



an avoidable 'epidemic'



BY ROBYN CHUTER

In the latest National Health Survey, in 2004-5, around 700 000 Australians, or 3.6% of the population, reported that they had diabetes. What makes this figure even more disturbing is that it is generally acknowledged that for every diabetic who is aware of their condition, there's another who doesn't know they have it. The number of adults with diabetes has more than doubled since 1981.⁽¹⁾

Diabetes greatly increases the risks of blindness, kidney failure, limb amputation, impotence, gangrene, stroke and heart attack.⁽²⁾

There are two types of diabetes. Type-1 or 'juvenile-onset' diabetes generally occurs in children (although it can also begin in adulthood), while type-2 used to be mainly a disease of elderly people and was referred to as 'adult-onset diabetes'. Now it is being diagnosed in young adults, adolescents and even children.

Type-2 diabetes, which accounts for 85 to 90 percent of diabetes cases, is a totally preventable 'lifestyle disease'. Although both type-1 and type-2 tend to run in families, we don't inherit the diseases themselves, but rather a *predisposition* to them. For the diseases to develop, this predisposition must be acted on by environmental and lifestyle factors.

In the case of type-2 diabetes, these factors are diet, sedentary lifestyle and abdominal obesity, which is largely the result of the first two factors. People with type-2 diabetes are twice as likely as non-diabetics to be overweight or obese and sedentary or minimally active.⁽³⁾ The correlation between obesity and diabetes is so strong that a new word, 'diabesity', has been coined to describe the fast-growing epidemic.

diabetes Type-2

"A high intake of fat and refined carbohydrates contributes to excess body fat which exacerbates glucose intolerance."

HOW DIABETES DEVELOPS

Type-2 diabetes is the result of insulin not working properly. Insulin is the hormone that allows cells to take up glucose ('blood sugar') from the bloodstream, so insulin lowers the blood sugar level (BSL). The BSL rises after we eat carbohydrate, all forms of which can be broken down into glucose, and it rises after we eat certain amino acids (the building blocks of protein). BSL also goes up after an adrenalin release, for example following strong emotions or after the consumption of caffeine or foods to which we are allergic or sensitive.

An additional effect of insulin is that it causes fatty tissue to take up glucose and turn it into fat for storage. Consequently, the more insulin released in response to a meal, the more glucose is slated toward fat production.

In type-1 diabetes, the insulin-producing cells in the pancreas (*beta cells*) are destroyed by an *autoimmune* reaction – that is, the body's immune cells turn on the beta cells, mistaking them for foreign intruders. As a result, people with type-1 diabetes produce *insufficient* insulin and must inject it each day.

With type-2 diabetes the body tends to produce *excessive* quantities of insulin, at least in the early stage of the disease, but the insulin doesn't work effectively. This *insulin resistance* leads to *glucose intolerance* in which the BSL of glucose becomes abnormally high after a meal and remains elevated – even overnight.

Elevated insulin encourages the development of *atherosclerosis* (artery disease) which is the major cause of death in diabetes sufferers. It also leads to damage to the eyes, kidneys and peripheral nerves and can result in gangrene.

INSULIN RESISTANCE – THE WHYS AND WHEREFORES

Insulin resistance develops primarily because of high intakes of refined carbohydrate and fat, aided and abetted by insufficient physical activity.

Refined and concentrated carbohydrate (for example, bread (even wholemeal too), table sugar, fruit juice, rice cakes) is broken down by the digestive system into its component sugars much faster than unrefined carbohydrate (for example, cracked wheat, sugarcane, whole fruit, whole brown rice, lentils).

The BSL rises rapidly and dramatically after eating refined carbohydrate, and the pancreas responds by secreting a much larger amount of insulin than it would if the carbohydrate had been unrefined and the BSL had risen slowly.

In most cells insulin can only exert its effect by activating *insulin receptors* on the cells' walls – like a key that only opens a certain type of lock. However, large amounts of circulating insulin cause these receptors to become less responsive to insulin so that glucose is not absorbed into cells. As a result, the BSL remains high and so the pancreas pumps out even more insulin to try to 'wake up' the receptors so they will allow glucose to enter the cells.

This is the vicious circle of type-2 diabetes – higher insulin output leads to less insulin sensitivity, which leads to more insulin output, which further reduces insulin sensitivity. The excessive demand for insulin may eventually exhaust the pancreas to the point where it no longer produces sufficient insulin. The individual has now become dependent on injected insulin.

Meanwhile, much of the excess glucose that has accumulated in the bloodstream is converted to fats (technically *triglycerides*). If the diet is high in fat as well as refined carbohydrate, the diabetic person's bloodstream becomes clogged with fats, which further inhibit insulin action – thus aggravating insulin resistance.

A high intake of fat and refined carbohydrates contributes to excess body fat which exacerbates glucose intolerance. In addition, a high ratio of fat to muscle in the body predisposes to glucose intolerance. Losing weight – even a modest reduction of five to 10 per cent – can completely normalise glucose metabolism in some type-2 sufferers.⁽⁴⁾

Exercise is not only helpful in regaining and maintaining a healthy body weight with a higher ratio of muscle to fat, it also 'upregulates' insulin receptors, making cells less resistant to insulin and thus improving glucose tolerance. Aerobic exercise also lowers blood triglycerides, while anaerobic exercise (strength training, such as weightlifting and resistance exercises) is the most effective means of increasing lean muscle mass.

Exercise has another effect that is highly significant with diabetes: it allows glucose to enter muscle cells *without* requiring insulin. This is an adaptive mechanism to quickly provide muscles with extra energy when they're working hard. In this way, exercise helps lower BSL without overtaxing the pancreas.⁽⁵⁾

WHERE'S YOUR FAT?

Having a big 'gut' or 'apple' shape – excess fat around the midsection – is a particular risk factor for diabetes. It is now well established that abdominal fat aggravates insulin resistance and glucose intolerance more than hip and thigh fat (the classic female 'pear shape'). This is probably because abdominal fat is released into the bloodstream – in response to the need of glucose-starved cells for fuel – far more rapidly than hip and thigh fat which are mobilised only during prolonged food shortage, or in special circumstances such as breastfeeding.

The apple shape is typical of males and postmenopausal females and is a known risk factor for cardiovascular disease.

Diabetes and heart disease share many risk factors – such as obesity, sedentary lifestyle, high triglycerides and high blood pressure – because they are caused by the same lifestyle habits. Genetic predisposition determines whether such habits will lead to diabetes and then a heart attack, or a heart attack without diabetes.

THE MEDICAL APPROACH TO DIABETES

The conventional management of diabetes initially involves diet and exercise. If the patient's BSL remains too high – which it often does because of the ineffectiveness of the standard dietary advice – oral medication will be prescribed. Most oral medications stimulate the pancreas to pour out more insulin. In extreme cases the prescription will extend to injected insulin.

But type-2 diabetics are usually *not* insulin-deficient in the first place, so these medications cause excess insulin in the bloodstream (*hyperinsulinaemia*) which, as explained previously, increases body fat. Hence, both the oral and injected medications tend to exacerbate insulin resistance and glucose intolerance.^{(6),(7)} Giving insulin to a type-2 diabetic is like giving more alcohol to an alcoholic!

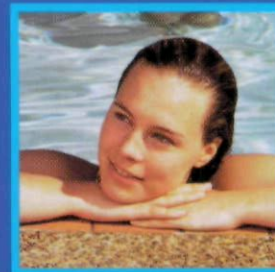
Medical treatment therefore aggravates type-2 diabetes and accelerates the progression of atherosclerosis. In fact, diabetes sufferers treated with the most commonly used types of oral hypoglycaemic (blood-sugar-lowering) agents, are 2.5 times more likely to die from heart disease than diabetics treated by diet alone.⁽⁸⁾

A new breed of anti-diabetes drugs, the *glitazones* (including Avandia and Actos), was launched with great fanfare in the late 1990s. Because these drugs are targeted at the key defect in type-2 diabetes – insulin resistance – it was claimed they would stop the insulin-secreting cells from 'wearing out'. They are also claimed to improve cholesterol profiles, protect blood vessels and kidneys, and reduce blood pressure and clotting factors.⁽⁹⁾ But these new kids on the diabetes-treatment block have been mired in controversy almost since they appeared. The first drug in the glitazone class, Rezulin, was recalled in the US in 2000 because it caused liver damage leading, in many cases, to death or the need for liver transplantation. ➤

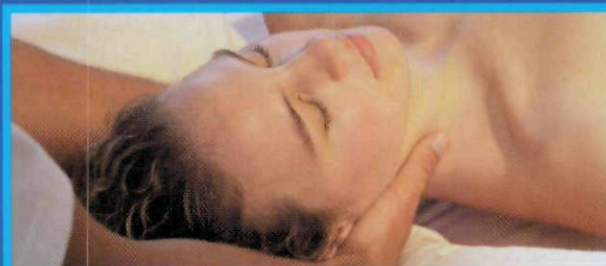
H O P E W O O D

your health retreat

HOPE_VEG_140305

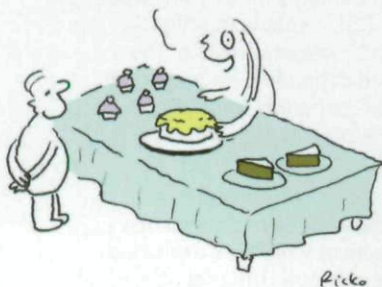


Hopewood
Your Health Retreat



www.hopewood.com.au
phone 02 4773 8401

Buy a cake for
diabetes awareness?



Other glitazone drugs were soon released to replace Rezulin, but all of them are less effective than already available drugs, cause deterioration of BSLs when patients are switched to them from other anti-diabetic drugs, and cause side effects such as liver toxicity, heart function effects, weight gain, oedema, anaemia, low blood pressure, elevated lipid

levels, and possibly progesterone level changes.⁽¹⁰⁾ In May this year the US Food and Drug Administration issued a safety alert on Avandia, stating that it significantly raised the risk of heart attack and heart-related death. In fact, patients taking Avandia were found to be 30 to 40 percent more likely to have a heart attack or suffer heart-related death than those taking a placebo or another diabetes drug.⁽¹¹⁾ Considering that diabetes sufferers already have an elevated risk of heart-related death, Avandia has not exactly lived up to its marketing hype!

If you see an orthodox dietitian for diabetes advice, you'll be prescribed a diet that allows about 30 percent of its calories from fat, compared to the population average of 35 – 40 percent. Diets with 30 percent fat facilitate the progression of atherosclerosis in people with normal BSLs, let alone the atherosclerosis-prone diabetic person.⁽¹²⁾

In plain terms, diabetes is becoming more prevalent and more deadly, and conventional medical/dietetic treatments are not working.

BEWARE THE HIGH-PROTEIN TRAP

Because of the well-documented adverse effects of refined carbohydrates, a small number of loud voices suggest that diabetics should return to the diet advocated in decades past – a very high-protein, moderately high-fat and restricted carbohydrate intake.

This approach is plain wrong. Insulin release is triggered not just by the presence of glucose in the bloodstream, but also by certain amino acids. Hence, foods high in protein are powerful triggers for insulin release. Fish causes more insulin release than popcorn, while beef and cheese are greater triggers than pasta.⁽¹³⁾

We need surprisingly little protein. The Australian Recommended Daily Intake (RDI) is 45 grams for women and 55 grams for men, which equates to about eight percent of daily calories. Most Australians derive around 15 percent of their calories from protein – double the recommended amount.

The problem is that any protein over and above our needs cannot be stored as protein. Instead, the component amino acids are stripped of their amine (NH₃) group, and the remaining carbon skeleton is transformed into glucose or fat for storage. Amino acids are the major source of glucose from non-carbohydrate sources when the body is running low on glucose, and this glucose is rapidly converted into fat, especially in the presence of excess insulin. Research has shown that raising protein intake from adequate to high leads to the development of glucose intolerance and insulin resistance.⁽¹⁴⁾ In other words, switching to a high-protein diet can induce the preconditions for type-2 diabetes.

Furthermore, the NH₃ (ammonia) is highly toxic. It must be converted to *urea* by the liver and eliminated by the kidneys via urine. This imposes a huge strain on the kidneys, which is why patients suffering kidney failure are put on low-protein diets. Diabetics are already prone to kidney disease. The last thing they need is a high-protein diet, in particular, a diet high in animal protein which, unlike vegetable protein, accelerates the progression of kidney failure.^{(15),(16)}

A BETTER SOLUTION

Research by Nicholson⁽¹⁷⁾ and McDougall⁽¹⁸⁾ found that a low-fat, all-plant (vegan) diet rapidly reduces fasting BSL, blood pressure and body weight. In fact, the patients on this diet achieved double the reductions compared to patients on the standard 'low-fat' diet. Moreover, most patients on the vegan diet had either discontinued or reduced their medications by the end of the study, whereas none of the patients on the standard diet were able to do so.

It could be said that any person with diabetes who does not adopt a vegetarian diet is either ill-informed or foolish.

Using a similar near-vegan, less-than-ten-percent-fat diet for patients with atherosclerosis, Dr Dean Ornish and colleagues were able to reduce atherosclerotic lesions by an average of 16.5 percent in one year. In contrast, members of the control group on the 'low-fat' (30 percent fat) diet, experienced atherosclerosis increases of 15 percent.⁽¹⁹⁾

There's no need to boycott carbohydrates. Research published in the *American Journal of Public Health* showed that consumption of whole-grain foods protects against the development of type-2 diabetes.⁽²⁰⁾ In this study, the women who most frequently consumed foods like oatmeal, brown rice, buckwheat, bulgur, couscous, popcorn, whole-grain breakfast cereals and dark bread (such as pumpernickel) had nearly 30 percent less risk of developing type-2 diabetes than women who consumed the most refined grain products, such as white bread, pasta, white rice, muffins, cakes, desserts, pancakes and waffles.

High consumption of unrefined carbohydrate foods also got the nod in a study of type-2 diabetic patients, published in the *New England Journal of Medicine*.⁽²¹⁾ Patients were able to substantially lower their BSLs by eating seven to eight servings of fruit and vegetables and three servings of high-fibre wholegrain foods daily.

To normalise their glucose metabolism and protect themselves against devastating complications, people with diabetes need a diet which has an *appropriate* protein level, is low in fat (but high in *essential* fatty acids) and high in *unrefined* carbohydrates. Specifically:

- a moderate intake (3 – 4 pieces a day) of *whole* fruit (not juice). Acid and sub-acid fruits, such as citrus fruits, berries, stone fruits and cherries, are best because they release their sugars into the bloodstream more slowly than sweet fruits such as mangoes, melons and dried fruits;
- a large raw salad daily. The more food that is eaten raw the better, because raw food reduces the load on the pancreas, as well as containing maximum nutrients and stomach-filling capacity for minimum calories;
- dark green leafy vegetables. These contain the highest ratio of nutrients to calories of any foods;
- whole grains – for example, brown rice, rolled oats, pearled barley, cracked wheat;
- 1 tablespoon of freshly-ground flax seeds or a handful of walnuts or pepitas each day for omega-3 essential fatty acids;
- legumes – these are the slowest-to-digest carbohydrate/protein foods, providing a gradual trickle of glucose into the bloodstream and hence a moderate insulin response. Eat around a cup a day of cooked legumes;
- minimise or avoid metabolic toxins such as caffeine, alcohol and tobacco.

Moderate exercise – both aerobic and strength training – needs to be incorporated in the routine, preferably daily. Good aerobic exercises are walking and swimming.

After just a few days on this diet and exercise program, insulin receptors begin to function again because they are

no longer being flooded with excess insulin. The low fat intake restores insulin sensitivity, and weight loss occurs easily, even though a larger volume of food is being consumed. This decreases insulin resistance even further.

Dr Joel Fuhrman, MD, of New Jersey USA, states that his results show that with a natural, optimal nutrition approach "over 95 percent of type-2 diabetics can come off medications with much better blood-sugar control than they had on insulin or oral medication."⁽²²⁾

Finally, remember that even if you are genetically predisposed to diabetes, this doesn't mean you'll get the disease.

Nowhere is this more evident than in the case of people of native American, black African, Australian aboriginal and Hispanic origins, who are genetically predisposed to obesity and hence diabetes, due to the development over thousands of years of thrifty metabolisms. When eating their traditional diets, these people remain lean and diabetes-free. But when they switch to a Western-style diet, the appearance of obesity and diabetes is never far behind.⁽²³⁾

THE AUTHOR

Robyn Chuter, BHS, ND, GradDipCouns, is a naturopath and counsellor practising in Cronulla, NSW. Her family history of type-2 diabetes has prompted years of research into both orthodox and nutritional treatment of diabetes, from which she has developed a comprehensive Diabetes Prevention and Treatment Plan.

She offers telephone consultations and can be contacted on 02 9528 8927 or at robynchuter@optusnet.com.au

REFERENCES

1. Australian Bureau of Statistics: <http://www.abs.gov.au/ausstats/abs@.nsf/mf/4820.0.55.001>
2. Australian Bureau of Statistics (ABS), *National Health Survey: Diabetes* (ABS Catalogue No. 4371.0), AGPS, Canberra 1997, p. 11.
3. ABS 2000 op cit, p. 229.
4. Novick J, 'Move over heart disease, diabetes is on its way!', *Health Science*, National Health Association, Summer 2001, pp. 12-15.
5. Novick J, op cit.
6. Tremble JM & Donaldson D, 'Is continued weight gain inevitable in the type 2 diabetic?', *J. R. Soc. Health*, 1999;119(4):235-9.
7. Weatherall D, Ledingham J & Warrell D (eds) 1987, *Oxford Textbook of Medicine* (2nd edn), Vol. 1, Oxford University Press, Oxford, p. 9.71.
8. Fuhrman J, 1998, *Fasting - and Eating - For Health*, St Martin's Press, New York, p. 135.
9. <http://health.howstuffworks.com/how-to-manage-your-diabetes-care5.htm>
10. <http://www.onlinelawyersource.com/avandia/effects.html>
11. <http://www.onlinelawyersource.com/avandia/index.html>
12. Ornish D et al, 1990, 'Can lifestyle changes reverse coronary heart disease', *Lancet* 336:129-133.
13. Barnard N, *Turn Off The Fat*
14. *Genes: the revolutionary guide to taking charge of the genes that control your weight*, Harmony Books, 2001.
15. Metges C & Barth C, 'Metabolic consequences of a high dietary-protein intake in adulthood: assessment of the available evidence', *J Nutr* 2000;130:886-889.
16. Fuhrman J, op cit, p. 129.
17. Kirschmann G & Kirschmann J, 1996, *Nutrition Almanac* (4th edn), McGraw-Hill, New York, p. 261.
18. Nicholson A et al, 'Toward improved management of NIDDM: A randomized, controlled, pilot intervention using a low fat, vegetarian diet', *Prev Med*, 29(2):87-91.
19. McDougall J et al, 'Rapid reduction of serum cholesterol and blood pressure by a twelve-day very low fat, strictly vegetarian diet', *J Am Coll Nutr*, 14(5):491-6.
20. Ornish D, op cit.
21. Liu S et al, 'A prospective study of whole-grain intake and risk of type 2 diabetes mellitus in US women', *Am J Pub Health* 90:9:1409-1415.
22. Chandalia M et al, 'Beneficial effects of high dietary fiber intake in patients with type 2 diabetes mellitus', *NEJM* 2000; 342:1392-1398.
23. Fuhrman J, 'Recovery from diabetes through optimal nutrition', *Natural Health*, Feb/Mar 1995:15-19.

Imagine a world without fish.

New research on global overfishing indicates the world's oceans will be virtually barren of consumable fish in less than 50 years.⁵



Fish-free omega-3 DHA with a conscience.

Udo's DHA Oil Blend™ is the only balanced organic flax and seed oil blend with unrefined omega-3 DHA. Udo's DHA is derived from cultivated algae, not fish, so it's free of ocean-borne contaminants and concerns associated with global overfishing. **Studies have shown that the omega-3 DHA supports brain, eye and nerve health in adults. It's also essential for optimal brain and eye development in infants and children.*** Each fish-free vegetarian tablespoon provides 100mg of great tasting DHA and is packaged in an environmentally friendly glass bottle. **Let's keep fish where they belong — in the sea.**

*Source: Science 3 November 2006; Vol. 314, no. 5800, pp. 787-790 DOI: 10.1126/science.1132294



AVAILABLE FROM YOUR LOCAL HEALTH FOOD STORE

Imported by: NTP Health Products PO Box 34, Tea Gardens NSW 2324 • Tel: (02) 4997 2530 Fax: (02) 4997 0199 www.ntphhealthproducts.com

Copyright of Natural Health & Vegetarian Life is the property of Natural Health Society of Australia (NSW) Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.

Copyright of Natural Health & Vegetarian Life is the property of Natural Health Society of Australia (NSW) Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.