



THYROID FLYER

Newsletter of Thyroid Australia Ltd

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Diet, Nutrition and Exercise

Editorial

By Christopher McDermott

Welcome to the winter / spring edition of the Thyroid Flyer. This issue presents an extended article by one of our long-standing committee members, Robyn Koumourou, in association with Dr Ian Gillam of Your Health in Camberwell. Robyn has already written a book, *Running on Empty*, based on her experiences with hypothyroidism.

Diet is an issue we get very many inquiries about. So often, those with hypo conditions finally get their medication and hormone levels sorted out and their next issue is how to deal with their weight. In this Flyer we have included articles which deal with diet and weight issues, including a story from one of our members.

There is plenty of activity happening across the nation thanks to our local support groups. There is a meeting coming up in Brisbane on October 14 and regular meetings in other towns and cities. The next meeting in Melbourne is our AGM in November which will be combined with a thank you function for volunteers. We hope that as many people as possible can come to this afternoon tea / meeting which should be very positive occasion for our organisation and the people who help to make it work.

It is the untiring work of the committee members, telephone volunteers, office volunteers and support group convenors, as well as Brenda in our office, that enables us to help so many people around Australia.

Happy reading.

NEXT PUBLIC MEETINGS

Brisbane: 14 October 2006

Chermside Library

Seminar: 2pm to 4pm

Melbourne: 12 November 2006

Royal Children's Hospital

Information Session: 2pm to 5pm

Includes AGM & Special Afternoon Tea with presentations to thank volunteers

Diet, Nutrition and Exercise for the Thyroid Patient

By Robyn Koumourou

A well balanced diet, adequate nutrition and regular exercise is a must for all human beings. The food we eat, the water we drink and the oxygen we breathe are the key ingredients to sustain life and keep our bodies and minds healthy. These elements become even more important for those who suffer with any chronic health condition, as they can also be the key in helping the body heal itself and restore normal function, and should be a part of any treatment protocol.

Many thyroid patients are particularly concerned with diet, nutrition, weight and exercise. Dealing with a medical condition that upsets the hormonal balance and produces myriad symptoms can be overwhelming. Thyroid disorders can affect any or every part of the body. The type of symptoms a person experiences depends on human individuality, which is influenced by genetics, upbringing, environment, diet and lifestyle. Therefore, when it comes to any treatment protocol, a multifaceted approach needs to be taken and a treatment program developed that is tailored for the individual. There is not just one diet and exercise regime that will work for all thyroid patients, and thyroid disease can contribute to poor health and weight problems in many patients.

Challenges Facing Thyroid Patients

To function normally, the cells of our body use thyroid hormones to convert oxygen and food into energy, heat and living tissue. When the thyroid gland becomes underactive or overactive and the metabolism either slows down or speeds up respectively, thyroid patients often have to deal with a multitude of symptoms that affect them emotionally, mentally and physically. Many experience overwhelming tiredness, exhaustion and generalised weakness, and it is not unusual for them to suffer with varying forms of depression, memory loss and poor concentration. As their body struggles to metabolise food properly, they often lose their appetite, develop poor eating habits, and have difficulty maintaining a healthy weight. Regular exercise can become almost impossible due to profound fatigue, poor muscle strength, and overall aches and pains. Digestive disturbances can also become more pronounced, with upset stomachs, bloating, indigestion and nausea. Stubborn constipation or diarrhoea can develop as food moves through the system at an irregular pace. These abnormalities in digestion can contribute to the poor absorption of nutrients and irritable bowel problems.

Other symptoms that thyroid patients can experience include headaches, fluid retention and shortness of breath, numbness and tingling, chest pain and heart palpitations, skin conditions and hair loss, frequent infections and sometimes imbalances with other hormones within the body. As a thyroid condition progresses more serious problems can also arise, such as changes in cardiac function, elevation of blood pressure and blood cholesterol, poorer glucose controls, and generalised congestion and inflammation throughout the body. Quality of life is often compromised when a thyroid condition is overlooked or poorly treated. It is fairly easy to understand why many thyroid patients become increasingly inactive, have poor exercise tolerance and eventually suffer from nutritional deficiencies. The earlier they are diagnosed and treated appropriately, the less likely they will develop other complications or more serious conditions.

Weight Control

People often associate thyroid conditions with difficulty with weight control. Generally hypothyroidism causes weight gain

and hyperthyroidism causes weight loss. The changes in metabolism depend on the severity or duration of the condition with a resulting greater change in weight. The majority of thyroid patients would probably fit into one of these two categories, with a small number of individuals having little, if any, effects on their weight.

People with hyperthyroidism or Graves' disease tend to lose weight more easily due to their body's metabolic rate being faster than normal. Often their appetite increases and more foods are consumed to meet the body's demand for fuel and energy. If the amount consumed is not large enough to keep up with the increased metabolism, weight loss will occur. I've often heard a Graves' patient comment "I can eat whatever I like and never put on weight", beware - you may have to eat your words. Unfortunately, around 50% of patients treated for their hyperthyroidism, with medication, RAI or surgery, tend to eventually gain weight. Therapies for hyperthyroidism are aimed at reducing the activity of the thyroid gland and restoring hormone levels to normal. When the metabolism decreases, so too does the body's need for fuel (food) and adjustments to dietary intake may be required. A person's weight may only increase slightly and then stabilize at a point that Mother Nature always intended. For others, the weight gain may be more significant and a healthy diet and a regular exercise regime may need to be instigated. A further complication for people with active hyperthyroidism is that higher levels of thyroid hormones, contribute to loss of bone and muscle mass, often leading to osteoporosis earlier in the adult years.

People with hypothyroidism or Hashimoto's Thyroiditis tend to gain weight more easily due to their body's metabolic rate being slower than normal. This is often associated with a reduced appetite, they eat less, yet gain weight and/or have extreme difficulty losing it. This factor alone can cause considerable concern and frustration. In hypothyroidism the body's demand for fuel (food) is decreased and what is consumed is poorly metabolised. Hypothyroidism is often associated with insulin resistance with fat being stored around the abdomen area. I often hear "I eat like a sparrow and exercise everyday, but my weight won't budge". Approximately 75% of hypothyroid patients gain weight as their thyroid condition develops. Thyroid hormone replacement therapy is aimed at restoring hormone levels to normal to increase metabolism and

assist with weight control. However, the excess weight gained during low thyroid activity may not drop away easily and may still require a disciplined diet and exercise program. Restoring the body to a healthy state will take time and endurance.

It is easy to see how challenging it is for thyroid patients in knowing how to deal with their various complaints and tackle the issues of diet, weight and exercise. Some thyroid patients have been able to work out their own diet and exercise programs with success, while others have needed the guidance of a health professional. Before starting any diet and exercise programme, thyroid patients should be encouraged to talk with their medical practitioner, a nutritionalist with experience in thyroid disorders and exercise physiologist to assist with a graduated exercise programme. Other factors may also need to be considered such as their, nutritional adequacy and any other issues such as insulin resistance or hypercholesterolemia. A medical practitioner will need to monitor thyroid hormone levels and adjust thyroid replacement, as well as addressing any other health concerns.

to tolerate when it comes to exercise. Injuries to the head, back, hips, knees, and feet need to be taken seriously so as to avoid further complications if an exercise programme is instigated. An allied health practitioner such as an exercise physiologist must be consulted when designing an exercise programme to minimize the development of chronic injuries.

Medications and Nutritional supplements

Medications for other conditions may also impact upon dietary needs, exercise tolerance and the dose of thyroxine required. Insulin, oestrogen, beta blockers, prednisone, amiodarone, cholesterol lowering drugs, and some antidepressants and anti-anxiety medications can strengthen or weaken the effects of thyroid hormone replacement. Some medications can also cause weight gain. Iron and calcium supplements can hinder the absorption of thyroxine and need to be taken a few hours apart from thyroxine dose. Antibiotics, pain killers and diuretics can also contribute to digestive disturbances and the poor absorption of nutrients.

Various nutritional supplements from pharmacies and health food stores contain substances that interact with thyroid medications and others drugs. Some foods and nutritional supplements have been proposed as having antithyroid effects. These may include bugleweed, celery seed extract, St John's wort, aloe vera, green tea, horseradish, kelp, soy-based foods, L-carnitine, quercetin, motherwort, lemon balm, and lipoic acid. Some of these substances would be okay in moderation, while others may have a negative effect on someone with hypothyroidism. There are also supplements that would best be avoided by those with hyperthyroidism as they have a stimulating effect or could increase thyroid hormone secretion. Kelp and supplements with high iodine content, red food colouring, products containing caffeine, weight control pills, cough medicines containing pseudoephedrine, and other substances that stimulate metabolism could further aggravate an overactive condition.

The Importance of Other Health Conditions

There are many other conditions that can be associated with thyroid disease. Some conditions are statistically more likely to occur in Graves' and Hashimoto patients than in people who do not suffer from an autoimmune thyroid disorder. These conditions can affect nutritional balance, and cause weight changes and a whole host of other symptoms. These more serious health problems include: Anaemia (iron or B12), Depression, Hypoglycaemia, Insulin Resistance or Metabolic Syndrome, Type 1 and Type 2 Diabetes, Polycystic Ovarian Syndrome (PCOS), Irritable Bowel Syndrome (IBS), Gall bladder disease, Heart Disease, Hypertension, High Cholesterol, and Allergies/ Intolerances. Most of these conditions influence a person's dietary and exercise needs and will certainly affect a person's ability to lose weight and to cope with a regular exercise regime. Anyone being treated for multiple conditions will need to be regularly monitored and managed carefully.

Past Injuries and Operations

A person's health history such as past injuries and previous operations could impact significantly on what they are able

Food Intolerances

Food intolerances and allergies to various foods/substances are often found in people with thyroid conditions due to digestive and immune system changes. Any foods that cause bowel problems or aller-

gic reactions should be avoided. Wheat, gluten, diary, soy, nuts and eggs are common offenders. If this is suspected it is best to discuss these with a nutritionalist so alternative food sources can be found to replace the undesirable ones, taking pressure off the digestive system and reducing any inflammatory response.

Metabolic Syndrome: Is excess weight a concern?

Over the past few years the term 'Metabolic Syndrome' has come to the fore, encompassing the problems associated with insulin resistance, hypercholesterolemia, hypertension and obesity. Insulin resistance can also develop in association with abdominal obesity, a diet too high in saturated fats and refined carbohydrates and inactivity. Insulin resistance refers to reduced tissue response to the normal effects of insulin on glucose metabolism. People with insulin resistance have higher than normal levels of insulin in their bloodstream in order to maintain normal blood glucose. Excess levels of insulin can result in poor blood sugar control, and excessive changes in blood glucose levels. In addition, individuals may also have high blood cholesterol levels, high ("bad") LDL-cholesterol, low (good") HDL-cholesterol, which is associated with an increased risk of coronary heart disease.

Abnormal thyroid hormone levels tend to cause changes in blood sugar controls, and it is not uncommon for many thyroid patients to experience problems with low blood sugar (hypoglycaemia), high blood sugar, and/or insulin resistance. For those who have had long term or particularly severe thyroid abnormalities, the risk of developing metabolic syndrome and type 2 diabetes increases.

Current research is indicating that insulin resistance and type 2 diabetes are due to improper lipid processing and an excess of fatty acids in the blood. As blood lipids increase, as with hypothyroidism, they interfere with insulin receptors resulting in insulin resistance. Excess carbohydrates in the diet may only further aggravate this process.

Before You Start Optimising Thyroid Hormone Levels

Regardless of what a person's thyroid diagnosis is, whether it is hypothyroidism, hyperthyroidism, thyroid cancer or nodules, optimising thyroid hormone levels is of utmost importance. If a per-

son's thyroid function is still abnormal, this will affect their response to diet and exercise. The treatment for hyperthyroidism is designed to reduce thyroid activity, so thyroid hormone replacement therapy may then be required to restore the metabolism to normal. If a person's body is to function at its best then the fine tuning of dosage by their medical practitioner is vital, especially if the person wants to lose the weight that they have gained due to their thyroid condition. Simply being within the normal reference range is sometimes not appropriate and this needs to be closely monitored, so the patient can reduce his/her weight. Thyroid hormone levels need to be at the personal set-point of the individual and at the point where they feel best. This gives the person a far greater chance of responding well to dietary and exercise changes.

Evaluate Current Lifestyle, Diet and Exercise Habits

Lifestyle and work commitments have a great impact upon dietary habits and time for exercise. Assessing the types of foods you eat on a daily basis, such as keeping a daily record of everything you consume, can be quite revealing. This can give you some clues as to what to eliminate from your diet. It is also important to evaluate work commitments and schedules to see how you can manage your food intake and make better choices.

Evaluating how much exercise you do in a week can also be revealing. In some jobs it is particularly easy to do very little physical activity and driving to and from work or catching public transport can limit the amount of walking that we could do. The question you need to ask yourself is "how do I structure some regular exercise into my daily routine?" At least 30-45 minutes a day at least 3-5 times a week of moderate intensity continuous (aerobic) exercise that you enjoy is considered a minimum to lose body fat, especially in patients with hypothyroidism. Make it happen and get moving!

Nutritional Studies

Over the last few years many nutritional researchers have conducted studies designed to determine the optimum way to assist with weight loss, control the blood sugar levels in diabetics and lower cholesterol and the risks associated with cardiovascular disease.

The three major nutrients in foods are carbohydrates, proteins and fats. Carbo-

hydrates (which include fibre), fats and proteins are the primary sources of fuel for energy production and the functioning of all bodily processes. Carbohydrates were traditionally classified as either, simple (sugars) or complex (starches). All simple carbohydrates were assumed to be quickly and easily absorbed, which resulted in a sudden rise in blood sugar levels (BSL) and insulin secretion from the pancreas. Complex carbohydrates because they must be broken down into simple sugars by digestive enzymes, were generally assumed to be absorbed more slowly, resulting in a slower increase in blood glucose levels. Glucose, whether from simple or complex carbohydrates, is used as fuel by the tissues in the body, or converted into muscle or liver glycogen (the body's storage carbohydrate). When the liver and muscles are at full storage capacity the excess glucose is stored as fat in adipose tissue. Unlike carbohydrate, the body is able to accumulate an unlimited amount of fat that can serve as a reserve supply of energy to all the body's cells.

Whole, unrefined foods that contain complex carbohydrates (starches) generally contain more essential vitamins, minerals, and fibre than sugar based foods. Many foods have been refined or processed to such a degree that they are of little nutritional value to the body. These include sweets, biscuits, cakes, ice-cream, and soft drinks, and include white flour, white rice, pasta and crackers. Overall, whole unprocessed carbohydrates offer a more nutritious choice. They are a wise option for anyone wanting a healthier diet.

In the early 1980's **The Glycemic Index (GI)**, a new concept was introduced to assess the effects of various carbohydrate-based foods on blood sugar levels and insulin response. The GI was determined by measuring the blood glucose response in the two hours after the ingestion of carbohydrate foods. Initially this was designed to help diabetic patients control their blood glucose levels and make wise dietary choices to improve their condition. It was observed that some foods caused a slow rise in circulating blood sugar, with minimal insulin response, while others produced a rapid increase in circulating blood glucose levels and an increased insulin response. The greater the increase in blood sugar levels the higher the GI score. Surprisingly it was found that some complex carbohydrates (jasmine rice, desiree potato, pumpkin, tropical fruit) caused a high blood sugar response similar to

those found with simple carbohydrates. A list of carbohydrate foods with their Glycemic values has been developed, and has become extremely beneficial for those diagnosed with diabetes who want to improve their blood glucose control and also lose weight. In addition, low GI foods may assist in controlling appetite and hence encourage weight loss, by avoiding dramatic swings in blood sugar and insulin levels.

Good sources of carbohydrates include: **wholegrain breads and cereals** (containing wheatgerm, barley, oats, rye, oat and wheat bran), **fresh pasta** (fettuccine, spaghetti, spirali, ravioli), **rice** (Basmati, long grain or protein enriched), **legumes** (beans, peas, lentils and chickpeas), **fruits** (apples, oranges, pears, apricots, peaches, plums, strawberries and cherries), **vegetables** (tomato, celery, cucumber, eggplant, peppers, broccoli, cauliflower, cabbage), and low fat **dairy** (milk, cheese, low fat yoghurt). These carbohydrate foods generally have a low to moderate GI rating and are full of essential nutrients and trace elements.

An article in the *American Journal of Clinical Nutrition*, titled 'Glycemic index: overview of implications in health and disease' (Vol.76, No. 1, July 2002), revealed some interesting findings:

"low-glycemic-index diets have been shown to lower urinary C-peptide excretion in healthy subjects, improve glycemic control in diabetic subjects, and reduce serum lipids in hyperlipidemic subjects. Furthermore, consumption of low-glycemic diets has been associated with higher HDL-cholesterol concentrations and, in large cohort studies, with decreased risk of developing diabetes and cardiovascular disease. Case-control studies have also shown positive associations between dietary glycemic index and the risk of colon and breast cancers. Despite inconsistencies in the data, sufficient, positive findings have emerged to suggest that the dietary glycemic index is of potential importance in the treatment and prevention of chronic diseases".¹

Glycemic Index Chart

Please refer to the Glycemic Index chart at the end of this article for the GI ratings of various carbohydrates. The Glycemic

Index tables give a rating on how high blood glucose levels rise after consuming 50 grams of carbohydrates. A high GI rating is usually 70+, a moderate GI rating is usually 55 to 69, and low GI rating in 54 or less. The 'Carbohydrates GI' chart in this article has a slightly different scale range, taking into account that some foods have a borderline GI, or might have different GI levels depending on type, whether cooked or raw or ripened. Some of the foods may be moderate in GI but are a poor choice nutritionally. The chart provided here is a basic guide, and individuals can research further by visiting some of the websites listed.

Bananas, Rice, Potatoes and Pasta

The GI of an unripe banana is around 43, whereas an over-ripe banana is around 75. Different brands of rice can vary in GI from around 54 up to 130. Long grain rice has the highest amylose content and is the lowest in GI rating. Short grain rice contains little amylase and is the highest in GI, such as Calrose rice. Potatoes can also vary in GI from around 56 up to 150. New potatoes usually have the lowest GI rating. Pontiac and Desiree, peeled and boiled have very high GI ratings from 88 to 110. Fresh pasta has a lower GI compared to packaged dried pasta. The longer you cook rice, potatoes, and pasta the higher the glucose content and GI rating.

The CSIRO study

The CSIRO total wellbeing diet', published in 2005, showed that increasing the protein content of the diet may also assist weight control. The initial CSIRO dietary studies assessed the effectiveness of two low kilojoule diets (5600 kJ/day), both of which were low in fat (20% calories) but varied in both protein content (Diet 1 = 46% carbohydrates, 34% protein, and 20% fat) versus (Diet 2 = 63% carbohydrates, 17% protein and 20% fat). One hundred women took part in the study and the losses in body weight and body fat were compared over a 12 week period. Participants were then followed up after one year. For the women with no signs of metabolic syndrome and with normal blood sugar control, the amount of weight lost was similar on both dietary approaches. However, the women who had signs of metabolic syndrome (poor blood sugar controls) who were on the higher protein diet, lost twice as much excess abdominal fat when compared to those on a higher carbohydrate diet. This is particularly relevant to the hypothyroid patient as a large number of these individuals also have an increased risk of

developing abdominal obesity and metabolic syndrome.

Good sources of protein include: **lean red meat** (beef, veal, lamb, kangaroo), **lean white meat** (pork, skinless chicken, turkey), **fish and shellfish** (various types, small oily fish, salmon and tuna), **diary/soy protein** (milk, cheese and yoghurt), and **eggs** (full of amino acids).

Good sources of fat include: **monounsaturated fats** from olive oil and the **unprocessed vegetable oils** (oils of vegetables, nuts, or seeds such as corn, canola, safflower, sunflower, soybean, olive, avocado, peanuts and almonds). Also the **essential fatty acids** (the omega 3 and 6 fatty acids from fish, flax seed and plant seeds. Unsaturated fats (polyunsaturated) are usually liquid at room temperature.

Saturated fats and trans-fatty acids should be limited. Saturated fats are often referred to as 'bad fats' and include: fats on meats, chicken skin, butter, cheese, palm and coconut oils. These fats are usually solid at room temperature and tend to raise blood cholesterol levels. Trans-fatty acids have undergone a process of hydrogenation and are unsaturated fats that behave like saturated oils (in most margarine).

Plant sterols are plants equivalent of cholesterol – good cholesterol. Plant sterols help reduce blood cholesterol. High quantities are needed to be effective within the body, so sterol-enriched margarines have been developed; 20-25 g per day can result in a 10% reduction in blood cholesterol. These could be of benefit for thyroid patients.

Diet and Nutrition

Goitrogens

Over-consumption of particular foods that contain isothiocyanates can lower thyroid hormone levels and foods containing these nutrients may create difficulties in maintaining stable hormone levels for a person with hypothyroidism. These foods are referred to as goitrogens because the substance they contain interferes with iodine uptake and can hinder the manufacture of thyroid hormones within the cells of the thyroid gland. Of course these foods are only a concern for people with a remaining thyroid gland. Goitrogens are found in the brassica/cruciferous vegetables, such as, broccoli, cauliflower, cabbage, brussel sprouts, turnips, spinach, radish, horseradish, and mustard greens. The cooking of these foods usually inactivates the goitrogens

and lessens their negative effects, and therefore can be a part of a normal diet. Patients still struggling with hyperthyroidism can eat these foods raw on a regular basis and this may help reduce thyroid hormone levels slightly, although this should not be considered a cure for an overactive thyroid gland. The intake of soy products, millet, strawberries, cassava, almonds and walnuts may also contribute to an underfunctioning thyroid gland if they are consumed regularly or in large amounts. Soy, in particular, interferes with the absorption of thyroid hormones and can induce goitre, and despite its health benefits, has been implicated in the development of autoimmune thyroid disease. Generally speaking, goitrogens only become a risk factor when these foods form a major part of one's diet, or the diet is also deficient in iodine. Eating these foods occasionally or in small amounts should pose little concern.

Thyroid friendly foods and nutrients

The essential ingredient that the thyroid gland uses to manufacture thyroid hormones is **Iodine**. Therefore adequate intake of this precious nutrient is vital for a normal functioning body. The easiest and safest way to obtain sufficient amounts is by regularly including fish/seafood in the diet and using iodised salt in cooking or on your food. The daily-recommended dose for the average person is around 150 mcg per day (0.05g per year). 'The more the better' is not the case when it comes to iodine, as taking too much iodine can aggravate existing thyroid problems and autoimmunity, and is some individuals can cause goitre. If a person is struggling with hyperthyroidism then taking iodine is like pouring fuel on the fire and can cause a major flare up of overactive symptoms. Be aware that many nutritional supplements (kelp, bladderwrack or bugleweed), processed foods, cough medicines, diet pills and other medications contain iodine. Keep a careful eye on the contents included in various substances. Iodine supplementation is of no importance for those who do not have a thyroid gland any longer.

Beneficial nutrients that may be used to compliment thyroid treatments and therapies, and encourage healthy body function include: selenium, B group vitamins (esp. B1, B2, B6 and B12), manganese, zinc, iron, copper, calcium, magnesium, essential fatty acids, antioxidants and vitamins A, C and E. A supplement containing these nutrients would be better than taking them individually so that an

overall balance is obtained, unless definite deficiencies are found and need correcting individually. Ginseng, withania and the Chinese herb astragalus have been shown to have a stimulating effect on thyroid function and support of the immune system. Chromium is important to improve blood glucose control and sensitivity of insulin receptors. It can also aid in weight loss as blood sugar levels stabilise. **Selenium** is a particularly important mineral for the thyroid gland and the metabolism of thyroid hormones. Many enzymes involved in the production and activation of thyroid hormones are selenium dependent. Sufficient selenium is critical for the conversion of T4 into active T3, however too much selenium can also hinder the synthesis of thyroid hormones and can be toxic at high levels. Therefore, the recommended daily allowance (RDA) of selenium and iodine needs to be considered carefully so that overdosing does not occur. Foods sources high in selenium include: brewer's yeast, organ and muscle meats, fish and shell fish, grains, dairy products, brazil nuts, and broccoli, cabbage, cucumber, garlic, onions and molasses. **Tyrosine**, an amino acid, is required by the thyroid gland to make thyroid hormone. It combines with iodine to form a precursor hormone that the cells of the thyroid gland convert into T4 and T3. Some people have found benefit in taking a small supplement of tyrosine to improve their thyroid function; however, the body can make its own tyrosine when needed from other non-essential amino acids.

Weight Loss for the Thyroid Patient

Dietary Tips

To assist weight loss, the thyroid patient should focus on a diet containing high quality carbohydrates, a moderate protein intake, combined with a low fats intake. Thyroid friendly foods should be consumed freely, while limiting foods classed as goitrogens, particularly for those with an underactive thyroid gland.

- A healthy diet should include 30-45% quality carbohydrates, 20-35% quality protein and 20% good fats. The ratio of carbohydrates to proteins depends on the individual and their digestive health.
- Choose a variety of foods from all food groups. Try new things and experiment with different food combinations.
- Choose low to moderate GI carbohydrates with a good nutritional content. Unrefined or unprocessed whole foods are more slowly digested and generally have a lower GI value. Choose whole-grain breads and protein enriched pastas.
- Limit your intake of processed, refined sugary/starchy foods, such as, white breads, bakery items, cakes and sweets, as they tend to be low in fibre and important nutrients, and high in fats and high GI.
- Eat fresh fruit and vegetables rather than packaged ones. Aim for 5 to 7 servings of vegetables every day, and 2 to 4 serves of fruit. The more variety the better!
- Choose low GI rice (Basmati), pastas and sweet potatoes whenever possible. It is important to consider the serving size of all carbohydrate foods so as to carefully limit the glycemic load per meal (to less than 20 and the total to less than 80 glycemic units/day).
- Choose good quality protein sources, low in fat or containing good fats/oils/essential fatty acids.
- Nuts are extremely beneficial, but may need to be limited if weight is a problem.
- Avoid deep fried foods and fatty cuts of meats.
- Eat fish at least twice a week. Try to avoid larger fish that are at the top of the food chain, as they are more likely to be contaminated with mercury or other heavy metals. Smaller fish are a better option.
- Choose organic foods such as eggs, fruit, vegetables and meats if you are able to or can afford them. Organic foods are higher in nutritional content and have not been contaminated with chemicals, growth hormones and preservatives.
- Avoid animal fats and hydrogenated vegetable oils such as margarines and spreads, and opt for cold pressed olive oils or sprays.
- Limit simple sugars and sweets, and reduce your intake of fats, salt, alcohol and caffeine (alcohol and caffeine can aggravate blood sugar and tends to dehydrate the body).
- Use iodized salt in cooking and on food.
- Select moderate portion sizes of car-

bohydrate based foods: the larger the serving, the more it will increase your blood glucose levels. Eat slowly to be satisfied, but don't overeat.

- Do not limit your calorie intake excessively ("crash diet") in an effort to lose weight. This will tend to slow your metabolism down and be counter productive.

- Eat slowly and chew your food well to increase digestive enzymes and to avoid consuming too much.

- Eat at regular intervals so as to avoid getting too hungry. It's fine to snack in between meals as long as your snack is nutritious and has a low GI. Good choices are fruit, raw vegetables with homemade dips, cheese, yoghurt, small servings of nuts and seeds.

- Always choose low fat dairy products instead of full cream; milk, cheeses and yoghurt.

- Avoid any foods that cause a negative reaction, such as an allergic or intolerant response. Common offending foods are wheat, gluten, dairy, soy, eggs, nuts, citrus fruits and fructose.

- If you have a diagnosed digestive condition, such as inflammatory bowel or irritable bowel problems, whole grains and seeds may be difficult to digest and may aggravate the bowel. Choose softer options such as fruit and vegetables high in fibre that are kinder to the system. This too applies to those with thyroid conditions, as digesting whole foods and raw foods can be more difficult. Lightly cooking or steaming vegetables makes them easier to digest.

- For those who have had their gall bladder removed, choosing low fat options is wise as oils in the diet will be more difficult to break down and absorb, and tend to be stored under the skin and around internal organs. A digestive enzyme supplement could be beneficial when consuming a meal containing protein and fats. Discuss this with your doctor.

- If greater weight loss is desired, then generally consume low GI carbohydrates with meals containing a small quantity of protein. Good options are: an omelet with low fat cheese and vegetables, or fruit and low fat yoghurt.

- Occasionally, you may choose to have a meal mainly of carbohydrates. In this case choose combinations of foods with a low and moderate GI. A small

portion of protein may be added with the meal if desired.

- Drink 6 to 8 glasses of water per day to keep body well hydrated and also to avoid unnecessary eating when the body actually needs more fluids. Limit sugary drinks and caffeine to maintain blood sugar and avoid dehydration. You are less likely to suffer with indigestion if you drink plenty of water throughout the day and avoid high GI foods and meals heavy in fat content.

Exercise Recommendations

It is very easy for people with overt thyroid conditions to do very little physical activity. A common symptom of hypothyroidism is fatigue which may adversely affect one's ability or motivation to exercise. However, with adequate thyroid treatment, moderate regular exercise can be extremely beneficial. Exercise increases circulation and oxygenation of the tissues, strengthening blood vessels, the lungs and heart. It encourages cellular metabolism, improves organ function, and helps the body's detoxification processes. Regular endurance based exercise increases aerobic fitness levels and resistance training such as weight training develops strength and increases lean body mass, increasing metabolic rate, which assists long term weight maintenance. Exercise also improves mood and feelings of well-being. It helps to reduce stress and blood pressure, lowers blood cholesterol and insulin levels. Regular physical activity has been shown to reduce the risk of developing chronic conditions, such as osteoporosis, arthritis, type 2 diabetes, heart disease and even cancer. With regard to the thyroid gland, it stimulates thyroid hormone secretion, as well as increasing tissue sensitivity to thyroid hormones. Regular exercise is an important treatment in prevention of disease.

The combination of diet and exercise together is also the most effective approach for maintaining a healthy weight. A healthy calorie controlled diet can assist with weight loss, and regular exercise increases energy expenditure and may increase muscle mass. The importance of exercise is that it not only prevents weight gain and maximises loss of fat, it also minimises loss of lean muscle. Weight loss through diet alone causes a loss of fat and muscle, and when you lose muscle mass your metabolic rate slows down. Your resting metabolic rate is largely determined by your lean muscle mass, because muscle requires a great

deal of kilojoules just to sustain it.² Muscle is the most active metabolic tissue in the body. Moderate regular exercise, along with a healthy diet, builds and strengthens lean muscle, increases metabolic rate and causes the body to burn more kilojoules/calories and fat. The acceleration in metabolism keeps going even after a physical activity is stopped and further calories are burnt for an hour or two afterwards. Physically active people have a higher metabolic rate and their calorie expenditure continues even when they're asleep. Let's make the body work to our advantage!

The best idea is to choose a form of exercise that you actually enjoy, fits into your daily schedule and suits the time of year – indoors in winter and outdoors in summer. If you like what you are doing then it will be easier to stick to on a regular basis. Some people enjoy working out at a gym with friends or joining a team sport or walking group. Others may feel more comfortable in the privacy of their own home. Exercise at home can involve an exercise bike or treadmill, jump rope or trampoline. Walking around your property, up and down a driveway or staircase and dancing to your favourite music are all good options. Always begin slowly and work your way up gradually, especially if you have been debilitated by a thyroid condition for some time and your muscles are particularly weak. Beginning with a warm up (stretching) and ending with a cool down period (slowing pace and stretching) will also help in avoiding unnecessary injuries and post aches and pains. Before you begin an exercise programme consult with your medical practitioner or an accredited exercise physiologist (www.aaess.com.au), if you have a chronic health condition such as heart or lung disease, diabetes, osteoporosis, obesity, or an existing musculo-skeletal condition. Those prone to exercise induced hypoglycaemia would need to regularly monitor their blood sugar levels and should be under supervision. Those carrying excessive weight would need a specially tailored program with low impact activities to avoid damage to lower limbs. Any exercise regime should be safe for the individual and not pose any dangers. Generally, the more physical activity you do, the easier it will become and greater strength and endurance will result.

A good exercise program would involve at least 30-45 minutes per day of low to moderate-intensity physical activity. The best time to exercise is before meals, or at least 2 to 3 hours after a main meal, or

any convenient time that results in an increased compliance. The best time to eat is about 30 to 45 minutes after a physical activity while the body is warm. Appetite is often suppressed immediately after exercise and this may mean you will eat less and be satisfied. If you like to exercise first thing in the morning, only have a glass of water or juice to ensure you are well hydrated, and have a wholesome breakfast after your physical workout is completed.

As your exercise programme progresses and your fitness improves, you should try to increase the duration and the intensity of the programme to maximize the benefits. Consult an exercise physiologist who will be able to advise you of the most appropriate exercise heart rate to ensure exercise safety. The use of a heart rate monitor may be beneficial. It is important to ensure you are able to talk (and not become breathless) while exercising, and that any adverse symptoms (chest pain, breathlessness, muscle or joint pains) be reported to your doctor or supervising practitioner immediately. Regular resistance training or strength training can also be included a few times a week. This helps to build muscle mass, and accelerates the metabolism even further which aids in burning more calories and fat. Resistance or strength exercises include: yoga, Pilates, lifting weights, using exercise equipment, climbing stairs, push-ups, sit-ups and squats.

Overall, thyroid patients can benefit significantly through a carefully designed diet and exercise programme, which will assist with their weight management. No one food type is fattening on its own, however, the quality, quantity, and combinations of foods can in fact contribute to weight gain and poor health. The concept of calories in, calories out is still valid. The more calories you take in, from any source, the more likely you are to store them as fat, unless you burn them off with adequate physical activity. Weight gain and obesity occur when there is a sustained excess of energy foods consumed, over energy expended. We must get moving to use up the extra energy stored throughout the body. Active people have fewer concerns with weight problems as they draw upon their energy reserves frequently. However, inactive people and those with a slower metabolic rate need to pay special attention the type and quantity of food they consume, and choose to incorporate regular exercise into their daily lifestyle.

Conclusion

For anyone suffering with a thyroid gland disorder, diet, nutrition and exercise are extremely important. A person's body works as a whole and needs to be given the right ingredients to heal itself and function at its peak potential. Some people will only experience mild symptoms with their thyroid condition and have little or no changes in weight. While others may experience more debilitating symptoms and experience significant weight loss or weight gain. A holistic approach is therefore vital, taking into account all health conditions, medications, age, dietary and exercise habits, and lifestyle. Generally, if a thyroid condition is detected early and treated appropriately, the development of more severe symptoms and other complications can be prevented. Working closely with a doctor or health professional is of utmost importance in obtaining optimal levels of thyroid hormone replacement and ensuring that a person's nutritional status is healthy. If you have been diagnosed with a thyroid condition, make some wise choices and choose to incorporate a healthy balanced diet and a regular exercise programme into your life. Then you can look forward to living a normal, long healthy life.

Acknowledgements

I would like to thank Dr Ian Gillam PhD for his time given in the revising and editing of this article. His expertise and advice have been greatly appreciated. Dr Gillam is an accredited exercise physiologist and clinical nutritionalist, specialising in the management of thyroid disease, weight control, diabetes, metabolic syndrome, osteoporosis and sports nutrition. Ian practises at Your Health Camberwell. Tel: (03) 9882 5151. www.yourhealth.com.au

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- A Revised International Table of Glycemic Index (GI) and Glycemic Load (GL) Values – 2002, by David Mendosa. Go to: www.mendoza.com/gilists.htm
- Handy Portion Guide: www.diabetes.ca/files/plan_your_portions.pdf
- The Glycemic Index. Go to: www.glycemicindex.com
- Books on GI, low carbohydrates and recipes: www.glycemic-index.com

- The CSIRO total wellbeing diet, go to: www.csiro.au/csiro/channel/pchaj.html

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Footnotes

1. *American Journal of Clinical Nutrition*, titled 'Glycemic index: overview of implications in health and disease' (Vol.76, No. 1, July 2002)

2. Noakes, Manny, MD and Clifton, Peter, MD, 'The CSIRO Total Wellbeing Diet', Penguin Books, Australia, 2005.

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Low GI Carbohydrates	Mod GI Carbohydrates	High GI Carbohydrates	Protein and fats
Alfalfa sprouts 15	Apricots fresh 57	Arrowroot 67	Eggs
Apples 39	Baked beans 48	Bagel 72	
Apple juice – no sugar 40	Bananas 54 -70+	Beetroot 63	Meats
Apricots – dried 30	Basmati rice 50	Biscuits – sweet 78 savoury	Beef
Artichokes 15	Blueberries 59	Biscuits – savoury 71	Ham
Avocado 0	Cakes – sponge 50+	Breads – most kinds 70 - 96	Kangaroo
Bamboo shoots 15	Cereal - 'Komplete' 48	Cantaloupe 65	Lamb
Barley – pearled 25	Com 55	Cereals – refined 68 - 90	Pork
Bran 42	Com on the cob 48	Cordial 66	Poultry
Bread – 9 Grain Multi (Tip Top) 43	Figs 61	Com chips 73	Rabbit
Bread – mixed grains or seeds, 'Bugen' 31-38	Fruits – canned, natural juice 40 -48	Com pasta 78	Veal
Bread – 'PerforMAX' 38	Fruit juices – pure 40 – 50+	Com thins 87	
Broccoli 15	'Fuze' carbonated fruit drink 55 or less	Comflakes 83	Seafood
Butter beans 31	Grapes 46-58	Comflour 69	Crab
Cabbage 15	Honey – 'Capilano' 55-65	Croissant 67	Fish
Carrots 39	Ice-cream - low fat 50	Crumpets 69	Lobster
Cauliflower, Celery 15	Instant noodles 47	Dates 103	Prawns/shrimp
Cherries 23	Instant pudding, with milk 40-47	Donuts 76	
Chickpeas and splitpeas 32	Jams 47	French fries 75	Nuts
Chocolate – 34	Jatz savoury biscuits 55	Glucose 100	Almonds
Cucumber 15	Kiwi fruit 52	Gluten free bread 76 - 90	Brasil nuts
Custard 38-43	Lactose 46	Honey 73	Cashews 22
Dried fruits 31	Mango 55	Ice-cream 61	Hazelnuts
Eggplant	Muesli 56 ('Carmans' 40-42)	Lollies 70 -80	Macadamia
Fettuccine, fresh 32	Muesli breakfast bars - 'Carmans' 53	Maltose 105	Peanuts 14
Fish fingers 38	Oranges and juice 44-52	Millet flour 71	Pistachio
Fructose 22	Pasta – linguine, macaroni 45	Muesli bars 61	Walnuts
Grapefruit 25	Pasta – wheat 54 - 57	Muffins 62	
Green beans 15	Paw paw 58	Parsnip 98	Oils/Dairy
Green peas 40- 47	Popcorn 56	Pineapple 63	Butter/margarine
Honey – Yellow box 35	Porridge – oatmeal 49	Potatoes 56 – 100	Cheese
Icecream – low fat, Prestige Light 37-47	Potato chips 54	Pretzels 80	Oils – canola, olive
Icecream – premium, Sara Lee 38	Pumpernickle bread 41	Pumpkin 76	
Lentils 29	Raisins and sultanas 60	Rice – white or brown 65 – 100	
Lettuce – all kinds 15	Ravioli, durum/meat 40	Rice cakes, biscuits, flour 77	
Milk – full fat 27	Rye – pure 46	Rice noodles 61	
Milk – skim 32	Spaghetti – white 40	Ryvita 69	
Mushrooms 10	Spirali, durum 43	Sausage rolls	
Nutella spread (Ferrero) 33	Sweet potato 50	Soft drinks – added sugar 70+	
Oats – 39	Whole cereals – unprocessed 40 +	Sucrose 61	
Onion 10	Yams 51	Tapioca 70 – 81	
Peaches, Pear, Plums 30- 42		Tofu frozen desserts 115	
Peppers, Radish 15		Watermelon 72	
Red kidney beans 19		Wholewheat flour 71	
Rice bran 19			
Sausages 28			
Snow peas 15			
Soybeans 17			
Soy milk 30			
Spaghetti - protein enriched or wholegrain 27			
Spinach, Squash 15			
Strawberries 32			
Tomato 15			
Vanilla Gelati – Alba, low fat, 38			
Vitari, frozen dessert -28			
Yogurt – low fat 14			
Yogurt with fruit 33			
Zucchini 15			

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Thyroid and Weight

What is the relationship between thyroid and weight?

It has been appreciated for a very long time that there is a complex relationship between thyroid disease, body weight and metabolism. Thyroid hormone regulates metabolism in both animals and humans. Metabolism is determined by measuring the amount of oxygen used by the body over a specific amount of time. If the measurement is made at rest, it is known as the basal metabolic rate (BMR). Indeed, measurement of the BMR was one of the earliest tests used to assess a patient's thyroid status. Patients whose thyroid glands were not working were found to have low BMRs, and those with overactive thyroid glands had high BMRs. Later studies linked these observations with measurements of thyroid hormone levels and showed that low thyroid hormone levels were associated with low BMRs and high thyroid hormone levels were associated with BMRs. Most physicians no longer use BMR due to the complexity in doing the test and because the BMR is subject to many other influences other than the thyroid state.

What is the relationship between BMR and weight?

Differences in BMRs are associated with changes in energy balance. Energy balance reflects the difference between the amount of calories one eats and the amount of calories the body uses. If a high BMR is induced by the administration of drugs, such as amphetamines, animals often have a negative energy balance which leads to weight loss. Based on such studies many people have concluded that changes in thyroid hormone levels, which lead to changes in BMR, should also cause changes in energy balance and similar changes in body weight. However, BMRs are not the whole story relating weight and thyroid. For example, when metabolic rates are reduced in animals by various means (for example by decreasing the body temperature), these animals often do not show the expected excess weight gain. Thus, the relationship between metabolic rates, energy balance, and weight changes is very complex. There are many other hormones (besides thyroid hormone), proteins, and other chemicals that are very important for controlling energy expenditure, food intake, and body weight. Because all these substances interact on both the brain centers that regulate energy expenditure and tissues throughout the body that control energy expenditure and energy intake, we cannot predict the effect of altering only one of these factors (such as thyroid hormone) on body weight as a whole. As a consequence, at this time, we are unable to predict the effect of changing thyroid state on any individual's body weight.

What is the relationship between hyperthyroidism and weight?

Since the BMR in patients with hyperthyroidism (see *Hyperthyroidism* brochure) is elevated, many patients with an overactive thyroid do, indeed, experience some weight loss. Furthermore, the likelihood of weight loss occurring is related to the severity of the overactive thyroid. Thus, if the thyroid is extremely overactive, the individual's BMR increases which leads to increased caloric requirements to maintain that weight. If the person does not increase the calories consumed to match the excess calories burned, then weight loss will ensue. As indicated earlier, the factors that control our appetite, metabolism, and activity are very complex and thyroid hormone is only one factor in this complex system. Nevertheless, on average the more severe the hyperthyroidism, the greater the weight loss observed. Weight loss is also observed in other conditions where thyroid hormones are elevated, such as in the toxic phase of thyroiditis (see *Thyroiditis* brochure) and if one is on too high a dose of thyroid hormone pills. Since hyperthyroidism also increases appetite, some patients may not lose weight, and some may actually gain weight, depending on how much they increase their caloric intake.

Why do I gain weight when hyperthyroidism is treated?

Because the hyperthyroidism is an abnormal state, we can predict that any weight loss caused by the abnormal state would not be maintained when the abnormal state is reversed. This is indeed what we find. On the average, any weight lost during the hyperthyroid state is regained when the hyperthyroidism is treated. One consequence of this observation is that the use of thyroid hormone to treat obesity is not very useful. Once thyroid hormone treatment is stopped, any weight that is lost while on treatment will be regained after treatment is discontinued.

What is the relationship between hypothyroidism and weight gain?

Since the BMR in the patient with hypothyroidism (see *Hypothyroidism* brochure) is decreased, an underactive thyroid is generally associated with some weight gain. The weight gain is often greater in those individuals with more severe hypothyroidism. However, the decrease in BMR due to hypothyroidism is usually much less dramatic than the marked increase seen in hyperthyroidism, leading to more modest alterations in weight due to the underactive thyroid. The cause of the weight gain in hypothyroid individuals is also complex, and not always related to excess fat accumulation. Most of the extra weight gained in hypothyroid individuals is due to excess accumulation of salt and water. Massive weight gain is rarely associated with hypothyroidism. In general, 5-10 pounds of body weight may be attributable to the thyroid, depending on the severity of the hypothyroidism. Finally, if weight gain is the only symptom of hypothyroidism that is present, it is less likely that the weight gain is solely due to the thyroid.

How much weight can I expect to lose once the hypothyroidism is treated?

Since much of the weight gain in hypothyroidism is accumulation in salt and water, when the hypothyroidism is treated one can expect a small (usually less than 10% of body weight) weight loss. As in the treatment with hyperthyroidism, treatment of the abnormal state of hypothyroidism with thyroid hormone should result in a return of body weight to what it was before the hypothyroidism developed. However, since hypothyroidism usually develops over a long period of time, it's fairly common to find that there is no significant weight loss after successful treatment of hypothyroidism. Again, if all of the other symptoms of hypothyroidism, with the exception of weight gain, are resolved with treatment with thyroid hormone, it is less likely that the weight gain is solely due to the thyroid. Once hypothyroidism has been treated and thyroid hormone levels have returned to the normal range on thyroid hormone, the ability to gain or lose weight is the same as in individuals who do not have thyroid problems.

Can thyroid hormone be used to help me lose weight?

Thyroid hormones have been used as a weight loss tool in the past. Many studies have shown that excess thyroid hormone treatment can help produce more weight loss than can be achieved by dieting alone. However, once the excess thyroid hormone is stopped, the excess weight loss is usually regained. Furthermore, there may be significant negative consequences from the use of thyroid hormone to help with weight loss, such as the loss of muscle protein in addition to any loss of body fat. Pushing the thyroid hormone dose to cause thyroid hormone levels to be elevated is unlikely to significantly change weight and may result in other metabolic problems.

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Graves' Disease and My Weight Challenge

Dear Thyroid Australia,

I went to a specialist because my GP couldn't control my high cholesterol, which is genetically high. In his referral my GP told the specialist that there was no evidence of diabetes or thyroid problems, this referral was dated 31st May 2004.

The specialist ran a series of blood tests to see where my cholesterol was and to make sure there were no other problems he didn't know about. He found out then that I had Graves' disease, which I didn't know about. He also said I had a heart murmur and sent me for a heart ultrasound which came back normal. He then said my liver function was not good, so after more tests, my liver function was found to be normal. He went quiet until my last visit when he asked if I had any heart problems, so I just said "no we have already been down that track".

I think this specialist has shares in the blood laboratories because he runs so many tests without even asking if I have had them done before.

Results of blood tests done are as follows: -

- 1st Oct 2004: **T4 30.7** (ref range 9.0-26.0), **T3 11.7** (ref range 2.4-5.4), and **TSH 0.01** (ref range 0.30-5.0)
- 22nd Oct 2004: **T4 39.3, T3 13.5**, and **TSH 0.004**

I was feeling very sick by this time with an overactive thyroid gland. He then started me on 6 tablets a day of Propylthiouracil (PTU) - 50 mg. I took these tablets until April 6th 2005 as I had started to gain weight rapidly and eventually began to feel very tired and ill. I told the specialist this but he told me I had to stay on the PTU for longer. As my TSH returned to the normal range he told me that I may be in remission and he would keep an eye on my weight and thyroid, but he kept me on a lower dose of PTU. I continued to gain weight and became even more dysfunctional. Blood tests done on the following dates were as follows.

- 17th Dec 2004: T4 10.1, T3 2.9, TSH 0.09.
- 19th Jan 2005: T4 9.3, **TSH 5.3** (ref range 0.03-5.0)
- 14th Feb 2005: T4 11.7, TSH 3.3
- 31st Mar 2005: T4 13.1, TSH 2.3

I was feeling so terrible by this stage that I contacted Thyroid Australia and asked my doctor if I could stop the PTU for a while. He was hesitant but agreed to stop the PTU on 6th April. My test results from that point:

- 5th May 2005: T4 12.7, TSH 1.5
- 23rd June 2005: T4 14.0, TSH 1.5
- 8th Sep 2005: T4 13.6, TSH 1.3

By this stage I had gained over 15 kg and I was almost unable to walk with the muscle ache in my hips and the extra weight. I was very very depressed and cried nearly all day everyday. That's when I talked to Thyroid Australia – thankyou! The specialist was still happy with my blood tests although I was telling him how badly I was feeling. This went on for quite some time until I eventually went to another doctor who listened and noticed that my T4 was quite low. This doctor prescribed me Oroxine (Thyroxine). I started Thyroxine Sodium - 50 mcg on 29th September 2005, and from almost that time onwards I picked up. I had been telling the specialist how I was feeling and about the weight gain and he said I was in the nor-

mal range, even though I felt lousy.

I also decided to join Weight Watchers on 30th September 2005, and from that time up until Friday 26th May 2006, I have lost 19.6 kg and now feeling great. I am still on Thyroxine and still trying to get the right dose for me. At this time I'm taking 1 (50 mcg) tablet on Mon, Wed & Fri and half a tablet on the other days.

On 4th October 2005 (to compliment Weight-Watchers) I also started exercising on a treadmill. I did about 15 minutes at approx 4km/hr for 3 days a week.

Blood tests since Sep 2005 are:

30th Nov 2005: T4 15.9, TSH 1.010

4th May 2006: T4 16.4, TSH 1.290

I am at times still feeling warm inside and I have the occasional night when I go to sleep then wake and not be able to go back to sleep again. My T4 dose may be a little too high. So as from 27th May I am going to take 1 tablet on Mondays and half a tablet each day for the rest of the week. I am due for another blood test in Sept 2006.

Generally I am feeling so much better and I'm back into my exercises three times a week. I'm still a little sore at times but as I am 56 years old my age probably isn't helping in this regard either. Hopefully one of these days my thyroid condition will settle and I will find the exact amount of Thyroxine for my body. I seem to feel best with my TSH around 1 (range 0.03 - 5.0), and my T4 around 15 or 16 (range 9 - 26).

I will let you know when I'm at my goal weight. I started at 107.8 kg. I am now 84 kg, and I hope to get down to 75 kg.

It's now July 2006 and I still exercise 3 days a week but have increased my routine to –

- 35 minutes at 5.4 km/hr on the treadmill.
- Using a cross trainer for 7 minutes.

Doing weights in the form of leg extensions, leg press & some light dumbbell work (done on my home-gym).

This may seem like a lot of exercise but it takes me less than an hour and as I have already said, only 3 days a week.

As of the 30th June I have lost 23 kg and feeling great!

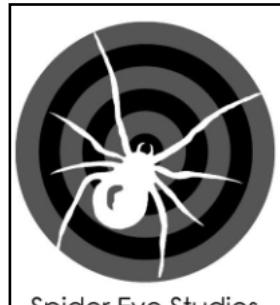
Thanks Thyroid Australia!

Kindest regards,

C.M.

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Brisbane North Side

Chermside Library 2pm-4pm

Support Group Meeting: **Sept 16th**

Oct 14th Seminar (Bookings essential)]

Contact office for more information

Brisbane South Side

Sunnybank Hills Library 2pm-4pm

Support Group Meetings

Oct 21st / Nov 25th

Gold Coast / Tweed Heads

Support Group Leader position open.

Contact office for more information

Perth

Salvation Army Hall

565 Walter Road East (c/- Wicks St)

Morley, WA

Sept 2nd / Oct 14th / Dec 2nd

Support Group Leader position open

Contact office for more information

Inner Melbourne

Nth Carlton Railway Station

Neighbourhood House

20 Solly Ave, Princess Hill, VIC

Support Group Meetings

Dates not yet announced

Contact office for more information

South Gippsland

Foster Community Health Centre

93 Station Rd

Foster, VIC

Support Group Meetings

**Fourth Monday of Each Month
10.30am**

Melbourne

Royal Children's Hospital

The Murdoch Institute, 10th Floor

Public Meeting & AGM

Nov 12th - 2pm to 5pm

Including special afternoon tea and presentation to thank volunteers



Past & present Board & Committee members at the farewell lunch for Robyn Koumourou

Left: Gail Pascoe, Christopher McDermott, Karen Latimer, Sue Yee, Alun Stevens, Robyn Koumourou, Cornelia Cefai, Brenda Stocks, Bronwyn Stevens, Megan Stevens

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