

PROFESSOR TRIM'S WAISTLINE



THE PROFESSOR'S FEATURES

VOLUME 3 NO 2 AUTUMN 2004

The Atkins Enigma Exposed

It can work — and here's how.

Revelations by the English television company *Horizons*, about the mechanisms of success of the Atkins diet have now set the stage for a bit more sensibility in the, so far non sensible, diet debate.

The program started from the assumption that the diet does work — at least for many people, and at least over the short-to-medium term (ie. 6 months). The main principle is the reduction of carbohydrate to a very low level, with free availability of fat and protein.

If fat has twice the energy of carbohydrate and protein and if, as has been shown, eating fat is not satiating and therefore leads to 'passive over-consumption', how could this be? The basic principles of energy balance must apply, suggesting that total energy (calories/kilojoules – remember 1kcal is 4.2kJ) is the key issue. And total calories would be expected to be higher with an ad-lib intake of fat.

Scientific questioning of the success of the Atkins program led Atkins himself to propose different mechanisms ie. that fat requires more energy than carbohydrate to be 'burnt up' by the body (a fact that is well accepted), and therefore a high fat diet would mean more energy being expended, and hence greater weight loss. This would only

make sense however if Atkins dieters did a large amount of exercise — not something that is at the core of the program. It's also known that fat is *stored* with less energy expenditure than carbohydrate, and hence if exercise output was low, fat *gain* would be a more likely outcome than fat loss.

Atkins and the Professor

It ill behoves us to say so here, but the *Horizons* report has put final validity to the views expressed regularly in this newsletter by his eminence, the Professor. That is, that it is the total VOLUME of food that counts, irrespective of where this comes from. $VOLUME = \text{energy density} \times \text{portion size} \times \text{meal frequency}$ (*as measured in total energy*) and energy density in particular, is influenced by the type of nutrient mix (carbohydrate/protein/fat).

But in the end it's the total energy that counts.

Scientists researching the Atkins program made the obvious assumption that if the diet works, it must result in a reduced *volume* of food being eaten. But why should this be so? Drs Andrew Prentice and Susan Jebb from Cambridge University found that increased fat consumption would not do this, as fat is the most energy dense

nutrient and is non-satiating. The clue came from work by a multi-national group of European researchers led by Dr Arne Aastrup from the Agriculture College in Denmark. They showed, by analyzing the nutrients in foods chosen by people adhering to the Atkins diet, that these were particularly high in protein.

Protein is known to have a suppressive effect on hunger, and hence result in less total *volume* of food eaten, if protein makes up a significant proportion of the diet.

The Atkins 'secret' therefore appears to be not so much a 'secret' as a well-known nutritional axiom. It does suggest however that the protein content of modern diets might be beneficially increased. As has also now been heralded by the 'new' Atkins diet approach, it also shows that not all carbohydrate is bad, but that some types may be better than others. Low GI foods have been promoted for some time as the solution to the carbohydrate conundrum, which began with 'simple' vs 'complex' carbohydrate, and progressed to 'processed' vs 'natural'. Whether GI is the end of the story is still to be determined.

In the meantime, it may still be shown that some people respond better to some approaches to lowering food volume better than others. This could explain why high fat/protein works better for some, while ad-lib low fat works better for others. It's also possible however that the reasons for this are more psychological than physiological. The judge awaits a decision from the jury.

Take home message:

Diets work because they reduce energy intake — albeit in different ways.

For reference:

Butler D. Slim Pickings. *Nature*, 2004;428:252-254.

The New Professor of 'Fatology'

The epidemic might be the biggest the world has even seen. Still, Governments sit on their hands (or fatter parts). Funding has yet to flow. And the country's premier learning institutes, still haven't roused themselves from their lunch. In the absence of decisive action, your Professor has positioned himself in the country's first chair of 'Fatology', within the School of Adiposity at the (virtual) University of Gutengorge. It's a big chair, with big buttock dents to fill, but we at PTW think the Professor is up to it. Good luck Professor. Now go to it. And for God's sake, save the world.

Fattening factors in food — other than fat

The Atkins diet has opened scientist's eyes to the fact that there may be a number of factors in food, and not just fat, which can lead to increases in body weight. Amongst these, are the following:

Energy density: Energy density refers to the amount of energy (calories) per gram of food. In general those diets which are least fattening (eg. the Mediterranean diet) are those which have a low energy density. The highest energy dense foods are those with concentrated fat and sugar. The lowest have a high content of fibre, water and/or air.

Portion size: For some time this has been neglected in favour of the importance of fat in foods. But it is possible to eat too much food, even if fat in these foods is low. Portion size is usually the third most important factor to control after energy density and fat intake.

Glycaemic index: The glycaemic index (GI) refers to the speed with which a food is digested. Low GI foods are digested slowly and as a result are

thought to lead to greater feelings of satiation. This would mean less total food is likely to be consumed. High GI foods are absorbed quickly and are likely to result in more food being eaten. You can find the GI scores of foods in books like *'The GI Factor'* by Dr Jenny Brand-Miller.

Protein content: Whilst we know that protein is a factor in satiety and therefore likely to reduce total food intake, recent work has shown that different types of protein — just like carbohydrate — may be digested at different rates. In this case though, 'fast protein' (like whey) would be preferable to 'slow protein' (like caseine).

Satiety Index: The satiety index (SI) is a bit like the GI in numbering foods. However the SI numbers relate to whether these are either high or low in their level of appetite satisfaction. High SI foods are likely to lead to less hunger and therefore less overall food intake. Tables are currently being developed which combine scores for GI and SI (although the food industry is obviously

not interested in labelling foods with the latter).

Palatability: Palatability is obviously important in determining how much food is likely to be eaten. In general, highly palatable foods are energy dense and high in fat. The task is to find palatable foods, which have a high SI and low GI to get maximum benefits.

Variety: A high variety in food, while maintaining all the above factors helps to ensure a manageable lifetime eating pattern. It's known that obese people eat a large number of foods, but these are generally high energy dense. Ensuring at least 40 (low fat; low energy dense) foods a week is now recommended for best health as well as weight loss.

Eating situation: It's well known that people eat more when they eat with others. Social eating also leads to less inhibition and thus tends to cause greater intake of energy. In a recent study in the US, it's been found that there is a correlation between obesity levels and the number of meals eaten at restaurants, irrespective of the type of restaurant.

Tips for cooking low fat chips

Potato chips are one of the most tempting morsels on any careful food eater's list. But they're also disastrous in terms of fat and energy content. There are ways however, of lowering the fat content and keeping the taste. Here's the Professor's tips:

1. Use frozen, not thawed chips: Potato chips that are pre-cut and frozen form an instant crust when dropped in oil, thus minimising water loss and fat absorption. Thawed chips release more water into the surrounding oil and lower the oil temperature.

2. Cook at the right temperature: The best temperature for cooking lower fat chips is between 180-185°C. Cooking chips at a lower temperature prevents the formation of a crust on the chip surface, which prevents the excessive absorption of fat. Estimates suggest that 40% more fat is absorbed when the temperature is 10% lower

than the recommended cooking temperature of 180-185°C. Cooking at excessively high temperatures can change the nature of the oil to make it less healthy.

3. Use poly or mono-unsaturated oils: The type of oil in which

they are cooked effects the fat quality of chips. Stable oils with a high level of mono-unsaturated fats such as Sunola oil (from sunflower) are known to be relatively stable and long lasting. Other apparent healthy choices such as cottonseed and soybean based oils are less stable and more susceptible to undesirable changes under high temperature.

4. Maintain the quality of the oil: Older oil/fat is characterised by a darkness in colour and tendency to smoke. Older oils inhibit the formation of crust on the chip, which reduces fat absorption. Oils should be discarded regularly and not over-used as continual heating can change the structure of the oil to include more 'trans' fatty acids.

5. Use the right type of chip: The surface area of the chip affects absorption of fat in cooking. because of its greater surface area, a 'crinkle cut' chip is likely to absorb more fat and therefore have a higher fat content than a plain chip. Bigger chips also have less surface area to total volume than small, thin chips. Avoid potato crisps as these have the most fat of any types of chips (up to 38%)

6. Oven Bake or Micro-Wave: Potato chips can be oven baked without oil. Thin potato crisps can be cooked in a microwave using a standard chip-maker from a household appliance store without added fat, but with tasty herbs and spices added.



in this issue

- Insulin resistance
- Testing your fluid intake
- Weight test measurements
- Weight loss surgery
- What am I doing wrong?

[\(Click these links to articles\)](#)

TRIM'S TUMMY TICKLERS



"... but this was an exception. I only ever eat this much on birthdays, public holidays, weekends and weekdays ending in a 'Y'."

What am I doing wrong Doc?

You may be trying your hardest, but the weight just won't come off. So what could you be doing wrong?

Of course it could be nothing. You may just have those Sumo wrestler genes that make it very difficult in any environment for you to lose weight. Or, you may have a very ineffective metabolism or thermogenic response, which means that you don't burn energy very effectively (and this probably also goes back to genes). If this is not the case,

there's only two other possibilities:

1. **You are eating too much, and/or**
2. **You are not active enough.**

This answers the big question, but what about the little questions — like *how*? How is it that you are eating too much? And in what ways have you become too inactive?

The lists below, devised by the Professor in a moment of idleness, might help explain some of the causes of excessive intake and reduced activity.

Check it out to see which aspects apply to you.

Causes of Inactivity

Discomfort/injury/incapacity
Lack of time
Sedentary job
Inactive transport to/from work
Lack of planned activity
Lack of 'incidental' activity
Lack of awareness of inactivity
Wrong type of activity
Fatigue or laziness
Fear of crime
Environment/weather
The 'foot/brain gap'¹
Childhood experiences
Self consciousness
Too many energy saving devices

Causes of Excessive Food Intake

☐ Too much total food (volume) ☐
☐ Too much high fat food ☐
☐ Too much energy dense food ☐
☐ Too much high GI food ☐
☐ Binge eating ☐
☐ 'Overly restrained' eating (dieting) ☐
☐ Social/holiday eating/feasting ☐
☐ Too much alcohol and fatty food ☐
☐ Too much soft drink ☐
☐ Too little fibre ☐
☐ Too little food variety ☐
☐ Excessive take-aways ☐
☐ lack of awareness of intake ☐
☐ The 'eye-mouth gap'² ☐
☐ The 'exception rule'³ ☐

1. The 'foot/brain gap': eg. The brain doesn't know how many steps the feet are really doing

2. The 'eye-mouth gap': eg. The eye doesn't really see what is going into the mouth

3. The 'exception rule': eg. Yesterday was an exception (but so is every day).

Keeping the scene too clean may be mean

Researchers in the United States think that cleanliness, if overdone in childhood, may be a possible cause of disease, including Type 1 diabetes (*Cell*, April 16, 2004). The theory behind this is that the immune system needs to be regularly stimulated to remain strong. It may be because there are not enough immune cells, or these have not been exposed to enough germs in super-clean families. To support this view, the researchers say that children who go to day nurseries early in life have a reduced chance of developing type 1 diabetes. Come back Louie the Fly — all is forgiven.

Caffeine stockings? Are you for real?

We know that an effective drug combination for weight loss is caffeine and ephedrine. It's so effective that it's banned in most countries, largely because of its potential addictive effects. But is it the caffeine — or the ephedrine — that has the biggest effect? Most researchers suggest neither, and that only the combination works. Weight loss salesmen on the other hand, will do anything to capitalise on the suggested implications for both substances, including — now wait for it — caffeine stockings (see picture) which are supposed to provide caffeine subcutaneously. Hence weight loss while you work. Let's count the months until they disappear, are banned or get strained into a cup for morning tea.



Testing your fluid intake

With total energy, or *volume*, emerging as the key factor in weight control, the influence of fluid intake is again being questioned. Soft drink intake by children for example, is an easy way to obtain lots of calories, without any feeling of fullness that might otherwise restrict excessive intake.

Soft drinks are high in energy-density because of excessive sugar. But fruit juices fare little better. Although the type of sugar may be different, the energy value per unit of fluid in a typical fruit juice, is similar or even higher, than in most commercial soft drinks.

Alcohol is another high source of sugars. However the fate of the energy in alcohol is less clear than soft drinks and fruit juices because of the greater involvement of alcohol in metabolic disposal, due to the body's need to get rid of alcohol (a toxin) from the circulation.

THE PROFESSOR'S FLUID INTAKE TEST

To test whether excessive fluid intake is a possible factor in weight gain, try the test outlined below:

A. How often do you drink alcohol?

4. Every Day
3. 4-5 days a week
2. 2-3 days a week
1. 1-2 days a week
0. Never

B. When you do drink alcohol, how much do you usually drink?

(1 standard drink is a middie of beer, 1 nip of spirits or 1 glass of wine)

4. More than 10 drinks
 3. 5-10 drinks
 2. 2-4 drinks
 1. 1-2 drinks
 0. Don't drink alcohol
- SCORE 1X2= _____

C. How often do you drink soft drinks? (Don't count diet drinks)

4. Every Day
3. 4-5 days a week
2. 2-3 days a week
1. 1-2 days a week
0. Never

D. When you do drink soft drinks (not counting diet drinks), how much do you usually drink?

4. More than 10 drinks
 3. 5-10 drinks
 2. 2-4 drinks
 1. 1-2 drinks
 0. Don't drink alcohol
- SCORE 3X4= _____

E. How often do you drink fruit juices?

4. Every Day
3. 4-5 days a week
2. 2-3 days a week
1. 1-2 days a week
0. Never



F. When you do drink fruit juices, how much do you usually drink?

4. More than 10 drinks
 3. 5-10 drinks
 2. 2-4 drinks
 1. 1-2 drinks
 0. Don't drink alcohol
- SCORE 5X6= _____

Explanation: All the drinks mentioned here can add to energy intake and hence body weight. Hence reducing the drink or amount drunk will help weight loss.

Scores: 1 or less on any combination (e.g. AxB, CxD, ExF): Drinks are not an influence on your weight

1-4 on any combination: Drinks could be a problem

4+ on any combination: Drinks are definitely a problem

What the measures mean:

If you've got a weight problem and you're worried about what it might be doing to your piping, what tests might you expect your doctor to do? Here's a short list you might look for, and exactly what each means:

Waist Circumference: Because abdominal fat is more dangerous than fat stored elsewhere, waist circumference is a good measure of health risk.

Desirable levels: <100cm for Caucasian men, <90cm for Caucasian women
Asians, Indians and Indigenous Australians should be approximately 10cm less and Pacific Islanders 10 more than these levels.

Blood Pressure: This is likely to be increased with increased body fat. There

is also a genetic component in cases of very high blood pressure, which requires medication. Mild hypertension can be reduced with weight loss and, particularly increased physical activity.
Desirable levels: Less than 120/80

Cholesterol: Cholesterol is a waxy fat-like substance, which can clog arteries. There are genetic influences, and total cholesterol is now considered to be only part of the story. **Desirable levels:** <5.5
Sub-fractions include:

LDL or 'bad' cholesterol.

Desirable levels: Less than 3.0

HDL or 'good' cholesterol

Desirable levels: Greater than 1.0

Triglyceride: A combination of potentially dangerous fats, particularly in combination with a high waist

circumference and/or high blood pressure and low HD. **Desirable levels:** <3.0

Fasting Plasma Glucose (FPG): A measure of blood sugars indicating risk of diabetes. **Desirable levels:** < 5.5

HbA_{1c}: A longer-term measure of blood sugars over 3-6 months; less variable than FPG. **Desirable levels:** <6.5

C-Reactive Protein (CRP): A relatively new test which measures the 'stiffness' of arteries and hence possible artery damage; influenced by weight and reduced with weight loss.

Desirable levels: < 3.0

Thyroid function: Not usually a cause of excess weight although often blamed as such. May be tested as a check.

Desirable levels: TSH 0.2-4.0



TRIM'S TRIVIA

Weeding the Fat

US drug company Sanofi is developing a drug called Rimonabant, a compound which tackles obesity, nicotine and alcohol addiction in one tablet, with an intended launch date of next year. Rimonabant affects a part of the brain that is associated with responses to marijuana — ironic given the well-known ‘munchies’ effect of the weed. But Rimonabant acts like marijuana in reverse; curbing appetite and reducing the craving for nicotine. Clinical trials carried out so far have shown big decreases in weight and abdominal obesity with the drug. No comment has been made yet about possible side effects — like never giggling at something stupid!

Going around the long way

How can people be encouraged to move more in a world where technology has taken most of the movement out of day-to-day life? One way may be to repeat the example of Sprint Corp, a US based telecommunications company which has just moved into new 80 hectare headquarters in Kansas. The design of the building is aimed to encourage staff to become more active by (a) having the staff car park 10 minutes walk from the offices (b) making staircases attractive, airy and inviting, and (c) educating staff to become more active in their leisure time.

Why bother, might be the question many business executives would ask? According to Sprint, the answer is good business sense. Obesity is now estimated to cost companies in the

US around \$13 billion per year. This is through increased sick leave and reduced productivity of staff suffering daytime sleepiness and reduced work performance.

Two staff employees at Sprint claim to have lost 83kg between them simply by walking up stairs and from the car park carrying computer bags and other work equipment. Staff members claim the environmental changes have helped reduce fatigue and stress levels as well as improve productivity. The big test however will be to see if other corporations follow suit.

Waist and hips make a comeback

Just when it was on the way out as a measure of risk, waist-to-hip ratio (WHR) is set to make a comeback, thanks to an assessment of over 9,000 Australians measured first in 1989 and followed up in 2,000 (*Medical Journal of Australia*, 2003;179(11-12): 580-5). WHR stood out as the best predictor of the 473 deaths that occurred in that time period, when compared with waist circumference, blood pressure, smoking, heart history and other factors. This may mean a re-introduction of the measure that has largely been dropped in favour of the simpler waist circumference as a risk factor measure.

Going off too early could be a risk from getting fat too late

It's really no laughing matter, particularly if you're affected, but research from Egypt (*International Journal of Andrology*, 2003; 26(6): 329-34) has now shown that premature ejaculation (PE) could be an outcome of type 2 diabetes, which in turn, is an outcome of getting too fat. One third of men under 50 with diabetes suffer PE and two-thirds over 50. This adds to erectile dysfunction, infertility and polycystic ovaries, which are also related to obesity. Is obesity therefore the limiting factor in population growth — perhaps the fourth horse of the apocalypse?

Short mums and fat dads could be a problem

There may not be much you can do about it, but researchers in the UK suggest that if you have a short mother and an overweight father, your

risks of being born overweight are increased (*Journal of Epidemiology and Community Health*, 2003;57:969-73). Again, there's not much you can do about this, except try to stop gaining weight yourself after about age 7. It's this increase in body weight, plus the earlier risk that can lead to diabetes in later life. This expands the risks of diabetes from just high blood sugars to high blood sugars, overweight and family factors.

The rise and rise of diabetes

The International Diabetes Foundation (IDF) estimates that 314 million people worldwide, or 8.2% of the global population, have impaired glucose tolerance, a state that often precedes type 2 diabetes. The Professor suggests the big share deals for the next decade are the pharmaceutical companies that have at least one anti-diabetic medication!

Go hard, go soft — does it matter?

There has been much speculation about whether moderate or intense exercise is best for weight loss. And while total volume appears to be the key, lower intensity is likely to be able to be maintained longer. Research from the University of Pittsburgh testing similar levels of energy expenditure carried out slowly or vigorously suggests intensity doesn't really matter (*Journal of the American Medical Association*, 2003;290: 1323-1330, 1377-1379). Slowing down results in similar weight losses, even though it may take a little longer. Still it may be more comfortable for those unused to such activity.

Kids on the juice

With full strength soft drinks now standing out as a major cause of obesity, it's understandable that parents might be encouraging a move to diet drinks. If so, they could be trading tooth erosion for obesity. Studies in Britain have shown that although full strength drinks with sugar also cause decay, it's the acid in carbonated drinks that erodes the enamel coating, leaving teeth sensitive and painful (*British Dental Journal* (2004); 196, 283-286). Fruit juice has a similar effect (and is also high in calories). What's the alternative? Remember a thing called water?

Is the Professor being a lair?

Or is L.A.I.R.S (Lifestyle Associated Insulin Resistance Syndrome) not something to scoff at?

It seems everyone is coming up with their own health acronym. First we had Syndrome X, then AIDS, now SARS. Not to be outdone, the Professor has come up with his own addition to the medical lexicology, with particular relevance to overweight and obesity: L.A.I.R.S.

The Rise of LAIRS

LAIRS stands for Lifestyle Associated Insulin Resistance Syndrome. And no, it's not a meaningless symbol of the Professor's early lifestyle. LAIRS is a serious modern medical issue. Its origin is as follows:

- In the beginning there was the belly. This was (almost) unknown to humans living a subsistence existence, and only the rich and royalty could ever afford to eat enough and not move around enough to get a belly.
- A belly was thus a sign of affluence. As human development progressed however, the belly became ubiquitous. Not only did (almost) every (male, at least) have one, but they became harder and harder to get rid of.
- Bellies started meeting each other almost independently of their owners. And so they should, because they had a lot to talk about, not the least of which was the rise in diabetes, which started to occur as a result of this protuberance.
- French endocrinologist Jean Vague was the first to show this connection back in 1948, but nobody much was listening then, because there were not too many bellies around following the hardships of the war years.
- By 1988 though, people started to listen. So when Stanford University scientist Dr Gerald Reavin talked about 'Syndrome X', which he claimed was a cluster of health problems associated with a pot belly, including high blood sugars, blood pressure and blood fats, the area started to open up. Everybody jumped on the bandwagon. Syndrome X was even supposed to make people fat according to some experts — which seemed to have things the wrong way round.

● In the meantime, research continued slowly. By early 2003, Gerald Reavin had concluded that the term 'Syndrome X' was not enough. In fact all of the problems of syndrome X (and more) were underscored by a developing resistance to insulin. Hence he began calling it the 'Insulin Resistance Syndrome'.

Insulin resistance and Lifestyle

Insulin resistance (IR), is when the body's cells, for various reasons, refuse to react to the 'door opening' effects of insulin, which allows sugars to enter the cells for energy. IR has two main causes: one is lifestyle, including a big belly, being inactive and having poor nutrition, and the other is factors such as drugs, physiological changes that occur before birth, and genetics.

Taken as a whole, the term 'Insulin Resistance Syndrome' tells us little about the causes and what can be done. In his wisdom, the Professor has come up with the more descriptive term 'Lifestyle Associated Insulin Resistance Syndrome' or LAIRS. The term has everything needed to attract research money — it's an acronym (see SARS, AIDS, NIDDM etc); it explains the cause (lifestyle), and it identifies the causee in the good old Strayan language ('yobo lairs are more likely to get LAIRS'). In short, it has everything! So remember PTW readers, you read it first here. But get ready, because the next big epidemic is not just going to be an acronym, it will be a meaningful acronym; LAIRS — see the way it rolls off the tongue? Brilliant Professor. Brilliant.

Take home message:

Insulin resistance caused by lifestyle, is likely to become more relevant than Syndrome X in describing modern disease.

For reference:

Egger G. LAIRS (Lifestyle Associated Insulin Resistance Syndrome) and disease. Paper presented to the 10th Annual meeting of the Australian Society for the Study of Obesity, Hunter Valley, 2003.

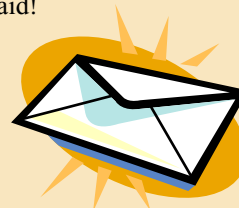
The Professor Eats Pie — Albeit Not So Humbly

Below is a letter received from Dr Ian Traise, GP from Alstonville NSW re hysterectomy and weight gain:

Dear Professor,
In *Waistline* Vol 2 Number 6 in the question section re your reply to a woman who gained weight after a hysterectomy:

You indicated that her operation caused her to go into menopause and hence in part contributed to her weight gain because of hormonal consequences. I'm wondering whether that is the cause, or at least her history needs to be clarified. Total oophorectomy at the time of her hysterectomy would certainly be a factor in her gaining weight, but I would have doubted that the removal of her uterus *per se* could be blamed. For some time, unless there is disease in the ovaries, most hysterectomies have been just that — *i.e.* removal of the uterus, and there has been a concerted attempt to spare the ovaries specifically to avoid the problems of a surgically induced menopause. Her question is of interest, as I am often asked questions along the same lines. People often link the onset of their weight gain to some (usually external) event in their life — I think it is just human nature to allocate blame rather than take personal responsibility. Convincing people of about the basics of diet and exercise becomes even harder when they have fixed illogical belief systems about their weight.

The Professor's Response? What he said!



Weight loss surgery is catching on — but is it the ultimate solution?

There's little doubt about the effectiveness of bariatric surgery for weight loss. Over 10 years of experience by Swedish surgeons has shown a high level of success in both initial weight loss and weight loss retention, as well as in decreasing disease risk. Diabetes medication for example, has been able to be decreased by 50% two years after surgery, making even an expensive process like surgery cost effective for Governments.

Yet while there are obvious advantages for the surgical alternative, these need to be evaluated against other issues. The Swedish experience has shown that surgical losses may not be maintained over the long-term. A ten-year follow-up now suggests a gradual gain in weight in many patients in that time. Still, many would argue that the process can buy at least 10 years of reduced-disease life.

Sweden's medical system is also free and this helps overcome the expensive price tag (*i.e.* up to \$A13,000). Australian patients are expected to pay, with only a small amount (*i.e.* approximately \$A3,000) refundable by private health funds.

Brickbats and bouquets for surgery

Surgery is undoubtedly the treatment of choice in people who:

- are morbidly obese (eg. a BMI>40)
- have life-threatening health problems associated with their obesity
- have failed with all other treatment options
- are able to afford the expense
- are motivated to dramatically change lifestyle after the surgery

It may not be the option in people who:

- are seeking a quick fix without any personal effort
- do not wish to make sacrifices to their lifestyle
- are not financially well off
- are likely to 'cheat' post operatively (eg. by liquefying foods)
- are not sufficiently motivated to want to lose weight

The quality of training for obesity surgeons in Australia is amongst the highest in the world, with the Monash Medical School team of Professor Paul O'Brien having developed accreditation level training in the art of laproscopic banding, perhaps the most common surgical technique now used (for a list of accredited surgeons within Australia see www.professortrim.com). O'Brien's team is in wide demand in the US and other countries to help expand the technique. Other approaches such as gastric pace-making, or 'Intra Gastric Stimulation' (see last the issue of *Waistline*) are also on the horizon.

One obvious deficiency for many surgeons is a dedicated pre and post surgery program, without which no procedure is guaranteed.

Take home message:

Surgery is an effective weight loss technique under the appropriate circumstances.

For reference:

National Clinical Guidelines for Weight Control and Obesity Management. National Health and Medical Research Council, Canberra, 2003.

Odds on diabetes

An article in *Diabetes Care* in November, 2003 calculates that the risk of having a heart attack is increased by 14 times in under 45 year olds who have type 2 diabetes. The risks of stroke are increased by 30. Diabetes is also beginning to become a cost liability, with the direct costs of treatment now estimated to be double that of cancer and HIV/AIDS at an estimated \$US4,500 for an average diabetes-related hospital stay. As around 90% of type 2 diabetes is preventable, the question is why aren't we trying to prevent it? If you're not already convinced, here are some other fascinating facts from the International Diabetes Federation:

- One in 4 children born after 1990 and 1 in 3 born after 2000 will contract diabetes in their lifetime, and they will also have 30 to 40 years longer for the complications to develop.

- People with type 2 diabetes have the same risk of a heart attack as people who have already had a heart attack
- By 2025, the prevalence of diabetes is expected to more than double in Africa, the Eastern Mediterranean and Middle East, and South-East Asia, and rise by 20% in Europe, 50% in North America, 85% in South and Central America and 75% in the Western Pacific.
- In 2003, the countries with the highest diabetes prevalence in the adult population were Nauru (30.2%), The United Arab Emirates (20.1%), Qatar (16%), Bahrain (14.9%), and Kuwait (12.8%).
- Diabetes is the fourth main cause of death in most developed countries.
- Diabetes is the leading cause of blindness and visual impairment among adults in developed countries.

PROFESSOR TRIM'S REAR END



Time of eating may be important

We know now that what we eat is important for weight gain. We know less about the importance of *how* we eat. Traditionally, it's been thought that larger meals earlier in the day will lead to less weight gain, but this has typically come from the "Grandma's knowledge" school of good health.

Now research carried out at the University of Texas has tended to support Grandma by showing that people who eat a large breakfast, tend to eat less over the remainder of the day. Dr JM de Castro used diet diaries over seven days for a group of males and females recruited for another study on diet. The total and meal intakes of food energy, the amounts of the macronutrients ingested and the density of intake occurring during five 4-h periods were identified and related to overall and meal intakes during the entire day.

de Castro found that there was a negative correlation between the amount of food eaten in the morning and the total amount eaten during the day, whereas there was a positive correlation between the amount eaten late in the evening and the total intake. There was a positive association, on the other hand, between the energy density of foods eaten at any time of the day and total intake.

In other words, low energy-dense foods (e.g. non-sweetened breakfast cereals, toast, fruit etc) eaten in the morning appears to be particularly satiating and reduces the total amount of food eaten later in the day. Late night snacks on the other hand lack satiating value and tend to result in greater overall intake and hence a greater risk of weight gain.

Implication:

Breakfast for a King, lunch for a Queen and dinner for a Pauper – just like Grandma said!

For reference:

de Castro JM. The time of day of food intake influences overall intake in humans. *Journal of Nutrition*, 2004;134(1):104-11.

Meal replacements and the diabetic: a genuine benefit?

As perhaps the most well-known metabolic disease associated with obesity, type 2 diabetes is often accompanied by other diabetes associated problems. Blood pressure is often elevated, cholesterol levels are high, and different types of blood fats are also adversely affected.

Common sense suggests that a decrease in body weight may improve these factors, but so far there is little research to prove it, partly because of the difficulty in getting large groups of people to lose weight. One way in which this can be done however is by prescribing a low calorie (LC) meal replacement of nutritionally balanced, powdered drink mixes, as is often prescribed for quick weight loss. Danish researchers tried this recently over 8 weeks with a small group of type 2 diabetic patients with high levels of all of the usual problems associated with diabetes. They were able to get a weight loss of around 11kg, and a drop in all components of cholesterol, triglycerides and blood sugars, resulting in a big decrease in risk for heart disease and stroke. The only concern with this approach is in managing weight maintenance after initial losses, as this would be expected to 'bounce back' if not strictly clinically controlled.

Implication:

Big, quick weight losses can lead to big improvements in heart disease risk factors in overweight diabetic patients.

For reference:

Harder H, Dinesen B, Astrup A. The effect of a rapid weight loss on lipid profile and glycemic control in obese type 2 diabetic patients. *International Journal of Obesity*, 2004;28(1):180-2.

Lessons from the King of Tonga

Although he has been widely lampooned in the media for once being the fattest Monarch in the world, King Taufa'ahau Tupou IV of Tonga, could well have something to teach his detractors.

Diagnosed with Type 2 diabetes at 55, The King was expected to quickly decline to the use of multiple medications, and to live for only another 5-10 years. Yet on turning 85 in early 2004, his diabetes is well under control, and he still has not progressed to the major diabetic medications.

How has he done it? Tongans talk of the King pedaling a push bike down the street front in Nuku'alofa, the country's main centre (*see picture*), followed by a team of guards who had to 'bounce' him around to face the other way when he reached the end of the road. As he lost weight, two sets of guards were required to keep up. In the process a mighty 110kg was shed.

Today at 85, the King's physician, an expert in diabetes, still has him on a program of weight lifting and aerobic exercise. His diet was also changed to reduce the large amounts of food he, like most islanders, eat regularly. But most experts agree it was his return to a respectable level of physical activity which has probably kept diabetes at bay for so long, and which may, in reverse, be driving the world-wide diabetes epidemic.

