

Dietary advice for people with diabetes: The latest practice

Penny Jackson, Guy's and St Thomas' Hospital

Diabetes is a chronic disease affecting over 2.8 million people in the UK. Penny Jackson, Diabetes Dietitian reviews the latest UK diabetes dietary recommendations and programmes to help you support patients to manage their diabetes efficiently.

Diabetes – a growing concern

The number of people with chronic conditions, and living longer with them, continues to rise and diabetes is no exception. Incidence of diabetes in the UK increased by 74% between 1997 and 2003. Currently there are 2.8 million people with recognised diabetes in the UK with over half a million more thought to be undiagnosed (www.diabetes.org.uk/professionals/diabetes-prevalence-2010). The rise in incidence of type 2 diabetes (DM2) is largely fuelled by the high prevalence of obesity in the UK in people of all ages. Diabetes now affects four per cent of the UK's population. The risk of developing DM2 increases by up to ten times in people with a body mass index of more than 30. Prevalence of DM2 is at least five times higher amongst those from an African-Caribbean or Asian background.

Type 1 diabetes (DM1)

This is relatively rare accounting for approx 15% of diabetes in the UK with incidence doubling every 20 years since 1945. The peak age for diagnosis in the UK is 10-14 years but this is becoming younger with a steep rise in the under 5's (Diabetes UK).

[www.diabetes.org.uk/Documents/Reports/in the UK 2004.doc](http://www.diabetes.org.uk/Documents/Reports/in_the_UK_2004.doc)

Dietary advice

The aim of nutritional advice for people with diabetes is to help reduce the risk for microvascular disease by achieving near normoglycaemia without undue risk of hypoglycaemia (target Hba1c levels of 6-7%). Nutritional interventions can also reduce the risk of developing macrovascular disease by the management of body weight, dyslipidaemia and hypertension. In addition, any intervention must ensure adequate, and promote optimal, nutritional status. A useful summary of the available evidence is provided in the American Diabetes Association's position paper (2008).

UK dietary recommendations

These were designed to cover a range of options (Nutrition sub committee 2003) recommending carbohydrate intakes of between 50 and 60% of total energy with an active promotion of low glycaemic index (GI) carbohydrates. While there is no evidence to support total avoidance of added sugars they suggest limiting sucrose to less than 10% of total energy. Fat intake should be limited to 30-40% total energy with monounsaturates being promoted as the main source of fat due to their lower atherogenic potential. Regular oily fish intake (1-2 portions weekly) is encouraged but advice on supplements is probably best given on an individual basis.

Dietary advice for people with diabetes: The latest practice

Penny Jackson, Guy's and St Thomas' Hospital

Carbohydrates and GI

Post prandial rises in blood glucose are mainly due to ingested carbohydrate. Evidence indicates it is the quantity rather than type of carbohydrate eaten that is the main contributor to the blood glucose rise (ADA 2008). The speed of the rise can sometimes be explained by the type of carbohydrate. For example, glucose on its own causes a rapid rise in blood glucose (and is defined as having a high GI) but adding another food to it can delay that rise.

The GI of a food is defined as the area under the two hour blood glucose response curve (AUC) following the ingestion of a fixed portion of carbohydrate (usually 50g). The glycaemic effect of carbohydrate foods depends on a number of factors including;

- type of starch or sugar
- physical entrapment of starch molecules within the food
- fat and protein of food
- organic acids or their salts.

The presence of fat and soluble fibre can slow gastric emptying and thus lower GI. Jenkin's group in Canada (2002) and Brand-Miller's in Australia (Foster-Powell et al 2002) have published extensively on this subject and its possible value to people with diabetes. In the UK and Europe work is currently being undertaken to establish robust figures for foods as part of the Diogenes Study (www.diogenes-eu.org) (Aston et al 2010).

Fat and body weight

Guidelines for fat intake encourage a low total fat intake of <35% energy, with not more than 10% of energy coming from saturated (including trans unsaturates) and polyunsaturated fat, with the remainder from monounsaturated fat.

Excess body weight and in particular excess abdominal fat tends to increase insulin resistance. Being physically active and reducing waist circumference can lead to a marked increase in insulin sensitivity. Successfully maintaining weight loss and exercise levels in people identified with impaired glucose tolerance can delay the development of DM2 (Gillies 2007) and can lessen the need for medication in those with DM2.

Dietary fibre and salt

There are no specific recommendations for dietary fibre intake for people with diabetes other than those for the general population. It is worth noting that increasing levels of soluble fibre can help control swings in blood glucose and reduce blood cholesterol levels.

Healthy eating advice to reduce salt intake from an average UK intake of 12g per day to 6g can have benefits for people with DM2 who are often on antihypertensive medication. There is some epidemiological evidence to suggest that there is an inverse relationship between blood pressure and consumption of dietary potassium, calcium and magnesium.

Dietary advice for people with diabetes: The latest practice

Penny Jackson, Guy's and St Thomas' Hospital

Whilst nutritional recommendations for diabetes have not changed substantively in recent years, their interpretation has become increasingly flexible and pragmatic as a response to increasingly varied lifestyles.

'Diet (lifestyle) is the cornerstone of treatment'

How many times in the working week do those of us working in diabetes hear that phrase? And yet it seems to be an increasingly difficult task for the individual with diabetes living with increasing environmental challenges. There is plenty of lifestyle information widely available – TV, internet, magazines as well as that produced by NHS, but it can be difficult to relate these to personal circumstances. Coming to terms with a diagnosis of diabetes can be difficult and people can find the barrage of information available overwhelming and confusing.

Education programmes for people with diabetes – what is available?

For those with DM2: Structured education programmes such as **DESMOND** (www.desmond-project.org.uk) and **XPRT** (www.xperthealth.org.uk) can have such an important role in providing both the information people with DM2 need and the space and support for them to think about how diabetes can fit into their lives. The philosophy of these courses is embedded in the belief that people want to do the best for themselves and they all use self-management principles and goal setting techniques.

The number of people with DM2 progressing to insulin treatment is increasing and they are often taught **insulin administration and titration** in small groups. The peer support provided in these groups can be valuable in helping people self manage and can be a useful time to explore lifestyle issues. Similarly new treatments for DM2 such as **exenatide** and the **gliptins** which can affect appetite and satiety can provide a window of opportunity to look afresh at dietary habits.

For those with DM1: Based on the Düsseldorf model (Assal 1985) these have been available in UK for over 10 years. The national **DAFNE** programme (www.dafne.uk.com) trains diabetes dietitians, nurses and doctors to provide 5 day courses for groups of 8 people to learn and practice how to count carbohydrates and how to adjust their insulin dose in a number of situations. Some hospitals provide courses based on the **BERTIE** model with facilitators having been trained by the Bournemouth diabetes team which also provides an e-learning programme for people with DM1 (www.bdec-e-learning.com). The diabetes education network is a useful source of information for courses around the UK (www.diabetes-education.net).

Conclusion

As dietitians we have to accept that we are not the only people giving dietary advice, nor should we be. However, it is important to realise that giving advice is so much more than 'information transfer'. Be prepared to adopt a number of strategies including motivational interviewing and cognitive behaviour therapy to be able to support people with diabetes more effectively along their journey.

Dietary advice for people with diabetes: The latest practice

Penny Jackson, Guy's and St Thomas' Hospital

References

1. American Diabetes Association. Nutrition recommendations and interventions for diabetes. *Diabetes Care* (2008) 31:S61-S78
2. Assal JP, Muhlhauser I, Pernet A, Gfeller R, Jorgens V, Berger M. Patient education as the basis for diabetes care in clinical practice and research. *Diabetologia* (1985) 28:602-613
3. Aston LM, Jackson D et al. The Diogenes study: developing a common methodology for assigning glycaemic index values to foods consumed across Europe. *Obesity Reviews* (2010) 11:92-100
4. Foster-Powell K, Holt S, Brand-Miller JC. International table of glycemic index and glycemic load values:2002 *American Journal Clinical Nutrition* (2002) 76:5-56
5. Gillies CL, Abrams KR et al. Pharmacological and lifestyle interventions to prevent or delay type 2 diabetes in people with impaired glucose tolerance :a systematic review and meta analysis. *BMJ* (2007) 334:299
6. Jenkins DA , Kendall CWC et al. Glycaemic Index: an overview of implications in health and disease. *American Journal Clinical Nutrition* (2002) 76:S266-S273
7. Nutrition subcommittee of the diabetes care advisory committee of Diabetes UK. The implementation of nutritional advice for people with diabetes. *Diabetic Medicine* (2003) 20:786-807