbA_{1c} by an extra 4 mmol/mol (0.34%) in short-term studies over 3–6 months, this is not maintained at 1 year or later (Snorgaard et al, 2017).

Mediterranean diets

A number of studies have investigated the effects of Mediterranean diets in people with type 2 diabetes, and all meta-analyses report greater weight loss and greater improvement in glycaemia and cardiovascular (CVD) risk factors when compared to other dietary strategies (Ajala et al, 2013; Esposito et al, 2015; Franz et al, 2015; Esposito et al, 2017). Mediterranean diets induce greater weight loss, with a weighted mean difference (WMD) of 1.84 kg (Ajala et al, 2013), and reported ranges of 0.3–2.2 kg (Esposito et al, 2015). Mediterranean diets reduce HbA_{1c} by a WMD of 5 mmol/mol (0.47%) when compared to other strategies (Ajala et al, 2013; Esposito et al, 2015).

Low-GI diets

Meta-analyses have reported that low-GI diets are not effective for promoting weight loss in people with diabetes, although they do improve glycaemic control, (WMD, 4–5 mmol/mol [0.37–0.46%]; Brand-Miller et al, 2003; Thomas and Elliott, 2010). However, the positive effects on glycaemic control have been questioned, with a suggestion

that they may in fact be due to increased dietary fibre intake (Wheeler et al, 2012).

Meal replacements

Very-low-energy liquid diets used as total meal replacements are effective for weight loss and reducing HbA_{1c} in people with type 2 diabetes, but they require medical supervision (Leslie et al, 2017). Partial meal replacement (PMR), using shakes, soups or bars in place of meals, has been successful in people with diabetes and was used as a strategy in the Look AHEAD study (Wadden et al, 2011). Evidence suggests that two rather than one PMRs per day induce better outcomes (Leader et al, 2013).

Commercial programmes

Many NHS Trusts offer slimming programmes on prescription and usually refer to established commercial groups (e.g. WeightWatchers, Slimming World, Rosemary Conley). Compared to conventional primary care-led weight loss interventions, which are largely ineffectual, commercial groups are effective for long-term weight loss in general populations (Jolly et al, 2010). However, there is little published evidence on outcomes in people with type 2 diabetes, although it is reasonable to assume that this population would lose similar amounts of weight to those without diabetes, and could expect to lose 3–5 kg after completing a 12-week course.

Intermittent fasting (5:2 diet)

Intermittent fasting involves normal eating alternated with fast days providing 500–600 kcal/day. There are two strategies employed, either fasting on alternate days or the more popular diet involving two fast days per week (5:2). Despite the popularity of these diets, evidence is limited and contradictory, and the results of studies in people without diabetes suggest that fasting has no advantage over the longer term (Arguin et al, 2012). To date, no studies have been conducted in people with diabetes.

Amount of weight loss

Many overweight people have impractical targets for weight loss, and there is evidence that one of the strongest predictors of attrition is unrealistically

high expected weight loss (Grave et al, 2005). It is recommended that these unrealistic targets are addressed before treatment begins. Realistic targets for people with type 2 diabetes are relatively modest; 2–5% weight loss lowers HbA_{1c} by 2–3 mmol/mol (0.2–0.3%), and 5–10% weight loss is associated with reductions of 7–11 mmol/mol (0.6–1.0%; Franz et al, 2015). Weight loss of 5–7% is also associated with other health benefits, including a reduced risk of microvascular complications and improvements in sleep apnoea, depression, general mobility, urinary continence and sexual function (Wing et al, 2014). The take-home message here is that moderate, realistic target-setting supports successful weight loss and translates to beneficial health outcomes for people with diabetes.

Summary

There are a variety of strategies that can be used to induce weight loss in people with diabetes, and evidence suggests that significant weight losses occur with most diets, and that differences between different diets are small and insignificant (Johnston et al, 2014; Naude et al, 2014). To optimise weight loss, it is recommended that primary care practitioners support their patients with a dietary strategy of their choice and agree realistic weight loss targets. ■

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