Disclaimer:

The information contained in this book is not intended as a substitute for the advice of your physician(s) and other health-care providers. Please check with your physician before commencing the eating programme outlined. Neither the publisher nor the author are responsible for the effectiveness of any goods or services mentioned in this book; they also disclaim all liability in connection with the eating programme, advice, goods and services described within this publication and for any damage, loss or expense to any person or property arising out of or relating to them.
This book is dedicated to my father who taught me to believe
that the word “impossible” does not exist,
my mother who told me that being second place is merely the first loser,
and my partner Janne for listening to all my crazy ideas
(at least once per day!)
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INTRODUCTION

From fat boy to pharmacist
to low carbohydrate weight-loss coach
My early childhood experiences

I was born in a small town in East Malaysia and, for as far back as I can remember, I’ve loved tasty foods – especially things like noodles, Chinese pork buns and bread (in other words, all the refined carbohydrates). I was a skinny kid until I was about six years old and then, for some inexplicable reason, I started putting on weight rapidly from that age. It was as if some kind of “fat bomb” had gone off inside me.

Since then, I have come to realise that I come from an insulin-resistant family on my mother’s side. My grandmother was confined to a wheelchair in her fifties after becoming paralysed from a stroke; she also suffered from diabetes and hypertension. My mother and both her sisters suffer from mild hypertension as well. My cousins also have weight issues and have all been on some kind of diet over the years.

At school, physical education was my worst subject (although I was always top of the class academically), and I was constantly teased for being fat throughout primary school and my early years of high school. I can still remember being taunted that boys are not supposed to have breasts. Eventually, when my weight reached a ridiculous level around age 10 (38-inch waist, 85 kg and just 4 foot 10 inches tall!), my parents decided to intervene and restrict my food consumption.

However, my first experience of real dieting came when I was 12 years old. My father restricted my meal frequency to three per day, two of which were fruit-based – I felt as if I was starving! He also started to coach me in swimming and I began training every night. Over a 12-week period I lost 10 inches off my waist and 17 kilograms. Soon afterwards, I took up competitive swimming, periodically restricting my food intake to maintain my swimming weight at 68 kg, and embarking on my lifelong “yo-yo” struggle with dieting and weight at the same time.
From swimming to bodybuilding

In my seventh-form year in 1990, when I was 17 years old, I was told by my club coach that I would never be a top swimmer. My times were nowhere near any New Zealand meet records and, unless some miracle occurred within the next six months, I had no chance of becoming any kind of competitive swimmer. So I quit swimming and took up bodybuilding instead. With all the high-calorie protein drinks, rice (which according to the “food pyramid” was healthy!), bread and meat I consumed, I gained weight (both muscle and fat) fast.

In 1991, six months after joining a gym, I enrolled for a Health Science intermediate at Auckland University. I was a regular member of the uni gym and my weight increased from 68 kg (28-inch waist) to 82 kg (32-inch waist) within 18 months. Assuming a 1-cm waist gain is equivalent to a 1-kg fat gain (see Chapter 7 for details), if my waist increased by 4 inches – or 10 cm – this equalled 10 kg of fat gain. But seeing as I gained 14 kg, 4 kg of that gain was muscle.

University bodybuilding career

In 1992, I moved to Dunedin to study for my Bachelor of Pharmacy. Midway through that year I took up the challenge of participating in a bodybuilding competition, with my father (then in his fifties) as my gym training partner. I purchased a book on bodybuilding nutrition and embraced the wonderful concept of calorie counting. On competition day I was in okay shape – I had lost both muscle and fat and I could see most of my abdominal muscles – and I managed to place fourth in the junior section.

However, after maintaining a strictly low-fat and low-calorie regime (as low as 1000 calories per day) for the 12 weeks leading up to that first bodybuilding competition, I went wild with food and my weight ballooned to 92 kg afterwards. It seemed like the right thing to do at the time, as everyone else from the gym was
“off season” and “bulking up” too. But I had to wear track pants during Christmas that year because none of my trousers fitted me any more. My weight continued to fluctuate between 82 and 85 kg throughout my university years (1992 to 1994).

**Introducing nutritional supplements**

At the end of 1994, I graduated from Otago University with an honours degree in Pharmacy, and my honours thesis was published in the *British Journal of Clinical Pharmacology* in 1995. After serving my internship in St Lukes, Auckland, I bought my accident and medical clinic pharmacy in 1996, and between then and mid-1996 my business evolved from 100% prescriptions over the counter (OTC) medications to 20% prescriptions/OTC medications and 80% sports nutrition products. Following on from my special interest in bodybuilding, I started applying my knowledge of human biochemistry and physiology to the utilisation of nutritional supplements for weight loss and sports nutrition. I also introduced nutritional supplements to several professional rugby teams in the Greater Auckland region.

**My first low carbohydrate regime**

Then, in 1999, I came across a book written by the late Dan Duchaine. Dan barely finished high school but his book *BODYOPUS* is absolutely brilliant. In it, he recommends a cyclical low-carb regime for fat loss with minimal or no cardiovascular exercise. After starving your body of carbohydrates for 5 days, high amounts of carbohydrates are consumed for 2 days (weekends) which will maximise muscle growth by stimulating the release of insulin and insulin growth factor, a natural growth hormone.

Applying this regime to myself, I managed to reduce my weight from 98 kg to 88 kg within 12 weeks, lost 6 inches off my waist and gained 5 kg of muscle. I was delighted – finally I had found a food-based programme that allowed me to
eat fatty food, with minimal or no cardiovascular exercise, and have the body I wanted! Prescribing the cyclical low-carb regime to my clients, they too started achieving marvellous results.

Since that time, I have researched and studied many other low-carb programmes, and from the personal testimonies of my clients (well over 5000 of them) I have compiled an Australasian-style low carbohydrate lifestyle programme specifically tailored to meet the needs of people from this part of the world.

Each and every day, with every client, I learn more and more about how our bodies respond to various aspects of a low-carb regime. It is my firm belief that there is no right or wrong answer to anything in life – including nutrition – but that everything is forever changing and evolving. Instead, we should (as the late great martial artist Bruce Lee once said): “Absorb what is useful, discard what is useless.”

So why not start your low-carb journey today – and don’t be afraid to explore and reap the benefits of my low-carb principle. If you happen to discover some insights of your own from reading this book, feel free to write to me and share them – I would love to hear from you and pass them on to others.

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March 2005
CHAPTER ONE

Syndrome X
**Is our nation getting fatter?**

Here is some interesting statistical information provided by the New Zealand Ministry of Health website that you might not be aware of:

- The 1997 National Nutrition Survey (NNS) showed that more than half of New Zealand adults were now overweight (35 percent) or obese (17 percent).
- The 2002 Children’s Nutrition Survey showed that about one-third of New Zealand children between 5–14 years were overweight (21 percent) or obese (10 percent).
- Obesity in New Zealand adults over 15 years increased from 11 percent in 1989 to 17 percent in 1997.
- Provisional results of the 2002/03 New Zealand Health Survey indicated that one in five New Zealand adults were obese.
- If current trends continue, 29 percent of all adult New Zealanders are likely to be obese by 2011.
- Obesity is a risk factor for many chronic diseases including Type II diabetes, heart disease, hypertension and stroke, gallstones and some cancers.
- More than 1000 New Zealanders die each year from obesity-related diseases – double the annual road toll!

**Syndrome X**

In 1988, endocrinologist Gerald M. Reaven of Stanford University coined the term ‘Syndrome X’ to describe individuals with the following symptoms:

1. Insulin resistance or glucose intolerance
2. High cholesterol levels
3. Hypertension (high blood pressure)
4. Obesity.
Individuals exhibiting one or all of the above symptoms can eventually develop Type II diabetes and heart disease. Since the rate of obesity is on the rise both in Australasia and the rest of the world, Syndrome X is a looming health problem similar in scale to the AIDS epidemic although spreading at a super-slow rate compared to infections like SARS.

**Insulin resistance**

Since the start of the Stone Age 2.5 million years ago there has been hardly any change in the hunter-gatherer DNA composition of human beings (just 0.02%). This explains why our bodies can so easily become glucose intolerant or insulin resistant – the human body is quite simply not designed to digest refined carbohydrates and sugars. There are two types of laboratory tests that can determine glucose intolerance:

**Fasting Blood Glucose Test**

The first test is the Fasting Blood Glucose Test. This is carried out first thing in the morning after you wake up and before you consume any food or drink (except water) – your last meal will be dinner from the night before.

Your fasting glucose level is the amount of glucose per litre of blood after fasting for 8 to 10 hours. According to Diabetes New Zealand, a fasting blood glucose level of 7mmol/L* or greater indicates that you have Type II diabetes. However, if your fasting blood glucose level is 7 mmol/L or more and you do not suffer from any of the symptoms of diabetes such as thirst, tiredness, repeated infections and needing to pass urine all the time, the test will be repeated again later. Individuals with a fasting blood glucose level between 6.1 and 6.9 mmol/L are classified pre-diabetic or with Impaired Fasting Glycaemia (IFG). An Oral Glucose Tolerance Test (OGTT) will then be carried out to determine whether someone is pre-diabetic or diabetic.
* mmol is an international unit used by scientists and health professionals to calculate the amount of various chemical compounds; mmol/L indicates the amount of glucose in mmol in every litre of your blood.

**Oral Glucose Tolerance Test**

An OGTT is also carried out first thing in the morning before the consumption of any food or drink (except water) after 8 to 10 hours of fasting. On arrival at the laboratory, a person’s blood glucose level is tested, then they are given a drink containing 75 g of glucose; two other blood glucose levels are taken one to two hours after the glucose drink is consumed. This test indicates how well the pancreas responds to increased blood glucose levels.

Because pregnant women can sometimes develop Gestational Diabetes, they are routinely given an OGTT during the 28th week of their pregnancy. The glucose solution administered to them contains 50 g instead of 75 g of glucose.

You will be diagnosed as diabetic if your blood glucose level is 11.1 mmol/L or more after two hours. If you are pregnant and your blood glucose level is 9 mmol/L after two hours, you have Gestational Diabetes.

**Normal blood glucose level**

According to Diabetes New Zealand, a non-diabetic person will nearly always have a blood glucose level between 4 to 7.5 mmol/L. Blood glucose levels can be higher when you are sick (for example, with the common cold or flu). A general guide to blood glucose levels is:

First thing in the morning – 4 to 6 mmol/L  
Pre-lunch – 4.5 to 7 mmol/L  
Two hours after lunch – 4.5 to 8.5 mmol/L.
**Hypoglycaemia**

Hypoglycaemia is a condition in which dizziness and light-headedness due to a low blood glucose level is experienced. These symptoms are generally more noticeable than those of hyperglycaemia – above-normal or elevated blood glucose (usually dismissed by non-diabetic individuals as a “sugar high”) – preceding it. The most common solution for its treatment recommended by medical professionals is the immediate consumption of some simple carbohydrate, such as barley sugars. Before the Fasting Blood Glucose or Oral Glucose Tolerance Tests can detect whether there is something wrong with your insulin sensitivity however, hypoglycaemia acts as your body’s early warning signal of insulin resistance/glucose intolerance.

**Hyperinsulinaemia**

Hyperinsulinemia is a condition whereby an individual has abnormally high amounts of insulin due to the pancreas releasing too much insulin. The general causes of hyperinsulinemia are insulin resistance/glucose intolerance, obesity, polycystic ovary syndrome and tumour of the pancreas.

When a person without hyperinsulinemia consumes carbohydrates – for example, a piece of bread – his or her blood glucose level will rise, causing the pancreas to release insulin. There are receptor sites* on the surface of the cell membrane of your muscle and adipose (fat) cells which activate the absorption of glucose into them.

*Receptor sites are cell antennae that are the equivalent of a cellphone antenna receiving satellite signals enabling you to make calls.*

When you consume large amounts of carbohydrates every day, carbohydrate foods with high sugar contents such as Coke, white bread and jasmine rice, your blood...
glucose level remains high, which means:
1. Your pancreas is “flat out” manufacturing a large amount of insulin
2. Your blood insulin level remains high constantly.

After a while (the period of time it takes varies from individual to individual), your receptor sites start to reduce, requiring more insulin to make your muscle and adipose cells absorb your blood glucose. The exact reason why this happens is unknown at present but studies have shown that overweight individuals have much higher insulin levels than non-overweight individuals.

Most of us will have experienced hypoglycaemia – or a low blood sugar level – at some stage of our lives – for instance, after not having eaten for hours and experiencing varying degrees of light-headedness. The standard recommendation is to consume some sugary drinks or barley sugars if you experience hypoglycaemic symptoms.

However, hypoglycaemia is also experienced by individuals with hyperinsulinemia which, as mentioned above, may develop when large amounts of foods with high sugar contents are consumed over extended periods of time. When you develop hyperinsulinemia, your pancreas loses the ability to fine-tune insulin release according to your blood glucose level, and when too much insulin is released for a small amount of carbohydrates your blood glucose level will decline sharply, causing hypoglycaemia. So by following the standard advice and consuming more sugar, increased damage is caused by your pancreas releasing more insulin to deal with all the extra sugar you have just consumed. On the other hand, if you follow a low-carb lifestyle, your blood glucose level will remain low, and over time your pancreas, muscle and fat cells may revert to normality.

NB: If you do not do anything about hyperinsulinemia, you may develop Type II diabetes, which in essence is a disease in which your pancreas does not produce or properly utilise insulin.
**Obesity**

Insulin encourages your body to convert glucose to fat when there is plenty of food around. When food is scarce, insulin will encourage your body to burn stored fat. Excess refined carbohydrates and sugars create an environment within your body that signals there is plenty of food around, therefore carbohydrates are converted into stored fat. Because insulin resistance can lead to excess insulin secretion, excess insulin coupled with excess carbohydrate consumption creates excess fat storage – it is a vicious cycle!

**The myth of Body Mass Index**

Body Mass Index is a measurement that takes into account a person’s weight and height and is used widely by medical practitioners as a guideline to determine whether a person is overweight, underweight or at the correct weight.

**The Body Mass Index formula**

Body Mass Index = (weight in pounds x 703) divided by (height in inches x height in inches)

Body Mass Index = (weight in kilograms) divided by (height in metres x height in metres)

BMI – 19 to 24.9 = Healthy weight
BMI – 25 to 29.9 = Overweight
BMI – over 30 = Obese

However, the Body Mass Index equation fails to take into account factors such as muscle mass and ethnic differences. Some individuals are more muscular than others due to their genetic inheritance – for example, Polynesians and Eastern Europeans are typically more muscular than Asians and Caucasians.
Body Fat Percentage is a much better measure than BMI. Here are some guidelines:

**Male:**
Healthy Body Fat Percentage = 15%
Athlete’s Body Fat Percentage = 10–12%

**Female:**
Healthy Body Fat Percentage = 20–28%
Athlete’s Body Fat Percentage = 15–16%

**Visceral obesity**

Individuals with visceral obesity are more likely to have Type II diabetes and heart disease. Visceral obesity is closely related to Syndrome X – having a “pot belly” is the best way to describe the condition. “Pear-shaped” bodies are not generally related to Syndrome X but – if they become obese enough – they can suffer from Type II diabetes and heart disease as well.

**Abnormal blood lipid profile**

According to the New Zealand National Heart Foundation, the guidelines for a normal blood lipid profile are:

Total Cholesterol – less than 4 mmol/L (lower for anyone with heart disease)
(Bad Cholesterol) LDL* Cholesterol – less than 2.5 mmol/L
(Good Cholesterol) HDL* Cholesterol – 1 mmol/L or more
Triglycerides/HDL* ratio – less than 4.5
Triglycerides – less than 1.7 mmol/L.

*For a fuller description of LDL, HDL and triglycerides see Chapter 19.*
Insulin bears many responsibilities within the human body. Regulating blood glucose levels is one of them, regulation of the manufacturing of cholesterol – the major component of cell membranes – is the other. The major site for cholesterol manufacture is the liver, the minor sites are the skin and intestines.

Only 20 to 30 percent of your total cholesterol comes from your diet, the rest is manufactured by your body. Dr Michael Eades explains the insulin–cholesterol connection well in his book *Protein Power*. Insulin promotes the storage of carbohydrates as glycogen, conversion of fat to storage fat, and conversion of glucose to storage fat. To store these fuels, your body will need more storage sites, i.e. more fat cells and muscle cells. Manufacturing of these storage sites requires cholesterol, the main component of the human cell membrane. In conclusion, insulin indirectly stimulates the manufacturing of cholesterol.

Cholesterol can also build up around blood vessels and ultimately form a blood clot. From time to time, this clot or plug can detach from the wall of the blood vessel and cause serious problems such as heart attacks.

**Hypertension**

The common symptoms of hypertension – or as it is more commonly known, high blood pressure – are headache, dizziness, irregular/rapid heartbeat, breathlessness and nose bleeds. However, hypertension can remain undetected because sometimes no symptoms are experienced.

According to the New Zealand National Heart Foundation: High blood pressure indicates that the force required for blood to flow is greater than normal. Blood pressure is elevated when repeated measurement shows the top number (systolic) to be greater than 140 mmHg* or the bottom number (diastolic) to be greater than 95 mmHg. Either systolic, diastolic or both measurements may
be abnormal. A diagnosis of hypertension is made when a person has had two or more elevated readings after the initial assessment.

*mmHg is a measurement used by scientists and medical professionals to gauge blood pressure.

You may wonder how insulin resistance/glucose intolerance is related to hypertension. Well, insulin resistance/glucose intolerance can cause hypertension in many ways. According to the description of the obesity/insulin resistance connection above, an obese person has more cells (more fat cells and fewer muscle cells), so a higher blood volume will be required to nourish these cells. A higher blood volume can cause your heart to work harder and exert higher pressure, hence creating higher blood pressure. Your heart may also grow larger to handle the extra workload placed upon it.

As insulin promotes the conversion of fat and carbohydrates to stored fat and glycogen, more muscle and fat cells are needed as storage sites. This build-up of cells can cause blood vessel walls to thicken and become less flexible. As your blood vessels become less flexible, more pressure is needed by the heart to pump blood around your body, hence also creating higher blood pressure.

Obese individuals have more water retention (that’s why diuretics are part of the hypertension medications treatment), and water retention can also cause your heart to work harder (due to larger blood volumes), again creating higher blood pressure.
Conclusion

1. Syndrome X is primarily caused by insulin resistance/glucose intolerance.
2. Insulin resistance/glucose intolerance can cause obesity, hypertension, Type II diabetes and an abnormal blood lipid profile.
3. To reverse insulin resistance/glucose intolerance without medications, a low carbohydrate lifestyle must be followed.
CHAPTER TWO

Trading Health for Technology
Contemporary scientific research has revealed that the human genome (DNA or genetic composition) has only altered 0.02 percent in the last 40,000 years. Yet the diet of our genetic ancestors was completely different to that of the modern-day 21st-century human.

**Palaeolithic Age**

The Palaeolithic period – or early Stone Age – began some 2.5 million years ago in Africa. Palaeolithic people were hunter-gatherers whose diet was predominantly meat but they were virtually free of “modern-day ailments” such as diabetes, heart disease and other obesity-related illnesses. Instead, their main causes of death were traumas and infectious diseases.

**Neolithic Age**

The Palaeolithic Age ended 10,000 years ago and was succeeded by the Neolithic – or Agricultural – Age. Humans began to use fire to cook their food and they also started to domesticate animals and cultivate grains. However, since the beginning of the Agricultural Age (and eventually the Agricultural Revolution), human health has been steadily deteriorating due to the increasing amount of grains (cereal, bread etc) in our diet, resulting in ill health, obesity and a shorter lifespan. For example, in the book *Neanderthin*, author Ray Audette outlines how the onset of arthritis followed the cultivation of corn from Mexico to the rest of the world. Humans also started to ferment beer, distil spirits and feed grains to domesticated animals, resulting in fatter pigs, cows and lambs.

**The Industrial Revolution**

The invention of the steam engine in the mid-1700s made the Industrial Revolution of the mid-1800s possible. The mass consumption of refined sugar and white flour which resulted led directly to increased obesity-related diseases from the
nineteenth century onwards.

At the same time, large numbers of people also moved from farms to the cities to work in factories in response to the labour shortages created by the Industrial Revolution. This urban population boom created food shortages so food companies started to use chemical preservatives to produce canned foods. With the arrival of steamships, foods manufactured on a large scale were canned and shipped all around the world. Because canned foods were cheaper less fresh food was consumed, while valuable vitamins and minerals were also lost during the processing and chemical preservation of these canned foods.

The Industrial Revolution was the driving force behind 19th-century colonisation. Along with Christianity, empires such as England, France and Spain introduced refined carbohydrates (sugar, white flour), potatoes, and distilled alcohol to their colonies. Obesity-related diseases such as diabetes and heart disease (which can be linked to the consumption of refined carbohydrates) were introduced to the indigenous peoples at the same time.

Dr Kerin O’Dea, an Australian doctor, studied the glucose tolerance/insulin sensitivity of urbanised Australian aborigines and found their insulin levels elevated with poor insulin sensitivity. However, within just two weeks of returning to live in their natural bush environment, the aborigine subjects showed a small but significant improvement in their glucose tolerance/insulin sensitivity.

Other studies have shown that indigenous peoples such as the Eskimos and South American Indians (who adhere to a hunter-gatherer lifestyle) are free of obesity-related diseases such as Type II diabetes and heart disease.
New Zealand Maori and South Pacific Polynesians and Syndrome X

The 1997 National Nutrition Survey found that obesity rates amongst Maori were 27 percent for men and 28 percent for women. The survey also found that 26 percent of Pacific men and 47 percent of Pacific women were obese.

According to New Zealand Ministry of Health information from 1996, the Type II diabetes incidence rates for Maori and Polynesians are three times higher than those of European New Zealanders. Furthermore, Maori and Polynesians are five times more likely to die from diabetes than their European counterparts. The predictions were, that by 2011, the increase in Type II diabetes sufferers was going to be even greater for Maori and Polynesians compared to New Zealand Europeans. Maori and Polynesians are also more likely to have heart disease (which is closely related to abnormal blood lipid profiles) than New Zealand Europeans.

Syndrome X

As you will recall from Chapter One, the four components of Syndrome X are heart disease, abnormal blood lipid profile, Type II diabetes and obesity. Consequently, given that Syndrome X is caused by insulin resistance/glucose intolerance, a chain of inference can be drawn from the Maori and Polynesian health statistics outlined above:

1. Maori and Polynesians were not consuming refined carbohydrates and sugar prior to the arrival of Captain Cook in the 1800s.
2. Syndrome X is caused by insulin resistance/glucose intolerance.
3. In the space of a mere 200 or so years, it is impossible that their genetic code could have adapted to cope with newly introduced refined flour and sugar (for example, it took wolves 1000 years to evolve to domestic dogs). New Zealand Maori and Polynesians are more likely to have Syndrome X than their European counterparts because they are not
equipped with the genetic blueprint to cope with high consumption of sugar and white flour.

At present, no study has yet been carried out on the insulin sensitivity of Maori and Polynesians. Nevertheless, in the light of Dr Kerin O’Dea’s results from his study of the Australian aborigine, I am convinced that the high rate of Syndrome X exhibited amongst Maori and Polynesian populations can also be related to refined carbohydrate consumption.
CHAPTER THREE

The Low Carbohydrate Diet History
The Industrial Revolution and Obesity

As mentioned in Chapter 2, obesity became a fast-growing problem soon after the Industrial Revolution in the nineteenth century, and many individuals were prominent in offering a cure including Sylvester Graham (the vegetarian diet), Dr John Harvey Kellog (founder of Sanitarium products and supporter of a low calorie diet) and various others.

Another interesting character, often known as the father of the low carbohydrate lifestyle, was William Banting. An English insurance undertaker and carpenter, Banting was overweight and suffering from deteriorating eyesight and hearing. He went to consult an ear, nose and throat specialist Dr William Harvey, who suspected that Banting’s eye and hearing problem could be related to his obesity. He suggested that Banting eliminate starchy and sugary foods and include nuts in his diet. Dr Harvey also suggested that Banting incorporate three glasses of good claret, sherry or Madeira as part of his dinner.

As a result of his changed eating habits, William Banting lost 23 kg and 33 cm from his waist. He was so impressed with the results of his new eating regime that in 1869 he published a book – *Letter on Corpulence addressed to the Public*. Although strongly opposed by the medical world, his diet became so popular that the term “to bant” even came to mean “to diet”.

Disease control and a low carbohydrate lifestyle

The ketogenic or low carbohydrate diet was being used to cure diabetes in 1790 but physicians at the time – who didn’t really understand how or why it worked – considered the diet regime impractical and too expensive. The same diet was also used to control juvenile epilepsy in the 1920s but was replaced by newer epileptic medications. However, the ketogenic diet is still in use at the Johns Hopkins Epilepsy Center at the present day.
The “evil” Food Pyramid

In the 1950s, the number of individuals suffering from heart disease was on the rise and scientists eventually – but incorrectly – linked consumption of saturated fat to heart disease and raised LDL/cholesterol level*. As a solution, vegetable oil was introduced to replace saturated fat. This move saw the substitution of butter with margarine, and saturated fat with the even worse “trans fatty acids” (a denatured form of vegetable oil).

*Please refer to Chapter 20 for an explanation of the various types of cholesterol.

With saturated fat being blamed for a “crime” that it did not commit and the Food Pyramid (introduced in its current form in 1992) being widely popularised, nutritionists and dieticians recommended six to seven servings of carbohydrates (cereal, bread, potatoes etc) per day in order to displace the “harmful” saturated fat.

The traditional food pyramid recommends:

- Eat least of: Fats, Sugar, Salt, Alcohol
- Eat moderately of: Meat, Chicken, Fish, Dairy (milk, cheese, yoghurt)
- Eat most of: Fruit, Vegetables, Breads, Cereals, Pasta, Rice

The fast-food industry

However, the scientists who linked heart disease to the consumption of saturated fat in the 1950s overlooked the role of the fast-food industry in the equation.* Fast-food chains should have been the real agents held responsible for obesity, Type II diabetes and heart disease because they were the ones serving the lethal biochemical cocktail of fat and carbohydrates to their customers on a daily basis. (I recommend watching the video or DVD Supersize Me for a detailed account of just how much fast foods can negatively harm your health.)
*Note: The two main fast-food chains were started in the 1950s. The first international fast-food chain store opened in Auckland in 1971.

**The Atkins diet**

In 1972, the late Dr Robert Atkins published his revolutionary book *The New Diet Revolution*. Just like William Banting, he too was ridiculed by the traditional medical world, with the American Heart Association condemning his diet as “a bizzare regimen”. The low carbohydrate eating regime was dismissed by nutritionists and doctors alike as a “fad diet”, and one that would increase your chances of contracting cardiovascular diseases.

To date, more than 10 millions copies of his book have sold, and there are close to 20 million individuals around the world who have tried his low carbohydrate eating regime.

**2003 – The low carbohydrate “retro” year**

Repopularised by Hollywood stars such as Jennifer Aniston, low-carb diets were given a second chance in 2003 but this time they were backed up by scientific research. Among others, Walter Willett and his colleagues at the Harvard School of Public Health have also criticised the Food Pyramid and want it scrapped.

Two university studies published in May 2003 both confirmed the benefits of a low carbohydrate lifestyle. The first was a six-month study conducted by Dr Frederick F. Samaha of the Veterans Affairs Department at Philadelphia in which subjects on the Atkins diet lost 300% more weight than those on a low-fat diet. Subjects following the Atkins diet also had better levels of HDL (“good”) cholesterol and triglycerides than those on the low-fat diet.

The second study led by Gary D. Foster, who runs the weight-loss programme
at the University of Pennsylvania School of Medicine, also went for six months. Again, subjects on the Atkins diet lost twice as much weight as those following a low-fat diet. Subjects following the Atkins diet also had better levels of HDL ("good") cholesterol and triglycerides than those on the low-fat diet.

Manny Noakes, senior research dietician at the Commonwealth Science and Industrial Research Organisation in Australia, has also released the findings of a 12-week high carbohydrate versus low carbohydrate study involving 100 overweight Australians conducted in 2003, which can be summarised as follows:

1. The high protein approach (low carbohydrate) offered an edge in weight loss compared to the conventional low calorie diet (6 kg weight loss in the high protein group versus 3 kg in the low calorie group).
2. The diet was also suitable for people exhibiting symptoms of Syndrome X, which increases the risk of Type II diabetes and cardiovascular disease.
3. The study’s subjects also displayed the following blood lipid profile:
   - Atkins diet subjects: increased HDL ("good") cholesterol, no change in LDL ("bad") cholesterol and decreased triglycerides levels.
   - Subjects following a low calorie diet: decreased HDL cholesterol, no change in LDL cholesterol and increased triglycerides levels.
CHAPTER FOUR

A Hungrier Population?
According to a *New Zealand Herald* article from 2004, Australian women were the second most obese group worldwide and Australian men ranked third on the global obesity chart. As the Kiwi diet is very similar to the Australian one, if Australians were that highly ranked in the obesity scale, where does that leave New Zealanders?

In previous chapters, I have traced the origins of obesity to contributing factors such as the historical shift to agriculture, the Industrial Revolution and the colonisation of countries by empire. But in order to understand exactly why humans became more obese with increased carbohydrate consumption, it is necessary to comprehend the basic biochemistry underlying that process.

*‘Biochemistry 101’*

**Carbohydrates**

Carbohydrates are digested by digestive enzymes (released by the salivary glands in your mouth and by the pancreas to the small intestine) into a compound known as monosaccharides (a type of carbohydrate – for example, fructose, galactose). These are then converted to glucose in your liver which can then be released into the bloodstream to be utilised as fuel or converted to glycogen and stored in muscle and liver cells. Once the muscle and liver cells are full, they will be converted to triglycerides (the storage form of fat) and stored in adipose tissue cells.

**Summary:**

*Once the muscle and liver cells are full, carbohydrates will be converted to triglycerides (the storage form of fat) and stored in adipose tissue cells.*
**Fats**

Fats are digested – by an enzyme secreted by the pancreas known as pancreatic lipase – solely in the small intestine. The most abundant fats in most foods are triglycerides. Clumped together as large fat globules, fats are “processed” by bile salts (secreted by your bile) into an emulsion.* Known as emulsification, this process enables fat enzyme lipase to break down triglycerides to free fatty acids and another form of fat known as monoglycerides. Fat-soluble vitamins (such as A, D, E & K) are absorbed with fatty acids.

*An emulsion is a solution with fatty droplets “suspended” in amongst water molecules.

Once your body has digested the fats consumed through emulsification, the digested fats enter your lymph circulation system (which circulates lymph throughout your body, just like the blood circulation system but with different biochemical tasks). From there, they are absorbed into your muscle and fat tissue cells (in the chemical forms fatty acids and glycerol) through your blood capillaries.

The bulk of the fatty acids and glycerol are reconverted to triglycerides (the storage form of fats) and stored in the adipose tissue cells (fat cells). Some of the fatty acids and glycerol are utilised by tissue cells for tissue growth and repair (for example, of the skeletal muscle tissue).

Cholesterol is another form of dietary fat (like triglycerides); it cannot be used as fuel by your body but is used to make bile salts, steroid hormones (such as the male hormone testosterone), vitamin D and cell membranes (the outer layer of your cells).

Only 20% of the cholesterol within your body is derived from dietary sources. The bulk of it is manufactured by your liver (from another chemical compound known
as acetyl CoA) and this process is directly influenced by the secretion of insulin. The cells within your intestines also make a small amount of cholesterol.

When your glycogen level is low within your liver and muscle cells (for example, while you are following a low carbohydrate lifestyle), triglycerides are the primary energy source preferred by adipose (fat) tissues and skeletal muscle cells, and they are oxidised* for energy.

*Oxidized fat or the oxidation of fats refers to a chemical reaction involving fat and oxygen, producing energy to fuel activity.

Summary:

When your glycogen level is low within your liver and muscle cells (for example, while you are following a low carbohydrate lifestyle), triglycerides are the primary energy source preferred by adipose (fat) tissues and skeletal muscle cells, and they are oxidised for energy.

Proteins

The proteins you consume daily (for example, meat, fish and eggs) are digested in your small intestine.

They are first “cut” into smaller proteins (known as peptides) by enzymes.*

*These enzymes are secreted by the pancreas, and are known as trypsin and chymotrypsin.

Peptides are then “cut” again into amino acids, the building blocks of proteins. This function is also carried out by enzymes.*
*The enzymes that digest peptides into amino acids are carboxypeptidase, aminopeptidase and dipeptidase.*

After being absorbed from your small intestine into your blood, the majority of the amino acids remain in your blood for your muscle cells to absorb for the purpose of protein synthesis (in other words, making protein and muscle).

A small amount of the amino acids is delivered to your liver and converted to keto acids. Keto acids are then converted into energy through a chemical process known as the Krebs cycle. They can also be used by your body to make plasma (blood) protein such as albumins.

**The liver**

Among the 500 or so functions performed by your liver, the principal ones related to the low carbohydrate lifestyle are:

1. The packaging of fatty acids into forms that can be stored or transported to be used for fuel.
2. The building of amino acids into plasma proteins, forming of non-essential amino acids, and conversion of ammonia (a by-product from the synthesis of amino acids) into urea so the ammonia can then be excreted out of your body.
3. The storage of glucose as glycogen and control of glycogenolysis and gluconeogenesis.

**The pancreas**

The pancreas is a soft, triangular-shaped organ located partially behind the stomach in your abdominal cavity. There are two types of cells that make up the gland: the acinar cells and up to 2 million “islets of Langerhans”. The islets of Langerhans contain three major types of cells: the alpha, beta and delta cells.
Alpha cells are responsible for the synthesis and secretion of glucagon whereas the beta cells are responsible for the synthesis and secretion of insulin. (The function of delta cells is outside the scope of this book’s focus on the low carbohydrate lifestyle.)

**Making friends with glucagon**

The hormone glucagon is a protein made up of sequences of amino acids. The major target site of glucagon is the liver. Glucagon promotes glycogenolysis, the conversion of glycogen to glucose. Glucagon also promotes gluconeogenesis, the formation of glucose from fatty acids and amino acids (the building blocks of protein).

The secretion of glucagon is stimulated by a declining blood glucose level and increased blood amino acids level (for example, after a protein-rich meal). The secretion of glucagon is suppressed by a rising blood glucose level. When glucagon is released into the bloodstream, it encourages your liver to convert fatty acids, amino acids and glycogen to glucose (= gluconeogenesis + glycogenolysis), subsequently causing blood sugar levels to rise.

**Summary:**

*Glucagon promotes gluconeogenesis, the formation of glucose from fatty acids and amino acids (the building blocks of protein). The secretion of glucagon is stimulated by a declining blood glucose level and increased blood amino acids level (for example, after a protein-rich meal). The secretion of glucagon is suppressed by a rising blood glucose level. When glucagon is released into the bloodstream, it encourages your liver to convert fatty acids, amino acids and glycogen to glucose (= gluconeogenesis + glycogenolysis), subsequently causing blood sugar levels to rise.*
The “evil” insulin

Like glucagon, insulin is both a protein and a hormone made up of amino acids sequences. The beta cells of the pancreas are responsible for the synthesis of insulin. The secretion of insulin is primarily stimulated by a rising blood glucose level (for example, after a carbohydrate-rich meal). The primary functions of insulin are:

1. Responding to a rising blood glucose level by converting glucose to energy through a chemical process known as the Krebs Cycle.
2. If glucose is not needed for energy, insulin will increase the diffusion of glucose into your muscle cells and convert glucose into glycogen and store it in your muscle cells and your liver as “back-up” fuel.
3. When your muscle and liver cells are full of glycogen and cannot store any more, insulin will promote the diffusion of glucose into your adipose tissues and convert it into triglycerides, the storage form of fat.
4. Insulin also promotes the diffusion of amino acids into your muscle cells which use these amino acids to synthesise proteins.
5. Insulin also inhibits the liver enzymes that promote gluconeogenesis (= the conversion of glycogen into glucose).

Summary:

When your muscle and liver cells are full of glycogen and cannot store any more, insulin will promote the diffusion of glucose into your adipose tissues and convert it into triglycerides, the storage form of fat.

Hunger and carbohydrates

Carbohydrates are commonly perceived as “comfort food” and are the first line of defence against hunger known by most individuals. However, what most of us don’t realise is that carbohydrate consumption can develop into an addiction.
When carbohydrates are consumed, the result is elevated blood sugar levels after the carbohydrates have been absorbed, which in turn stimulates the release of the hormone insulin. Insulin is responsible for restoring the blood glucose (sugar) level by lowering it back to within normal range. Insulin lowers blood sugar levels by transporting blood glucose to muscle cells and the liver and converting it to glycogen (the storage form of glucose).

Consumption of a high-sugar food causes blood sugar levels to rise sharply, which in turn stimulates the release of a large amount of insulin. This high amount of insulin acts on the elevated blood glucose level, reducing it to a very low level (following Newton’s third law that for every action there is an equal and opposite reaction). When your blood sugar level is low again, it will stimulate your desire for more sugary foods.

Modern-day humans consume large quantities of white bread and convenience foods made from white flour (which are also full of sugar or sucrose). High consumption of sugary foods causes irregular blood glucose levels, creating more sugar craving, which in turn stimulates the appetite and desire to consume more food: the net result is a vicious cycle of hunger and increased food consumption – hence the term “carbohydrate addiction”.

**Reversing the effects of obesity and Syndrome X without drugs**

As explained earlier in this chapter:

- The secretion of glucagon is stimulated by a declining blood glucose level and increased blood amino acids level (for example, after a protein-rich meal) and suppressed by a rising blood glucose level.
- When glucagon is released into the bloodstream it encourages the liver to convert fatty acids, amino acids and glycogen to glucose (= gluconeogenesis + glycogenolysis), subsequently causing blood sugar levels to rise.
To reverse glucose intolerance/insulin resistance, you will need the help of the hormone glucagon. To stimulate glucagon, you need to restrict your carbohydrate intake and increase your protein foods consumption so that your blood glucose level will begin to drop and your blood amino acids level will rise. Glucagon will be secreted by your pancreas. Once secreted, glucagon will “command” your liver to convert glycogen stores (in your liver and muscles) into glucose in order to reverse the declining blood glucose level. Glucagon also encourages your liver to convert fatty acids into glucose – in other words, glucagon secretion = fat burning!

**Ketosis – the rescue remedy**

Restricting your carbohydrate consumption induces an alternative fuel-generating chemical process in your body known as ketosis. Your body can only store two to three days’ supply of glucose in the form of glycogen (in your muscle and liver cells), so after two to three days of consuming no more than 20 grams of carbohydrates, your body will switch from glycolysis to ketosis to derive fuel.

Ketosis is really a collective term which describes lipolysis* and ketosis. When glucose cannot be utilised as cellular fuel, fats are mobilised instead. Adipose (fat) tissue cells will mobilise fat storage (triglycerides) as fuel through a chemical process known as lypolysis. Subsequently, fatty acids and glycerol are released into the blood.

Metabolites are produced when fatty acids are utilised as fuel; these metabolites include acetoacetic acid and acetone, collectively known as ketones. Excess ketones are excreted in the urine. Therefore, the more ketones you release, the more fat you burn. Ketosis is therefore a secondary process of lipolysis.

*Lipolysis = the breaking down of stored fat as fuel for energy.*

Ketones are strong organic acids; they are negatively charged, therefore they
attract positively charged ions such as sodium and potassium. When ketones are excreted in the urine, they take sodium and potassium ions with them, causing an electrolytes imbalance and subsequently dehydration. This is why the low carbohydrate lifestyle can lower your blood pressure by reducing the amount of blood/fluid your heart has to “pump”.

Insulin can slow down ketosis by inhibiting gluconeogenesis (the breakdown of glycogen to glucose) and promoting the conversion of amino acids and fatty acids to glucose.

Some medical practitioners confuse ketosis with ketoacidosis. Ketoacidosis occurs when individuals consume excess carbohydrates, leading to a very high blood sugar level. It is a life-threatening condition commonly occurring in Type I diabetic patients, alcoholics and victims of extreme starvation.

**Summary:**

Restricting your carbohydrate consumption induces an alternative fuel-generating chemical process in your body known as ketosis. Your body can only store two to three days’ supply of glucose in the form of glycogen (in your muscle and liver cells), so after two to three days of consuming no more than 20 grams of carbohydrates, your body will switch from glycolysis to ketosis to derive fuel.

Ketosis is really a collective term which describes lipolysis* and ketosis. When glucose cannot be utilised as cellular fuel, fats are mobilised instead. Adipose (fat) tissue cells will mobilise fat storage (triglycerides) as fuel through a chemical process known as lypolysis. Subsequently, fatty acids and glycerol are released into the blood.

Following a low carbohydrate lifestyle turns you into a “fat-burning” machine and may reverse all your Syndrome X symptoms (obesity, abnormal cholesterol,
hypertension, diabetes and insulin resistance). Follow a low carbohydrate lifestyle and you will become lean, fit and Syndrome X free!
CHAPTER FIVE

The Carb Addiction Rehab Phase:
the first two weeks
The first step

The first step in the battle against your carbohydrate addiction is to set a date – “NOW”! Start today because tomorrow you may change your mind and hand over more wasted dollars to the cereal companies. So find a box – a very big box – clear out all the carbohydrate foods from your pantry and drive down to your local Salvation Army store (or the City Mission) and donate these evil carbohydrates to the poor and the homeless.

The early weeks

Imagine you are an alcoholic and your doctor has just told you that you have no choice but to check in to a rehabilitation centre at once. This is exactly the kind of analogy you need to apply to your carbohydrate addiction. The first two weeks of the low-carb programme is your carbohydrate addiction rehabilitation phase, by the end of which you will:

1. Understand the core principles of the low-carb lifestyle, such as the basic food groups allowed while following the programme and that carbohydrates are not necessary for energy;

2. Appreciate the many benefits of adopting the low-carb lifestyle, such as:
   • Enjoying great energy levels while consuming minimal carbohydrates;
   • Avoiding water retention;
   • Avoiding abdominal bloating;
   • Having a strong immune system;
   • Reducing allergies and hay fever.
   • Feeling satisfied after a meal and no longer being tortured by pains of hunger deprivation.
   • Losing weight and staying lean for life.
The core of your carb addiction rehab phase

You are not permitted to consume the following:

**Complex Carbohydrates:** rice, pasta, potatoes, kumara, bread and cereal;

**Simple Carbohydrates:** fruit, sugar and sweets.

Some simple rules about vegetables

Not all vegetables are the same; some are higher in carbohydrates than others. To find out which vegetables you are allowed to have within the first two weeks, here are three simple rules:

1. No root vegetables – you are only allowed to have vegetables that grow above ground. The next time you pick up a vegetable from the supermarket, give it a rub – if you find dirt on your hand, this vegetable obviously grows below ground and hence is “off limits”; for example, potatoes and kumara.

2. You are only allowed vegetables that have leaves and stems; for example, lettuce, spinach and Chinese vegetables (such as bok choy).

3. You are not allowed vegetables that fit the botanical definition of a fruit. A fruit bears the responsibility of carrying the seeds for a plant and the seeds are intended for fertilisation purposes. Examples of fruit vegetables are pumpkin, capsicum, tomato and eggplant.

Here is a list of vegetables that you can eat unlimited amounts of:

- alfafa sprouts
- mushrooms
- parsley
- bok choy or any other Chinese vegetables
- celery
- chives
The Carb Addiction Rehab Phase

- lettuce
- cucumber
- spinach.

The following vegetables should be eliminated during your two-week carb addiction rehab phase but reintroduced afterwards:

<table>
<thead>
<tr>
<th></th>
<th>Carbohydrates (g) per 100g</th>
<th>Carbohydrates (g) per 100g</th>
</tr>
</thead>
<tbody>
<tr>
<td>artichoke</td>
<td>10.7</td>
<td>turnip</td>
</tr>
<tr>
<td>pumpkin</td>
<td>4.3</td>
<td>cabbage</td>
</tr>
<tr>
<td>rhubarb</td>
<td>5.1</td>
<td>cauliflower</td>
</tr>
<tr>
<td>asparagus</td>
<td>3.5</td>
<td>onion</td>
</tr>
<tr>
<td>bamboo shoots</td>
<td>1.7</td>
<td>silverbeet</td>
</tr>
<tr>
<td>eggplant</td>
<td>9</td>
<td>peas</td>
</tr>
<tr>
<td>broccoli</td>
<td>2.3</td>
<td>squash</td>
</tr>
<tr>
<td>tomato</td>
<td>6</td>
<td>zucchini</td>
</tr>
<tr>
<td>bean sprouts</td>
<td>1.9</td>
<td>capsicum</td>
</tr>
<tr>
<td>leeks</td>
<td>4.6</td>
<td>radishes</td>
</tr>
</tbody>
</table>

Note: The above vegetables are counted as extra carbohydrates additional to the daily carbohydrate intake of 20 g for the first two weeks of the carb addiction rehab phase.
Dairy products

No yoghurt is allowed within the first two weeks. A small amount of cream (150 mls) is allowed per day. Cream is chosen over milk because it contains a lower amount of carbohydrate.

<table>
<thead>
<tr>
<th></th>
<th>Carbohydrate per 100 mls</th>
</tr>
</thead>
<tbody>
<tr>
<td>cream</td>
<td>3 g</td>
</tr>
<tr>
<td>Anchor low carb</td>
<td>4 g</td>
</tr>
<tr>
<td>Supertrim milk</td>
<td></td>
</tr>
<tr>
<td>Sunlatte milk</td>
<td>4.5 g</td>
</tr>
<tr>
<td>full fat (blue) milk</td>
<td>5 g</td>
</tr>
<tr>
<td>normal Supertrim milk</td>
<td>7 g</td>
</tr>
</tbody>
</table>

Café low carb

With the proliferation of American café chains such as Starbucks and the growing numbers of cafés opening in Australasia (as well as the increasing amount of hours New Zealanders and Australians spend in them!), it is appropriate to discuss here how various coffee drinks fit in with a low-carb lifestyle.

Many people spend over twenty dollars daily buying various types of coffees from cafés without realising how much “hidden” carbohydrates are actually in these beverages. The following table analyses their carbohydrate contents by looking at their ingredients:

Note: As most cafés use full fat (blue) milk, the carbohydrate counts listed below assume that full fat (blue) milk has been used.
<table>
<thead>
<tr>
<th>Type of coffee</th>
<th>Ingredients</th>
<th>Carbohydrates from milk/cream in grams</th>
<th>Carbohydrates from sugar</th>
</tr>
</thead>
<tbody>
<tr>
<td>cappuccino</td>
<td>1 part espresso, 1 part steamed milk and 1 part foam</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Irish coffee*</td>
<td>1 teaspoon sugar, 1–2 tablespoons of Irish whiskey, black coffee, whipped cream</td>
<td>2 (plus carbohydrates from whisky)</td>
<td>5</td>
</tr>
<tr>
<td>frappé</td>
<td>1–2 teaspoons of instant coffee, 1–2 teaspoons of sugar, water, ice cubes, milk to taste</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>mocha*</td>
<td>cappuccino or latte with chocolate syrup added</td>
<td>8 or 9 (plus carbohydrates from chocolate syrup)</td>
<td>0</td>
</tr>
<tr>
<td>latte</td>
<td>one shot of espresso with steamed milk, no frothed milk, 3:1 ratio of milk to coffee</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>long black</td>
<td>two shots of espresso</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>flat white</td>
<td>any number of espressos and the rest of the cup filled up with milk</td>
<td>10</td>
<td>0</td>
</tr>
</tbody>
</table>
*Note: For Irish coffee, carbohydrates from whiskey – which contains significant amounts of carbohydrates – have not been taken into account. For mocha, carbohydrates from chocolate syrup have not been accounted for either.

As you can see from the above analysis, most coffee drinks available from cafés are very high in carbohydrates and should be avoided during the first two weeks of your low-carb lifestyle. After the first two weeks, carbohydrates from these coffees must be counted towards your total daily carbohydrate intake.

Some individuals have been advised to order coffee made with soy milk instead of normal milk, as soy milk has been labelled “healthy”. However, soy milk can contain between 9 to 11 grams of carbohydrates per 100 mls (which is twice the carbohydrate count of full fat (blue) milk), so soy milk should be avoided. For individuals who have dairy allergies, soy milk is still not an alternative to be incorporated into the low-carb lifestyle. Rather, if you cannot drink black coffee, it is best that you avoid coffee altogether for the first two weeks.

Some low-carb diets suggest the total elimination of coffee, because caffeine can cause your blood sugar level to decline sharply (by stimulating the secretion of insulin), hence causing sugar craving. So if you are a regular coffee drinker, make sure you have some reduced carbohydrate sweets or chocolate on hand for that sudden “sugar craving”.

Nuts and the low-carb lifestyle

Many low-carb regimes approve the consumption of nuts as low carb/high protein snacks. The carb counts for some commonly consumed nuts are as follows:
<table>
<thead>
<tr>
<th>Nuts</th>
<th>Net carbohydrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 tablespoons whole almonds</td>
<td>1.4 g</td>
</tr>
<tr>
<td>6 x chestnuts</td>
<td>24.2 g</td>
</tr>
<tr>
<td>2 tablespoons whole hazelnuts</td>
<td>1.2 g</td>
</tr>
<tr>
<td>2 tablespoons macadamia nuts</td>
<td>0.9 g</td>
</tr>
<tr>
<td>2 tablespoons peanut butter</td>
<td>4.3 g</td>
</tr>
<tr>
<td>2 tablespoons pumpkin seeds</td>
<td>2.4 g</td>
</tr>
<tr>
<td>2 tablespoons sunflower seeds</td>
<td>1.5 g</td>
</tr>
<tr>
<td>2 tablespoons walnuts, chopped</td>
<td>1.1 g</td>
</tr>
<tr>
<td>2 tablespoons walnuts, halves</td>
<td>0.9 g</td>
</tr>
<tr>
<td>2 tablespoons peanuts</td>
<td>1.7 g</td>
</tr>
<tr>
<td>2 tablespoons pistachio nuts</td>
<td>3.1 g</td>
</tr>
</tbody>
</table>
However, while I do agree that nuts are low carb in small quantities, according to my coaching experience with thousands of low-carb dieters, I would advise against using nuts as a low carb/high protein snack. Unless you are an extremely disciplined individual, do not use nuts as a snack because you will not be able to control how much you consume. Overconsumption of nuts can impede weight loss by increasing your daily carbohydrate intake. For instance, consider how many pistachio nuts you can eat in one sitting – it doesn’t take much to consume 20 g worth of carbohydrates from nuts. (Nevertheless, nuts and eggs make excellent batter when frying chicken or fish!)

**Love your meat**

You are allowed as much protein from meat as you want during the first two weeks:

- **fish:** for example, snapper, tuna, salmon, flounder, sardines and trout
- **fowls:** for example, chicken, turkey and duck
- **seafood:** prawns, shrimp and squid

*Note: Mussels and oysters are high in carbohydrates and should be avoided within the first two weeks (1 g carbohydrate per mussel and oyster).*

- **red meat:** for example, beef, lamb, venison and pork.

Other unlimited foods include bacon, ham and eggs. Some bacons and hams are higher in carbohydrates than others – ham off the bone and dry cured or streaky bacon is normally lower in carbohydrates. If you live in Auckland, you may be able to buy Henderson Dry Cured Bacons from most supermarkets; but if you can’t obtain this brand, you might be able to get your local butcher to cure some bacon for you the old-fashioned way.* If you cannot get dry cured low carbohydrate bacon, be sure to count the extra carbohydrates you consume by accounting for the non-dry cured bacons. The same principle will apply to ham – if you consume

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The Carb Addiction Rehab Phase
processed ham slices rather than ham off the bone, be sure to account for the extra carbohydrates from your processed ham slices consumption.

* Commercially available bacons are cured with nitrate – a possible cancer-causing agent – to preserve the redness of the pork bellies and are pink in colour. Dry cured bacons are cured without nitrate, and are grayish in colour and much healthier for you.

**Cheeses**

You are allowed 200 g of cheese (for example, cheddar and mozzarella) per day. This will account for 5 g of your total daily carbohydrate intake. Be sure to choose cheeses that state “less than 1 g carbohydrate per 100 g” on the label. Avoid cottage cheese, cream cheese and sour cream. The only cream cheese allowed is Philadelphia cream cheese because other brands are substantially higher in carbohydrates.

**Fats**

You are allowed butter and any types of vegetable oils. Consume the skin of any chicken or fish that you eat – the skin of cold-water fish such as salmon, tuna and trout is very high in “good” fat (such as Omega 3 fatty acid). Unless you are fat sensitive (see Chapter 9), trying to follow a low-fat version of a low-carb lifestyle will result in low energy levels and may impede your weight-loss progress.

**Herbs and seasonings**

All herbs are suitable to increase the flavours of your food during the first two weeks. You are also allowed unlimited amounts of salt and pepper. Some individuals worry about their salt intake because a high salt intake has previously been associated with heart disease and high blood pressure. While I am not telling
you to go crazy on salt, on the other hand you should not restrict salt intake while following a low-carb lifestyle.

For instance, restriction of salt intake has been recommended as part of the “healthy Food Pyramid balanced diet regime”. However, increased salt consumption with concurrent carbohydrates consumption can increase the level of sodium within your body. Increased sodium levels can lead to water retention. Water retention can then lead to increased blood volume, placing unnecessary stress on the heart, subsequently increasing blood pressure. Over a period of time, individuals with high carbohydrate and salt consumption may develop hypertension (high blood pressure).

As mentioned previously, a low-carb lifestyle has a natural diuretic effect – it reduces the amount of water retained in your body. Therefore, insufficient water intake while following a low-carb lifestyle may cause headaches due to dehydration.

**Sauces and salad dressings**

Salad dressings make salads and vegetables more appealing to carbohydrate addicts. Most oil-based dressings are low carb and are suitable for a low-carb lifestyle (for example, Paul Newman’s classic salad dressing). Most American low-carb diet books recommend using mayonnaise while following a low-carb lifestyle. But American and Canadian mayonnaise is mostly low in sugar (for example, Best Foods mayonnaise contains 1.3 grams of carbohydrates per 100 g), whereas mayonnaise made in Australasia is actually very high in sugar.

*So choose your mayonnaise carefully.*

Other sauces (such as ketchup and soy sauce) contain sugar, so stay away from them too. Gravy thickened with cornflour and flour should also be avoided.
**Berries**

Berries are the only fruits allowed while following a low-carb lifestyle. They were the fruits available to hunter-gatherers which existed in the wild, whereas other fruits have been created by humans since the start of wide-scale agriculture approximately 10,000 years ago. Berry-fruit intake should be restricted to ¼ cup per day (or 2 medium-sized strawberries) during the first two weeks.

**Beverages**

Tea and coffee are allowed during the first two weeks of your carb addiction rehab phase, but remember that caffeinated drinks create sugar cravings by lowering your blood glucose level. Most commercial diet drinks should be avoided because they are high in sugar or sweetened with aspartame.

**How much water should be consumed per day?**

Water consumption is vital for good health. Important things to remember about water include:

1. Water aids in excretion of toxins from the body;
2. Water reduces your body’s core temperature during exercise, hence preventing you from overheating;
3. As dehydration is one of the most common causes of headaches, consumption of plenty of fluid throughout the day is vital for general wellbeing;
4. Not drinking enough water may contribute to bad breath and constipation.

As a rule of thumb, you should consume between 2 to 3 litres of water per day.

- 1 glass of water = 250 mls
- 2 L of water is 8 glasses and 3 L is 12 glasses
The beverages you consume (Diet Coke, coffee, tea etc) should not be included in the total of your water consumption per day. If you find it hard to drink the amount of water prescribed above, try drinking 2 glasses of water with every meal.

5 meals x 2 glasses of 250 mls water = 2.5 L!

(If you carry your water bottle around with you and sip away during the day, you will find it hard not to keep staring at how much is left in the bottle – it is the equivalent to watching and waiting for a kettle to boil!)

**Your two-week carb addiction rehab phase “House Rules”**

- Eat no root vegetables
- Eat vegetables that grow above ground
- Eat vegetables that belong to the leaves and stem parts of the plant
- Exceptions: ¼ onion per day
- 150 mls of cream per day
- No nuts
- Unlimited amounts of meat; no mussels or oysters; dry cured bacon and ham off the bone only
- Cheese – limit of 200 g per day of cheeses that contain less than 1g carbohydrate per 100 g (for example, cheddar and mozzarella); no cottage cheese or sour cream; Philadelphia cream cheese is the only cream cheese allowed.
- Use butter and vegetable oils; keep skins on meat
- Use herbs, salt and pepper in your cooking
- Use Best Foods mayonnaise and oil salad dressing
- You are allowed two reduced carbohydrate protein bars (less than 3 g carbohydrate per bar) or two protein shakes per day (the powder mix should not contain more than 3 g carbohydrate per 30 g serving; mix each shake with 50 mls of cream from your total of 150 mls of cream per day
and 100 mls of water)

- You are allowed ¼ cup of berries per day
- You are allowed to drink tea and coffee
- Consume two to three litres of water per day
- Carbonated beverages are allowed but they should not contain aspartame*
- No alcohol
- Consume at least four to five protein meals per day
- Half a bar of low carbohydrate chocolate (containing no more than 4.4 g of carbohydrates per 50 g).

* Aspartame, an artificial sweetener commonly marketed under the trademark EQUAL or NUTRASWEET, may impede the weight-loss rate of individuals with fat sensitivity. Aspartame can also impede weight loss in non-fat sensitive low-carb dieters. Within Australasia, aspartame is normally referred to on food labels as sweetener number 951. A great number of sugar-free products are sweetened with aspartame – for example, chewing gums, soft drinks, jellies and sugar-free sweets.

Under the New Zealand regulations, artificial sweeteners are normally labelled:

Sweetener (951) = aspartame
Sweetener (955) = sucralose (trademark SPLENDA)
Sweetener (950) = acesulphame K

Alternative sugar-free products sweetened with sucralose and acesulphame K are now available in supermarkets and specialist low-carb stores such as NZ Low Carb. For example, Classic Diet Cola, Spree Diet Lemonade and Golden Circle Diet Fruit Drinks are all SPLENDA-sweetened soft drinks available from PAK ’N SAVE nationwide in New Zealand. Similarly, if you are worried about bad breath but cannot use chewing gums or mouth-freshener lollies, try the red Cinnaburst-flavoured Listerine strips sweetened with SPLENDA – other Listerine strips (such as Coolmint) are sweetened with aspartame.
Alcohol and the low-carb lifestyle

It is recommended that you do not consume any alcoholic beverages during the first two weeks of your low-carb eating regime. While your body is in ketosis, alcohol is the preferred fuel over fat (remember, fat is converted to ketone to produce energy via ketosis). While your body is using alcohol for energy, fat burning is temporarily halted, but once alcohol is used up, fat burning (via ketosis) will resume.

If you exercise after the consumption of alcoholic beverages (up to 8–12 hours after, assuming you are not suffering from a hangover!), fat burning will resume sooner than for someone who does not exercise (once the alcohol has been used up to fuel the exercise session). Alcoholic beverages that contain no or minimal carbohydrate, such as vodka, gin and tequila are recommended after the carb addiction rehab phase in preference to other high carbohydrate alcohols such as beer.

Most individuals find the effects of alcohol are amplified while following a low-carb lifestyle because, put simply, you get drunk faster while consuming minimal amounts of carbohydrates.

Alcoholic beverages can be broadly divided into two groups:

1. **Fermented alcoholic beverages**: For example, wine (fermented from grapes), beer (fermented from sugar), whisky and bourbon (fermented from grains, such as corn and wheat). Fermented alcoholic beverages are generally higher in carbohydrate counts and should be counted towards your total daily carbohydrate intake. Overconsumption of alcoholic beverages of this category may stop ketosis and it can take up to 72 hours for ketosis to resume. In this case, the human body has to burn up both the alcohol and the carbohydrates before resuming ketosis.

2. **Distilled alcoholic beverages**: For example, gin, vodka and tequila, which are also made from carbohydrate sources such as corn, wheat,
potatoes, barley and other vegetables and then distilled. However, the distillation process removes excess carbohydrates along with other impurities, leaving a high concentration of alcohol (or in chemical terms, ethanol). Without the carbohydrate component, the only thing a low-carb diet follower has to worry about is to use up the alcohol to resume ketosis. Even without exercise, ketosis will resume sooner than after consumption of fermented alcoholic beverages.

**Carbohydrate counts of alcoholic beverages**

<table>
<thead>
<tr>
<th></th>
<th>Carbohydrate (g) per 250 ml glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>beer (bitter, draught)</td>
<td>5</td>
</tr>
<tr>
<td>beer (lager)</td>
<td>9.25</td>
</tr>
<tr>
<td>spirits</td>
<td>0.25</td>
</tr>
<tr>
<td>red wine (dry)</td>
<td>0.75</td>
</tr>
<tr>
<td>white wine (dry)</td>
<td>0.75</td>
</tr>
<tr>
<td>white wine (medium)</td>
<td>2.75</td>
</tr>
<tr>
<td>white wine (sparkling)</td>
<td>2.75</td>
</tr>
<tr>
<td>white wine (sweet)</td>
<td>10</td>
</tr>
</tbody>
</table>

*Note: The above carbohydrate count information may vary between brands; the calculation of 4 to 5 glasses of wine per bottle may also vary with wine brands and glass sizes.*
Design Your Own Low Carb Meals

Breakfast

The options for breakfast are bacon, eggs and ham. A smoothie made with cream/low carb Trim milk (50 mls), water (100 mls), whey protein powder and berries (¼ cup or 2 strawberries) is also an excellent low carbohydrate breakfast.

You are very limited for the initial two weeks of your carbohydrate addiction rehab phase. Most of my clients have bacon and eggs, scrambled eggs, ham and eggs, protein smoothies or omelettes for breakfast. But if you grow sick of bacon and eggs after a few days, try one of my favourite recipes:

Low-carb bacon and egg muffins

- Place one egg in each slot of a muffin tray
- Add chopped-up bacon bits
- Add grated cheese
- Bake in the oven at 180 degrees C for 10 to 20 minutes.

After the first two weeks of your carb addiction rehab phase, you may choose to have reduced carbohydrate cereals (for example NZ Low Carb’s Zero Carb Cereal and Low Carb Hot Cereal) for breakfast. Reduced carbohydrate blueberry muffins or ham and cheese muffins can also be added to the hot breakfast options mentioned above.

To increase the fibre content during the carb addiction rehab phase, add some mushrooms to your morning meal. After the first two weeks, you can also have half a tomato as part of your breakfast.
**Mid-morning and mid-afternoon snack**

If you have read Chapter 5 The Carb Addiction Rehab Phase, you will have understood how lack of protein can lead to starvation and a slower rate of weight loss. I normally suggest my clients consume at least 4 to 5 protein meals per day.

The two most convenient protein snacks for the mid-morning/afternoon snack are the protein shake (mixed with 100 mls of water, 50 mls of cream/low carb Trim milk and 2 heaped tablespoons of protein powder) and the reduced carbohydrate protein bar. Another alternative is left-over dinner (such as cold chicken, cold roast lamb/beef) or cheese/feta cheese and lettuce wrapped with ham (off the bone and containing no more than 2 g carbohydrate per 100 g).

After the first two weeks of your carbohydrate addiction rehab phase, you may add reduced carbohydrate snacks such as low-carb biscuits or muffins to your mid-morning/afternoon snack. These snacks are mainly dietary fibre and provide very little nutrients, so make sure you consume them in addition to the protein foods mentioned above and not as an alternative.

**Lunch**

During the first two weeks of your carbohydrate addiction rehab phase, your lunches will consist of meat (chicken, fish, lamb, pork and beef) and vegetables/salad. If you eat out frequently, read Chapter 11 Eating Out the Low Carb Way again.

Make sure you use a dressing (such as an oil dressing or a low carbohydrate mayonnaise, such as Best Foods Mayonnaise) on your salad and meat. Otherwise, your meals may seem too boring and dry and you will quickly become sick of them.
After the first two weeks of your rehab phase you may want to add a slice or two of reduced carbohydrate bread to your lunch meal and make a low-carb sandwich. You can also add a savoury muffin (ham, avocado and cheese), made from low carbohydrate bake mix, to your lunch meal.

**Dinner**

If you cannot get “fancy” with breakfast and lunch due to time constraints, be creative with dinner. Food preparation is all about presentation – unimaginative food assembly will lead to nothing but boredom and may eventually even cause you to give up the low carbohydrate lifestyle. So try out a simple exercise incorporating the following foods:

– Two pieces of bacon
– Philadelphia cream cheese
– A chicken breast
– Spinach

If you place the cooked version of the above four items on a plate, they will look pretty boring; and when it comes to eating them, they will taste fairly dry (apart from the cream cheese) and tasteless.

Now visualise slicing the chicken breast into two halves, stuffing it with a mixture of cream cheese, spinach and bacon bits (using one piece of bacon) and wrapping the other piece of bacon around the chicken breast and baking it in the oven for 20 to 30 minutes at 180 degrees C.

The result is a delicious juicy chicken meal that leaves you feeling satisfied (provided you have cooked enough!), full and wanting more.

You can make as many of these chicken wraps as you like in your spare time and
store them in freeze bags. The next time you need dinner in a hurry, just get one or two of these pre-frozen chicken meals out of the freezer and heat them in the oven or microwave.

As a sauce to go with the meat, you can also make mushroom sauce with cheese, cream and mushrooms.

After the first two weeks of your carb addiction rehab phase, you may also add reduced carbohydrate products such as reduced carbohydrate potatoes, pita bread/pizza dough,* and bread to your dinner meal.

*For details on the NZ Low Carb range of reduced carbohydrate products, please refer to Chapter 18 Recipes.
**Desserts**

During the first two weeks of your carb addiction rehab phase, berries (¼ cup or 2 strawberries), fresh whipped cream and aspartame-free plain gelatin make great desserts. For example, you can blend fresh cream with berries in a food processor, and add artificial sweetener such as NZ Ketogenic Sweetener (made from acesulphame K) if desired. Otherwise, make unsweetened gelatin, sweeten it with NZ Low Carb Sweetener and pour the whipped cream/berries mixture on top.

After the first two weeks of your rehab phase, you may want to invest in an ice-cream maker, so here’s a recipe to try out should you buy one:

**NZ Low Carb Ice Cream**

- 100 g of NZ Low Carb Sweetener
- 2 eggs
- 300 mls of cream

- Blend until thick in a blender
- Chill for 12 hours in a refrigerator
- Pour into pre-frozen compartment of ice-cream maker

Total servings: 4 (3 g of carbohydrate per serving)
Optional: Add berries, low carbohydrate chocolate or any essences
# A sample meal plan

<table>
<thead>
<tr>
<th>Meal</th>
<th>Meal Content</th>
<th>Supplement(s)</th>
</tr>
</thead>
</table>
| 1      | Breakfast  
Bacon and eggs OR  
Scrambled eggs OR  
Omelette OR  
Low Carb Cereal OR  
Berries Smoothie (50 mls of cream, 100 mls of water, 2 tablespoons of NZ LOW CARB low-carb shake mix, ½ cup of berries) | 1 x Hoodia Cactus  
2 x DAILY HEALTH multivitamins                      |
| 2      | Mid-morning  
Protein Shake (50 mls cream, 100 mls water, 2 tablespoons of NZ LOW CARB low-carb shake mix) OR  
1 low-carb protein bar                               |                                                    |
| 3      | Lunch  
Meat and vegetables/salad                                                                            | 1 x Hoodia Cactus  
3 x CR1000 vitamin C tablets                         |
| 4      | Mid-Afternoon  
Protein Shake (50 mls cream, 100 mls water, 2 tablespoons of NZ LOW CARB low-carb shake mix) OR  
1 low-carb protein bar                               |                                                    |
| 5      | Dinner  
Meat and vegetables/salad                                                                            | 1 x Hoodia Cactus  
2 x Ultimate Antioxidants Supreme                    |
| 6      | Dessert  ½ bar of low-carb chocolate                                                                     |                                                    |
The importance of protein consumption

Many low-carb diets ignore the importance of protein consumption, which plays a vital role in low-carb dieting. Consumption of protein stimulates the release of glucagon – remember, while insulin lowers blood glucose levels, glucagon stabilises them – and so minimises irregularities in blood glucose levels meaning a more stable blood glucose level and minimal sugar craving and hunger. Regular consumption of protein is the key in hunger control and hunger control is the core of any weight-loss programme.

The term “thermogenic agent” refers to anything that will increase energy expenditure within the human body, hence creating more heat (“thermo” means heat and “genic” means generating). Protein consumption by itself is a thermogenic agent. When nutrients are consumed and absorbed they need to be metabolised, and the energy cost of metabolising one gram of carbohydrate and fat is less than the energy cost of metabolising one gram of protein.

According to one university study, the energy cost of metabolising one gram of protein is in fact about two and a half times that of carbohydrates and fat. This is known as the Diet Induced Thermogenic Effect. Therefore, by consuming more protein and less carbohydrate, you are forcing your body to burn more fat for energy (your body will have to burn more fat because there is no carbohydrate available to be burned while following a low-carb diet).

If I eat less, will I lose more weight?

During the early stages of any low-carb dieting, you will experience less hunger and better energy levels when ketosis kicks in. After a while, a combination of food boredom and reduced appetite will lead to lower protein and overall food intake. As a result, weight loss will slow down due to your body entering the starvation phase of ketosis.
Every individual has a minimum protein intake – below this minimum protein level, your body will sense the reduced protein intake and within one to two weeks initiate a self-induced starvation state. When your body enters starvation, very little fat will be used for energy, while muscle is broken down for energy instead.

This is why calorie control weight-loss programmes do not work. Calorie control or portion control restricts energy input but these programmes also require low calorie dieters to increase their activity levels (by increasing or starting exercising), hence increasing energy expenditure. Initially, their bodies will get a “shock” and immediately burn more calories (glucose first and fat second). After a while (about four to six weeks), their bodies adapt to the changes and establish a new equilibrium, fighting the weight loss, which eventually comes to a halt.

The solution that any calorie control programme provides in the above case is for the dieter to immediately drop more calories (hence restricting energy intake) and increase activity levels (hence increasing energy expenditure). Eventually, there is no more room for calorie cutting and there are not enough hours in the day to do more exercise, leading to a weight-loss plateau (normally between 8 to 12 weeks after commencement of a calorie control weight-loss programme).

To understand the process behind this phenomenon, just visualise your body energy system as your personal financial account.

For example, you earn $2000 per week, you have no money worries and life is good. One day, the company you are working for experiences cash-flow problems and your boss offers you the choice of either leaving your job immediately or taking a pay cut. You decide to take a pay cut of $1000 per week, but following this cut you can no longer afford to live as you did formerly and have to reduce your spending and adopt a more modest lifestyle. Your reduced income is equivalent to your reduced calorie intake while your reduced spending is equivalent to the body’s reduced fat-burning activity or energy expenditure.
So the conclusion is, “the less you eat, the less you lose”. In other words, this contradicts the core of any calorie control programme, which holds to the principle of “the less you eat, the more you lose”.

What happens is that reduced protein intake fools the body into believing there is a period of starvation ahead and that it needs to switch from fat burning to protein burning. To understand this, let’s look at your personal financial position as an example again. Assume that you have just lost your job and you will have no income until you start a new one in four weeks. In the meantime, you still need to cover all your living expenses but have no money in your bank account, only some shares inherited from your parents.

Let’s say you own:

• 1000 Company ABC shares valued at a market price of $1.00 per share
• 1000 Company DEF shares valued at a market price of $5.00 per share

Your accountant advises you to sell your 1000 Company ABC shares first and keep the more expensive shares.

How does this analogy relate to your body’s preference to burn muscle over fat during a period of starvation?

• One gram of fat yields 9 calories = Company DEF shares valued at $5.00 per share
• One gram of protein/muscle yields 4 calories = Company ABC shares valued at $1.00 per share

During starvation (a situation identical to you losing your job and having no available money in your bank account), your body will burn protein over fat because protein yields less energy and fat is saved for later, just in case the starvation extends for a long period of time.
So the moral of the story is:

Eat more protein and eat at least 4 to 5 meals of protein per day to maximise fat burning and minimise hunger.

How much protein should you eat?

As mentioned earlier, if a low-carb dieter consumes less protein than he or she needs, then his or her body will enter the starvation phase, bringing weight loss to a halt. So, how much protein do you need? The World Health Organization’s Recommended Daily Allowances stipulates 0.75 g protein per kg body weight. Other studies have suggested a figure as high as 3.75 g protein per kg body weight.

How much protein a person needs is obviously related to his or her activity levels. Here are some guidelines I give to my clients:

- Individual who does not exercise – 1 g protein per kg body weight per day
- Individual who engages in cardiovascular exercise but no resistance training – 1.5 g protein per kg body weight per day
- Individual who engages in resistance training more than twice weekly – 2 g protein per kg body weight per day.

For example, a 70 kg person who only runs three times weekly will require (70 x 1.5 g = 105 g) protein per day.

- 20 g protein = a piece of meat approximately the size of your palm
- 30 g protein = a piece of meat approximately the size of your palm plus your fingers (closed)
- 40 g protein = a piece of meat approximately the size of your palm plus your fingers (open)
- 1 egg = 5–6 g protein
Note: Considering the variation in meat protein content and individuals’ hand sizes, the above guidelines are merely rough estimates.

**What can I use as a protein meal?**

Meat, eggs, ham and salami are all excellent as a protein snack. I also suggest a 30% fat/70% protein ratio for your meals for hunger control purposes (for example, wrapping a piece of cheese with ham). Other protein snacks include commercially available flavoured whey protein drink. Low carbohydrate protein bars are also an excellent protein snack. When purchasing ham or cheese for in-between-meals snacks, make sure you check out their carbohydrate contents. For example, ham off the bone is much lower in carbohydrate than processed ham slices, while processed cheese slices are also higher in carbohydrate than cheese sliced off a block.

**Sausages**

Sausages normally contain carbohydrates (sugar, maltodextrin, gluten, flour), used as a binder and to provide flavour and texture. Therefore, sausages are off limits for the low-carb lifestyle. Nevertheless, some low-carb sausages are available (about 0.6 g carbohydrate per sausage). I know of two brands, Beef Supreme (available from Mad Butcher stores) and Verkerk Sausages (available from the supermarket). There are sure to be others around, so look out for them – any sausages that contain less than 1 g carbohydrate per sausage will be fine but just make sure you include them in your daily carbohydrate count.
CHAPTER SIX

After the First Two Weeks
What to do after the first two weeks

Congratulations! You have just survived two weeks of the carb addiction rehab phase. By now, you will have lost between 2 to 5 kilograms, experienced reduced symptoms of indigestion and hay fever, have lots of energy to spare and feel relieved from the daily torture of hunger pain and food cravings.

You now face several options:
1. Keep going with the carb addiction rehab phase and maintain the same rate of weight loss as the first two weeks.
2. If you want to increase the variety of your food groups, you may add a few low glycemic index foods.*

* Glycemic index is a relatively new nutritional concept, first introduced by Professors David Jenkins and Tom Wolever at the University of Toronto in the early 1980s. Glycemic index is a numerical way of describing how fast a carbohydrate food affects your blood glucose level. A high glycemic index food causes a rapid rise in blood glucose levels and a low glycemic index food causes a slower rise.

Option One: Toughing it out for another two weeks

If you love the rate of weight loss you experienced during the carb addiction rehab phase and have no problem sticking to the food regime outlined in the “House Rules” in the previous chapter, then keep going for another two weeks. At the end of Week Four, reward yourself with a “free” day. For 24 hours, you are allowed to consume unlimited amounts of carbohydrates and enjoy all the foods you have been craving, such as bread, pizza, pies or alcohol – in fact, anything goes!
The “free” day

But first let me explain the rationale behind this “free” day. Believe it or not, having this day off will actually speed up your weight loss.

Being in ketosis for more than three to four weeks fools your body into thinking that there is an extended period of starvation ahead, and it will then hold on to the fat and start burning muscle, resulting in slower weight loss. This situation is very similar to that when your protein consumption is low, which also results in reduced weight loss. Therefore, having a “free” day will remove you from ketosis, so that when you resume ketosis after 48–72 hours you will experience a greater rate of weight loss because your body will no longer be preparing itself for starvation.

Do not weigh yourself for three days (the normal time to resume ketosis is 72 hours) after the “free” day – when you do, you will find that your weight will have increased between 1 to 5 kilograms (depending on your starting body weight and how much carbohydrate you have consumed on your free day). Don’t worry, all you have gained is water weight. For every gram of carbohydrate you stored in the form of glycogen, your body will absorb 2.7 g of water.

If you wish to resume ketosis sooner, 60 minutes of cardiovascular exercise will assure you burn off your glycogen store faster, and ketosis should resume within 24 hours (obviously allowing for some variation among individuals).

While this “free” day will allow you to satisfy all your cravings, you will nevertheless find that you can no longer consume as much as you used to or wanted to. You will also feel tired, sleepy and bloated after consuming a large amount of carbohydrates. These sensations will serve to remind you of just how terrible you felt before you started your low-carb lifestyle.

If you’re wondering whether you will store fat from this free day the answer
is “no”. Since your muscles and liver have been depleted of glycogen over the previous four weeks, it could take up to 72 hours to fill them up again. Fat storage is not possible while your body is busy trying to fill up the glycogen stores of your liver and muscles.

**Option Two: Increasing your carbohydrate intake**

Unless you have achieved your goal within the first two weeks of your carb addiction rehab phase, I advise against adding any starchy carbohydrates to your eating regime. Instead, add one, some or all of the following foods to your daily regime:

- tomato = 6 g carbohydrates per average-sized tomato
- avocado = 6 g carbohydrates per average-sized avocado
- capsicum = 6 g carbohydrates per average-sized capsicum
- a piece of pumpkin (about half the size of your palm) = 6 g carbohydrates
- a cup of berries = approximately 7 g carbohydrates
- reduced carbohydrate products such as NZ Low Carb low-carb bread, biscuits, muffins, cakes, pita bread and ice cream. For a list of low-carb products available in New Zealand, visit our store at 1197–1205 Great North Road, Pt Chevalier Arcade, Pt Chevalier, Auckland or online at www.nzlowcarb.com.

You should be aware that by adding more carbohydrates to your original 20 g per day carb addiction rehab phase, your weight loss will slow down. To find out by how much, you should experiment with different carbohydrate levels. I suggest increasing your carbohydrate count between 5 to 10 g of carbohydrates per week, recording your weight loss for the week, and you will soon find out how much effect the additional carbohydrates are having on your weight loss. For example:

Weight loss for Week One = 2 kg
Weight loss for Week Two = 1 kg
Total weight loss for Week One and Two = 3 kg
Average weight loss for Week One and Two = 1.5 kg

I normally estimate the weight loss for Week Three by halving the average for Week One and Two = 0.75 kg

*Note: Assuming your activity level remains the same.*

If your carbohydrate intake for Week Three is 25 g per day and your weight loss is 0.5 instead of 0.75 kg as calculated by the formula outlined in the previous paragraph (based on when your carbohydrate consumption was 20 g), then you can assume that for every 5 g of carbohydrates you add to your total daily carbohydrate intake, your weight loss will be 0.25 kg less than the previous week.

Alternatively, if you decide to increase your carbohydrate intake in Week Three to 30 g per day and your weight loss is 0.25 instead of 0.75 kg as calculated by the formula outlined in the previous paragraph (based on when your carbohydrate consumption was 20 g), then you may conclude that for every 10 g of carbohydrate you add to your total daily carbohydrate intake, your weight loss will slow down by 0.5 kg.

Of course, all the above-mentioned figures are hypothetical and your weight-loss progress will vary according to the following factors:

1. Individual differences (such as metabolic rate);
2. Age;
3. Activity levels.

There is nothing worse than gaining weight but not knowing what to do to control the gain and being unable to regulate your eating habits. However, once you gain
control of your weight-loss rate and daily carbohydrate intake, you can be sure that your low-carb journey will be a smooth ride because you are now in the driver’s seat – you control your rate of weight loss!

Which option should you choose?

I always advise my clients to select the first option and tough it out for four weeks and then take the “free” day. Even if someone chooses the second option of slowly increasing their carbohydrate intake, adjusting to the right rate of weight loss for them at the same time, I normally still suggest that they take the “free” day.

Many of my clients have tried various other calorie control diets in the past, but most of these diets failed to address their obsessive behaviour towards food (and I am the first to admit that I am an obsessive eater!). However, the low-carb lifestyle suits individuals with such obsessive behaviour because of the unlimited amount of protein permitted on the eating regime, allowing them to indulge in as much protein foods as they want and still manage to lose weight at the same time.

Admittedly, the two-week carb addiction rehab phase will deprive you of your freedom – the freedom to consume carbohydrates. This is equivalent to you committing a crime and getting locked up in prison with no say over when you sleep, what you do and what you eat. Nevertheless, prisoners can be reformed, and when they are ready to rejoin society again they will be released. Similarly, once the two-week carb addiction rehab phase is over, you are once again entrusted with the freedom to control your carbohydrate intake.

However, this is equivalent to a criminal being let out of prison to go straight back into a life of crime. Can you honestly allow a criminal to commit a small crime but simply warn them not to commit a larger crime? The answer is “no” of course. Likewise, can you be trusted with a small amount of carbohydrates but not to indulge on bigger amounts?
Once a carbohydrate addict, always a carbohydrate addict!

Similarly, there is no such thing as one or two drinks for an ex-alcoholic – it is either “no drink” or “lots of drink”.

The first option of allowing a “free” day is the better one, because it sets in place a time period for unrestricted carbohydrate consumption. After that prearranged 24-hour period no more carbohydrates are to be allowed, removing the “freedom” factor immediately.

The “Game Plan”

**Option One:**

Stick to the carb addiction rehab phase for four weeks and then have a “free” day. Repeat the four-week cycle until you achieve your goal weight.

**Option Two:**

Stick to the carb addiction rehab phase for two weeks and then gradually increase your carbohydrate intake by 5 to 10 g per day, depending on your weight-loss progress. Then have a “free” day at the end of four weeks. Repeat the cycle.

**Ketostix**

Available from most pharmacies, ketostix are test strips commonly used to find out whether you are burning fat for energy through lipolysis/ketosis. When dipped into a sample of your urine, these strips change colour and indicate the amount of ketone in it. The different levels can range from negative to trace to deep purple. Negative normally indicates that no ketone is being produced and “trace” obviously means there are trace amounts of ketone in your urine.
Some clients can have negative ketostix readings but still manage to lose weight. However, my experience with clients tells me that a negative ketostix reading can often discourage someone from continuing with the low-carb programme. Weight loss and measurement loss (from waist and hips), and body composition tests (bodyfat measurements), are the best way to measure your progress, not ketostix. So I recommend avoiding ketostix to assess progress.
CHAPTER SEVEN

Part A: How to Track Your Progress
Part B: The Exercise Connection
Part A

How to Track Your Progress

It is absolutely essential that you keep a food diary while following a low carbohydrate lifestyle, especially if your goal is weight loss. Keeping a food diary allows you to review your food intake and helps you check for any “hidden carbohydrates” you might have consumed. If you are following your low carbohydrate regime with a friend, your spouse or a low carbohydrate weight-loss coach, they can certainly keep you honest. Here is a sample of how your food diary should be laid out:
### How to Track Your Progress and The Exercise Connection

Date: ______________         Day: _______________

<table>
<thead>
<tr>
<th>Meal</th>
<th>Meal Content</th>
<th>Supplement(s)</th>
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<tbody>
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</table>

General comments: _________________________________________________
Weighing yourself is not an effective way to track your progress. The main points to note with weighing are:

1. Your weight can vary by up to 2 kilograms from morning to night.
2. Constipation can increase your weight and may occur while following a low-carb lifestyle, especially if your dietary fibre intake is low.
3. One to two weeks before a woman’s menstrual period, weight gain can occur due to water retention, which may counteract the weight loss achieved by following a low carbohydrate lifestyle. The net result may be a lack of weight loss.
4. Medications such as hormone replacement therapy (HRT) may also cause water retention and affect weight loss.

Consequently, weighing by itself is the worst way to monitor your progress, while hip and waist measurements are the best indicators (unless you are performing heavy resistance exercises on your buttock muscles). According to my experiences as a low-carb weight-loss coach, a one-centimetre loss around your hips or waist is equivalent to approximately one kilogram’s worth of fat loss. So, whereas one to two weeks before a woman’s menstrual period she may find no loss around the hips (due to water retention), she may lose inches around the waist on a low-carb eating regime.

The best method for monitoring your weight-loss progress is with bodyfat measurement. The two approaches commonly used are:

**Bodyfat Calipers Measurement**

Bodyfat calipers are the most commonly used method for body composition measurement. Calipers are used to measure skinfolds,* which are an indicator of bodyfat. Measurements range from between three to seven skinfolds.

*Skinfolds = the total thickness of skin and the fat beneath it, known as subcutaneous fat.*
The skinfolds total is then converted into a bodyfat percentage by referring to a table. For example, if a person has a bodyfat measurement of 15% and his weight is 100 kg:

\[
\text{Fat mass in kg} = \text{Bodyfat \% } (0.15) \times \text{Total Body Weight (100 kg)} \\
= 15 \text{ kg}
\]

\[
\text{Muscle mass in kg} = \text{Total Body Weight (100 kg)} - \text{Fat Mass (15 kg)} \\
= 85 \text{ kg}
\]

Possible sources of error due to the use of bodyfat calipers:

1. The tension of the spring attached to the calipers may vary according to their age and their frequency of use and so affect bodyfat percentage results dramatically. Calipers should ideally be replaced one month from the date of purchase (hardly a financially viable option!).
2. Variations between the individuals carrying out the measurements can indirectly affect the bodyfat percentage result (for instance, the spot of “pinching” may vary).
3. Three spot tests normally yield a lower bodyfat percentage compared to four spot tests. Seven spot tests can be used to indicate the fat distribution amongst various areas, especially the lower body.

**Bio-Electric Impedence (BIA) body composition test**

Although a reliable BIA body composition machine can cost between NZD$4000 to $5000 (compared to under $100 for bodyfat calipers), this is a far more accurate way of measuring bodyfat percentage. While there are some household bio-impedence testing units available at approximately NZD$200, in my opinion these are grossly inaccurate. Readings from the BIA machine are entered into a software program to calculate bodyfat percentage. (Unfortunately, the science behind BIA
machines is beyond the scope of this book, but for further information visit the following webpage: http://nutrition.uvm.edu/bodycomp/bia/).

Possible sources of error with the BIA test relate to water levels. A person intending to undertake a body composition test should avoid beverages or activities that may cause dehydration – such as caffeinated beverages (tea, coffee), alcohol, and exercise – 24 hours beforehand. Sicknesses such as colds and the flu may also affect dehydration levels.

Part B
The Exercise Connection

If you used to be a gym-goer, you should consider reactivating your membership. If you were a swimmer, runner or cyclist, then get back into training – but make sure you take it easy at first. Exercise is an essential ingredient of your low-carb weight-loss lifestyle.

The “I have no time” excuse

Many of my clients tell me they have no time to exercise. But exercising does not necessarily mean going to the gym or running, it can just involve some very simple manipulations of your lifestyle. For example:

1. Try parking your car further than usual from your workplace, making sure it involves at least five minutes’ walk. Do your sums: 5 minutes x 5 days (assuming 5 working days) x 2 (to and from work) = 50 minutes. This is 50 minutes of exercise per week you were not doing before.

2. Next time you do your groceries, take a backpack with you and park your car five minutes away. If you usually only go food shopping once a week, try splitting your shopping into two trips rather than one: 5 minutes x 2 trips x 2 (to and from the supermarket) = 20 minutes’ exercise per week.
3. Take the stairs instead of the lift or elevator whenever possible.
4. On the weekends, walk to the nearest supermarket or newsagent to pick up your papers: 5 minutes x 2 days x 2 (to and from the shop) = 20 minutes’ extra exercise weekly.

Your total extra walking (from 1, 2 & 4 above) = 50 minutes + 20 minutes + 20 minutes = 90 minutes. And if a person goes to the gym for 30 minutes 3 times per week, their exercise time is also 90 minutes!

**The million-dollar question**

Can you be bothered making the changes to your daily life suggested above? They are free, no cost involved, except for the time you may spend watching the news or *Shortland Street* every night!

*Note: A pedometer is also a useful device for assessing your activity levels by giving you a total of how many steps you have taken for the day or the week.*

**Can I lose weight without exercising?**

From my own experience of prescribing thousands of low-carb weight-loss plans, I have found that most of my clients are able to lose between 8 to 10 kilograms without exercising and at a weight-loss rate of 0.75 kg per week. In fact, one of my clients lost a whopping 18 kg without any exercising at all!

**Cardiovascular exercises**

At this point it is important to clarify the definition of cardiovascular exercises. Cardiovascular exercises include running (on the road or on a treadmill), cycling (on the road or exercise bikes), rowing, boxing and so on. They can be further divided into aerobic and anaerobic exercises.
Aerobic exercises are those that utilise oxygen to generate and burn fuels. In a non-ketosis situation, your body will first use glycogen/carbohydrate as fuel, the second in line is fat, and then eventually muscle. In a state of ketosis, your body will bypass glycogen (as there is none!) and go straight to using fat as a fuel.

Anaerobic exercises are activities that generate and burn fuel in the absence of oxygen. Because fat is turned into energy via oxidation, without oxidation (and oxygen!) there can be no fat burning. The main fuels for anaerobic exercises are glycogen/carbohydrates and protein. Typical examples of anaerobic exercises are weight training and endurance sports.

*Note: Any activity can be a combination of both aerobic and anaerobic exercise depending on the intensities and heart rates involved.*

**Heart Rate Zones**

To work out your aerobic Heart Rate Zones, you need to know your maximum heart rate.

**The non-athletes’ maximum heart rate calculation**

Male: Maximum heart rate = 220 minus your age

Female: Maximum heart rate = 224 minus your age

Aerobic exercises Heart Rate Zone = 65 to 75% of your maximum heart rate

Anaerobic exercises Heart Rate Zone = 75 to 85% of your maximum heart rate

For example, if you are a 25-year-old male, your maximum heart rate = 220 - 25 = 195 beats per minute (bpm)
Your aerobic exercise Heart Rate Zone = (0.65 x 195 bpm) to (0.75 x 195 bpm) = 127 to 146 bpm

Your anaerobic exercise Heart Rate Zone = (0.75 x 195 bpm) to (0.85 x 195 bpm) = 146 to 166 bpm

**The exercise game plan**

According to contemporary theories, to maximise *fat burning*, you should exercise within the *aerobic* exercise Heart Rate Zone. To strengthen your heart for *better fitness*, you should exercise within the *anaerobic* exercise Heart Rate Zone. For endurance, it is recommended that you train close to the maximum heart rate.

Personally, I recommend spending 50% of your training time within the aerobic exercise Heart Rate Zone, 40% within the anaerobic exercise Heart Rate Zone, and 10% close to your maximum heart rate. Here’s an excellent example:

Over a 10-minute period:

5 minutes = 65 to 75% of your maximum heart rate
*On a treadmill, this will be equivalent to 6.5 km/hour speed*

4 minutes = 75 to 85% of your maximum heart rate
*On a treadmill, this will be equivalent to 7–8 km/hour speed*

1 minute = close to your maximum heart rate
*On a treadmill, this will be equivalent to 9–10 km/hour speed*

Repeat the above cycle as many times as you like. This recommended routine will help you burn fat and increase your cardiovascular fitness as well as your endurance.
The athletes’ maximum heart rate calculation

Athletes have different maximum heart rates compared to non-athletes because their hearts possess a more efficient ability to pump blood. There are several ways to measure a true maximum heart rate, rather than using a “one size fits all” formula.

You can measure your true maximum heart rate simply by using a heart rate monitor* and a 400-metre running track. Jogging at a steady pace, gradually increase your speed at each 100-metre interval, so that eventually you are sprinting as hard as you can over the final 100 metres. Record your highest heart rate reading during the process.

Repeat the 400-metre jog/run/sprint after 5 minutes’ rest. Record the highest heart rate reading again. Add the two readings together – the average of the two readings is your true maximum heart rate. You should check your maximum heart rate every fortnight, as you become fitter.

*A heart rate monitor is a device that consists of a strap that fits around your ribcage (two to three inches below your nipples) which contains a sensor that can measure your heartbeats. The readings are then transmitted to a watch that you wear around your wrist.

Resting heart rates

This is your heart rate reading while you are at rest (for example, sitting down). The recommended time to record your resting heart rate is immediately upon waking in the morning. You can use a heart rate monitor, or alternatively press your index and middle fingers against the large vein on the underside of your wrist or against your jugular vein.* Count your pulse for 15 seconds and multiply the reading by 4 to work out your pulse rate per minute. Three readings should be
taken; the average of the three figures is your resting heart rate.

* Your jugular veins are located underneath your jaw on either side of your throat.

A normal healthy person has a resting heart rate reading of approximately 65 bpm. An athlete has a resting heart rate of around 40 bpm. An elevated resting heart rate over 3 days indicates overtraining, and you should take at least a 3-day break from further training. A resting heart rate reading above 70 to 80 bpm may indicate high blood pressure, obesity or heart disease.

**To weight train or not to weight train?**

If your main objective is fat reducing/toning, do not weight train more than once per week. Most exercise experts maintain that the more muscle an individual has, the more calories will be consumed or burned. This is true! However, if you are doing insufficient cardiovascular exercise, minimal fat will be utilised as fuel, hence invalidating the muscle/fat burning connection outlined above.

If you can only spare a certain amount of time per week for exercising (for example, 4 sessions of 45 minutes), weight training will only serve to distract you from cardiovascular exercises (the main vehicle for fat loss). For example:

2 sessions weight training = 45 minutes x 2 = 90 minutes
2 sessions of fat burning = 45 minutes x 2 = 90 minutes

**Equal effort on both muscle building and fat burning!**

However, if you eliminate weight training and perform cardiovascular exercises only:

4 sessions of fat burning = 45 minutes x 4 = 180 minutes
Double the fat burning = double the fat loss!

Therefore, if you are stuck for time, concentrate on fat-burning exercises, and when you have reached your fat-loss objective then reintroduce more sessions of resistance training.

Many of you may be concerned about muscle wasting with the elimination of weight training from your schedule. Don’t worry – muscle loss is minimal when you consume a high level of protein while following a low-carb lifestyle.

Take the case of a female low-carb dieter who weight trains on a regular basis, thereby increasing her muscle mass, while losing bodyfat at the same time – her weight loss will be minimal. This lack of weight loss may discourage her from continuing with the low-carb lifestyle, because of her belief that her low-carb eating regime is not working.

There are several ways to combat this problem:

1. Keep the repetitions of your weight training high (15 repetitions and above) to minimise muscle gain.
2. Reduce weight training to once per week.
3. Use the body composition test rather than weighing as a progress check.

The myth of “spot reduction”

You may not be familiar with the term “spot reduction” but you may well have wasted money or time on “spot reduction” gimmicks you have seen in TV commercials – for example, some super abdominal muscle-training machine. “Crunches” are an abdominal exercise based on the idea of spot reduction performed by many gym-goers, while “lunges” are another popular spot reduction exercise.
As far as weight loss is concerned, spot reduction is a myth! It was a concept devised to prey on the emotions of individuals conscious of their weight or appearance. Spot reduction does not work because only aerobic exercises burn fat – lunges and crunches raise your heart rate to the anaerobic exercise zone, hence inhibiting fat burning. Aerobic exercises (such as walking, running or cycling) are still the best way to reduce bodyfat proportionally over your whole body, whereas fat burning on a certain spot (in other words, “spot reduction”) is a physical impossibility.
CHAPTER EIGHT

Dietary Supplements
Essential dietary supplements for carb addiction rehab phase:

(Please visit www.nzlowcarb.com to purchase these products)
1. Whey/soy protein supplement
2. Low carbohydrate protein bars
3. Slow-released multivitamins
4. Hoodia cactus
5. Slow-released vitamin C
6. Antioxidants
7. NZ Low Carb Chocolate

Whey protein supplement

Whey protein – a by-product of the cheese-making process which used to be fed to farm animals – is currently the most commonly used protein supplement. New Zealand supplies a large portion of the world’s multi-million-dollar whey protein industry and many overseas sports nutrition companies choose our whey protein as raw material in their whey protein products. Whey protein is the preferred protein supplement because of its high absorption rate (it is absorbed better than egg whites, amino acids, milk protein and soy protein). Whey protein also possesses other health benefits including strengthening the immune system.

There are two different types of whey protein: whey protein isolate and whey protein concentrate. Whey protein concentrate is cheaper but higher in carbohydrate and lower in absorption compared to whey protein isolate. Whey protein isolate (a higher-quality whey protein) is an excellent protein supplement for individuals with a dairy allergy (the most common type being an allergy to lactose, a milk sugar). Some whey protein mixes can contain both isolate and concentrate.

Whey protein drink is excellent as a protein snack or as a breakfast substitute.
Available in powder form, it is instantised (i.e. you don’t need a blender to mix up your protein shake!). Adding berries to your protein shake makes an excellent berry smoothie and it is also a good alternative to a cooked breakfast.

Whey protein drink mix usually contains between 0.9 g to 5 g carbohydrates per serving depending on the brand and flavour (chocolate-flavoured shake mix contains cocoa powder and is naturally higher in carbohydrate). I recommend a whey shake mix that contains between 0.9 g to 3 g of carbohydrates, limited to no more than 3 protein drinks per day (so you can keep your carbohydrate level below 20 g).

**Soy protein supplement**

Soy protein supplement contains a plant substance known as isoflavone, which is a “plant oestrogen” with a chemical structure very similar to the female hormone oestrogen. Isoflavone can be used to help regulate the oestrogen levels of menopausal women and women with menstrual problems. Consequently, some practitioners favour the use of soy protein supplement over whey protein because of these health benefits to women.

There are two different types of soy protein supplement: soy protein isolate and soy protein concentrate. Soy protein concentrate is lower in protein, higher in carbohydrate and lower in absorption rate compared to soy protein isolate.

Soy and whey protein are both very useful in low carbohydrate baking as a substitute for gluten, a protein in flour. Because most low carbohydrate baking mixes (a flour substitute for baking muffins, biscuits etc) lack gluten, foods made with these mixes are normally not thoroughly cooked, so whey and soy protein help to extract moisture from them. However, purely from a taste point of view, whey protein is much nicer than soy protein, and I highly recommend whey over soy protein for a delicious-tasting smoothie/shake.
Over the years, scientists have developed ways to alter the genetic structure or DNA of soy beans in order to combat various weather conditions and pests that may damage them. So when buying a soy protein supplement, make sure to check that the soy beans the manufacturer has derived the soy protein from are actually non-genetically modified (normally labelled “Non-GM”). Companies that wish to protect consumers from ingesting genetically modified soy products (which have been shown in some studies to have negative health effects) use DNA testing to make sure their beans have an identical genetic structure to that of wild soy beans – a process known as the Identity Preserve Program.

**Vitamins and minerals**

**Multivitamins**

A multivitamins formula is an essential component of a low carbohydrate lifestyle. In fact, everyone (whether you are following a low-carb eating regime or not) should take multivitamins tablets (my recommendation is one to two tablets per day depending on your activity level and the brand of multivitamins formula you are taking). Nowadays, most foods are processed and foods that were once high in vitamins and minerals no longer contain the same levels due to modern-day food-processing practices, preservatives and pesticides.

Minerals such as selenium are an essential ingredient of a multivitamins formula (recommended dose is between 200 to 400 micrograms per tablet). Due to New Zealand’s volcanic geography, our soil is very deficient in selenium. Consequently, plants that grow on our land are also low in selenium. Selenium* deficiency may decrease your body’s ability to destroy harmful free radicals, high levels of which have been associated with heart disease and cancer.

*However, excess selenium consumption is also associated with hair loss.*
Common multivitamins and minerals formulae contain two different types of vitamins: fat soluble (vitamins A, D, E & K) and water soluble (vitamins B & C). Excess fat-soluble vitamins are stored in fat tissues within your body and can cause toxicity. On the other hand, excess water-soluble vitamins will be excreted. Therefore, it makes more sense to buy a slow-released multivitamins formula, as vitamins (especially the water-soluble ones) are absorbed over a longer period of time, meaning you have a better chance of absorbing them instead of excreting expensive brightly coloured urine (loaded with water-soluble vitamins).

The Recommended Daily Allowance (RDA) levels of vitamins and minerals were set by the World Health Organization back in the 1970s and were based on subjects who were “couch potatoes”. I normally recommend twice these RDA levels to my clients. The next time you buy a multivitamins and minerals formula, make sure the levels of vitamins and minerals are approximately 200% that of the RDA level.

You don’t necessarily pay more for a slow-released formula either – a bottle of slow-released multivitamins containing 60 tablets generally costs between NZD$30 to $50.*

* NZ Low Carb’s Daily Health multivitamins and minerals formula is a slow-released product, available from www.nzlowcarb.com

**Hoodia cactus – nature’s appetite suppressant**

The Hoodia plant is a succulent that grows (up to six feet tall) throughout the semi-arid areas of Southern Africa. It has large, beautiful flowers, but the flowers usually have rather a bad smell since they are pollinated by flies rather than bees. It is also a natural appetite suppressant that will help you control your cravings and effectively manage your weight-loss programme.

In 1937, a Dutch anthropologist studying the San indigenous people of the
Kalahari Desert (near what is now the South Africa–Namibia border) noted that these bushmen – renowned for their survival skills, rock art, trance-dancing and mystic symbiosis with their semi-desert or savannah environment – did not eat on their two- to three-day hunts; instead, they munched on the stem of the Hoodia to suppress their hunger and thirst.

Three decades ago, scientists at South Africa’s Council for Scientific and Industrial Research began studying the Hoodia plant and noticed that lab animals eating it lost weight but otherwise did well. Other clinical trials of the succulent have shown that obese subjects can reduce their caloric intake by 30–40%. Significant weight loss has resulted from such a drop in caloric intake. At least one major pharmaceutical company is currently pursuing intensive studies on the Hoodia cactus and has already invested millions in acquiring a major supply. It hopes to market a natural product extracted from the plant to treat the worldwide obesity epidemic.

NZ Low Carb has already created a synergistic blend featuring this exciting new plant. Along with Hoodia Gordonii Extract, this product contains chromium to regulate blood sugar levels. The blend also contains calcium pyruvate which may enhance weight/fat loss by increasing the body’s metabolic rate. In addition, citrus, apple & prune fibre work together to reduce the desire to eat by expanding in the stomach. The recommended dose is 1 tablet 3 times daily with meals (breakfast, lunch and dinner).

**Antioxidants**

Everyday activities and exercises generate free radicals and cause muscle damage. Antioxidants prevent damage and shorten recovery time.

Muscle power is generated by the conversion of a chemical compound in the human body – ATP (adenosine triphosphate) to the mechanical force of muscle
contraction. During exercise it must be regenerated continuously. The principal way your body does this is by the conversion of muscle stores of fat and glycogen. Every time you exercise, this process produces millions of free radicals. Free radicals act like bombs, damaging every muscle cell they come into contact with. The damage they cause is a major source of the continued muscle soreness and weakness you feel for days after heavy exercise. Whenever you push your training, the scenario gets worse. Research has shown that athletes could use 12 to 20 times the oxygen of sedentary people, hence generating a proportionately higher quantity of free radicals.

A certain group of free radicals – hydroxyl free radicals – react with fat inside your muscle cell membranes to generate more free radicals, leading to considerable pain and inflammation which could last up to 20 hours.* Through further chemical reactions, these “second generation” free radicals can produce a chain of chemical reactions which could go on for days causing even more damage.

* More fat = more free radicals = another good reason to lower your bodyfat and stay lean!

As soon as damage relating to free radicals occurs, your immune system becomes active to combat it. Neutrophils, a type of cell vital to your immune system, move in to mop up the dead and dying muscle cells, a process which in turn releases masses of free radicals.

The net result of this “free radicals festival” is that any session of intense exercise will leave you stiff and sore and unable to exercise properly for days. If you choose to ignore these symptoms, your risk of injury will increase.

Therefore, it pays to supplement with antioxidants which will neutralise free radicals and get rid of them before any damage can be done. If you imagine the free radicals as bombs planted by terrorists, the bomb experts who are called in are
like antioxidants: they diffuse and neutralise the devices before any damage can be done.

For a good antioxidants formula, I recommend NZ Low Carb’s Ultimate Antioxidants Supreme. This blend contains vitamins A, C & E as well as green tea extracts, which are powerful antioxidants commonly found in most commercially available antioxidants formulae. In addition, Ultimate Antioxidants Supreme (available from www.nzlowcarb.com) contains other more expensive and effective antioxidants – such as N-Acetylcysteine, pycnogenol and Co-enzyme Q10 – which are normally absent in other formulae. The recommended dose is two tablets before bed.

**Vitamin C**

Vitamin C has been shown to:
1. Boost the human immune system.
2. Increase recovery by assisting in muscle repair.
3. Minimise injury by assisting joint, cartilage and soft tissue damage.
4. Combat free radicals by acting as an antioxidant.

NZ Low Carb’s Slow-Released Vitamin C formula is designed to maximise the absorption of vitamin C into the human body (because vitamin C is a water-soluble vitamin, incomplete absorption is possible with conventional non-slow-released formulae).

**Fat burners and metabolic enhancers**

Fat burners and metabolic enhancers have been promoted to give consumers the impression that these tablets/capsules are the determining factor in their fat-loss programme. In my opinion, some of these formulae work, but the only real determining factor in any effective fat-loss programme is nutrition – fat burners
and metabolic enhancers are merely supplementary to nutrition.

These formulae can be divided into two groups: thermogenics and fat burners.

**Thermogenics**

Thermogenics are formulae that contain ingredients that may raise your body temperature, hence encouraging fat burning and perspiration.* The common ingredients are citrus aurantium (active ingredient – Synephrine), gum guggul extract, white willow bark and caffeine/guarana.

Citrus aurantium was introduced from the USA when the controversial fat-burning ingredient Ephedrine was banned from retail sale in New Zealand. Ephedrine belongs to the Beta Agonist drug group and can cause vasodilation (= making blood vessels expand), bronchodilation (= making your airway bigger), and also acts as a stimulant. Vasodilation and bronchodilation increase the amount of oxygen supplied to the muscle cell during exercise, hence increasing fat burning. Ephedrine was banned due to side effects such as irregular heartbeat or arrhythmia.

Introduced by health supplement companies in place of Ephedrine, Synephrine is a non-stimulant and free of side effects such as arrhythmia but retains the fat-burning properties of Ephedrine. Caffeine or guarana (a herbal form of caffeine) is normally added to thermogenic formulae for its stimulant effect. Gum guggul extract is an Indian herb that has been used by herbalists to increase the activity of the thyroid gland, which in turn may increase the fat-burning rate.

*NZ Low Carb’s Thermo Eruption is an example of a thermogenics formula (available from www.nzlowcarb.com).*

**Fat burners**

Examples of fat burners are L-Carnitine, AcetylL-Carnitine, Chitosan and
Citramax.
L-Carnitine is an amino acid that helps to transport fat into the cell’s mitochondria and convert fat into energy. AcetylL-Carnitine is a more effective form of L-Carnitine that has higher absorption and is hence more effective as a fat burner (some studies have also shown that AcetylL-Carnitine may assist in increasing alertness).

Chitosan (extracted from seashells) was first introduced into Australasia from Japan by a network marketing company and claims to bind to dietary fat – the dietary fat is supposedly then excreted rather than being absorbed and stored. Personally, I doubt the effectiveness of Chitosan as a fat burner and have never recommended it to any of my clients. Even if it is an effective “fat absorbing” supplement, it is irrelevant to the low carb lifestyle as fat itself is not the problem, it is carbohydrates that are the main cause of fat storage.

Citramax, the tradename for Garcina Cambogia extract, contains 50% hydroxycitric acid (HCA), and is claimed to suppress appetite and inhibit fat storage. However, I have never been a big fan of Citramax either and have experienced little success in using Citramax to help my clients with their fat-loss programmes.

**Essential fatty acids**

All fats contain fatty acids. Essential fatty acids cannot be manufactured by the human body. Nevertheless, they occur naturally in food. Therefore, to achieve adequate levels of these essential fatty acids, food containing them must be consumed. Alternatively, they can be taken in the form of a supplement.

There are 20 different essential fatty acids in the human body. However, these 20 essential fatty acids can all be manufactured from the consumption of just two essential fatty acids: Linoleic Acid (also known as Omega 6 fatty acid) and
Linolenic Acid (also known as Omega 3 fatty acid). Good sources of Omega 6 and 3 essential fatty acids are nuts, soy beans, canola oil, walnut oil, flaxseed oil, salmon, bluefish, herring, tuna, cod, flounder and shrimp.

An adequate intake of essential fatty acids is vital for good health. The benefits are:

- Essential fatty acids are the “main ingredients” involved in the formation of cell membranes, hence assisting in the process of cell damage repair and consequently improved muscle and injury recovery.
- Essential fatty acids are powerful antioxidants. They carry oil-soluble waste materials/toxins from deep within the body to the skin surface for elimination.
- Essential fatty acids are important because of their participation in the manufacturing of prostaglandins in the human body. The “good” prostaglandins (as there are some “bad” prostaglandins) help to regulate inflammation, pain, swelling, blood pressure, the heart, kidneys and digestive system.
- Essential fatty acids have been shown to prevent blood clots, lower cholesterol, and relieve symptoms of arthritis, autoimmune diseases and allergy-related conditions such as dandruff and eczema. They have also been shown to increase the overall efficiency and wellbeing of the human digestive system.

The human brain is composed of 60% fat, and DHA (an Omega 3 essential fatty acid) is the most abundant fat in your brain. It is also the most abundant fat in breast milk and essential in the development of the brain and eyes of babies. Essential fatty acids have been shown to maintain the wellbeing of the human brain and eyes by assisting in the transmission of the “electricity” within the human nervous system.

Essential fatty acids are extremely fragile and can be easily denatured by heat and light. For this reason, essential fatty acids capsules are normally brown
in colour. Cooking with commercially available vegetable oils that are high in essential fatty acids, such as canola oil and soy bean oil, will “destroy” the essential fatty acids.

A minimum of 3 x 1000 mg Omega 3 capsules daily is required to maintain good health. Individuals who are obese, exposed to large levels of pollution or carry out a high level of activity will require up to 6 capsules per day. Omega 3 is extracted mainly from cold-water fish. But make sure the Omega 3 capsules you consume are not contaminated by mercury from the sea – Omega 3 capsules are normally labelled as mercury free if they are extracted from mercury-free cold-water fish.*

* NZ Low Carb essential fatty acids capsules contain mercury-free Omega 3.

**Fibre supplements**

Constipation may occur while following a low carbohydrate lifestyle. It could be related to a sudden decrease of the fibre content of your meals (carbohydrates contributed to your previous total fibre intake), or some individuals who may not eat enough vegetables anyway have just made the matter worse by eliminating carbohydrates from their diet.

If you have been following a low carbohydrate eating plan and have become constipated, I suggest trying a fibre supplement such as psyllium husk or linseed fibre. You can buy psyllium husk by itself from most health-food stores, otherwise you can get Metamucil (a brand of psyllium husk) from most pharmacies. The recommended intake of Metamucil is 1 to 3 teaspoons per day. However, even the sugar-free version of Metamucil contains maltodextrin (which is a carbohydrate), so count each teaspoon of Metamucil as 1 g of carbohydrate.*

* NZ Low Carb offers a Linseed Fibre Supplement (recommended intake: 1 to 3 heaped tablespoons per day) and a Linseed Fibre Muffins Mix (these taste and look like bran muffins but contain only 3.3 g of carbohydrates each, available from www.nzlowcarb.com)
5-HydroxyTryptophan (5HTP)

Serotonin is an extremely important chemical that acts as a neurotransmitter to communicate signals between your brain cells and regulates your appetite, mood, sexual desire and sleep. All of these functions can be retarded by a deficiency in serotonin.

Anxiety, depression, fear, hunger, fatigue, headaches, insomnia, obesity, pain, lack of exercise, and alcohol/caffeine/nicotine consumption can all cause serotonin depletion in your brain. Low serotonin may in turn contribute to further anxiety, depression, fatigue, headaches, hunger, insomnia, or pain – it’s a vicious cycle.

Serotonin is produced naturally inside the body from the common amino acid L-tryptophan. Tryptophan occurs naturally in foods such as meat, brown rice, cottage cheese, milk and eggs. After being ingested, tryptophan must first be converted into 5-hydroxy-L-tryptophan (L-5-HTP) before it can be converted into serotonin. In restoring serotonin, 5HTP may also enhance mood elevation.

One of serotonin’s key functions in the brain is to regulate appetite control. It’s the job of serotonin to signal to the brain that a sufficient amount of food has been consumed. Consequently, without adequate levels of serotonin your brain responds as if you’re starving. Then it sends signals demanding quick energy. Your body knows that carbohydrates will satisfy this craving.

Low serotonin levels = carbohydrate cravings!

The recommended dosage of 5HTP – a natural extract from the seeds of the West African plant *Griffonia Simplicifolia* – is 100 to 300 mg per day. I recommend two 5HTP capsules taken before bed. But if you are currently taking prescription medicines please check with your physician before commencing the consumption of 5HTP supplement.
Colostrum

A newborn (both human and animal) was protected in the womb against bacterial and viral infection(s) by its mother’s immune system. Naturally occurring in the milk of both humans and cows, colostrum provides antibodies, growth factors and other nutrients to the newborn to protect them from foreign infection and boost the development of their immune system. The therapeutic uses of colostrum can be dated back to the 18th century and even as far as millennia ago in India.

The benefits of colostrum include improving your muscle growth, sports performance and recovery rate. Colostrum contains immunoglobulins/antibodies, vitamins and minerals, amino acids and enzymes as well as Insulin Growth Factor 1 (IGF-1) which is essential for protein synthesis, hence muscle repairs and growth. Numerous studies have confirmed that colostrum also helps to improve recovery and performance in athletes (both strength and endurance sports people).

Colostrum contains immunoglobulins which are essential for the immune responses against foreign pathogens such as bacteria and viruses. Immune disorders like Multiple Sclerosis (MS), rheumatoid arthritis and lupus are all related to the body’s own defence/immune system turning on/attacking itself. Studies have shown that colostrum contains PRPs (Polyproline Rick Peptides) which help to regulate the production of immune factors such as lymphocytes and T-cells, hence minimising the extent of the damage caused by these immune disorders. Colostrum has also been shown to repair the bowel and stomach linings of patients suffering from bowel disorders (such as irritable bowel syndrome and colitis) as well as stomach ulcers.

The recommended dose of colostrum is 1 g (½ level teaspoon) 3 times daily 1 hour before food or 2 hours after food. During the tablet-making process, colostrum will be exposed to high temperatures which may denature the active
ingredients. Powdered colostrum is therefore recommended over colostrum tablets. The New Zealand Dairy Board has been recognised worldwide as the leading manufacturer of high-quality colostrum powder. Nevertheless, the immunoglobulins concentration of colostrums varies from between 1–20% and most commercial brands do not disclose the immunoglobulins percentage content of their colostrum product.*

* NZ Low Carb’s Colostrum Powder Formula contains 15% immunoglobulins.

Some individuals experience flu-like symptoms within the first two to three days of daily colustrum consumption. Other symptoms include diarrhoea and sore joints. These symptoms will normally disappear after the initial two-to-three-day period.

**Carbohydrates blocker**

In 2003, carbohydrates blockers were the hottest supplement around the globe. Marketed under many different brands, they are extracted from kidney beans (scientific name *Phaseolus vulgaris*). At the time this book was written, there was only one unpublished preliminary study on this supplement conducted at Northridge Hospital Medical Center in the United States. The result of this study is very encouraging, with as much as 66% of the carbohydrates consumed in a meal neutralised by the carbohydrates blocker and all subjects participating losing weight.

The protein component of the extract attaches to an enzyme called alpha amylase which in turns reduce the conversion of carbohydrates to sugar. Like dietary fibres, these carbohydrates are excreted by the intestines undigested.

Nevertheless, I do not recommend anyone following a low carbohydrate lifestyle to use carbohydrates blockers for the following two reasons:
Firstly, only a maximum of 66% of carbohydrates will be “blocked” – the other 34% will still be absorbed. The amount “blocked”/absorbed will also vary from individual to individual – some individuals may have a lower “blocked”/absorption rate and the absorbed carbohydrates may eventually lead to fat storage.

Secondly, consumption of a carbohydrates blocker encourages you to “cheat” while following a low carbohydrate lifestyle. Since the carbohydrates blocker offers an easy solution – as up to 66% of carbohydrates consumed are excreted undigested – a person may simply decide to consume 66% more carbohydrates! The consumption of more carbohydrates may lead to more hunger, and as you get hungrier, you may eat more . . . In other words, you’re back in the same old vicious cycle.

Do yourself a favour and save some dollars as well – stop consuming carbohydrates and you won’t need any carbohydrates blocker in the first place!
CHAPTER NINE

Fat Sensitivity
Are you fat sensitive?

For veterans of the low-carb lifestyle who have previously lost weight following the traditional Atkins-type diet (low carb/high fat), there is only a very small possibility of being fat sensitive. Nevertheless, during my career as a low-carb weight-loss coach, I have encountered a number of exceptions to this rule.

For example, one client – SS – reached her goal weight after following my programme for 16 weeks. Continuing to visit my low-carb weight-loss clinic every two weeks for assessments, she kept this weight off for a further six months. However, after Christmas 2002, she stopped coming for assessment, and when she returned three months later she had piled back on half the weight she had lost nine months previously. After her first visit back, SS returned a week later expecting the same rate of weight loss as she had experienced last time, but to my surprise she hadn’t even lost a pound. Finally, after two weeks of trying everything (incorporating plenty of walking),* I began to suspect that she may have become fat sensitive and suggested some modifications to her food regime to counter this sensitivity. After eliminating saturated fat (for example, animal fat, cheese and cream) from her meals, she achieved her goal weight within four weeks.

* Note: I checked her food diary carefully and she was following my programme to the letter.

Several weeks after I became a low-carb convert myself, another client – AC – became one of the small group of “guinea pigs” who helped me trial my low-carb programme back in 1999. Weighing well over 100 kilograms when he started trying to lose weight in 1996, to begin with AC had tried out another sports supplement company’s “12-week programme” and had lost approximately 10 kilograms. Starting on a low-carb eating regime shortly after losing that initial 10 kilograms, he further reduced his weight to 88 kg, and got it as far down as 86 kg after returning from a European trip in 1999. Subsequently, his weight continued
to “yo-yo” between 88 to 93 kg, but by 2001 my high fat/low carb regime was no longer working for him. I tried every trick under the sun, including two 1-hour cardiovascular gym sessions per day, but nothing worked. However, as soon as I switched AC to a “fat sensitive” version of my low-carb eating regime, his weight loss resumed after just one week.

Note: To date, I am still unable to explain exactly why and how SS and AC altered from being non-fat sensitive to fat sensitive.

**JB – my first fat-sensitive client**

JB is a successful real estate agent who was referred to me by a personal trainer in a local gym. I carefully assessed her background (both medical and previous diet history) and carried out an electronic bodyfat measurement on her. Prior to coming to see me, JB had used the JENNY CRAIG system to shed 6 kg (her starting weight was 82 kg). However, she told me that her weight loss had reached a plateau and that no matter what she did she wasn’t able to lose any more weight. She was also taking medication for menopause and had had her gall bladder removed in the past. Having helped many such individuals in her situation previously, I assured her that I would be able to do the same for her. To this day, I can still clearly remember her reply: “I have complete faith in you, Wetex, but just be aware of the fact that I am not normal – I’m weird!”

Prescribing a standard low carb/high carb programme, we arranged to meet again in one week. But to my surprise, she didn’t lose any weight in that week and her electronic bodyfat measurement showed no change in fat, muscle or water content whatsoever. She exercised at least three to four times per week,* and according to her food diary she’d complied with her low-carb regime religiously.

*Predominantly fat-burning cardiovascular exercises with minimal weight training.
JB continued to visit me on a weekly basis for six months without even losing a single pound. At this time, I told her about a piece of information I had recently read in Dr Robert Atkins’ *New Diet Revolution* book* relating to individuals unable to lose weight following a high fat/low carb eating plan. I suggested that JB might lose weight if she avoided consuming saturated fat. Within a week of implementing this new idea, JB had lost one and a half kilograms, and attained her goal weight of 62 kg after just six weeks. Furthermore, she has managed to maintain her goal weight (since 1999) to this day following the low-carb lifestyle.

*1999 edition – this piece of information has been eliminated from more recent editions.*

Since encountering JB, between 2000 and 2005 I have come across approximately 50 to 60 fat-sensitive individuals who are extreme cases, and others who while they are sensitive to a degree are still able to tolerate some saturated fat. These individuals all tend to be:

1. Females suffering from hormonal disorders (such as polycystic ovaries and endometriosis). Women who have had a hysterectomy and those who have had irregular menstrual periods since adolescence are possibly fat sensitive as well.
2. Females who have undergone or are undergoing menopause.
3. Individuals who suffer from any bowel-related disorders such as irritable bowel syndrome, colitis or Crohn’s disease.
4. Individuals who suffer from any allergies/intolerances related to dairy products.
5. Individuals who have experienced constipation as a result of consumption of cheese and cream.
6. Individuals who suffer from any thyroid-related disorders.
Overall, 99% of fat-sensitive individuals are females, although I have come across a few fat-sensitive males over the past six years. For instance, DG weighed 123 kg when he first came to see me and lost 6 kg within the first two weeks of following my standard low carbohydrate/high fat eating programme. However, while continuing to stick to the low-carb eating plan to the letter, something really strange happened to him during Week 3 – he gained 1 kg! DG really caught me by surprise, as he did not fit the profile of any of the fat-sensitive individuals I had encountered previously. Therefore, after explaining to him the concept of fat sensitivity, I told him to avoid saturated fat for the following three days. Returning for reassessment after the three days, we found he had lost 1.9 kg within that short period. After 12 weeks, he had lost a total of 37.5 kg and achieved his goal weight. These days, he has joined a gym and started a muscle-building programme.

Another client that caught me off guard was NS, who was referred to me by an existing client in 2004. She didn’t suffer from any hormonal or bowel disorders, nor did she have any allergy towards dairy products. NS wanted to lose 20 kg for her upcoming wedding, and after trying my low carb/high fat eating programme for one week she lost approximately a kilogram of water but didn’t lose any fat. By her second visit on Week 2 she hadn’t lost another pound (I had checked her food diary and she definitely hadn’t cheated and she also walked at least three times a week). So we eliminated saturated fat (butter, animal fat and cheese) from her eating regime, and over the following four weeks she lost a total of 5 kg. Then something really odd happened on Week 6 – she stopped losing weight once again. Needless to say, I was stunned!

I had no other option but to ask her to try the Wedding Diet.* I was aware that with another 15 kg to lose, she wouldn’t survive her low-carb weight-loss journey if she had to keep to the Wedding Diet seven days per week, so I decided to trial her on a 3-day Wedding Diet/4-day low saturated fat and low carb regime. NS lost 1 kg over the following week and has lost 13 kg so far! (NS sent a recent photograph of
herself trying on her wedding dress to her parents in South Africa and they barely recognised her!)

* See Chapter 10 for a full description of the Wedding Diet.

Like NS, VA also migrated to New Zealand from South Africa (I’m not sure if their country of birth has had some influence on their metabolisms but it is possible there is a connection). Telling me about her frustration with her yo-yo weight, VA described how she had gained 27 kg since first moving to Auckland.

I explained the broad differences between New Zealand and South African foods to her, and established that the major contributing factors to her weight gain since she started living here were her consumption of potatoes, dairy products and white breads. The South African diet is predominantly protein/meat (their biltong – strips of dried meat – are great as a protein snack, by the way), with the high protein contents of their meals being closely related to the ready availability of game animals. Consequently, I have come across many other South African immigrants complaining of gaining a large amount of weight shortly after moving here.

During her consultation VA told me that she had been 86 kg prior to coming to me but had managed to shed 5 kg by eliminating junk foods from her daily intake. She also told me that she was undergoing menopause and finding it difficult to control her weight and food cravings. I explained the concept of fat sensitivity to her but decided to take a chance and not to eliminate saturated fat from her eating plan at this point.

When VA returned after one week, she weighed in 0.9 kg lighter. According to my experience however, her expected weight loss should have been at least 1.5 kg. What had gone wrong? I checked her food diary carefully (she hadn’t cheated) and changed her eating regime to a low saturated fat/low carbohydrate plan. Over the next six weeks she lost 5 kg. But when she returned for her Week 8 assessment she
hadn’t lost a pound (and again she hadn’t cheated). I had no choice but to switch her over to the Wedding Diet. To date, VA has lost 10 kg and she weighs 71 kg – so seeing as her goal weight is 61 kg she is about halfway there right now. To encourage her perseverance with the Wedding Diet, VA is allowed a “Free Day” every two weeks rather than the standard four.*

* Nevertheless, I am still at a loss to explain why both NS and VA’s bodies seem to adapt to various weight-loss eating regimes so easily.

**Partial fat sensitivity**

According to my observations of the thousands of low-carb clients that I have assisted over the years, there are three main groupings to which they belong:

1. The non-fat sensitive
2. The fat sensitive
3. The “in betweens” – which for now I will give the name “Group X”.

Most individuals who follow a low-carb lifestyle can consume cheese and cream and still have normal bowel motions (provided they have 2 to 3 servings of vegetables or salads per day). However, members of Group X find that they become constipated if they ingest too much cheese and cream. Unfortunately, I cannot tell you exactly how much cheese or cream is acceptable because the levels vary from individual to individual, all of whom seem to have an upper limit on how much cheese and cream they can consume. Up to that limit, they have normal bowel motions, but once over that limit they become constipated.

Group X will also feel bloated, tired and suffer from water retention when they include saturated fat in their diet. People belonging to Group X also suffer from indigestion when their saturated fat intake is too high. Just as with cheese and cream, Group X have a limit on how much saturated fat they can consume before
they feel bloated, tired, suffer from indigestion and stop losing weight.

Once members of Group X have reached their individual limit of cheese, cream and saturated fat consumption, they stop losing weight. While they always lose inches of measurement they experience minimal weight loss. The common complaint I hear from Group X people is: “My clothes are fitting better but I haven’t lost much weight!”

Possible reasons for Group X’s intolerance to cream, cheese and saturated fat are:

1. They may unknowingly suffer from a case of lactose intolerance or bowel disorder so mild that conventional diagnosis might not be able to detect it either.
2. They may have become insulin resistant through pregnancy (or previous pregnancy) or have been obese for an extended period of time (possibly since childhood).

Note: Fat-sensitive individuals are different from members of Group X because they cannot tolerate cheese, cream and saturated fat at all. Once they start consuming these foods, they stop losing weight altogether.

What should a fat-sensitive and Group X individual do?

If you think you might belong to the fat-sensitive group or Group X and you are unable to lose weight following a high saturated fat/low carbohydrate eating regime, these are the food groups you should eliminate:

- Avoid butter: you may use vegetable oil instead – e.g. sunflower oil, olive oil and canola oil (you may deep-fry your food with vegetable oil).
- Avoid bacons and salami: you may consume ham off the bone instead (make sure the carbohydrate content is 2 g or less per 100 g).
• Avoid cheese: you may consume 200 g of feta cheese instead (goat feta is even lower in carbohydrate).
• Avoid cream: you may consume up to 150 mls of Anchor low carb Trim milk (4 g carbohydrates per 100 mls).
• Avoid lamb and pork, as the fat content of these meats is very high. Consume lean beef or skinless chicken instead. You may keep on the skins of any fish because they are high in “good fat” (such as Omega 3) and low in saturated fat.
• Avoid nuts.
• Avoid aspartame.

**Stage II of the fat sensitivity low-carb plan**

If you have identified yourself as being fat sensitive, and avoided the above-mentioned foods for 3 to 4 days, you should have lost between 0.3 to 0.5 kg. Persevere with this low carb/low saturated fat regime for a total of at least 7 days and by the end of Day 7 you should have lost between 1 to 2 kg. If you feel hungry, make sure you consume 4 to 5 (or more) protein meals per day. If you are lacking in energy, supplement with 3000 mg of Omega 3 fish oil capsules first thing in the morning (available from www.nzlowcarb.com).

Some of my fat-sensitive clients complain about food boredom. If after 7 days, you are bored with your foods and want to add saturated fat to your daily food consumption, you can try consuming a small amount.

However, if you lose 1 kg consuming no saturated fat, and lose no weight when consuming saturated fat, your rate of weight loss when consuming some saturated fat may be anywhere between 0 to 1 kg. As I’ve said, there is no standard formula to help you work out how much cheese/cream/animal fat will impede your rate of weight loss, as it varies from individual to individual. Nevertheless, after a while you should be able to work out how much you can have before you stop losing
weight. After 2 weeks of a low carb/low saturated fat regime, you may follow the same guidelines outlined in Chapter 6 After the First Two Weeks.

**Aspartame**

Aspartame, an artificial sweetener commonly marketed under the trademark EQUAL or NUTRASWEET, may impede the weight-loss rate of individuals with fat sensitivity. Aspartame can also impede weight loss in non-fat sensitive low-carb dieters. Within Australasia, aspartame is normally referred to on food labels as sweetener number 951. A great number of sugar-free products are sweetened with aspartame – for example, chewing gums, soft drinks, jellies and sugar-free sweets.

Under the New Zealand regulations, artificial sweeteners are normally labelled:

- Sweetener (951) = aspartame
- Sweetener (955) = sucralose (trademark SPLENDA)
- Sweetener (950) = acesulphame K

Alternative sugar-free products sweetened with sucralose and acesulphame K are now available in supermarkets and specialist low-carb stores such as NZ Low Carb. For example, Classic Diet Cola, Spree Diet Lemonade and Golden Circle Diet Fruit Drinks are all SPLENDA-sweetened soft drinks available from PAK ’N SAVE nationwide in New Zealand. Similarly, if you are worried about bad breath but cannot use chewing gums or mouth-freshener lollies, try the red Cinnaburst-flavoured Listerine strips sweetened with SPLENDA – other Listerine strips (such as Coolmint) are sweetened with aspartame.

Commercially available powdered artificial sweeteners use maltodextrin (a starch/carbohydrate) as a bulking agent, and their carbohydrate contents are therefore 92 g per 100 g (i.e. 92% carbohydrate). Therefore, if you use 100 g in your baking or to
make ice cream, you may have unconsciously added 92 g of carbohydrates to your food – what a disaster! For example:

Your biscuit recipe requires 100 g of aspartame or sucralose sweetener;

You assume this 100 g of sweetener contains zero carbohydrates but it is actually 92% carbohydrates;

If your recipe makes 24 biscuits:
92 g divided by 24 = 3.8 g carbs per biscuit.

In other words, you have seriously underestimated the carbohydrate content of your biscuits and could possibly impede your rate of weight loss!

I suggest NZ Low Carb’s Ketogenic Sweetener: the carbohydrate content is 5 g per 100 g and it uses a soluble fibre (raftilose – extracted from plants) as a bulking agent.

Personally, I do not believe that aspartame is a carcinogenic (i.e. cancer-forming) agent due to the lack of study so far on humans (most studies are carried out on rats or other animals). However, consumption of aspartame by fat-sensitive low-carb dieters may cause excess water retention and possibly headache.

Fat sensitivity and aspartame

Referred to NZ Low Carb by her husband, who has been accessing products and nutritional services from me since 1996, NM never had a problem with her weight until after giving birth to her first child. Back in March 2003, NM came to me at 96 kg, and after three weeks she lost 2 kg following a high saturated fat/low carb regime. However, the following three weeks were extremely frustrating for NM as she only lost 0.6 kg or 0.2 kg per week.
Initially, I thought NM was aspartame sensitive and told her to avoid any foods or products sweetened with aspartame. But after the next two weeks she had only lost another 0.7 kg! Finally cottoning on to her fat sensitivity, I advised her to avoid foods high in saturated fat. In the end it took NM 16 months to lose 20 kg – a painful experience I wouldn’t wish on anyone.

NM’s problem was that she has a sweet tooth – but every time she consumed any sugar-free products sweetened with aspartame she actually gained weight by gaining extra water retention. The moral of the story is:

If you are fat sensitive, it is highly likely that you will be extremely sensitive to aspartame as well – therefore, avoid aspartame whenever possible!

Sugar alcohols and the low-carb lifestyle

Sugar alcohols (otherwise known as polyols) are common ingredients in reduced carbohydrate products intended for the low-carb lifestyle (for example, reduced carbohydrate lollies, chocolate and protein bars) and diabetic patients; traditionally, they have also been used in liquid medicines instead of syrup.

Sugar alcohols can be described as partially sugar and partially alcohol but they do not contain ethanol like alcoholic beverages. They are derived from other carbohydrates such as sucrose, glucose and starch.

The commonly used sugar alcohols are:

1. Monosaccharide-derived (sorbitol, mannitol, xylitol and erythritol);
2. Disaccharide-derived (isomalt, lactitol, maltitol);
3. Polysaccharide-derived (maltitol syrup, hydrogenated starch hydrolysates).
Sugar alcohols are partially absorbed in the small intestine. The residual sugar alcohols that are not absorbed are fermented by bacteria in the large intestine. Unabsorbed sugar alcohols can cause water retention in the large intestine and result in abdominal gas and diarrhoea (therefore, overconsumption of sugar alcohol-containing products can lead to abdominal discomfort and diarrhoea). When absorbed into the blood via the small intestine, these sugar alcohols are converted into energy by a process that requires minimal or no insulin at all.

Because they are not consumed by bacteria in the mouth, sugar alcohols such as xylitol are used in chewing gums in place of sugar. In fact, xylitol has been found to inhibit oral bacterial growth.

In New Zealand and Australia, sugar alcohols are not accounted for as part of the total carbohydrate count on the labels of sugar-free products due to their low energy density (1.5–3 calories per gram compared to 4 calories per gram for sugar) and partial absorption qualities.

In the United States however, sugar alcohols are counted as part of the total carbohydrate count. So when you are reading the labels of American or Canadian products, subtract the sugar alcohols and dietary fibre from the total carbohydrate content to determine the Net Carb value – i.e. the amount of carbohydrate that impacts on the insulin and blood sugar level.

**Sugar alcohols and fat sensitivity**

Excess consumption of sugar alcohols can impede weight loss in individuals with fat sensitivity. This could be related to individuals with irritable bowel syndrome reacting to the water retention and laxative effect brought about by overconsumption of sugar alcohols.

Take SM for example, who was referred to me by another client in May 2003.
Starting off at 108 kg, after following my low carbohydrate/high saturated fat regime for three weeks SM had only lost 0.7 kg. Involved in the television and film industry, SM worked outside of Auckland at times, and as she was away for the following four weeks I wasn’t able to reassess her. Thus, it wasn’t until early September 2003 that I first realised she was fat sensitive.

SM had another problem – whenever she consumed too much sugar alcohol-containing products, she stopped losing weight. Fat-sensitive individuals definitely do have a cross-sensitivity to sugar alcohols. So if you are fat sensitive and stop losing weight for no apparent reason, avoid sugar-free lollies, have one to two low-carb protein bars per day and avoid other sugar alcohol-containing products. At the time this book was written, SM has lost 13 kg and has joined a gym to add resistance training to her regime.

**Sugar alcohols and the immune system**

Various studies have suggested that a high consumption of sugar may interfere with the ability of white blood cells to destroy bacteria, although the cause of this interference is at present unknown. Therefore, reduced sugar consumption is recommended for the prevention of common conditions such as colds, the flu, bronchitis and urinary infections. The replacement of sugar by sugar alcohols in sugar-free products can therefore aid in the prevention of infections.

**Gastric reflux and hay fever**

Individuals who suffer from gastric reflux and hay fever find that they no longer experience any symptoms while following a low-carb eating plan (although at present no one knows exactly why this is the case).
Alcohol consumption and fat sensitivity

As mentioned in Chapter 5 The Carb Addiction Rehab Phase, it is recommended that you do not consume any alcoholic beverages during the first two weeks of your low-carb eating regime. While your body is in ketosis, alcohol is the preferred fuel over fat (remember, fat is converted to ketone to produce energy via ketosis). While your body is using alcohol for energy however, fat burning is temporarily halted, but once alcohol is used up, fat burning (via ketosis) will resume.

I also said in Chapter 5:

If you exercise after the consumption of alcoholic beverages (up to 8–12 hours after, assuming you are not suffering from a hangover!), fat burning will resume sooner than for someone who does not exercise (once the alcohol has been used up to fuel the exercise session).

However, that assumption does not seem to apply in the case of fat-sensitive individuals. For example, SK exercised every day (running for 40–60 minutes) and had been following a low carb/high saturated fat regime but hadn’t lost any weight. After discovering that SK had had a hysterectomy and complications with her bowel as a result of the procedure (she also suffers from a thyroid disorder and takes prescription medicine, Tyroxine tablets, daily), I suspected that she might be fat sensitive. After seven months on a revised low-carb weight-loss journey she lost 11 kg and attained her goal weight. The main thing I learned from SK’s case was the amplified effect of alcohol on her rate of weight loss. Whenever SK drank alcohol, she failed to lose weight. I have since noticed alcohol having a similar effect on other fat-sensitive clients. The moral of this story:

If you are fat sensitive and you want to lose weight, avoid drinking alcohol.
Monosodium Glutamate (MSG)

Individuals with fat sensitivity normally have a cross-sensitivity to MSG as well. This can provoke extreme reactions (which are rare) such as diarrhoea, nausea, vomiting; or mild reactions such as irritable bowel, bloating and stomach cramp. MSG may also interfere with weight loss by causing water retention in individuals with fat sensitivity. The reason for these reactions is unknown, and while they could possibly be related to the traditional fermentation process used in the preparation of MSG (from seaweed), these days MSG is mostly manufactured from chemical compounds. Another possible explanation might be that because MSG is the by-product of yeast fermentation it could upset individuals with fat sensitivity who normally have a cross-sensitivity to foods made by fermentation (such as bread and wine).

Some facts about MSG:

- MSG is commonly used by restaurants (mostly Asian restaurants, such as Chinese, Thai and Japanese) to enhance the flavour of meals.
- If you are checking for MSG in food labels, it is normally listed as Flavour Enhancer (621) under the ingredients list.
- The taste of MSG is unique, as it does not fall among the four principal tastes of sweet, sour, bitter and salty.
- MSG was first discovered by the German chemist Karl Ritthausen back in 1866.
- In 1907, Professor Ikeda of Japan successfully extracted crystals of glutamic acid (or glutamate) from broth made from a type of seaweed (called “kombu”) commonly used in Japanese cuisine. He named this substance “umami”.
- Professor Ikeda also discovered that by binding glutamate with sodium it forms a stable substance called Monosodium Glutamate which has excellent storage properties.
Foods high in glutamate include soy beans, tomatoes and cheese.
The MSG commonly available these days is no longer extracted the traditional way, but manufactured chemically.

While the glutamate of MSG is metabolised in the intestines and turned into energy, the human body cannot differentiate between glutamate from natural foods (such as tomatoes) and glutamate from MSG. So if you suffer from fat sensitivity, you should try to avoid MSG and foods high in MSG content (for example, tomatoes and soy beans) as much as possible.

Polycystic ovaries (PCOS) and insulin resistance

Women with PCOS have ovaries that produce too much progesterone (a male hormone), and they normally exhibit the following symptoms:

- Irregular ovulation/menstrual cycle
- Ovarian cysts
- Darkening of skin folds
- Acne
- Elevated lipid levels.

Left untreated, PCOS can eventually lead to obesity-related conditions such as:

- Hypertension or heart conditions
- Gestational diabetes
- Type II diabetes.

Until recently, the first line of treatment for PCOS used to be oral contraceptive pills (such as DIANE 35) and ovulatory medications (such as Clomiphene citrate or CLOMID). The new treatment for PCOS is metformin (trademark GLUCOPHAGE), a medication for the treatment of Type II diabetes.
Insulin is a hormone responsible for regulating the human blood sugar level by transporting glucose into cells. When an individual becomes insulin resistant more insulin is required to transport the same amount of glucose, resulting in excess insulin and blood sugar levels. Recent studies have suggested that it is the excess insulin that stimulates the excess secretion of progesterone by the ovaries in women with PCOS. Since this situation is identical to Type II diabetes, the studies suggest that PCOS may be an early stage of Type II diabetes.

If you suffer from PCOS but do not want to rely on medications to control it, following a low carb/low saturated fat eating regime might be suitable for you. Some naturopaths are already prescribing a low-carb eating regime for individuals suffering from PCOS and endometriosis.

In 2003 the BBC produced a documentary on a British woman who failed to conceive because she suffered from PCOS. After following the Atkins diet, she lost weight, recovered from PCOS, conceived a baby and gave birth. (She called her baby the “Atkins baby”!)
CHAPTER TEN

Tricks to Speed Up Your Weight Loss
**Frequently asked questions relating to the rate of weight loss**

*Q: I was losing between 0.75 to 1 kg per week during the carb addiction rehab phase but when I tried to increase my daily carbohydrate intake beyond 20 g why did my weight loss stop?*

A: The most obvious reason for slower weight loss is the addition of more carbohydrates to your original daily 20 g carbohydrate intake. Some of my other clients who have tried to increase their carbohydrate intake beyond 20 g daily have also stopped losing weight every time they did that but the reason behind it is unclear. Perhaps they have a slow metabolic rate, or it may be related to abnormal thyroid function. So if you are not losing any weight, revert to the 20 g carbohydrate carb addiction rehab phase.

*Q: Will alcohol consumption slow down my rate of weight loss?*

A: Alcohol consumption is prohibited during the carb addiction rehab phase, although some individuals resume their alcohol consumption after the two weeks is up. Alcohol has to be burned as fuel before any fat can be burned. So if you drink one to two glasses of wine every night (or spirits such as vodka and gin) but do not exercise, you may not lose any weight at all. If you find that your weight loss has slowed down or stopped altogether, stop your alcohol consumption for a week or so and see if weight loss resumes.

*Q: If I eat less food, will my rate of weight loss increase?*

A: Many of my clients cut back on their food (and protein) intake once they get their hunger under control – normally after Weeks 4 to 6. As outlined in Chapter 5, reduced food/protein intake may induce a starvation state and actually slow down your weight loss. Therefore, if your weight loss has slowed down, try increasing your protein intake and meal frequency.
Q: I am 5 kg away from my goal weight but my weekly rate of weight loss has decreased from 0.75 kg to 0.5 kg – how can I speed up my rate of weight loss?

A: If you are down to a weight that is only within 10–30% of your goal weight, the obvious solution may be to increase your frequency of cardiovascular exercise, such as walking, running, cycling and so on. If you do not wish to increase your exercise frequency, try eliminating saturated fat from your daily low-carb regime. For further details on what to do, see Chapter 9 on Fat Sensitivity.

Q: My ankles and wrists are swollen and I seem to be “holding” a lot of water – what should I do?

A: Water retention can be caused by various factors including menstruation, aspartame, monosodium glutamate (MSG), gluten, sugar alcohols, constipation or heart conditions. Compared to diuretic tablets such as frusemide (a prescription medicine), most herbal diuretics are fairly ineffective. Nevertheless, water which has been purified by the distillation process may be the next best option to medicinal diuretics. Conventional water purifiers use carbon-based filters to remove impurities (such as sand, dirt, heavy metals and bacteria) but minerals such as fluoride and sodium remain. Distilled water, on the other hand, is free of fluoride and sodium, and everything but 2 hydrogen atoms and 1 oxygen (i.e. pure H₂O) has been removed. In the absence of minerals, distilled water initiates a reverse osmosis process which drains water out of your cells, hence creating a diuretic effect.

However, please note that permanent daily consumption of distilled water (any period longer than one week) is not recommended because it may cause dehydration. In turn, dehydration may cause low energy levels, fatigue and headaches. Distilled water may be purchased in supermarkets (the only brand I know of is Pure Dew) or distilled by domestic distillers which cost between NZDS$600 to NZDS$1000.
Q: How can I lose weight quickly before I get married – is there such a thing as a “wedding diet”?

A: Over the years, I have dealt with many clients on my low-carb regime who have come to me wanting to lose some extra bodyfat quickly just before their weddings. I usually recommend they try my “Wedding Diet”.

LP came to me in January 2004 wanting to lose 15 kg for an upcoming trip to Samoa. I advised her that for an 85 kg female following a normal low carbohydrate eating regime, losing 15 kg in the space of 12 weeks would be impossible – unless she followed an alternative regime like the Wedding Diet. She agreed and started the regime, and although her trip was later postponed she lost 13 kg in 16 weeks following the Wedding Diet with minimal exercise. Whereas most individuals would last little longer than seven days on the Wedding Diet she lasted 16 weeks. (When I tried the Wedding Diet for eight days myself, I squatted down and stood up too quickly one time during my morning workout and felt light-headed and as if the whole world was spinning around me!) LP has since used my low-carb high-fat eating regime to further reduce her weight to 63 kg and has managed to maintain that weight for more than three months as at the time of writing.

The Wedding Diet

- No snacks, apart from half a bar of low-carb dark chocolate (I recommend low-carb chocolate, available from www.nzlowcarb.com, at 2.5 g carbohydrate per 50 g bar), allowed.
- But you are allowed 5 meals per day.
- All your daytime meals will either be a protein shake or a protein bar* and you will only be allowed to have one solid meal per day (dinner).

*A maximum of 2 protein bars and 2 protein shakes per day.
• It is best that you mix the protein shake with water rather than a mixture of cream/milk and water. If you wish to use protein shakes as all your meals, the total amount of cream/milk allowed is 100 mls per day.

• Make sure all the protein bars that you consume are under 3 g total carbohydrate (= 3 g net carbohydrate).

• The solid meal will consist of meat and vegetables/salad.

• You can expect to lose between 1 to 2 kg per week while following the Wedding Diet.

Exactly why the Wedding Diet works is unclear. Possibly the sudden drop in calories tricks the body into “kick-starting” the previously slowed down fat-burning process. A more probable reason is the lower carbohydrate consumption through the elimination of vegetables and salad from daytime meals. However, because this version of the low-carb diet stops working after four weeks the normal low-carb eating regime should be resumed at the end of that period.
CHAPTER ELEVEN

Eating Out the Low-Carb Way
Eating on the run

The low-carb lifestyle is not about having to prepare all your own food and taking a chilly bin with you everywhere you go. The aim of this chapter is to provide you with some helpful ideas for eating while you are on the run or while you are dining out. For instance:

- Kebab shops are located conveniently in many city centres, shopping complexes and suburbs around New Zealand. Most offer a chicken/lamb, salad and rice dish. All you have to do is tell them to hold the rice and sauces.
- Chinese takeaways offer dishes such as egg fu yong (but tell them to hold the cornflour, peas, carrots and onions), and crispy skin deep-fried chicken. Most stir-fry dishes contain high amounts of cornflour (used as a thickening agent) and should be avoided for this reason. Other options include roast duck and crispy skin barbecue pork.
- Believe it or not, Mcdonald’s chicken or fish salads are excellent meals for the low carbohydrate lifestyle. Other fast-food chains that offer chicken salad include Wendy’s and Subway. Most service stations stock ham slices (but beware: 0.5 to 1.0 g of carbohydrate per slice!) and cheese slices – cheese wrapped with ham makes a great low carb/high protein snack.
- If you order Mcdonald’s Kiwi Big Breakfast, throw away the sausages and hash browns, and have the scrambled eggs only.
- Rather than a usual lunch place (full of muffins, sandwiches and pies), the supermarket can be a good source of ready-to-eat low-carb food – if you can keep out of the bakery when you’re hungry! Woolworths and Foodtown have rotisserie-cooked chickens which they sell hot or cold.
- Something else I like which is found in some supermarkets is Aquafresh slices of smoked tuna or kingfish, which come in shrink-wrap plastic and are found hanging up next to the smoked salmon. I just eat this straight
from the packet, accompanied by cheese or a tomato.

- A tin of sardines is always ready to eat (but you do have to be in the mood for the taste of them). But it’s a pity that those easy-to-open tins of tuna snacks have yucky sauces added to them and that the plain tuna or tuna in brine is in hard-to-open tins and may be high in carbohydrates.

- When it is time to order desserts at a restaurant, you may want to request berries (or strawberries) with whipped cream (no sugar) and some lemon juice. Otherwise, order a long black (with or without cream) and sip on that while others are enjoying their sweets.

**Restaurant dining**

Following a low carbohydrate lifestyle does not mean you have to deprive yourself of the pleasure of dining out. As outlined in Chapter 5, you can still enjoy the occasional glass of wine, and when it comes to choosing the right low-carb meal while dining out, all you have to do is make some clever decisions on meal options. You may have to ask the waiter to eliminate some part of your chosen meal – for example, you can order fish of the day but ask them to hold the potatoes. Most restaurants also offer squid and chicken satay (Asian kebab) as entrées. However, most soups (such as pumpkin soup or seafood chowder) are thickened with cornflour and should be avoided.

*Note: It is best not to tell the people you are dining out with that you are following a low-carb lifestyle. If you do, you could well turn out to be the evening’s main topic of conversation and receive endless “advice” about how bad a low-carb lifestyle is for you and how someone they know put on weight once they stopped following a low carbohydrate diet, blah, blah, blah . . .*
Thai cuisine

Thai cooking incorporates the flavours of both the countries Thailand is situated between: India (curry) and China (rice). While a Thai meal has no courses, it is built around rice – and as mentioned in Chapter 5 The Carb Addiction Rehab Phase, rice is prohibited while following a low-carb lifestyle. Because meat (beef, lamb and pork) is very expensive in Thailand, Thai cuisine is very light on meat. Curries and other hot dishes are eaten by Thai people principally as side dishes to their rice.

As Thailand is a coastal country, fish is a staple of the diet. The common ingredients in Thai cuisine include fish sauce, shrimp paste, coconut milk, lemon grass, tamarind, ginger, black pepper, garlic, basil, palm sugar (so if your Thai dish is extremely sweet you should not have the sauce because it will most definitely be high in sugar!), turmeric, cumin, green onions and chilli (introduced by Portuguese traders in the 16th century).

Thai “Tom Yum” soups are not thickened with cornflour and are therefore suitable for the low-carb lifestyle. Ingredients in Tom Yum include chicken, vegetables, coconut milk and seafood. Coconut milk is medium in carbohydrates, so if you choose to order Tom Yum soup as part of your meal, make sure you count it as 5 g of carbohydrates. Another entrée suitable for the low-carb lifestyle is chicken satay sticks (the Thai version of chicken kebab). Avoid the peanut sauce (because it contains sugar) if possible.

Other staples of Thai cuisine are curries, stir-fries and seafood dishes. I recommend stir-fries (chicken, beef, pork, lamb) and seafood dishes over curries because they are lower in carbohydrates. If you choose to order a curry dish, make sure you count it as 10 g of carbohydrates. Avoid any fish or seafood dishes that are cooked in sweet-and-sour sauce because they are very high in sugar.
**Turkish cuisine**

Famous for their freshness, most Mediterranean dishes are prepared with olive oil, which is rich in Omega 3 fatty acid and has been shown to prevent heart disease and lower cholesterol. Lamb and chicken are the main meats used in Turkish cuisine, but pork is forbidden by the Islamic religion. Yoghurt (a Turkish word) originated in Turkey, and tomatoes, hummus (made from chickpeas) and yoghurt are the main Turkish sauces. Each tablespoon of yoghurt, hummus or tomato sauce should be counted towards your daily total carbohydrate intake as 3 g of carbohydrates.

Most Turkish restaurants serve chicken kebabs with salad, sauces (as described above), bread and rice (which you can ask to be eliminated from your plate).

Some also have Westernised meals (such as deep-fried squid entrée, beefsteak and fish dishes) which are suitable for the low carbohydrate lifestyle.

**Indian cuisine**

Indian foods are mainly spicy in taste and there is no pork or beef in their cuisine (pork is prohibited by the Islamic religion and beef by the Hindu). Chicken, fish and lamb are the main meats served in Indian cuisine. Some Indians are vegetarians and most Indian vegetarian dishes are made from chickpeas and mung beans, which are both very high in carbohydrates and should be avoided while following a low-carb lifestyle.

I recommend entrées such as:

- Paneer Tikka (a vegetarian dish made from cottage cheese), Chooza Tikka (chicken), Mansoori Kebab (lamb), Fish Tikka, Seekh Kebab (lamb) and any Tandoori chicken dishes. These entrées also come in main-course sizes.
Main courses suitable for a low carbohydrate lifestyle are:

- Curries, kormas (e.g. Chicken Korma), masalas (Chicken Tikka Masala), and of course, the famous Butter Chicken.

Ask the restaurant staff not to bring you any rice. Curries, masalas and kormas are thickened with coconut cream and small amounts of sugar and should be counted as 5 g of carbohydrates.

**Japanese cuisine**

Rice and miso soup are the main components of a Japanese meal. Any other dishes such as fish, meat, vegetables and pickled vegetables (for example, turnip and Chinese lettuce and many others collectively called tsukemono) are considered side dishes. The main side dishes are raw fish (sashimi) and grilled or simmered meat. Other seafood such as squid, shrimp, seaweed and crayfish are also consumed.

Made from eggs, wheat flour and oil, noodles are called soba or udon, and are another essential component of Japanese cuisine. Unfortunately, noodles and rice are definitely out of the question for you while following a low carbohydrate lifestyle. Miso soup is made from fermented soy beans and should be counted as 1 g of carbohydrate per bowl. The pickled vegetables are okay to eat after the 2-week carb addiction rehab phase.

Wasabi and soy sauce are the two commonly used sauces in Japanese cuisine. Made from Japanese horseradish, wasabi is hot in taste and can burn your tongue, but is permitted after the 2-week carb addiction rehab phase. Soy sauce* should be used carefully (1 to 2 teaspoons) and each teaspoon should be counted as 2 g of carbohydrate.

*Soy sauce is made from soy beans and it can contain up to 25 g of carbohydrate per 100 mls (15 mls = 1 tablespoon).
You are allowed sashimi (raw fish served with wasabi dipped in soy sauce) during the 2-week carb addiction rehab phase.

Other Japanese dishes permitted while following a low carbohydrate lifestyle (but to be avoided during the 2-week carb addiction rehab phase) are:

- Teriyaki chicken, beef or vegetables (but avoid the sweet soy sauce).
- Yakitori: a Japanese chicken kebab (but it may have sauces on it that contain sugar).
- Japanese tofu dishes: agedashi and hiyayakko. Tofu is made from soy beans and a palm-sized piece of tofu should be counted as 2 g of carbohydrates.
- Tempura: battered deep-fried fish, pumpkin, sweet potatoes, carrots and broccoli. The batter is made from flour and egg yolk and each piece of tempura should be counted as 3 g of carbohydrate.

**Chinese cuisine**

Gold fever at the turn of the 20th century attracted Chinese immigrants from mainland China to places such as the United States, Australia and New Zealand. As a result of this wave of migration, there are now lots of Chinese restaurants and takeaways in various parts of the world.

Chinese cuisine can be broadly divided into Northern Chinese and Southern Chinese cuisine. There are no rice paddies in Northern China due to the cold weather, and Northern Chinese cuisine is consequently lower in carbohydrates and higher in protein (a dish such as Peking Duck is a good example of Northern Chinese cuisine). Southern Chinese cuisine on the other hand, is predominantly noodles and rice, and so is higher in carbohydrates (for example, fried rice). Not surprisingly, because they eat more meat/protein, the Northern Chinese are taller and more muscular than the Southern Chinese.
When you dine in a Chinese restaurant, choose an entrée such as cold meat (mainly pork belly), crispy skin barbecue pork, broth (a non-thickened soup made from vegetables and pork/chicken bone) or roast duck.

For main courses, avoid any battered meat or sweet-and-sour dishes. Choose meat dishes such as roast duck, crispy skin barbecue pork (not honey-coated barbecue pork), fish cooked in ginger, onion or soy sauce, and any beef and lamb meals. Avoid any dishes made with plum or oyster sauce (which are high in sugar).

Normally cooked with oil, water, some form of meat, tofu (palm-sized = 2 g of carbohydrate), soy sauce (get the waiter to ask the chef to hold the plum and oyster sauce) and cornflour (only in some dishes, so make sure you avoid the sauce), stir-fry vegetables are also an excellent choice. Egg dishes such as egg fu yong are also suitable for the low-carb lifestyle.

Most soups, such as chicken and sweet corn, are thickened with cornflour, and because cornflour is extremely high in carbohydrates (approximately 70% carbohydrate!) it should be avoided.
CHAPTER TWELVE

The War of Weight Maintenance
What to do after reaching your goal weight

Many of you may have successfully lost weight in the past but failed to maintain your weight. If you can identify yourself in this category, you are a yo-yo dieter! Yo-yo dieters always win the battle of weight loss but lose the war of weight maintenance.

Therefore, for those who have achieved their goal weight but are wondering what to do to maintain their weight, I recommend two options:

1. Experiment with variable amounts of “free days”;
2. Experiment with variable amounts of daily carbohydrate intake.

Option 1: Variable amounts of “free days”

Once you have achieved your goal weight, try to enjoy a “free meal” over a 60-minute period once per week. During that 60 minutes you are allowed to have whatever you want, including all your favourite foods such as pizza, garlic bread and pasta.

Do not weigh yourself for at least 3 days because your weight will increase by 1 to 1.5 kg. Don’t worry! – these kilograms are just water weight (remember, one g of carbohydrate holds onto 2.7 g of water!) – your weight should reduce again by 1 to 1.5 kg within 3 to 4 days.

If your weight does not reduce, keep your daily carbohydrate intake below 20 g and simply follow the 20 g low-carb regime again until your weight returns to normal. Then treat yourself to another “free meal”.

If your weight reduces by 1 to 1.5 kg after 3 to 4 days and reduces further on Day 6, then treat yourself to a “free day”. A “free day” means a 24-hour period of eating
whatever you want. After this “free day”, do not weigh yourself for at least 3 to 4 days. Your weight will increase by 1 to 2 kg (once again, more carbohydrates = more water weight). But if your weight reduces by the respective 1 to 2 kg after this 3 to 4 days, then have 2 “free days” on Days 6 and 7.

If you successfully treat yourself to 2 “free days” and your weight increases by 1–2 kg after the 2 “free days” but reduces by 1–2 kg by Days 3, 4 or 5, you can then repeat this 5-day low carb (20 g carbohydrates daily)/2 “free days” regime weekly as your standard maintenance regime.

Even better, this 5/2 regime coincides with your social schedule of being able to eat out frequently during the weekends and avoid being anti-social during the week (since, let’s face it, most of your friends will be carbohydrate addicts!).

**Exercise and your 5/2 maintenance regime**

If you are weight training for toning or bodybuilding purposes, schedule your weight training sessions on Days 1 and 2 after your carbo-loading “free days”, as this will maximise your strength and training intensity (which also applies to endurance/cardiovascular exercises). It is also best to schedule your cardiovascular exercises on Days 1, 2 and 3 to reduce the time to reach ketosis (remember, cardiovascular exercises and weight training will burn glycogen as fuel and may shorten the time to reach ketosis from 72 hours to 48/24 hours depending on your training intensity).

**Option 2: Variable amounts of daily carbohydrate intake**

If you prefer to vary your daily carbohydrate intake instead of adopting the 5/2 or 6/1 weight maintenance regime outlined above, then you need to re-read Chapter 6 After the First Two Weeks.
Steadily increase your daily carbohydrate intake by 5 to 10 g per week until your weight remains the same from week to week (i.e. no weight loss). Your maintenance daily carbohydrate intake can vary from 20 to 150 g daily.

If you choose to follow this option, you need to make sure your carbohydrate sources are low in glycemic index, as high glycemic index foods can promote sugar cravings and promote weight gain and you will eventually become a carbohydrate addict again.

**Glycemic index**

As outlined previously, as a nutritional concept, the glycemic index is a numerical method of describing how fast a carbohydrate food affects your blood glucose level. A high glycemic index food causes a rapid rise in blood glucose level and a low glycemic index food causes a slower rise. A rapid rise in blood glucose level will lead to a corresponding fast decline in blood glucose level, causing sugar cravings and initiating the vicious cycle of hunger and increased carbohydrate consumption.

Low glycemic index foods are generally high in fibre, the high fibre content of these foods delaying their absorption in the small intestine. While low glycemic index foods are absorbed over a longer length of time in your small intestine, high glycemic index foods are absorbed rapidly (by osmosis at the top part of your small intestine) into the bloodstream, hence leading to a rapid rise in blood glucose level.

Foods are rated by a glycemic index number ranging from 1 to 100, pure glucose being the top of the chart with a glycemic index of 100. (The exception is jasmine rice, which has a glycemic index of over 100.)

High glycemic index foods are higher in calories (sugar or complex carbohydrate per 100 g), and lower in fibre and water compared to low glycemic index foods.
The higher fibre and water of low glycemix index foods makes them more satisfying as fullness leads to less hunger, and hunger control is the key to weight loss and weight maintenance.

- Low glycemic index foods are those with a GI of 55 or less.
- Moderate glycemic index foods are those with a GI from 56 to 69.
- High glycemic index foods are those with a GI of 70 or more.

Booklets containing tables of foods with their corresponding GI values are generally available from most bookshops.

Here are the GI values of some commonly consumed foods:

**Breakfast cereals**
- Bran cereals: GI 30–40 (low GI)
- Mueslis: GI 40–48 (low GI)
- Special K: GI 54 (low GI)
- Rolled oats: GI 59 (moderate GI)
- Hi Bran Weet-bix: GI 61 (moderate GI)
- Just Right Just Grains: GI 62 (moderate GI)
- Weetbix: GI 69 (moderate GI)
- Instant porridge: GI 66 (moderate GI)
- Cornflakes, Sultana Bran, Coco Pops, Rice Bubbles: GI 72–87 (high GI)

**Breads**
- Sourdough bread, whole-wheat bread: low GI
- White bread and wholemeal bread: high GI

*Note: Wholemeal bread uses wholemeal which is processed fibre, whereas whole-wheat bread uses whole wheat which is substantially higher in fibre.*
Grains
- Sweetcorn, brown rice, long grain rice: low GI
- White rice: high GI

Vegetables, legumes (e.g. beans)
- Most vegetables and legumes are low GI foods

Fruits
- Apples, oranges, pears, peaches and nectarines are low GI fruits but are quite high in carbohydrates.
- Tropical fruits, such as watermelons, pineapples, pawpaws and bananas are moderate in GI but watermelons and rock melons are medium in carbohydrates and are the preferred low carbohydrate foods (second choice to berries and strawberries).
- Berries and strawberries are very low in GI, as well as the lowest in carbohydrates, and are the low carbohydrate fruit of choice.

Pasta and noodles
Wholemeal spaghetti is the lowest in GI, followed by (in order of increasing GI):
- Ravioli
- Fettucine
- Rice noodles
- White spaghetti (the longer spaghetti is boiled, the higher the GI value)
- Instant noodles
- Macaroni and rice pasta

Other complex carbohydrates
- White rice is higher in GI compared to potatoes. Both rice and potatoes are classified as high GI foods and should be avoided if possible.
- Taro has a GI value of 55 (moderate GI).
• Yams have a GI value of 37 (low GI).
• Sweet potatoes are low in GI but New Zealand’s kumara (which belongs to the sweet potato family) is very high in GI (78) and should be avoided if possible.
• Pumpkin is high in GI (75) but very low in carbohydrate, and in my opinion is the low complex carbohydrate food of choice over kumara, potato and rice.
CHAPTER THIRTEEN

Endurance Sports

and the Low Carbohydrate Lifestyle
**Carbohydrates and endurance sports**

Endurance sports include running, swimming and cycling. Combinations of two or three of these disciplines – for example, triathlon, ironman and half ironman – are collectively known as multisports events.

The majority of endurance athletes are carbohydrate junkies, consuming enormous amounts of carbohydrates, as nutritionists and dieticians believe that high carbohydrate consumption will assist endurance athletes to perform well in their chosen events.

The argument goes that endurance athletes need an endless supply of energy and carbohydrates are the most readily available fuel. Consequently, endurance athletes worship the Food Pyramid and religiously follow a high carbohydrate/low fat diet.

However, research has shown the benefits of fat consumption prior to ultra-long endurance events (over 6 to 8 hours). But although some athletes flirt with the idea of using fat (such as glycerine and medium chain triglycerides, MCTs), only a few fully appreciate the value of fat in endurance sports.

**The late finishers**

Some of you may find what you are about to read offensive, but I regret to inform you that it is 99.9% true (I have learned over the years that nothing in this life is 100% certain and that the other 0.1% can always bring you surprises and keep life interesting!).

The next time you watch an endurance event such as a half marathon race, take notice of the bodyfat percentage of the athletes that cross the finish line – you will be shocked to find that after the top 20–30% of finishers, the bodyfat percentage of
the rest of the field is very high. In other words, the lower their placing, the fatter they are!

The top finishers are either gifted, naturally lean individuals (those friends of yours that can eat whatever they want and stay trim) or they have made a concerted effort to reduce their bodyfat percentage substantially over the course of their training towards the event.

The other 70–80% of late finishers trained for the challenge, ate large amounts of carbohydrates, but never bothered to reduce their bodyfat percentage. You may argue that their large training volume would burn off most of their stored bodyfat but this is simply not the case. Glycogen (the storage form of carbohydrate) is the first priority when it comes to body fuel utilisation, and has to be burned before your body calls on your stored fat as energy.

**Simply put: If you consume a large amount of carbohydrates, your body will not mobilise stored fat as energy.**

**The periodisation nutrition principle**

If you have been blessed with a naturally lean body, you may bypass the “moulding/fat loss stage” of endurance sports training and proceed straight to sports-specific training.* Carbohydrate consumption will fuel your training and your fat storage and muscle/protein will be spared, while your bodyfat percentage will remain the same – i.e. no fat loss and no fat gain.

* Training for the sport and consuming a large amount of carbohydrates to fuel your training.

The best way to find out if you need to lose any fat in order to perform well is to have your bodyfat percentage measured by one of the methods mentioned in
Chapter 7. Here are some guidelines:

**Male**
Desired endurance training bodyfat percentage: 10–12%
Desired race day bodyfat percentage: 7%

**Female**
Desired endurance training bodyfat percentage: 19–20%
Desired race day bodyfat percentage: 15–16%

Allow 16 weeks prior to your event to mould and shape your body to the desired bodyfat percentage and increase your endurance level (i.e. sports-specific training). I also advise seeking professional help with regard to training – for example, joining a multisports club, a swimming/running/cycling club, or working with a personal endurance coach or professional sports coaching consulting firm.

To lose bodyfat, follow the NZ Low Carbohydrate regime outlined in Chapters 5 and 6 (The Carb Addiction Rehab Phase/After the First Two Weeks). The fat-loss phase of your endurance training will end 4 weeks prior to your event and only then should you experiment with higher carbohydrate levels (as outlined in Chapter 6) or the concept of carbohydrate loading.

**Your energy level while following a low carbohydrate lifestyle**

Endurance athletes following a low carbohydrate lifestyle may feel easily exhausted during the first 4 weeks of their training – there is a good reason for this.

The preferential fuel for the human brain is ketone. From birth to 3–4 months old, the sole nutritional source for infants is milk (breast milk or infant milk formula), and milk is essentially a low carbohydrate/high fat/high protein food. Fat from that milk is converted to ketone to fuel the brain. After the age of 4 months, infants
are fed baby foods and solid foods and their diet is switched from low to high carbohydrate.

During the first 4–6 weeks of following a low carbohydrate regime, your brain will need to be “retrained” to use ketone rather than glucose as a primary fuel. During this switch-over period, protein (muscle) is broken down into amino acids, and certain amino acids (known as glucogenic amino acids) are converted into glucose to fuel the brain. Nevertheless, after the initial 4–6 week period, your brain should have been retrained to accept ketones as primary fuel and you will begin to feel more energetic.

To maximise your energy levels during training, always make sure you consume a pre-training meal 1 to 2 hours beforehand – meals with a higher fat content are better than a low-fat meal: for example, scrambled eggs with cheese or omelette with cheese. The fat content of the meal will be used to fuel your training session.

For those individuals who find it hard to train without their sugary/sweet energy drink, an artificially sweetened orange or lemon/lime flavoured drink may be the solution (for example Diet Refresh,* available from most supermarkets). Even though there is no sugar in the artificially sweetened drink, your brain may be fooled by the sweet taste and block the fatigue-neuromuscular connection.

*The aspartame used in Diet Refresh may impede your weight loss but your training volume will make up the difference.

**Increasing your carbohydrate intake**

Most individuals will achieve their goal weight after Week 12. If you have not achieved your goal weight by then, it might be a good idea to choose another event.

Make sure you are at your optimum training bodyfat percentage (10–12% for
males and 19–20% for females) 12 weeks prior to the event.

Once you have achieved your goal weight, you may increase your carbohydrate intake as outlined in Chapter 6 After the First Two Weeks.

Make sure the total daily carbohydrate level you choose corresponds to a rate of weight loss that will lower your bodyfat percentage to race day bodyfat within 4 weeks (7% for males and 15–16% for females).

**Carbohydrate loading**

The concept of carbohydrate loading (or carbo-loading for short) has been around for decades and has been used by countless numbers of endurance athletes and even bodybuilders.

According to this concept, if you starve yourself of carbohydrates for 2–3 days (depending on your body size), your body’s glycogen store will be used up, and when you resume carbohydrate consumption after this period of carbohydrate starvation, your muscle and liver (the two primary glycogen storage sites) will be able to store more glycogen than they did prior to the carbohydrate starvation.

A larger glycogen store can improve endurance and delay fatigue (through the water retention ability of carbohydrates – i.e. more water, less concentrated lactic acid* levels and hence less fatigue).

*Lactic acid is a by-product of exercise and is responsible for that “burning sensation” you felt the last time you exercised.

Carbo-loading is an art rather than a science, with the optimal amounts and durations varying from individual to individual.
I normally suggest one fist-sized serving of complex carbohydrates; for example, potatoes, kumara and rice are a better choice than pasta and bread. Pasta and bread contain gluten* and can cause bloating and possible abdominal discomfort during an event. I also suggest adding one slice of canned pineapple (simple carbohydrate or high glycemic index food) and a glass of water every 2 hours. As your glycogen store increases, so does your water retention ability.

*Gluten is a vegetable protein naturally occurring in wheat.

You should also consume 3 servings of protein (or protein shakes) per day during carbohydrate loading. Creatine monohydrate* may also increase your water level (within the muscle cells) and enhance the effect of carbo-loading.

* Creatine monohydrate is a powdered sports supplement popularised in the early 1990s that has been shown to increase athletes’ strength, explosive power and improve recovery rates. It is naturally occurring in meat (except in chicken), with each pound of meat containing 2 g of creatine monohydrate, although these days sports supplement companies synthesise it from chemicals.

Creatine monohydrate is available from most health or sports stores, with the price and quality varying from brand to brand. Patented brands of creatine monohydrate are free of by-products such as arsenic and two other chemicals related to cyanide which can cause abdominal upset. Patented brands should bear a trademark issued by either CREAPURE or PFANSTIEHL. Make sure you look for these trademarks when you are making your purchase.

The recommended dosages for creatine monohydrate are as follows:

For individuals 55 kg or below:
Days 1 to 5: Take 1 heaped teaspoon 4 times daily
Days 6–28: Take 1 heaped teaspoon once daily
Then take a 14-day break and repeat the cycle.

For individuals 56 to 85 kg:
Days 1 to 5: Take 1 heaped teaspoon 5 times daily
Days 6–28: Take 1 heaped teaspoon once daily
Then take a 14-day break and repeat the cycle.

For individuals 86 kg and above:
Days 1 to 5: Take 1 heaped teaspoon 6 times daily
Days 6–28: Take 1 heaped teaspoon twice daily
Then take a 14-day break and repeat the cycle.

Bear in mind that carbohydrate loading is a trial-and-error process. Generally, two to three days are all you need for carbo-loading, but some of my clients find they overload and arrive at an event feeling tired rather than full of energy. If this is the case, you may want to cut back on your carbo-loading. It pays to trial your carbo-loading regime over a preliminary event 2–3 weeks prior to the main event.
CHAPTER FOURTEEN
Low Carbohydrate Lifestyle and Muscle Building
**The myth**

Most gym junkies and professional bodybuilders will tell you to stay clear of a low carbohydrate lifestyle when attempting to build muscle. They will also lead you to believe that your strength will reduce dramatically without carbohydrates. This is far from the truth.

The first low carbohydrate weight-loss book I ever came across was BODYOPUS by the late Dan Duchaine, and I have personally used this programme and also prescribed it to many others including individuals preparing for bodybuilding competitions.

Dan Duchaine recognised the power of low carbohydrate eating in weight loss (through ketosis) and combined it with the principle of carbo-loading to maximise muscle growth. The result for anyone following the BODYOPUS 5 days low carbohydrate/2 days carbo-loading eating programme is a leaner and more muscular physique.

**Low carbohydrate lifestyle and muscle building**

As mentioned in Chapter 13 (Endurance Sports and the Low Carbohydrates Lifestyle), during the initial 4 to 6 weeks of following a low carbohydrate eating regime, your strength may reduce slightly but you will gain the benefit of a more stabilised energy level throughout your day.

If your initial bodyfat percentage is over 20%, I recommend you use the low carbohydrate lifestyle outlined in previous chapters (Chapter 5 The Carb Addiction Rehab Phase and Chapter 6 After the First Two Weeks) to reduce your bodyfat quickly then, once you have achieved your goal weight, switch to a 5/2 or 6/1 low carbohydrate/high carbohydrate regime to maximise muscle growth (for details, please refer to Chapter 12 The War of Weight Maintenance). On the other hand,
if your initial bodyfat percentage is below 15% you can go onto the 5/2 or 6/1 low carbohydrate/high carbohydrate regime to maximise muscle growth and lose bodyfat at the same time.

Make sure you monitor your progress using bodyfat percentage and not relying on your weight alone. Your weight will remain static while losing fat and gaining muscle. Unless you perform a substantial amount of cardiovascular exercise (for example, 30 to 40 minutes on Days 1 to 5), you will only lose about half a kilogram of bodyfat per week.

_The muscle-building 5 days low carbohydrate/2 days high carbohydrate regime_

**Days 1 to 5: The low carbohydrate phase**

*Note: Days 1 to 5 are normally Monday to Friday but could be any days of the week.*

Excess cardiovascular exercise can lead to muscle wasting. You should only perform cardiovascular exercise (between 30 to 40 minutes) on Days 1, 2 and 3 in order to decrease the time required to enter ketosis.* If you want to speed up your fat loss, include cardiovascular exercise on Days 4 and 5 – you may lose some muscle as a result of this extra cardiovascular exercise as well.

To minimise the muscle-wasting effects of excess cardiovascular exercise, I recommend using HMB* (Beta-hydroxyl-beta-methylbutyrate), which is a by-product of the amino acid leucine and has been shown to prevent muscle breakdown if consumed after exercise. HMB is best consumed in one dose before bed because it also has a sedative effect and will help to improve the quality of sleep. HMB is available from most health-food stores that stock sports supplements. (For more information on HMB, visit www.mtibiotech.com.)
To purchase HMB, go to www.nzlowcarb.com

Cardiovascular exercises use glycogen as fuel – when glycogen is used up, your body will switch to ketosis and burn fat as its sole fuel.

Putting aside health for a moment, and for the purpose of keeping your daily carbohydrate intake down, I recommend consuming no vegetables or salads, cheeses, onion, cream/low carb Supertrim milk, mayonnaise or berries on Days 1, 2 and 3.

• Your daily carbohydrate intake will be around 10 g* (mostly from your protein shakes, protein bars and perhaps half a bar of low carbohydrate chocolate).

*10 g of daily carbohydrate means eliminating cheese, cream, onion, berries and any vegetables.

• Increase your daily carbohydrate intake to 20 g on Days 4 and 5 by reintroducing cheese, cream, onion, berries and vegetables (as outlined in Chapter 5).

• Schedule your weight training around Days 1, 2 and 3 while your muscle glycogen store is high.

Days 6 and 7: The carbohydrate-loading phase

Carbo-loading on Days 6 and 7 is perfect for the social schedule of most individuals. You may start carbo-loading at around 7:00 pm on Friday (Day 5) and stop at 7:00 pm on Sunday (Day 7).* Stick to a 70% complex and 30% simple carbohydrates ratio. Consume at least 5 carbohydrate meals per day – and if you can fit in more meals or carbohydrate, go for it. My personal favourite carbo-loading regime is:
*That means a carbohydrate dinner on Friday night and a carbohydrate-free dinner on Sunday night.

- Complex carbohydrate: one fist-sized serving (for example, potatoes, kumara, rice, noodles and pasta)
- Simple carbohydrate: one piece of high glycemic index fruit (for example, nectarines and oranges – berries and strawberries are very low in carbohydrate and are not suitable choices) or 1 glass of fruit juice
- One to two glasses of water per meal.

Make sure you drink plenty of fluid to maximise the water retention ability of your carbohydrate consumption (remember – 1 g of carbohydrate will hold onto 2.7 g of water). If you want to further enhance your water retention ability, use creatine monohydrate.

Creatine monohydrate is a powdered sports supplement popularised in the early 1990s that has been shown to increase athletes’ strength, explosive power and improve recovery rates. It is naturally occurring in meat (except in chicken), with each pound of meat containing 2 g of creatine monohydrate, although these days sports supplement companies synthesise it from chemicals.

Creatine monohydrate is available from most health or sports stores, with the price and quality varying from brand to brand. Patented brands of creatine monohydrate are free of by-products such as arsenic and two other chemicals related to cyanide which can cause abdominal upset. Patented brands should bear a trademark issued by either CREAPURE or PFANSTIEHL. Make sure you look for these trademarks when you are making your purchase.*

*To purchase PFANSTIEHL trademarked creatine monohydrate in New Zealand, visit www.nzlowcarb.com.
The recommended dosages for creatine monohydrate are as follows:

For individuals 55 kg or below:
Days 1 to 5: Take 1 heaped teaspoon 4 times daily
Days 6–28: Take 1 heaped teaspoon once daily
Then take a 14-day break and repeat the cycle.

For individuals 56 to 85 kg:
Days 1 to 5: Take 1 heaped teaspoon 5 times daily
Days 6–28: Take 1 heaped teaspoon once daily
Then take a 14-day break and repeat the cycle.

For individuals 86 kg and above:
Days 1 to 5: Take 1 heaped teaspoon 6 times daily
Days 6–28: Take 1 heaped teaspoon twice daily
Then take a 14-day break and repeat the cycle.

Make sure you keep up with your protein intake, as mentioned in Chapter 5 (The Carb Addiction Rehab Phase), to work out your optimum protein intake for muscle building:

- Individual who engages in resistance training more than twice weekly – 2 g protein per kg body weight per day; for example, a 70-kg person who only weight trains three times weekly will require 70 x 2 g = 140 g protein per day.
- 20 g protein = a piece of meat approximately the size of your palm
- 30 g protein = a piece of meat approximately the size of your palm plus your fingers (closed)
- 40 g protein = a piece of meat approximately the size of your palm plus your fingers (open)
- 1 egg = 5–6 g protein
Note: Considering the variation in meat protein content and individuals’ hand sizes, the above guidelines are merely rough estimates.

By the end of Day 7, your muscles will be full of glycogen and water and you will feel as “pumped” as the Incredible Hulk!
CHAPTER FIFTEEN

How to Read Food Labels
Vegetable oil was introduced in the 1950s to reduce our consumption of saturated fat (such as butter and animal fat) because scientists established a false link between saturated fat and heart disease. As a result of these “findings”, a new multi-billion-dollar low-fat food industry emerged. Fat was the “bad guy” that took all the blame for causing obesity, Type II diabetes, heart disease and cholesterol problems.

The late Dr Robert Atkins, founder of the Atkins Diet – originally an overweight medical specialist himself – was the first to point out that nutritionists, dietiticians and doctors were wrong about fat, and that excess carbohydrate consumption was the actual problem.

I would even go so far as to say that – just like the bogus “Millennium Bug” that was supposed to cause a worldwide shutdown of computer systems at the turn of the century – the only tangible result of the whole low-fat theory is a multi-billion-dollar industry benefiting a handful of unscrupulous businessmen.

The main problem with most low-fat foods is their high sugar content. Take a trip to your local supermarket, pick out three 95 to 99% fat-free foods and you will be shocked to find that they contain 30–40% sugar or carbohydrate.

The trick to manufacturing any low-fat food is to replace the taste of fat with sugar – if they took the fat and the carbohydrate out at the same time, no one would ever buy low-fat food and the companies that make these useless products would collapse.

**Carbohydrates per serving?**

Most food regulations around the world state that if the macronutrient (protein, fat
and carbohydrate) content of a food is less than 1 g (which can mean between 0 to 0.99 g), there is no need to state the exact amount of it and the statement “less than 1 g” is sufficient. But just contemplate the following scenario for a moment:

Food A contains:

<table>
<thead>
<tr>
<th></th>
<th>Per serving (10 g)</th>
<th>Per 100g</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbohydrate</td>
<td>less than 1 g</td>
<td>9 g</td>
</tr>
<tr>
<td></td>
<td>(actual = 0.9 g)</td>
<td></td>
</tr>
</tbody>
</table>

The food manufacturer is leading you to believe that you are allowed an unlimited amount of Food A while following a low carbohydrate lifestyle, whereas in reality you should limit your intake.

For example, if you have 5 servings (5 x 10 g servings) of Food A, you have just consumed 4.5 g of carbohydrate (approximately 25% of your 20 g carb addiction rehab phase daily allowance).

So the next time you look at a food label, first check out the carbohydrate content per 100 g, then per serving, and ask yourself this question: What is the total carbohydrates for the total amount of servings I plan to have?

**Net carbohydrate vs total carbohydrate**

In 2003, the US FDA (Food and Drug Administration – the North American equivalent of the New Zealand Food Regulations) changed its previous rulings with regard to food labelling. The FDA required foods and food supplements companies to include dietary fibre (both soluble and insoluble), polyols* (sugar alcohols such as isomalt and maltitol) and glycerine in the calculation of the total carbohydrate count of a food or supplement. To help consumers distinguish between dietary fibre, polyols and glycerine, these companies came up with the term “Net Carbs”.
**Polyols:** Sugar alcohols (otherwise known as polyols) are common ingredients in reduced carbohydrate products intended for those following a low-carb lifestyle and diabetic patients; they have also been used in liquid medicines instead of syrup.

Sugar alcohols can be described as partially sugar and partially alcohol, although they do not contain ethanol like alcoholic beverages. They are derived from other carbohydrates such as sucrose, glucose and starch.

Total Carbohydrates = Carbohydrates + Sugar + Polyols + Glycerine + Dietary Fibre

Net Carbs = Total Carbohydrates – (Polyols + Glycerine) – Dietary Fibre

= Carbohydrates + Sugar

Foods and food supplements in New Zealand and Australia are governed by different regulations which require companies to include carbohydrate, sugar, protein, fat, dietary fibre and other mineral contents in their food labels. Polyols and glycerine are not included in the nutritional facts label.

The total carbohydrate on the label of a food/supplement manufactured in New Zealand and Australia is the actual sum of carbohydrate and sugar that will impact on your blood glucose level. There is no need to subtract the dietary fibre and polyols/glycerine from the total carbohydrate amount because the term “Net Carbs” does not apply here.

So the next time you look at a food label, first determine where the food is made – if the food is made in the United States or Canada:

Total Carbohydrates = Carbohydrates + Sugar + Polyols + Glycerine + Dietary Fibre
Fibre

Net Carbs = Total Carbohydrates – Polyols/Glycerine – Dietary Fibre
= Carbohydrates + Sugar

If the food is made in New Zealand or Australia:

Total Carbohydrates = Net Carbs = Carbohydrates + Sugar

Dietary fibre is quoted separately.

**Reading the ingredients list**

Foods and food supplements companies are required to disclose the list of ingredients they use to manufacture their products. Ingredients are required (by the FDA and Food Regulations) to be listed in decreasing order according to the amount contained within a food.

However, some companies are not very honest when it comes to food labelling. For example, a particular brand of low-carb chocolate imported from the US states that its carbohydrate content is zero, but when I took a closer look at the ingredients list I found cocoa powder (51% carbohydrate), maltodextrin (a starch) and sucrose (a sugar), and I knew straight away that the labelling was deceptive.

The next time you find maltodextrin, fructose, sucrose or glucose in the ingredients list of a food but the company claims that its product contains zero carbohydrate, I suggest you put it straight back on the shelf.
Types of vegetarians

- Lacto Ovo vegetarians do not consume any meat but, unlike Vegans, they do eat eggs and dairy products. Tofu and eggs are therefore the only two choices of protein foods for the Lacto Ovo vegetarian.
- Lacto vegetarians do not consume any meat or eggs. The main protein foods for them are cheese, milk/cream and tofu.

In terms of protein supplements, both Lacto Ovo and Lacto vegetarians can use whey protein shakes and soy protein shakes to increase their dietary protein intake.

- Vegans do not consume any meat, eggs or dairy products.

Tofu and soy protein shakes are therefore the two main low carbohydrate/high protein food sources for Vegans.

Note: Soy beans are moderately high in carbohydrates and should be avoided during the carb addiction rehab phase. I recommend limiting your tofu intake during the carb addiction rehab phase to one block per day (approximately 6 g of carbohydrates). Tofu is normally sold in blocks in most supermarkets and Chinese grocery stores.

Example of a carb addiction rehab phase menu for Lacto Ovo vegetarians (below 20 g carbohydrates per day)

**Breakfast:**

Berry smoothie (2 heaped tablespoons of low-carb whey protein shake mix, 50 mls of cream/low carb Trim milk, 100 mls of water, 2 strawberries/quarter of a cup of frozen berries – blend in a blender)
**Mid-morning snack:**

Low-carb protein bar or low-carb whey/soy protein shake

**Lunch:**

Egg omelette with cheese and mushrooms

**Mid-afternoon snack:**

Low-carb protein bar or low-carb whey/soy protein shake

**Dinner:**

½ block of tofu* fried with 1–2 teaspoons of soy sauce
1–2 eggs fried
salad or vegetables

To make the tofu dish slightly more interesting, you may want to try this recipe:

- Slice the ½ block of tofu into 3 portions width-wise
- Use a spoon to make a round hole (half the depth of the tofu block) in the middle of each tofu portion
- Mash the tofu bits from the hole with spinach and eggs, add salt, pepper and herbs
- Refill the holes with the tofu/spinach/egg mixture
- Fry the tofu blocks on a frying pan

*The carbohydrate count per ½ block of tofu is approximately 1 g (13–14 g protein) but varies from brand to brand. Tofu sold in supermarkets is normally twice the price of tofu in most Chinese vegetable shops.*
Here is the nutritional information of one of the brands of tofu I have bought from a Chinese supermarket:

<table>
<thead>
<tr>
<th>Servings per pack : 4</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Serving Size : 185g (1/2 block)</td>
<td>Per serve</td>
<td>Per 100g</td>
</tr>
<tr>
<td>Energy</td>
<td>505 kj</td>
<td>273kj</td>
</tr>
<tr>
<td>Protein</td>
<td>13.6g</td>
<td>7.4g</td>
</tr>
<tr>
<td>Fat</td>
<td>6.8g</td>
<td>3.7g</td>
</tr>
<tr>
<td>Saturated Fat</td>
<td>1.2g</td>
<td>0.7g</td>
</tr>
<tr>
<td>Carbohydrates</td>
<td>1.1g</td>
<td>0.6g</td>
</tr>
</tbody>
</table>

The suggested in-between meal snacks for Lacto Ovo vegetarians are:

1. Boiled eggs.
2. Roll cheese with sliced boiled eggs in the centre.
3. Roll cheese with celery and sliced boiled eggs in the centre.
4. Low carbohydrate chocolate (only half a bar allowed during carb addiction rehab phase).

Example of a carb addiction rehab phase menu for Lacto vegetarians (below 20 g carbohydrates per day)

**Breakfast:**

Berry smoothie (2 heaped tablespoons of low-carb whey protein shake mix, 50 mls of cream/low carb Trim milk, 100 mls of water, 2 strawberries/quarter of a cup of frozen berries – blend in a blender)
**Mid-morning snack:**

Low-carb protein bar or low-carb whey/soy protein shake

**Lunch:**

– Slice ½ block of tofu into three portions
– Deep-fry each portion in oil until the portions turn yellow (from white)
– Melt some grated cheese on top of each deep-fried tofu portion, sprinkle with salt, pepper and herbs
– Serve with salad or vegetables

**Mid afternoon snack:**

Low-carb protein bar or low-carb whey/soy protein shake

**Dinner:**

– Slice a red or green capsicum into 2 halves
– Mash ½ block of tofu, add salt, pepper and herbs
– Stuff the 2 capsicum halves with the tofu/egg mixture
– Fry in a frying pan
– Serve with salad or vegetables

For Lacto vegetarians, the suggested in-between meal snacks are:

1. Roll cheese with celery and sliced boiled eggs in the centre.
2. Low carbohydrate chocolate (only half a bar allowed during carb addiction rehab phase).

*Example of a low carbohydrate menu for Vegans (below 20 g carbohydrates per day)*
**Breakfast:**

Berry smoothie (2 heaped tablespoons of low-carb whey protein shake mix, 50 mls of low-carb soy milk,* 100 mls of water, 2 strawberries/quarter of a cup of frozen berries – blend in a blender)

**Mid-morning snack:**

Low-carb protein bar or low-carb whey/soy protein shake (mixed with low-carb soy milk)

**Lunch:**

– Slice ½ block of tofu into three portions
– Deep-fry each portion in oil until the portions turn yellow (from white)
– Sprinkle with salt, pepper, soy sauce (1–2 teaspoons) and herbs
– Serve with salad or vegetables

**Mid-afternoon snack:**

Low-carb protein bar or low-carb whey/soy protein shake (mixed with soy milk; I suggest Vitasoy Light Original – only 4 g carbohydrates per 100 mls)

**Dinner:**

– Slice a red or green capsicum into 2 halves
– Mash ½ block of tofu, add salt, pepper and herbs
– Stuff the 2 capsicum halves with the tofu mixture
– Fry in a frying pan
– Serve with salad or vegetables
*I recommend using Vitasoy Light Original Soy Milk, because it contains the lowest amount of carbohydrate.*

<table>
<thead>
<tr>
<th>Brand</th>
<th>Type</th>
<th>Carbohydrate in g/100 mls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitasoy</td>
<td>Rice Milk</td>
<td>9.8</td>
</tr>
<tr>
<td></td>
<td>Soy Creamy Original</td>
<td>6.1</td>
</tr>
<tr>
<td></td>
<td>Calci-plus</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td>Light Original</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>Vitality</td>
<td>4.9</td>
</tr>
<tr>
<td>Sanitarium</td>
<td>So Good Essential</td>
<td>6.3</td>
</tr>
<tr>
<td></td>
<td>So Good Chocolate</td>
<td>8.1</td>
</tr>
<tr>
<td></td>
<td>So Good Vanilla</td>
<td>8.8</td>
</tr>
<tr>
<td></td>
<td>Organic</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td>Regular</td>
<td>4.7</td>
</tr>
<tr>
<td>Get Natural</td>
<td>Original</td>
<td>7.4</td>
</tr>
<tr>
<td></td>
<td>Calci-forte</td>
<td>7.5</td>
</tr>
<tr>
<td>Soyfresh</td>
<td>Soya Milk</td>
<td>8</td>
</tr>
</tbody>
</table>

Most vegetarian sausages and vegetarian chicken breasts are made with vegetable protein, soy flour and potato starch. They are moderately high in carbohydrate (approximately 17% carbohydrate) and should be avoided during the carb addiction rehab phase.

Vegans are very limited in what they can have during the carb addiction rehab phase, so after the phase is over they should make sure to add foods such as vegetarian sausages, vegetarian chicken breast and various reduced carbohydrate products (as outlined in Chapter 19 Recipes) to their intake.

In terms of in-between meal snacks for Vegans, celery sticks are an excellent choice.
CHAPTER SEVENTEEN
What to do While You are on Vacation
The vacation dilemma!

Whether you have just paid thousands for an overseas holiday or you haven’t had a holiday for months (or years, for all you workaholics!) – in fact, whatever the reason(s) – it is just plain stupid to go “all out” and consume all the carbohydrates you want over the whole of the vacation. You will find yourself 2, 5 or even 10 kg heavier at the end of your holiday break, depending on how long you were away for – and you might think that I am just trying to scare you, but some of my clients have even gained 15 kg after being on vacation for 3 months!

What not to do during a vacation

I have taken several vacations with my partner over the last six years while following a low carbohydrate lifestyle. When we travelled to Melbourne, Bangkok and Singapore during December and January 2001, I managed to keep to a low carbohydrate lifestyle while I was in Melbourne but was tempted with tropical fruits and a high carbohydrate buffet breakfast while in Bangkok. Finally I caved in! I went all out on carbohydrates for four days (the length of our Bangkok stay).

The next stop was Singapore, staying with my cousin and aunt and dining out in Chinese restaurants every night – and that was the worst! By the end of the three-day stay I couldn’t even button up my trousers!

The end result – I put on 5 kg and experienced a terrible time dealing with my carbohydrate cravings once I was back in Auckland.

This an excellent example of what not to do during your vacation. As mentioned in previous chapters, carbohydrate consumption can make you very tired, and what could be worse than having low energy levels while you are out taking in the sights?
For those of you who are prone to indigestion, heartburn and gastric ulcers, it isn’t pleasant either to have to keep taking Zantac (an indigestion medication) and antacids while you are on holiday because you have failed to stick with the low-carb lifestyle. And once you return from vacation, you have the added discomfort of wearing clothing that has grown too tight until you manage to lose your unwanted holiday pounds.

However, the most significant after-effect of your holiday carbohydrate binge is that it will reawaken your carbohydrate addiction. You will find yourself craving sugary foods and carbohydrates all day long when you get back. The worst-case scenario is that you may even choose to keep eating carbohydrates once you have returned. Eventually, you may regain all the weight that you have so painstakingly lost over the last few months or years.

**Summary:**

1. Do not binge on carbohydrates while you are on vacation because it may affect your energy levels negatively during the day (i.e. falling asleep while you are sightseeing!).
2. Bingeing on carbohydrates during your vacation may cause indigestion.
3. You may find your clothing too tight to get into again after a vacation.
4. Constant carbohydrate binges during your vacation may “spark” your carbohydrate addiction again.

**Close but not quite!**

In December 2003, I visited the beautiful island of Vanuatu. I was older and wiser this time around, and I did some planning before the trip to maximise my chances of sticking to a low carbohydrate lifestyle during my holiday. Most four-star hotels offer complimentary breakfasts to their guests during their stay, so I asked my travel agent to search for a resort that offered American or hot breakfasts* (not
continental breakfasts*).

*American breakfast = for example, bacon and eggs, omelette (if your budget extends to hotels that offer a hot buffet breakfast – all you can eat! – that’s even better – just remember, you only live once!).

* Continental breakfast = for example, breads, cereal, croissants (French-style with chocolate core in Vanuatu = lethal!) and fruit.

My partner and I stayed in a beautiful resort that offered a full breakfast menu, including my favourite low carbohydrate breakfast options – bacon, eggs and omelette. When I ordered, I told the waiter to hold the toast and the fruit and double the bacon and scrambled eggs.

During our seven-day stay, I ate low carbohydrate meals for four out of the seven days. As for the other three days – the French pastries in Vanuatu got the better of me I’m afraid to say!

On our return to Auckland I found that my weight had remained the same. It was good news that I had not gained any weight (possibly due to an increased activity level from walking around a lot in the heat). Nevertheless, I was not happy with my lack of control with regard to carbohydrate consumption. Four low carbohydrate days out of seven was not good enough for me – I was still behaving like an unreformed carbohydrate addict!

**Summary:**

1. Always stay in hotels that offer a full hot buffet breakfast.
2. Keep your activity levels high, walk whenever possible.
Europe 2004

Ten years after I graduated from Otago University I finally decided to engage in some serious travelling, and my partner and I decided to visit Europe. I wanted to keep to low carbohydrate eating while I was away, so I had to locate hotels that offered hot buffet or American breakfasts.

I managed to find hotels that offered such breakfasts in Bangkok, Brussels, Paris, Venice, Florence and Rome. The only exception was London, where all the hotels served continental breakfasts. Fortunately for me, as it turned out, these continental breakfasts included ham, cheese and boiled eggs (boiled eggs and ham/cheese roll-ups for breakfast – perfect!).

However, trying to keep to a low carbohydrate eating regime while you are in England is very very expensive (£13–15 for steak and salad – that’s NZD$39–45!), so make sure you budget for your meals (at least NZD$100 per person per day for lunch and dinner).

Also make sure you pack protein bars and protein powder with you to provide in-between meal snacks, otherwise you could find yourself stranded in the middle of your sightseeing tours amidst a sea of carbohydrate foods.

Summary:

1. Make sure you take an adequate supply of protein powder and protein bars with you while on vacation.
2. Budget extra for meals and take into account the higher prices of high protein/low carbohydrate meals overseas.
The 3-day low-carb travel regime

Wanting to control my eating and not let my carb addiction control me, before my European trip I devised a “3 days on/1 day off” low-carb travel regime and determined to test it out while I was on holiday in Europe.

As you may recall from Chapter 5 The Carb Addiction Rehab Phase, it only takes 48 to 72 hours (depending on your activity levels) to deplete the glycogen stores in your muscles and liver, and once these glycogen stores are depleted, your body will switch to lipolysis/ketosis for fuel.

Let’s assume that you consume carbohydrates on the first day of your trip – your body will switch from ketosis back to glycolysis* for fuel because of the availability of glucose from your carbohydrate consumption. Your next carb day should be on Day 5 of your trip. After a whole 24 hours of carbohydrate consumption, it will take you up to 48–72 hours to deplete your glycogen stores and reinitiate ketosis again. The next carbohydrate consumption day will be Day 9 and the next one after that will be Day 13 and so on.

*Glycolysis = breaking down glycogen/glucose for energy.

Note: Make sure you keep up the consumption of Hoodia cactus (appetite suppressant) to keep your appetite under control, otherwise you may find yourself bingeing on carbohydrates for more than the planned 24-hour period.

Just remember, you will not be losing any weight following this 3 days on/1 day off regime – the objective here is weight maintenance; i.e. for you to return from your vacation weighing the same as when you left.
The verdict!

Sticking to the experimental 3 days on/1 day off regime religiously while I was away for 13 days in Europe, I returned to Auckland 300 grams lighter (pre-vacation weight 91.7 kg; post-vacation weight 91.4 kg). My first successful controlled carbohydrate vacation!

Summary: The 3 days on/1 day off low-carb travel regime

72 hours/3 days of low-carb eating followed by 24 hours/1 day of carbohydrate consumption; repeat this cycle throughout the duration of your vacation.
CHAPTER EIGHTEEN

Recipes
For a full list of low-carb recipes, please visit the NZ Low Carb website at www.nzlowcarb.com.

In the meantime, here are a few samples of some of the recipes from the website:

**Pancakes**

*Ingredients:*
2 eggs
¼ cup of oil
vanilla
2 cups of cultured buttermilk or cream

*Mix the above ingredients together*

2 heaped tablespoons of Ketogenic Sweetener
½ tsp salt
½ tsp Edmonds baking soda
½ tsp Edmonds baking powder
spices (allspice, cinnamon)
2 cups of NZ Low Carb Pancake Mix

*Blend in slowly with wet ingredients*

*Spoon mixture onto hot saucepan to form pikelets and cook under low heat. Grease the saucepan with oil or butter*

Each pancake contains:
Carbohydrate: 3.1 g    Fat: 3.6 g    Protein: 7.5 g
**Low Carb Bread**

Remember, when making bread in a breadmaker, it is important that the ingredients go into the tin in the order specified:

*Ingredients:*
- 250 mls of lukewarm water (cold or hot water will kill the yeast)
- 2 tablespoonsful (heaped) of oil
- 1 teaspoon of salt
- 350 g of bread mix
- 1 level tablespoon of Ketogenic Sweetener (the yeast eats it)
- 2 heaped teaspoonsful of Edmonds Surebake Yeast dry.

*Switch on the breadmaker*

*Set the breadmaker to dough mode until the dough is formed*

*Set the breadmaker to BAKE mode for 5 minutes*

*Switch off the breadmaker and let the dough rise for 25 minutes*

*Bake for 41 minutes*

*If the bread rises above the bread pan, tap the top of the bread lightly until the bread starts sinking down*

*To remove the bread loaf from the pan, grease the pan with oil beforehand and gently pull the bread out after running around the sides with a knife*

Servings per loaf: 16 servings/slices

Per serving:
- Carbohydrate: 3.52 g
- Fat: 1.30 g
- Dietary fibre: 7.30 g
- Protein: 19.63 g
Blueberry Muffins

Preheat oven to 180°C or use an electronic muffin maker (available from most appliance stores):

Ingredients:
2 cups (300 g) NZ Low Carb Bake Mix
2 teaspoons baking powder
1 egg, lightly beaten
1 cup Anchor Low Carb Trim Milk
¼ cup olive or other oil; or 37.5 g of butter
10 heaped teaspoons of Ketogenic Sweetener
100 g of frozen blueberries
2 teaspoonsful of cinnamon

In a small bowl combine milk, egg and oil, add the dry ingredients and stir until combined
Spoon into greased muffin tins and bake for 15–20 minutes until golden

Makes 12 muffins

Each muffin:
Carbohydrate: 3.3 g  Protein: 7.1 g  Fat: 5.4 g
Peanut Brownies

Ingredients:
125 g butter, softened
1 cup of Ketogenic Sweetener
1 egg
One and a half cups of NZ Low Carb Bake Mix
1 teaspoon of Edmonds baking powder
pinch of salt
1 tablespoon of cocoa powder
100 g of peanuts halves

Cream butter until light and fluffy
Add egg and beat well
Sift Bake Mix, baking powder, salt, Ketogenic Sweetener and cocoa together
Mix into creamed mixture
Add peanuts and mix well
Roll tablespoons of mixture into balls
Place on greased oven tray
Flatten with a floured (with Bake Mix) fork
Bake at 180°C for 15 minutes or until cooked

Makes 20

Per brownie:
Carbohydrate: 1.5 g    Fat: 8.8 g    Protein: 3.8 g
CHAPTER NINETEEN

Cholesterol
In Chapter 3, I wrote:

In the 1950s, the number of individuals suffering from heart disease was on the rise and scientists eventually – but incorrectly – linked consumption of saturated fat to heart disease and raised LDL/cholesterol level. As a solution, vegetable oil was introduced to replace saturated fat. This move saw the substitution of butter with margarine, and saturated fat with the even worse “trans fatty acids”.

With saturated fat being blamed for a “crime” that it did not commit and the Food Pyramid (introduced in its current form in 1992) being widely popularised, nutritionists and dieticians recommended six to seven servings of carbohydrates (cereal, bread, potatoes etc) per day in order to displace the “harmful” saturated fat.

What is cholesterol?

Cholesterol belongs to the chemical group steroids; its other biochemical classification is dietary lipids or, in plain English, dietary fat. Animal products such as eggs, meat and cheese have high cholesterol content. Despite being branded as “evil” and bad, and wrongly linked to the causes of heart disease, cholesterol is in fact essential to human life.

Used in the manufacture of the human cell membrane, cholesterol is also the raw material for the manufacture of vitamin D, sex hormones (for example, testosterone and oestrogen), other hormones (such as cortisol* and aldosterone*) and bile salts.

*The functions of cortisol and aldosterone are outside the scope of this book.

Approximately eighty percent of the body’s total cholesterol is made from a chemical known as acetyl CoA in the liver, while other body cells such as the intestinal cells also make small amounts.
**Lipoproteins**

Cholesterol, free fatty acids and triglycerides (the storage form of fat) are insoluble in water and do not circulate freely in the bloodstream. Instead, they are transported in body fluids by binding to lipoproteins. Lipoproteins are part fat and part protein. There are several types of lipoproteins, classified according to their densities. The higher the percentage of fat, the lower the density of the lipoprotein. The higher the percentage of protein, the higher the density of the lipoprotein.

**The different types of lipoproteins are:**

1. Chylomicrons
2. Very low density lipoproteins (VLDLs)
3. Low density lipoproteins (LDLs)
4. High density lipoproteins (HDLs)

- Chylomicrons transport dietary triglycerides, cholesterol and other fat from the gastrointestinal tract to your bloodstream and have the lowest density among lipoproteins.
- VLDLs are manufactured in the liver, and transport triglycerides made there to adipose tissues (fat tissue cells); once they reach and enter the adipose tissues, they “off-load” the triglycerides and are converted to LDLs.
- LDLs are cholesterol rich and are responsible for transporting cholesterol to cells around your body for the repair/maintenance/manufacture of cell membranes (the outer protective layer of human cells), manufacture of hormones and storage for later use.
- HDLs are very high in phospholipids (a type of fat) and cholesterol, and are responsible for transporting cholesterol from the tissue cells to the liver to be broken down and become part of the bile salts. Cholesterol in bile salts is eventually excreted in faeces after the bile salts have carried out their digestive functions.
The cholesterol test!

Cholesterol has been shown to increase the risk of arteriosclerosis, a medical condition relating to cholesterol clogging the arteries and causing blood clots, and possibly causes strokes and heart attacks (collectively known as heart disease).

Measuring an individual’s cholesterol level has been used as a benchmark to assess their risk of heart disease. While the total cholesterol level reveals very little information on the risk of heart disease, it is the breakdown of total cholesterol that is important.

A high HDL level is considered good because HDLs transport cholesterol destined to be destroyed and secreted. It is commonly known as the “good” cholesterol.

When the LDL level is high, lethal cholesterol deposits are laid down in the artery walls and may increase your risk of heart disease. LDL is thus commonly known as the “bad” cholesterol.

Will consumption of saturated fat increase your cholesterol level?

As said earlier, approximately eighty percent of the total cholesterol present in the human body is manufactured by the liver (while small amounts are manufactured by other cells such as the intestinal cells), and only about twenty percent is consumed through daily food intake. Despite many nutrition experts believing that consumption of saturated fat affects your total cholesterol level, this is far from the truth. In fact, it has been shown that a reduced saturated fat intake has little effect at all on your total cholesterol level.

The process of cholesterol manufacture in the liver is heavily influenced by insulin. The main goal of a low-carb lifestyle is to minimise insulin levels. Obviously, if your liver makes cholesterol under the influence of insulin, minimising your
insulin level will reduce the amount of cholesterol manufactured by your liver. This explains why so many of my clients – along with millions of other low-carb lifestyle followers – experience a substantial reduction in their LDL (“bad” cholesterol) level and a correspondingly substantial increase in their HDL (“good” cholesterol) level.

LIPEX belongs to a group of medicines known as HMG-CoA reductase inhibitors. It works by reducing the amount of cholesterol made by the liver. In terms of “good” and “bad” cholesterol, in most patients LIPEX reduces the bad cholesterol and can actually raise the level of good cholesterol. LIPEX is the first line of treatment for patients with high LDL and low HDL levels and works by “stopping” the action of an enzyme that aids in the manufacture of cholesterol in the liver, hence reducing the amount of cholesterol the liver produces.

Some researchers have found that insulin stimulates HMG-CoA, and since insulin is stimulated by consumption of carbohydrates, a low-carb lifestyle may be a drug-free way of reducing your cholesterol level. It has also been found that glucagon suppresses the action of HMG-CoA, and since glucagon is stimulated by consumption of protein, consuming protein may be another drug-free way of reducing your cholesterol level.

*Insulin stimulates HMG-CoA, and since insulin is stimulated by consumption of carbohydrates, a low-carb lifestyle may be a drug-free way of reducing your cholesterol level.*

*Glucagon suppresses the action of HMG-CoA, and since glucagon is stimulated by consumption of protein, consuming protein may be another drug-free way of reducing your cholesterol level.*
**The exceptions**

Some low-carb lifestyle followers may experience an increase in both LDL and HDL levels, hence increasing their total cholesterol level. So far I have found two explanations for this increase:

The late Dr Robert Atkins attributed the change in low density lipoprotein or LDL profile to the different types of LDL not commonly tested in standard blood cholesterol tests. He claimed that there are two different types of LDL, with the first type – called VLDL (very low density lipoprotein) – not being harmful to humans and unable to form blood clots, their sole purpose being to transport cholesterol to cells. However, after “off-loading” the cholesterol needed by the cells, the remaining part of VLDL is LDL, which is full of triglycerides and cholesterol and is responsible for forming clots within your arteries. The increased LDL level is actually a total of VLDL and LDL; the increase is due to an increase in VLDL, rather than the harmful LDL, hence not increasing your risk of heart disease.

Researcher Mark Borkman of Sydney, Australia published a study in 1991 in the *Journal of Clinical Endocrinology and Metabolism* comparing the effects of high carbohydrate* and high fat diets* on non-diabetic/non-obese subjects.

*The average age of the subjects was 38.
*The high carbohydrate diet in this study contained 50% carbohydrate and 30% fat (i.e. the traditional Food Pyramid diet).
*The high fat diet in this study is similar to that of the NZ Low Carb lifestyle.
The results are listed in the table below:

<table>
<thead>
<tr>
<th></th>
<th>High Carb Diet</th>
<th>High Fat Diet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cholesterol</td>
<td>159 mg/dl*</td>
<td>191 mg/dl</td>
</tr>
<tr>
<td>LDL</td>
<td>111 mg/dl</td>
<td>139 mg/dl</td>
</tr>
<tr>
<td>HDL</td>
<td>32 mg/dl</td>
<td>42 mg/dl</td>
</tr>
<tr>
<td>LDL/HDL ratio</td>
<td>3.47</td>
<td>3.31</td>
</tr>
<tr>
<td>Total Cholesterol/HDL ratio</td>
<td>4.97</td>
<td>4.55</td>
</tr>
</tbody>
</table>

* mg/dl is an American unit of measure; in New Zealand we use mmol/L

Subjects that followed a high carbohydrate diet turned out to have lower LDL and HDL levels compared to subjects that followed a high fat diet.

Therefore, to most medical professionals, it seems logical to recommend a high carbohydrate/low fat diet because subjects showed lower LDL (bad cholesterol) levels compared to those that followed a high fat diet. Nevertheless, subjects who followed a high fat diet registered higher HDL (good cholesterol) but higher LDL cholesterol (bad cholesterol).

The study also showed two ratios – total cholesterol/HDL and LDL/HDL. These ratios indicate the flow of cholesterol in or out of your body.

If:
A high HDL level is considered good because HDLs transport cholesterol and are destined to be destroyed and secreted;
And:
When the LDL and total cholesterol level is high, lethal cholesterol deposits are laid down in the artery walls and may increase your risk of heart disease;

A larger ratio indicates that more LDL (bad) cholesterol is in your blood and less HDL (good) cholesterol is available to take the cholesterol away from your body to be destroyed.

A smaller ratio indicates that less LDL (bad) cholesterol is in your blood and more HDL (good) cholesterol is available to take the cholesterol away from your body to be destroyed.

Thus, if you take another look at the above ratios, it is more sensible to recommend a high fat over a high carbohydrate diet because the ratios indicate more cholesterol is being flushed out and less cholesterol is “floating” in your blood – hence reducing the risk of blood clots and related complications.

**Increased LDL and HDL**

Over the past six years, I have come across three clients who experienced an increase in both LDL and HDL level.

Client A was recommended to me by an existing client. He had no fat sensitivity and successfully lost 10 kg following my normal high fat/low carbohydrate regime. Nevertheless, his blood cholesterol profile showed slightly above normal total cholesterol; his LDL was slightly elevated from a previous blood test, but his HDL was more than twice the normal value. His doctor advised modifying his lifestyle and recommended Lipex (a cholesterol-lowering drug) if his cholesterol remained high after another three months. I suggested that he eliminate saturated fat from his eating regime and follow the fat-sensitive version of my low carbohydrate regime and also recommended that he consume 3000 mg of Omega 3 capsules per day.
After one month, his LDL level had come down but so too had his HDL level. His total cholesterol is now well within the healthy range and his doctor has left him alone for the moment.

Client B successfully lost 15 kg following my high fat/low carbohydrate eating regime. However, his blood cholesterol profile after he lost the 15 kg revealed a slightly elevated LDL level but again almost twice the minimum level of HDL. Client B had been taking 3000 mg of Omega 3 fish oil daily throughout the period he followed the low carb/high fat regime. But instead of reducing his saturated fat intake, Client B followed the advice of his doctor and started taking Lipex. The last time I saw Client B, his LDL level was way down but his HDL level was still on the rise.

Client C had already been following the Atkins diet for several years prior to coming to see me. His recent blood cholesterol had revealed a slightly elevated LDL level but again twice the normal HDL level, which gave him a very high total cholesterol level. Because Client C was a pilot he was governed by the so-called “healthy” total cholesterol reading required by legislation. I suggested Client C follow a fat-sensitive version of my low carbohydrate regime but his blood profile at the end of a month revealed the same LDL level but a slightly lower HDL level. I advised him to reintroduce saturated fat, and after one month his LDL level dropped and his HDL level was on the rise again.

In my opinion, if you experience elevated LDL and HDL levels (and hence an elevated total cholesterol level) while following a low carbohydrate/high fat eating regime, it is in your best interest not to reduce your saturated fat intake.
CONCLUSION
I trust that you have enjoyed reading this book, and hopefully by following the regime outlined within these pages you have lost weight, become healthier, experienced renewed energy levels, are now feeling satisfied after meals and are no longer being tortured by the pains of hunger deprivation.

I realise that some of your friends, family members, and certain elements of the news media will tell you that it is impossible to stay on a low-carb diet all your life – but what they are talking about is a “diet”, an “event”, a “temporary change”. I have repeatedly emphasised the term “low carbohydrate lifestyle” in the foregoing chapters – and if you have committed to a lifestyle, then my understanding is that you can stay on it for life.

Personally, I view the path or journey towards a low carbohydrate lifestyle as a kind of process – a little like your schooling process – and just like the schooling process you will make mistakes along the way, you will experience a range of ups and downs, but you will eventually graduate if you keep at it. Similarly, if you keep to a low carbohydrate lifestyle, you will eventually graduate by achieving your goal weight and staying lean and disease free.

While this book will not have taught you everything about the low carbohydrate lifestyle its main intention has been to arm you with some low-carb survival skills to make your journey towards a low carbohydrate lifestyle a “smoother ride”.

Therefore, if you wish to stay informed of ongoing developments relating to the low-carb lifestyle, feel free to subscribe to my newsletter by entering your name and email address at www.nzlowcarb.com. Likewise, if you wish to communicate with other low-carb lifestyle followers within New Zealand, you can also visit our forum at www.nzlowcarb.com.
In addition, the website offers a free New Zealand low carbohydrate carb counter which lists the carbohydrate, protein and fat contents of various New Zealand foods.

Good luck with your low carbohydrate journey!

Your friend in low carb,

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Bibliography


