What our patients are reading: The Pioppi Diet

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Citation: Kirby M (2018) What our patients are reading: The Pioppi Diet. *Diabetes & Primary Care* **20**: 42–45

Article points

1. The Pioppi Diet is a new diet and lifestyle plan for the prevention of type 2 diabetes and cardiovascular disease.
2. The plan advocates a low-carbohydrate version of the Mediterranean diet, along with 1 day of fasting per week, daily physical activity, 7 hours of sleep per night, and relaxing and spending time with friends and family.
3. Although the low-carbohydrate, high-fat approach to weight loss is still a matter of debate, there is common sense in this book and it proposes a healthy way of living and eating.

Key words

- Diet and lifestyle plan
- Low-carbohydrate diet
- Pioppi Diet
- What our patients are reading

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People with diabetes have a bewildering amount of information, and often misinformation, available to them on their condition, and many will look to their primary care practitioners in the first instance for advice. This is the first in a new semi-regular series to keep readers abreast of the latest trends and publications that our patients may be reading. The series begins with a summary and evaluation of *The Pioppi Diet*, a new diet and lifestyle plan to reduce the risk of type 2 diabetes and cardiovascular disease, published in June 2017.

The Pioppi Diet is attracting great interest. It was inspired by Pioppi, a small fishing village on the south-west coat of Italy, about 90 miles north of Naples, which has a population that frequently manages to live into its tenth decade. The book is titled *The Pioppi Diet: A 21-Day Lifestyle Plan*. It is well written by a cardiologist, Aseem Malhotra, and a former athlete and film maker, Donal O'Neill.

In fact, the town of Pioppi has been of interest in the past. More than 50 years ago, the American physiologist Ancel Keys spent 6 months each year in Pioppi, over a long period, while he worked on his hypothesis that diet and lifestyle were linked to cardiovascular disease (CVD). He had observed that, in the Mediterranean area, there was a much lower incidence of heart disease than in the UK and the US, and attributed this to the diet and lifestyle in that area. A Mediterranean diet typically includes fish, vegetables, olive oil, fruit and nuts. This diet is accumulating a lot of evidence in relation to both primary and secondary prevention of heart disease (de Lorgeril and Salen, 2011; Estruch et al, 2013).

Pioppi Diet details

The 21-day lifestyle plan is designed to help people break their sugar habit and, thereafter, to reserve sugar and carbs for treats only. Aseem and Donal's top ten food types include extra virgin olive oil (three to four tablespoons daily), a handful of tree nuts, fibrous vegetables (broccoli, cauliflower, courgettes, aubergines, onions and sweet potatoes), fruits (tomatoes, avocados, apples and berries), herbs and spices (garlic, ginger, turmeric, basil and cinnamon), fatty fish (at least three portions weekly), dark chocolate, coconut, eggs, and full-fat and fermented dairy products. They recommend eating these foods, along with a period of fasting, plenty of exercise and reducing the stress in your life. The book includes a helpful diet plan and many excellent recipes.

The plan is summarised in *Box 1*.

Evaluation

Avoiding sugar

I recently heard Aseem speak at the British Association for Cardiovascular Prevention and Rehabilitation conference in London, where he was promoting the hypothesis that fat is not the problem, but rather sugar and carbohydrate are, making the point that the "low-fat lobby" has led to the food industry replacing fat with sugar, so that low-fat products often contain high levels of the latter.

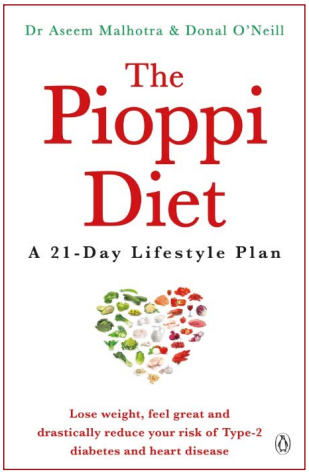
Saturated fat is an important part of a healthy diet, vital for immune function and the absorption of minerals, and it leads to satiation in a way that sugar does not. Sugar is a source

Box 1. The Pioppi Diet at a glance.

The plan is to live more healthily without drastically cutting calories or exercising excessively. The Pioppi diet is based around avoiding added sugar and refined carbohydrates, and to eat more vegetables and fatty foods like oily fish and olive oil. The plan also recommends physical activity and stress-relieving breathing exercises, and it provides a 21-day protocol of exercises. The 21-day lifestyle plan is designed to help people break their sugar habit and, thereafter, to reintroduce sugar and carbohydrates as a treat.

The plan is as follows:

- A dietary basis of vegetables, nuts and olive oil. The guide recommends five to seven portions of fibrous veg and low-sugar fruit per day, and at least five of these should be the former.
- Two to four tablespoons of olive oil and a small handful of nuts every day.
- Oily fish, such as salmon and sardines (three portions a week as a minimum), eggs (ten per week), full-fat dairy, coconut oil and dark chocolate (30 g a day).
- Avoid all added sugars, including those in syrups, fruit juice and honey. Refined carbohydrates, especially those that are flour-based, are to be avoided. This includes pasta, bread and rice, which are to be used for occasional treats and eaten in small portions.
- Avoid cooking with industrial seed oils like sunflower, canola and corn.
- Limit red meat to 500 g per week and avoid processed meats.
- Fast for 24 hours one day per week. The plan advises starting the fast after dinner one night and skipping breakfast and lunch the next day, consuming only fluids in between.
- A small glass of wine can be enjoyed with dinner each day, but stick to ≤14 units per week.
- Aim for 30 minutes of brisk walking five times a week, avoid sitting still for longer than 45 minutes at a time and spend as much time as possible outside and enjoying nature.
- Sleep 7 hours a night, relax and spend fun time with friends and family.



The Pioppi Diet: A 21-Day Lifestyle Plan.

of fructose, which the authors suggest interferes with the hormones that control appetite, leading to hunger. Recent research has demonstrated that the acute ingestion of typical amounts of fructose, in a variety of forms, results in marked differences in circulating gastric inhibitory polypeptide and lactate concentrations, albeit with no difference in appetite ratings, triglyceride concentrations, indicative lipolysis or non-esterified fatty acid metabolism, when compared to glucose (Yau et al, 2017).

So how much sugar do we need? For the purpose of health, the optimum consumption of added sugar is zero. Added sugar has no biological requirement and is, therefore, not by any definition a "nutrient". It is not just the fructose component but also sucrose (50% glucose and 50% fructose) that fulfil four criteria that justify sugar's regulation: toxicity, unavoidability, the potential for abuse and negative impact on society (Lustig et al, 2012). So we should welcome the UK Government's announcement of a 20% tax on sugar-sweetened beverages in 2017, as well as the recent calls by the World Health Organization to tax sugary drinks by at least 20% in order to curb the global epidemics of obesity and type 2 diabetes.

Low-carb advice

Key to the Pioppi Diet is the advice to avoid refined carbohydrates. Carbohydrates such as bread, rice, pasta and potatoes cause a spike in glucose and insulin levels, and the storage of excess calories as triglycerides leads to insulin resistance. Portion control is the key here, along with avoidance of puddings, which are rarely eaten in Pioppi.

Insulin resistance and the metabolic syndrome lead to high blood pressure because the raised levels of insulin lead to salt retention. The other components of the syndrome are low

Page points

1. There is conflicting evidence regarding the low-carbohydrate approach to weight loss advocated in the Pioppi Diet.
2. Over the short term, weight-loss benefits with low-carb compared to low-fat diets tend not to be clinically significant, and over the long term little difference has been observed.
3. Attempts to reduce fat intake should not be dismissed, as this has been shown over the long term to reduce cardiovascular risk factors and increase life expectancy.

HDL-cholesterol, raised triglycerides and raised blood glucose. Waist circumference is a more reliable marker of metabolic health than BMI.

But do low-carbohydrate diets actually lead to the weight-loss benefits their proponents claim? The evidence is conflicting. A 2015 systematic review and meta-analysis found that low-carb diets led to greater weight loss than low-fat interventions; however, the average difference of 1.15 kg after 1 year, although statistically significant (Tobias et al, 2015), is unlikely to have had much clinical impact (McCartney, 2017).

A 2016 meta-analysis comparing the effects of low-carbohydrate versus low-fat diets on weight loss and CVD risk factors found that, compared with people consuming a low-fat diet, those on a low-carb diet experienced significantly greater weight loss, greater triglyceride reductions and a greater increase in HDL-cholesterol after 6 months to 2 years of intervention (Mansoor et al, 2016). However, despite significant weight loss, participants on low-carb diets experienced a significant increase in LDL-cholesterol compared with those consuming low-fat diets.

A more recently published study, using data from the US Diabetes Prevention Program, found that, in adults at high risk of type 2 diabetes, weight loss after 1 year was associated with increases in carbohydrate intake, specifically dietary fibre, and reductions in total and saturated fat intake (Sylvetsky et al, 2017).

A 2017 systematic review and meta-analysis found a beneficial effect of a low-carbohydrate diet on glucose control, triglycerides and HDL-cholesterol in people with type 2 diabetes; however, no significant effect on long-term weight loss was observed (Meng et al, 2017).

A 2017 systematic review and meta-analysis examining dietary carbohydrate restriction in people with type 2 diabetes found that, in the first year of intervention, low- to moderate-carbohydrate diets had a greater effect on glycaemic control than high-carbohydrate diets, and the greater the carbohydrate restriction the greater the glucose-lowering effect. However, at 1 year or later, HbA_{1c} was similar between people consuming low to moderate amounts of carbohydrate (<45% of total energy intake) and those consuming high amounts (Snorgaard et al, 2017). Apart from the initial lowering of HbA_{1c} over the short term, there was no superiority of low-carbohydrate diets in terms of glycaemic control, weight or LDL-cholesterol.

In defence of low-fat

The bottom line is that it is certainly good advice is to cut out all added sugar, but in my view we also need to be moderate in our intake of saturated fat. In this I contradict the authors, who criticise the low-fat diet.

One of the original landmark studies into diet and lifestyle was the North Karelia Project in Finland, which showed how, over a 25-year period, major changes occurred in the levels of the target risk factors. The advice was to replace butter with oil, meat with vegetables, cut salt and stop smoking. In the early 1970s, when the project was launched, men were 30 times more likely to die of heart attacks in North Karelia (the study's northern extreme) than in places like Crete (Puska, 2002).

Among men in North Karelia, smoking has greatly reduced and dietary habits have changed markedly. In 1972, 52% of middle-aged men in North Karelia smoked. By 1997, the percentage had fallen to 31%. In the early 70s, the use of vegetables or vegetable oil products was very rare; now it is very common. In 1972, about 90% of the population in North Karelia reported using mainly butter on bread, and consumption of pork and dairy was very high. Butter was used in almost every meal: butter-fried potatoes, buttered bread – even the traditional fish stew was half butter. The population had fried pork or meat stew for dinner, chased with buttered bread and milk. Vegetables were considered food for the animals. Now, less than 7% of the population consumes butter.

The dietary changes led to an approximate 17% reduction in the mean serum cholesterol level of the population. Elevated blood pressure has been brought well under control and leisure-time physical activity has been increased. Looking back over the 25 years, this project produced impressive results. The

mortality rate attributable to coronary heart disease in the middle-aged male population has reduced by about 73%. Life expectancy for men rose by 7 years, and for women by 6 years (Puska, 2002).

Other lifestyle changes

The population of Pioppi traditionally worked mainly outdoors, leading a physical life and taking a siesta (poor sleep increases insulin resistance). The diet consists of home-cooked, local vegetables and salads, and no supermarket products with hidden sugar. The village has a fishing fleet and provides plenty of fresh fish for the diet.

Processed food contains too little fibre, too few omega-3 and too many omega-6 fatty acids, too few micronutrients, too many *trans* fats and too many emulsifiers. The nitrates in processed meat have been linked to colon cancer and, of course, high levels of salt are ubiquitous.

Small quantities of red wine have been shown to be protective, but readers are advised to not exceed 14 units per week.

The other element to the Poppi diet is a period of fasting, for 24 hours, once per week. Intermittent fasting like this has, of course, been popularised by the 5:2 diet, and there is good evidence to support the fact that fasting increases insulin sensitivity (Halberg et al, 2005). If your patients find fasting impossible, then the advice is to eat the evening meal early and have as long a fast as possible during the night, and this seems sensible.

Conclusion

In conclusion, the jury is still out on the weight-loss front; however, there is a great deal of common sense in this book and it proposes a healthy way of living and eating. Currently, perhaps the best advice we can give is to eat less sugar, refined carbohydrates and processed food, but that olive oil, fresh vegetables and salads are a healthy choice. Exercise is important and should be a daily occurrence, stress should be avoided and good-quality sleep is encouraged. A period of fasting is also beneficial. Notably, many of these principles are included in the NHS Choices weight loss plan. ■

de Lorgeril M, Salen P (2011) Mediterranean diet in secondary prevention of CHD. *Public Health Nutr* **14**: 2333–7

Estruch R, Ros E, Salas-Salvadó J et al; PREDIMED Study investigators (2013) Primary prevention of cardiovascular disease with a Mediterranean diet. *N Engl J Med* **368**: 1279–90

Halberg N, Henriksen M, Söderhamn N et al (2005) Effect of intermittent fasting and refeeding on insulin action in healthy men. *J Appl Physiol (1985)* **99**: 2128–36

Lustig RH, Schmidt LA, Brindis CD (2012) Public health: the toxic truth about sugar. *Nature* **482**: 27–9

Mansoor N, Vinknes KJ, Veierød MB, Retterstøl K (2016) Effects of low-carbohydrate diets v. low-fat diets on body weight and cardiovascular risk factors: a meta-analysis of randomised controlled trials. *Br J Nutr* **115**: 466–79

McCartney M (2017) Margaret McCartney: promising miracle diet fixes isn't fair on anyone. *BMJ* **358**: j4226

Meng Y, Bai H, Wang S et al (2017) Efficacy of low carbohydrate diet for type 2 diabetes mellitus management: a systematic review and meta-analysis of randomized controlled trials. *Diabetes Res Clin Pract* **131**: 124–31

Puska P (2002) Successful prevention of non-communicable diseases: 25 year experiences with North Karelia Project in Finland. *Public Health Medicine* **4**: 5–7

Snorgaard O, Poulsen GM, Andersen HK, Astrup A (2017) Systematic review and meta-analysis of dietary carbohydrate restriction in patients with type 2 diabetes. *BMJ Open Diabetes Res Care* **5**: e000354

Sylvetsky AC, Edelstein SL, Walford G et al (2017) A high-carbohydrate, high-fiber, low-fat diet results in weight loss among adults at high risk of type 2 diabetes. *J Nutr* **147**: 2060–66

Tobias DK, Chen M, Manson JE et al (2015) Effect of low-fat diet interventions versus other diet interventions on long-term weight change in adults: a systematic review and meta-analysis. *Lancet Diabetes Endocrinol* **3**: 968–79

Yau AM, McLaughlin J, Gilmore W et al (2017) The acute effects of simple sugar ingestion on appetite, gut-derived hormone response, and metabolic markers in men. *Nutrients* **9**: 135

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