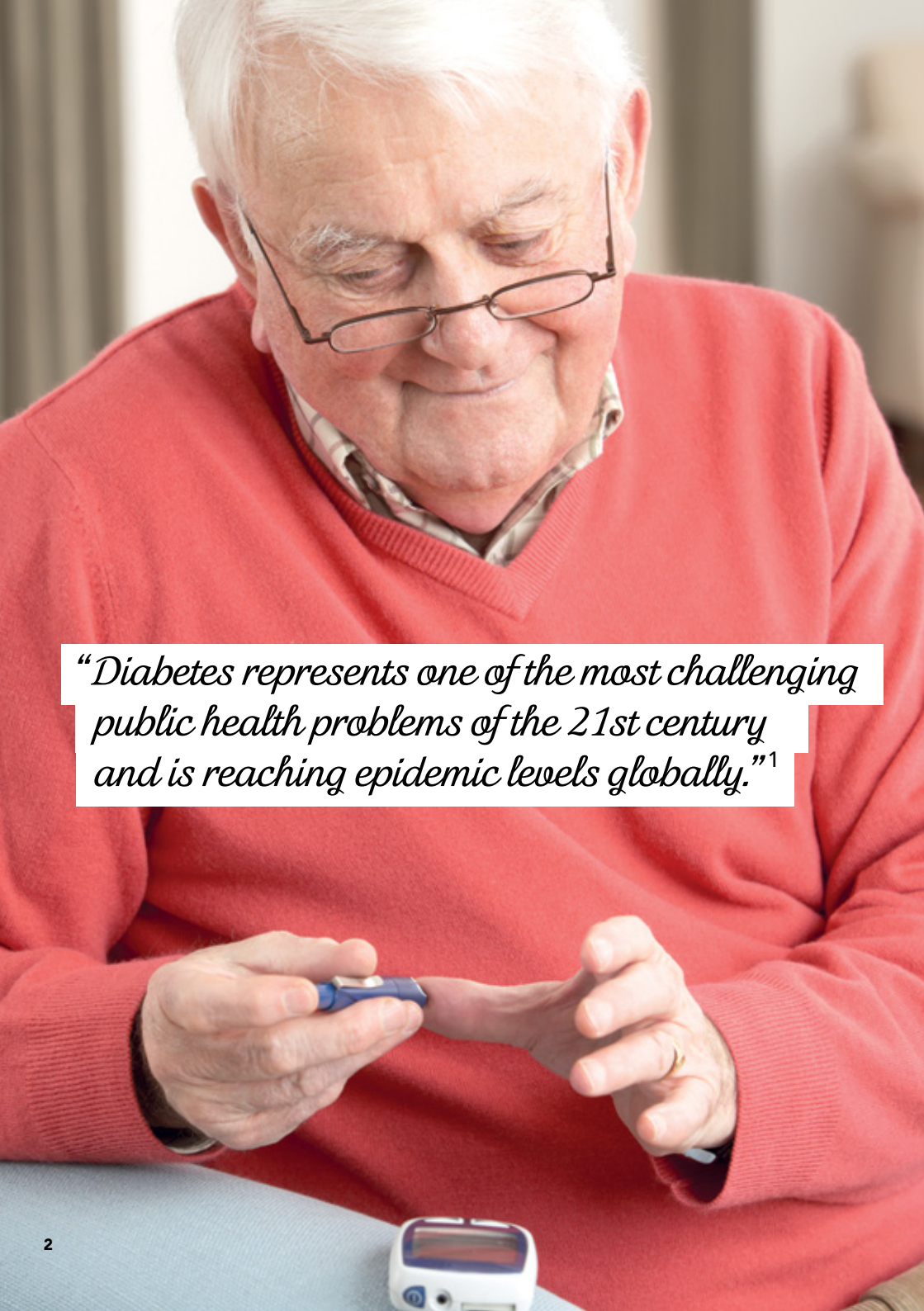


Sugar Issues



**PREVENTING
& REVERSING
DIABETES**



“Diabetes represents one of the most challenging public health problems of the 21st century and is reaching epidemic levels globally.”¹

In 2010 it was estimated that 285 million people world-wide had diabetes. This number is projected to increase by 7.7% to 439 million adults by 2030.¹ The prevalence of diabetes in Australia is also rapidly rising with 7.4% (about 1 in 14 people) of Australians estimated to be living with the condition and a further 16.4% considered pre-diabetic.²

WHAT IS DIABETES?

There are a number of types of diabetes. Diabetes mellitus, involves a problem with insulin, a hormone produced in the pancreas. Insulin is like a key that unlocks the doors to our body cells and lets glucose (sugar) into the cells. Glucose is the main nutrient our cells need to produce energy, so if our cells aren't getting glucose, it's a problem. The glucose that can't get into the cells stays in the bloodstream, causing an elevated blood sugar level that carries serious health risks. Some of the excess glucose is filtered out of the blood into the urine—a person with properly functioning insulin does not have sugar in their urine.³

Around 90% of diabetes sufferers have type 2 diabetes, which occurs when the body's cells no longer respond effectively to insulin. The pancreas struggles to produce more and more insulin to achieve the desired response. High levels of insulin in the blood stream contribute to the health complications of type 2 diabetes. In severe cases, the pancreas can no longer produce enough insulin to meet demand, and regular insulin injections become necessary.³

OTHER TYPES OF DIABETES

TYPE 1 DIABETES

Previously called *juvenile diabetes* or *insulin-dependent diabetes*, this condition results in the pancreas being unable to produce any insulin at all. People with type 1 diabetes have to regularly inject themselves with insulin. While research is on-going, it is believed that an immune system response to an environmental factor, such as a virus, rather than poor lifestyle causes this illness in some individuals.⁴ Even so, a good diet and physical activity play an important role in managing type 1 diabetes.^{5,6}

GESTATIONAL DIABETES

This is a temporary form of diabetes that develops in some women during pregnancy, and usually disappears after the baby is born. In this condition, healthy eating and exercise are usually sufficient to maintain a normal blood sugar level, which is important for the health of the foetus and ensures the baby doesn't grow too big before birth.⁷ Those who suffer from gestational diabetes are at an increased risk of developing type 2 diabetes later in life.⁸

The good news is however, positive lifestyle behaviours can reduce this risk.⁶

WHAT CAUSES TYPE 2 DIABETES?

LIFESTYLE

Type 2 diabetes is a lifestyle disease, meaning it is usually caused by a combination of poor eating and exercise habits and lifestyle choices. Being overweight or obese,⁹ being inactive,¹⁰ smoking, and consuming diets high in simple carbohydrates, fat and red meat, and low

in fibre,¹¹⁻¹³ are all factors that individually increase the risk of developing type 2 diabetes. Being obese, for example, makes you 20 to 40 times more likely to develop diabetes than people with a healthy body weight.¹⁴ Type 2 diabetes is strongly associated with other health conditions such as heart disease, high blood cholesterol and high blood pressure.¹⁵ The typical person diagnosed with type 2 diabetes is an adult with decades of unhealthy living under their belt. But increasingly, even children are being diagnosed with type 2 diabetes, and in most cases those children are overweight or obese.^{16,17}

GENETICS

There is a genetic element to diabetes, but it also requires an environmental or lifestyle trigger. According to the American Diabetes Association, "Some people are born more likely to get diabetes than others. You inherit a predisposition to the disease then something in your environment triggers it. Genes alone are not enough. One proof of this is identical twins. Identical twins have identical genes. Yet when one twin has type 1 diabetes, the other gets the disease at most only half the time. When one twin has type 2 diabetes, the other's risk is at most 3 in 4."¹⁸⁻²¹

WHY WORRY ABOUT IT?

Perhaps you enjoy the diabetes lifestyle—chips, soft drinks, hours in front of the TV—and you don't really want to change. If so, here are some good reasons to think again. Complications due to poorly controlled diabetes can be very serious, including blindness and limb amputation.^{22,23} Diabetes is a major risk factor for kidney disease and impotence.^{24,25} It also greatly increases the risk of cardiovascular disease and stroke,²⁶ as elevated blood sugar levels cause damage to the large and small blood vessels of the body. It is also estimated that a diagnosis of diabetes represents a reduction in life expectancy of 12-14 years.²⁷ Additionally, people with high blood glucose, in particular those with type 2 diabetes, have an increased risk of suffering from Alzheimer's disease, estimated to be between 70% and 80% higher."²⁸

Do I have diabetes?

Many people with diabetes don't even know they have it. Common, tell-tale symptoms include:²⁹

- ☐ **EXCESSIVE THIRST**
- ☐ **BLURRED VISION**
- ☐ **FREQUENT URINATION**
- ☐ **SLOW-HEALING WOUNDS**
- ☐ **EXTREME HUNGER**
- ☐ **REOCCURRING INFECTIONS**
- ☐ **INCREASED FATIGUE**
- ☐ **UNUSUAL WEIGHT LOSS**
- ☐ **IRRITABILITY**

A blood test arranged by your doctor can determine if you have diabetes or pre-diabetes (progressive phases of the same condition). The World Health Organisation has set the criteria for diagnosis as seen on opposite page.³⁰

BLOOD SUGAR LEVELS

HEALTHY/IDEAL

Fasting plasma glucose
3.3–6.1mmol/L

PRE-DIABETES

Fasting plasma glucose
6.1–6.9mmol/L

DIABETES

Two consecutive tests with either:

- Fasting plasma glucose concentrations greater than or equal to 7mmol/L, or
- Greater than or equal to 11.1mmol/L two hours after a 75g glucose drink



What can I do about it?

Type 2 diabetes can be prevented, and studies have also shown that some symptoms may be reversed and blood sugar levels normalised using diet and physical activity.³¹ Research has shown that these two weapons can be more effective in combating type 2 diabetes than even the best medication.³¹ Indeed, while medications can be helpful in limiting the damage caused by continuously high blood-sugar levels, they do not represent a cure and come with their own range of potential side effects.³²

EATING WELL

Rather than relying on a special *diabetic* diet,³³ an effective way to prevent and manage diabetes is simply making healthy eating choices—the same kind of eating that is recommended for everyone. Decades of research have clearly shown that diets low in fat, high in fibre, and high in unrefined carbohydrates, not only reduces the risk of developing diabetes but may also reverse some of the symptoms in people already diagnosed.^{31,33,34}

PLANT-BASED EATING

In an impressive study conducted Dr Neal Barnard, type 2 diabetic patients were put on either a low-fat, plant-based diet, or a diet recommended by the American Diabetes Association. Both groups of patients saw improvements in their blood sugar level control, but those on the lower fat diet had the best results. The plant-based diet had no cholesterol, was very low in fat, and contained almost no saturated fats or trans fats. The diet was also high in fibre, high in anti-oxidants, and low in kilojoule density. Of these patients, 43% no longer required medication.³⁵

WHOLEGRAINS

Higher intakes of cereal fibre and whole grains have been associated with a reduced risk of type 2 diabetes in several studies.^{36,37} These grains have nutrients that protect against the development of diabetes and work to reduce the risks of diabetes in those already diagnosed.³⁶

MEAT

Three studies of diet and diabetes based at Harvard University tracked the dietary habits of 200,000 people over a decade and found a strong association between consumption of red meat and increased risk of type 2 diabetes. The studies found that 100g of unprocessed red meat per day increased diabetes risk by 20%. Similarly, 50g of processed red meat per day—including products such as bacon, hot dogs and sausages—increased the diabetes risk by 50%. By contrast, when one serving of processed red meat per day was replaced with a wholegrain dish, the diabetes risk dropped by as much as 35%. One possible explanation for these observations is that processed meats, particularly cured meats such as hot dogs and salami, contain nitrates. When heated, the nitrates are converted to nitrosamine, which impairs how cells interact with insulin.¹¹

ARE CARBOHYDRATES BAD?

Carbohydrates seem to have experienced a roller coaster ride of popularity over the last few decades. Sometimes they are promoted as an important basis for a healthy diet, while at other times the media and Hollywood celebrities shun them in favour of high-protein diets, mostly in the area of weight loss. Part of the problem lies in understanding the word *carbohydrates*. Simple (small) sugar molecules such as glucose, fructose, and lactose are types of carbohydrates. So too are complex (large) starch molecules such as those found in legumes, oats and other grains, potatoes and other vegetables.

Diabetes Australia advises people with diabetes “to include carbohydrate foods at every meal as part of their daily eating plan” and to “consider both the amount and the type of carbohydrate food eaten, as both of these affect blood glucose levels.”^{38,39}

It is easy to identify the good types of carbohydrate. Look for whole food, complex carbohydrates that have less processing. They come complete with all their fibre, vitamins and minerals, and take longer to digest so they slowly release the sugar into the blood stream. A donut—made from refined white flour and coated in simple sugar—is not a healthy carbohydrate choice!



REFINED
CARBOHYDRATE-RICH FOOD



White bread



White rice



Fruit juice



Puffed rice cereal



White pasta

MINIMALLY PROCESSED
CARBOHYDRATE-RICH FOODS



Wholegrain bread



Brown rice



Whole fruit



Rolled oats



Brown pasta



THE GLYCEMIC INDEX²⁹

Most carbohydrate foods are digested to produce glucose, but they do so at different rates—some slowly and some quickly. The glycemic index (GI) is a ranking of carbohydrate foods according to their effect on blood glucose levels.

Research has shown that by eating a diet with a lower GI, people with diabetes can reduce their average blood glucose levels and have fewer fluctuations in these levels.⁴⁰ This is important in reducing the risk of developing diabetes-related complications. A lower GI diet may improve the body's ability to use glucose for energy and help to lower blood fats (such as triglycerides) and raise HDL (a healthy cholesterol).⁴¹ Low GI foods may also help improve satiety (feeling of fullness), which may help with weight management.⁴²

Remember, the GI is one part of healthy eating for people with diabetes. To ensure a food is healthy overall, you need to also consider other nutritional qualities such as the amount and type of fat, the amount of added refined sugar and starch, and the fibre and sodium (salt) content.

To find out more about the glycemic index, go to www.glycemicindex.com

EXERCISE

People with type 2 diabetes produce insulin but their body cells don't respond well to it. Exercise helps to improve insulin sensitivity and lowers blood glucose levels,⁴³ potentially reducing the need for anti-diabetic medication. Exercise can also help reduce the complications from diabetes. For example, type 2 diabetes is associated with an increased risk of heart disease. Exercise decreases blood pressure and cholesterol levels, reducing the risk of heart disease.^{44,45} A significant benefit of exercise is the potential for weight control. According to Diabetes Australia, "One of the most important aspects of diabetes management is to maintain a healthy body weight. Being overweight not only increases your risk of heart disease, stroke and some cancers, it also makes your diabetes harder to manage."^{46,47}

THE BOTTOM LINE

- ✓ EAT WELL
- ✓ BE PHYSICALLY ACTIVE
- ✓ CONTROL BODY WEIGHT

These are the best lines of defence against diabetes. As a disease with significant complications and associated conditions, it's well worth conquering.

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