

---

# The CSIRO Total Wellbeing Diet

## FAQs

### Frequently Asked Questions

---



Page references mentioned are: Book 1 page (B1-#) or Book 2 page (B2-#) **Updated FAQs July 2008**

#### CONTENTS

About the CSIRO Total Wellbeing Diet (TWD)  
Abbreviations used within the FAQ list  
Alcohol/wine  
Amount of food in the diet  
Artificial Sweeteners  
Atkins Diet  
Availability / where to buy the TWD book  
BMI - Body Mass Index  
Bread  
Breastfeeding and Pregnancy  
Calcium  
Cancer  
Cereals  
Checklists  
Cholesterol and heart health  
Composition of foods / nutrient values  
Conversion tables for weights and measures  
Copies of the original 2003 diet booklet  
Cost of food in the TWD  
Dairy and non-dairy  
Diabetes  
Diet checklists  
Diet soups (low-kilojoule)  
Dietary advice  
Drinks / Coffee  
Editions of the TWD book  
Eggs (substitutes)  
Emergency Breakfast  
English Measures  
Errors and explanations  
Exercise  
Fat / types of fat / oils  
Fibre / high fibre  
Fish  
Folate  
Food exchanges and substitutes  
Free Food / Snacks

Free List  
Freezing food and meals  
Fructose Intolerance  
Fruit  
GI – Glycemic Index  
Gluten Intolerance/Coeliac Disease  
International Rights  
Irritable Bowel Syndrome  
Ketosis and carbohydrates  
Lunchbox ideas  
Maintenance Checklist  
Margarine  
Marinades  
Men - is there a version of the TWD for men?  
Metabolic Rate (how to calculate)  
Oils / fats  
Order of meals  
Overweight  
Protein  
Protein (non meat)  
Rubs  
Salt  
Sauces, rubs and marinades  
Serve sizes and meal plans  
Shopping lists  
Snacks  
Sugar and honey  
Sugar in cooking  
Teenage girls  
Using the TWD in other countries  
Vegetables  
Vegetarian diets  
Water  
Weekly Shopping Lists  
Weights and measures in recipes  
What has changed from Book 1 to Book 2?  
Wholemeal and wholegrain breads

## About the CSIRO Total Wellbeing Diet (TWD)

- **What initiated the creation of the diet?** CSIRO received many public enquiries as well as enquiries from the medical and health professional community wanting to know about the validity of some of the popular diets. As there was little research in the area at the time, we embarked on a body of research to establish the most effective and healthy ways to lose weight.
- **What is the crux of the TWD?** It is essentially a nutritionally balanced diet with a higher level of lean protein to prevent hunger. Most of the protein is derived from lean meat, fish and low fat dairy foods. The diet also contains adequate fibre from wholegrains, fruit and vegetables. Energy restriction lies at the heart of the TWD without which weight loss cannot be achieved.
- **What is the recommended length of the diet?** We don't specify a duration, however the book does have sample menu plans for 12 weeks. The study on which the TWD is based was a 12 week study. The other studies carried out which relate to the development of the dietary pattern were 8 – 12 weeks. Weekly plans may be repeated until you reach a goal weight, and then you commence the maintenance plan (B1-p189).
- **How does physical activity play a part in the TWD?** Physical activity is essential to any weight loss programme. The book provides extensive information on exercise.
- **Where can someone get more information if they are interested in learning more?**  
Go to our website: [www.csiro.au/twd](http://www.csiro.au/twd)
- **What has changed from Book 1 to Book 2?** The level of kilojoules is slightly higher, there is one extra dairy unit each day and the recommended requirements for vitamins and minerals have been updated in line with the recent NHMRC revisions – especially for calcium and folate (*see B2 – page ix*).

---

### Abbreviations used within the FAQ list

BMI	- Body Mass index
FSANZ	- Food Standards Australia New Zealand
GI	- Glycaemic Index
GRDC	- Grain Research & Development, Australia
HDL	- High-Density Lipoprotein ( <i>see below - Cholesterol</i> )
LDL	- Low-density Lipoprotein ( <i>see below - Cholesterol</i> )
NHMRC	- National Health & Medical Research Council
NRV	- Nutrient Reference Values
RDI	- Recommended Dietary Intakes
TWD	- Total Wellbeing Diet (CSIRO)

### Alcohol/wine – May I have something else instead of wine?

Certainly! (*see B1- pages 23 & 60-61, B2 – pages 17-18 & 21 & 26*) Two glasses of wine provides about 860 kilojoules. You can have anything that matches that kilojoule level once per week. An example is 40g chocolate. Check labels for kilojoule content of other foods you might like. When you are trying to lose weight, you will find, particularly in the first few weeks, you are better off having very little alcohol because it can affect your appetite.

Bear in mind the two glass allowance of wine applies to Level 1 of the TWD & applies only for active weight reduction. For other levels of the diet & for weight maintenance the amount can be increased as recommended. It is advisable not to exceed the prudent levels of intake for *women* which is 2 standard drinks per day & for *men* 4 standard drinks per day. Some individuals with existing medical problems should seek their doctor's advice on the safety of alcohol intake for their condition.

### Amount of food in the diet

Some enquirers have advised that the daily amounts of food are too little or too much. The 4 levels of the TWD have been set to cover the different energy requirements for a large proportion of people. It is of course possible to make minor personal adjustments to the diet, for example, the lunch and dinner meals (i.e. mid-day and evening) may be swapped if the person would like to eat less at night. Components of each meal could be spread to cover various times of the day to suit shift workers; however, the total intake should remain the same and be in the same quantities (*see also: Order of meals*). It would be advisable to seek professional guidance from a Dietitian if further dietary tailoring or significant adjustments are required.

## Artificial Sweeteners

CSIRO does not have a formal position on artificial sweeteners. Safety issues are dealt with under the auspices of FSANZ. On the issue of aspartame and additives, there is no scientific evidence which links aspartame or other additives in randomised clinical trials in the medical literature. Whilst there may be consumer concerns and some websites that raise anxiety about these dietary components, we do not accept that there is any compelling evidence of harm (see also B2-page 32).

## Atkins Diet

*The differences between the CSIRO Total Wellbeing Diet (TWD) and the Atkins diet: (see also B2 – page 29)*

The Total Wellbeing Diet is a high protein, low fat, moderate carbohydrate diet. It is very different to the Atkins diet which is very low in carbohydrate and may be high in fat. The Total Wellbeing Diet contains more fruit, vegetables and wholegrain breads & cereals than the Atkins diet & recommends lean protein foods rather than high fat protein foods.

*I have been on the Dr. Atkins diet for two years - is the TWD likely to work for me or could I expect to put on weight with all the 'carbs'.*

Provided you follow the correct level of the diet (B1- pages 28-30) the emphasis on kilojoule control should prevent weight gain. The TWD contains moderate amounts of slow-release carbohydrates (the ones with a low GI) that are essential for energy and maintaining your blood glucose levels. It is nutritionally balanced and can be maintained effectively in the long-term.

## Availability / where to buy the TWD book

The book is available through bookstores, department stores, some newsagencies and online book stores including CSIRO Publishing. The recommended retail price (RRP) of each book is \$34.95.

## BMI - Body Mass Index (see also: Overweight, see B2 – page 14)

BMI is a reasonable but not perfect indicator of body fat. It can be calculated using pounds and inches or kilograms and metres using the following equation:

*BMI = (weight in kilograms) divided by (height in metres) squared (see B1- page 17 or B2 – page 14 with examples).*

BMI should only be used to measure adults (18+). For men & women over 18 a healthy BMI is between 20 & 25.

## Bread

**Exchanges for bread** - On a typical day on the TWD, you can eat two 35g slices (2 units) of wholegrain bread. You can replace one unit each day with any of the following:

- 1/3 cup baked beans, chick peas, cooked lentils, kidney beans or other beans
- 1 x 35g slice fruit loaf
- 2 crispbread, such as Ryvita
- 1 medium potato (about 150g)
- 1/3 cup cooked rice or noodles
- 1/2 cup cooked pasta

**Types of bread** - Some types of bread in the local supermarket will have the words wholemeal or wholegrain on the packet. You should be guided by the nutrition information on the packet (look for high fibre). The TWD has various breads listed including wholemeal pita, Lebanese flat bread and rye bread. In earlier trial plans Lavash and Turkish Pide breads were also mentioned. The reason so many types of bread are listed is to provide variety, taste and change rather than choosing one type of bread for the entire dietary plan. Breads may range in values for protein, fat, carbohydrate and salt levels.

Wholegrain refers to the presence of whole wheat or other cereal grains, eg: Weetbix, multigrain bread, Burgen breads contain wholegrains and are low in Glycaemic Index (GI). Wholegrain bread is similar to wholemeal bread but contains a large quantity of intact grains, which may be less preferable for older people and young children due to their reduced chewing ability.

A good site that explains wholegrain and wholemeal is the GRDC (Australian Grain Research and Development Corporation) <http://www.gograins.com.au/display.php?menuId=healthyDiet> (extract below).

- **Wholegrain:** Wholegrain foods contain all the components of the grain- the bran, germ and endosperm. The grains may be whole, cracked or milled.
- **Wholemeal:** Whole grains that have been milled to a finer texture rather than leaving the grain intact become wholemeal. Wholemeal contains all the components of the grain, therefore wholemeal foods are also wholegrain. Wholemeal bread and rye bread are typical examples of products made with wholemeal.)

- **High-fibre:** Australian foods regulations require that a food must contain at least 1.5grams of fibre per serve before it can state that it contains fibre and 3 grams per serve before it can claim to be high- fibre. A food may either be naturally high in fibre eg wholemeal bread, or have fibre added eg white high fibre bread. A point of difference is that high fibre foods do not always contain all the outer layers of the grain.

### **Breastfeeding and Pregnancy** (see also: *Calcium, Folate*)

Pregnancy and breastfeeding increase a woman's nutritional requirements for key nutrients such as kilojoules, protein, omega-3 fatty acids and most vitamins and minerals including folate, iron and zinc. Eating a healthy well balanced diet is therefore important throughout pregnancy and breastfeeding and the CSIRO Total Wellbeing diet can provide the basis for good nutrition (*B2 - page 33*).

Breastfeeding women may need up to 3 000 extra kilojoules daily. Start with Level 1 or 2 of the Total Wellbeing Diet and make sure to include three serves of dairy. If you are still hungry, top up with bread and fruit. There are some safety concerns with certain foods such as some species of fish when pregnant and we suggest you visit the link below for more information: FSANZ Fact Sheets:

<http://www.foodstandards.gov.au/foodmatters/pregnancyandfood.cfm>

*Do you have any adaptations of the TWD for a breast-feeding mum? How many kilojoules should I be consuming? Should I have extra snacks?*

This will depend on how often you are breastfeeding which can increase your kilojoule requirements by up to 3000 if you are exclusively breastfeeding. We suggest that you start with Level 1 or 2 of the TWD & include 3 dairy serves to meet your basic nutritional needs. You can then increase the amount of bread & fruit you eat depending on appetite & energy needs. It is important to monitor your milk supply and ensure plenty of fluids, sufficient calcium (i.e. 3 serves dairy per day) and regular exercise. The new recommended dietary intake for calcium while breast-feeding is 1000mg/day. One unit of dairy food contains about 300mg calcium and is equal to:

1. a 200g tub of yoghurt
2. 250ml milk
3. 100g tinned salmon (with bones)
4. 35g hard cheese (these are listed on TWD page 45).

### **Calcium** (see also: *Breastfeeding and pregnancy, Dairy and non-dairy*)

New Recommended Dietary Intakes (RDI) and Nutrient Reference Values (NRV) for calcium

	Age range	Calcium - Mg/day	Age range	Calcium - Mg/day	Age range	Calcium - Mg/day
Men	19-70 yr	1,000			>70 yr	1,300
Women	19-50 yr	1,000	51-70 yr	1,300	>70yr	1,300
Pregnancy	14-18 yr	1,300	19-50 yr	1,000		
Lactation	14-18 yr	1,300	19-50 yr	1,000		

A number of web sites are listed which give a range of replies to questions about calcium in the diet:

<http://www.healthinsite.gov.au/topics/Calcium>

### **Cancer** (position statement on Colon Cancer risk)

*A recent study published in the journal, Cancer Research, reported greater chemical changes in the colon when 420g meat or pork was eaten for 20 days compared to a vegetarian diet. The suggestion was that this may be a marker for colon cancer. What is CSIRO's response to the study's findings?*

This study did not specify whether the meat was lean or not. However, there is no evidence yet that the change in DNA observed is in any way related to colorectal cancer. The study also found that these chemical changes were reduced by the addition of dietary fibre to the diet.

Clearly this is an extreme experimental situation and meat intake was in excess of what is suggested in the CSIRO Total Wellbeing Diet. Other protective components of the Total Wellbeing Diet are a high fibre, vegetable and fish intake coupled with weight loss and physical activity.

### *Statement about "Red meat and the CSIRO Total Wellbeing Diet"*

"It has been estimated that approximately 70% of colorectal cancer could be avoided by changes in lifestyle in Western countries. Known risk factors include obesity, physical inactivity, high alcohol consumption, early adulthood cigarette smoking. Protective dietary factors include dietary fibre and folate.

It is simplistic to say that eating red meat, or any single food, is a risk for colon cancer. What one needs to look at is the overall diet pattern of the food a person eats, as well as their lifestyle. The biggest lifestyle risks for colon cancer are being overweight and a lack of exercise.

The CSIRO Wellbeing diet is a very balanced diet. It includes fish, whole grains and fruit and vegetables, all of which reduce the risk from cancer. The recommended amount of red meat on the CSIRO Total Wellbeing Diet is 800g/week or an average of 114g/day and fish at least 400g/week or 57g/day

Lean red meat is a good source of a number of important vitamins and trace elements which can be protective including anti-oxidants. The net effect of the CSIRO Total Wellbeing Diet, which includes balanced nutrition, weight loss and exercise, is that it has a beneficial effect on health.”

### **Cereals** (breakfast)

In the CSIRO Total Wellbeing Diet the high-fibre cereal equals one unit per day and weighs 40 grams (ie. 1 cup of breakfast cereal is approx. 40grams). (see also: *Conversion tables, B1 - pages 22, 50-55, or B2 - pages 6, 8 & 23*) Some examples would include: rolled oats/porridge, unsweetened muesli, Uncle Toby's 'Fibre Plus'/'Bran Plus', Kellogg's 'All-bran', Sanitarium 'Weetbix'. Unprocessed bran/psyllium can be added if extra fibre is needed.

### **Checklists**

There are shopping lists, Maintenance checklists and daily/weekly Diet checklists featured in each book in the appendix section. (See below - *Weekly Shopping Lists*)

### **Cholesterol and heart health**

Using the TWD diet can result in a significant reduction in triglycerides and LDL (bad) cholesterol. Regular exercise and a moderate alcohol intake are two factors which have been shown to increase the level of HDL (good) cholesterol. Sustained weight loss will also have a positive effect on HDL cholesterol. (see B1-page 43 or B2 – pages 14-15, 43, 56-57 & 60)

*The diet seems too meat-orientated. For someone like me who eats meat probably once or twice weekly, I could be setting myself up for heart disease if I was to follow your diet strictly.*

Eating 2 units of lean red meat for dinner 4 times per week as well as fish twice per week and chicken once per week, are key elements in the TWD. In fact protein-rich foods will help control your blood fats so don't be concerned that eating more lean meat or protein will increase your cholesterol levels. Just remember to choose lean cuts of red meat, remove skin from chicken and opt for low-fat dairy products. If you do not like to eat meat you can choose other lean protein food choices.

*Lunch and dinner have large portions of protein. Is this going to present other problems such as too much saturated fat?*

The TWD is a low fat diet with less than 30% energy from fat. The meat allowances used are based on lean, fat-trimmed cuts of meat and saturated fats account for only 6% of total intake of energy. Higher protein meals help control appetite and prevent muscle loss while dieting. So the TWD provides an alternative to the more traditional dieting regimes. If you wish to eat less meat at lunchtime, you can substitute other lean protein foods. We have tested the TWD on blood cholesterol levels which are reduced on the diet.

### **Composition of foods / nutrient values**

If you wish to find out the differences in composition of various foods (eg. breads, fruit, fish, etc.) you may use the FSANZ Nutrition Panel Calculator (free) on the web: <http://www.foodstandards.gov.au/npc/> The "ingredient" list will give you such details as fats, sugar, protein and fibre content of various foods.

### **Conversion tables for weights and measures**

There are many systems of measurement used around the world for recipes and cooking instructions. In Australia, 1 cup of liquid equals 250ml, as a metric measurement. However recipes that originate in the United Kingdom, USA and Canada use a "cup" measurement that may be quite different in volume. The free access Wikipedia web site: [http://en.wikipedia.org/wiki/Cooking\\_weights\\_and\\_measures](http://en.wikipedia.org/wiki/Cooking_weights_and_measures) has good information about all cooking weights and measures for both dry and liquid ingredients.

### **Copies of the original 2003 diet booklet** (see also: *Editions of the TWD*)

*Where can I get more copies of the free diet booklet?*

Copies of the free booklet are distributed by Meat and Livestock Australia (MLA) which also has a website for further recipes: <http://www.themainmeal.com.au/index.cfm?pid=62> Toll free number 1800 550 018

### Cost of food in the TWD

One option would be to buy cheaper cuts of meat. Lean mince is fine as well as cuts that need more cooking time such as chuck steak for stews and slow-cooked casseroles. Some meals can be cooked in bulk on the weekend and frozen in batches (see also: Freezing Food). Quite often they taste better as well. Try to shop for what is seasonally available particularly in the fruit and vegetable lines as this is most cost-effective. Remember that the eating plans are meant as a guide only and can be varied as long as you choose alternatives from the same food groups. Probably one of the most expensive items is the fish. Choose less expensive fish varieties as well as canned fish as options.

A less expensive lunchtime option is to have 50g protein food plus one dairy serve (eg; low-fat cheese) or two eggs. For dinner try using smaller portions of animal protein (eg; 100g meat/chicken/fish) then adding vegetable protein (eg; 130g beans (cooked weight) or 100g tofu).

#### *How can I reduce my food bill?*

Shop for seasonally available foods (fruit and vegetables) and use cheaper cuts of meat, such as chuck steak for stews. Choose less expensive fish varieties, use eggs as a replacement protein for one protein-unit, add lentils in place of some portions of meat at dinner (see B2-page 34).

### Dairy and non-dairy

Soy milks can be used as a substitute for cow's milk & low lactose milk drinks for those with lactose intolerance. If you need to substitute soy products for dairy, then please apply limits and similar quantities as per the Dairy Foods list below (this is assuming that similar protein/calcium and other nutrient levels are similar to low fat dairy products). You may use soy or other high calcium foods as substitutes:

*DAIRY (2-3 serves per day) 1 serve of dairy equals = low-fat or diet yoghurt; or dairy dessert, 200g; or low-fat milk, 250ml or 25g cheddar cheese or other full fat cheese, or 50g reduced-fat cheese (10% fat).*

- *Book 2 recommends 3 units of dairy per day.*
- *the 50g protein food for lunch can be substituted for an extra dairy serve*

#### **Diabetes – Is the diet appropriate for people with diabetes?**

People with diabetes should check with their doctor, dietician or specialist to make sure that it is appropriate for them. CSIRO Human Nutrition response: "While we cannot make recommendations for which diet people should choose to use, nor give advice about weight loss or treatment for medical conditions, the book covers some questions about type 2 diabetes (see B1 - page 20 or B2 – page 33).

As always any diet plans are guidelines only and are not intended as medical or nutritional advice. For specific health or dietary concerns we recommend discussing this with your doctor or dietician."

For more information about Diabetes, please contact your local branch or the national branch of Diabetes Australia.

<http://www.diabetesaustralia.com.au/home/index.htm>

**Diet checklists** (B1 - page 195 or B2 – pages 214-215)

### Diet soups (low-kilojoule)

Low-joule soups (250ml/day) are good snacks and are an optional extra each day. Any packet soups containing less than approx 160 kilojoules per serve are suitable once a day. Another option is to make your own vegetable soup using vegetables from the 'free' list.

#### **Dietary advice** about personal health/medical conditions

Regrettably, we do not have the resources to provide individual dietary advice. While CSIRO Human Nutrition is able to provide some general nutrition information, it is beyond their scope to provide answers to personal health problems or medical conditions. As stated in the TWD book "The information contained in this book is not intended as a substitute for consulting with your physician or other health care provider."

**Drinks / Coffee** – You can swap a low-fat coffee beverage for any other similar drink (eg. tea with low-fat milk). The free list (B1 - page 23 or B2 – page 9) also lists cocoa and herbal tea as hot drinks.

### Editions of the TWD book

The CSIRO Total Wellbeing Diet has been available since August 2003. Its first release was as a free booklet in the Australian Woman's Weekly, followed by an A5 sized booklet plus a number of weekly menus. The complete and first edition of the book came in May 2005 and a number of overseas editions (see also: *International Rights*). There

has been much positive feedback, suggestions and questions in response to Book 1. As a consequence, we felt a second CSIRO Total Wellbeing Diet book was needed. Book 2 was released in October 2006 is a companion to Book 1, extending it with: a structured exercise plan; answers to many questions; more fabulous recipes; and a new 12 week menu plan.

### Eggs (substitutes)

As eggs are basically a protein source they can be substituted for other protein foods, for example, 1 egg = 50g lean meat, chicken, turkey, pork, ham, fish or low fat cheese.

### Emergency Breakfast - *What is the emergency breakfast?*

This is listed for people suddenly deciding to start the diet without having much food stock in the pantry (i.e. it is minimal and the foods are likely to be available in the average household), and/or for people with no time for breakfast or are only able to grab something to eat at a café or deli.

### English Measures (see Conversion tables)

### Errors and explanations – correct details for a few recipes

Recipe	Book & page	Correction / notes
Spiced red lentils with green beans and mint	B1 - page175	"400g red lentils" should read "cooked red lentils". Also note that the exchange is not right – it should read 1 bread unit, not ½ (half).
Fresh fruit salad	B1 - Week 1 / day 3 / dinner (page 65)	Book 1 - Recipe is actually found on page182 (not p186 as listed).
Roast beef with beetroot, pumpkin and carrot	B1 – page 158	The garlic is included with all other vegetables, which are added after the initial cooking of the beef.
Sauces, rubs and marinades	B1 – pages 120-125	These recipes are only in Book 1, they are not repeated in Book 2. <i>See under heading: Sauces, etc</i>
Tomatoes stuffed with tuna, basil & spinach	B2 – page 138	The ingredient list missed out spinach. To correct this, 1 (one) cup of chopped spinach may be added to the stuffing mixture.
Fish stew with tomato and basil	B2 – page 147	Parsley was included as an ingredient instead of basil. The one-third cup of parsley can be interchanged with one-quarter cup of roughly chopped basil, however the meal works with either ingredient.
Picked thyme leaves	B2 – pages 156, 182 & 202	The word is actually picked (not pickled) and indicates you could use freshly picked leaves of various herbs. Dried herbs are also OK, but use less as the flavour is often stronger in dried products. Roasted chicken with thyme, Barbequed lamb & vegetable wrap, Roasted cherry tomatoes & asparagus with lemon thyme
Moussaka	B2 – page 193	This recipe should have stated "use 1 tablespoon of olive oil to cook the lamb". Then later "heat remaining oil...." For using the rest of the 2 tablespoons olive oil as listed in the ingredients. The eggplant should be placed in a single layer to bake (usually on a baking tray) and probably about 5mm thick. Using 4 eggplants appears to be a large amount, but it will depend on the size of eggplants purchased and the fact that slices shrink quite a bit during the baking process. It should work out at approx. 1 small eggplant per person for serving 4.
Buttermilk puddings with fresh berries	B2 – page 206 The wording might not be clear about the cooked portion of the vanilla bean and half the buttermilk.	Place vanilla bean and half the buttermilk in a small saucepan and bring to a simmer. Remove from heat and add gelatine, stirring well to dissolve. Allow to cool slightly, stir in Equal, then strain through a fine-mesh sieve.

		<p><i>Place yoghurt and remaining buttermilk in a bowl and add the <u>cooked vanilla buttermilk mixture</u>.</i></p> <p>Stir gently, then pour into 6 small ramekins or glasses. Refrigerate for 2 hours, or until set. Serve puddings either in the ramekins or turned out onto plates, and with fresh berries.</p>
--	--	--

### Exercise –

*Am I allowed more food if I follow an exercise regime?* More carbohydrate would be advantageous for significant bouts of activity but not absolutely necessary... one will just lose more weight without extra carbohydrates, but some may find that exercise may be difficult to sustain without the extras. The body will adapt to less if one persists, though. For exercise details see *B1-pages 31-35 & B2 – pages 41-73*

### Fat / types of fat / oils

This diet is low in fat and saturated fat. Total kilojoules (kJ) are about 5600. The diet plan allows for about less than 30% of kilojoules from fat or less than 50g for the whole day. Reduced/low fat milk contains 1-2% fat whereas skim/non-fat milk contains less than 0.16% fat. See *B1- pages 21, 23, 56-57 & B2- pages 4, 6, 9 & 17*

*What is a low-fat product? How is it defined?*

The definition "low fat" in Australia is 97% fat free (i.e. 3 grams of fat out of 100 grams of the food)

FSANZ: <http://www.foodstandards.gov.au/> offers these guides to help demystify labels:

- **Low fat** - The food must not contain more than 3g total fat per 100g of food or 1.5g total fat per 100g liquid food. If the claim is made for a food naturally or intrinsically low in fat it must refer to the whole class of similar foods. For example, a "low fat" claim for bread must note that bread is a low-fat food.
- **Fat free** - The food must not contain more than 0.15g total fat per 100g food. If the claim is made for a food naturally or intrinsically free of fat it must refer to the whole class of similar foods.
- **% fat free** - The food must meet the requirements for the claim "low fat" and must carry a statement of the actual total fat content (expressed as a percentage of the food) close to the claim.
- **% free** - Cannot be used to refer to any nutrient other than fat.

*I note that margarine is featured in your diet-once again we are bombarded with the fact that margarine is so bad for you (i.e. trans fatty acids which clog our arteries).*

Trans fats are formed during the processing of oil to make margarine and they are also found in beef and dairy fat. As the TWD is low in fat you will only be eating around 3 teaspoons of margarine a day at the most, so your possible intake of trans fatty acids will be low. Additionally, the major Australian margarine manufacturers have removed trans fatty acids from many of their margarines. Some convenience foods and high-fat manufactured foods contain trans fatty acids (details in Choice magazine).

*Why aren't you promoting flaxseed oil/olive oil? Flaxseed has wonderful health benefits.*

Both olive oil and canola oil are suitable to use in cooking whereas flaxseed oil, although it does have nutritional benefits, is not suitable for use in cooking. The TWD recommends the daily fat allowance be consumed as any liquid oil such as canola, olive or sunflower oil or any soft/light margarine, or avocado, nuts and seeds. Because the TWD contains significant amounts of fish there is sufficient long chain omega 3 fats consumed which means that plant sources of omega 3 fats such as linseed are not critical-although linseed oil could be used as part of the fat exchange.

### Fibre / high fibre

High-fibre: Australian foods regulations (as per FSANZ) require that a food must contain at least 1.5grams of fibre per serve before it can state that it contains fibre and 3 grams per serve before it can claim to be high-fibre. A food may either be naturally high in fibre (eg. wholemeal bread) or have fibre added (eg. white high fibre bread). A point of difference is that high fibre foods do not always contain all the outer layers of the grain. The GRDC Go Grains site has suggestions for high-fibre foods (*see web site listed above under Bread*).

**Fish – Can sardines be used in lieu of tuna or salmon?**

Yes absolutely. Sardines are an excellent source of omega-3 fatty acids. 100g of lean protein (fish, chicken, pork, ham, lamb or turkey) can be eaten for lunch daily. The oil in which the sardines are canned is very healthy & may be used as part of your daily fat allowance.

**Folate** (see also: *Breastfeeding and pregnancy*)

The new recommended daily intake of folate for adults is 400 µg (micrograms); pregnant and breastfeeding women need about 600 µg (micrograms). See B1 – page 48 & B2 – page 33

*Good sources of folate include the following:*

- Vegetables, particularly green leafy vegetables
- Fruits, including bananas, berries, apricots, melons and oranges
- Legumes, including chickpeas, lentils and dried beans, and peas
- Nuts and seeds, including peanuts, almonds and sunflower seeds
- Wholegrain foods, including wheat germ, wheat bran, breads and folate fortified breakfast cereals
- Organ meats, such as liver and kidney

**Food exchanges and substitutes**

There are a number of food groups in the TWD & exchanges can be made within these food groups. The daily food allowance (pages 22-23) gives some examples for exchanges for protein foods (eggs), bread (rice, pasta, beans), cereal (toast), dairy (milk, cheese, yoghurt), fruit (juice), fats and oils (nuts, seeds, avocado), wine (other drinks or snack foods).

*For more information and food substitutes see also:* Alcohol, Bread, Dairy, Drinks/coffee, Eggs, Fruit, Gluten Intolerance, Irritable bowel Syndrome, Protein (non-meat), and Vegetarian diets.

**Free Food / Snacks** (see "The free list" in B1- page 23 & B2 – page 9)

The listed foods have minimal kilojoules so use them freely to spice up your meals (list includes vegetables, drinks and condiments). They may also be used as extra snacks during the day (eg. drinks and vegetables).

**Free List**

The Free List details foods and drinks which may be consumed at any time (B1 – page 23 & B2 – page 9).

**Freezing food and meals** (see also B2 – pages 31, 112 & 159)

It is very important to be careful when saving extra portions of a meal for use at a later date (by refrigerating or freezing extra food). Please refer to fact sheets prepared by Food Science Australia:

- Handling food in the home - <http://www.foodscience.csiro.au/handling.htm>
- Refrigerated storage - <http://www.foodscience.csiro.au/refrigerated.htm>
- Storage life of foods - <http://www.foodscience.csiro.au/storagelife2.htm>

**Fructose Intolerance**

CSIRO Human Nutrition do not deal with such specific medical concerns and suggest you contact The Allergy and Environmental Sensitivity Support and Research Association Inc. (AESSRA) which provides information about treatment, services and products and can put people in touch with people who understand.

Phone (03) 9888 1382 <http://www.aessra.org/> (see B2- page 34)

FSANZ has issued advice to fructose intolerant people to avoid a new food ingredient called tagatose: <http://www.foodstandards.gov.au/newsroom/factsheets/factsheets2004/informationabouttaga2514.cfm>

**Fruit** (amount of fruit in TWD diet)

"The diet has been created to provide a particular ratio of protein, fat and carbohydrate. Within this ration, fruits and vegetables play an important part in providing essential nutrients and fibre. Vegetables are on the FREE LIST as they are lower in kilojoules than fruits. The fruit quota (300g/day) is such that it is within the kilojoule allowances for weight reduction and fits the carbohydrate profile for the diet. Fruits are generally limited on most diet plans because of their kilojoule content. Folate, Vitamin C, magnesium and Vitamin B6 are in various fruits. Fresh or tinned unsweetened fruit should be eaten each day - 2 serves (150g or 150ml juice)." Dried fruit may be exchanged with fresh fruit. Frozen or canned fruit & vegetables may be interchanged with the fresh variety.

*What quantities of vegetable/tomato juice can be consumed?*

Unsweetened fruit juice can be substituted (150ml) for one piece of fruit. Similarly a quantity of unsweetened vegetable juice could be used in place of vegetables, but remember that juicing may extract fibre which is an important factor in eating vegetables

**GI – Glycemic Index** (see also: *Atkins diet, Gluten Intolerance*)

Australian web site about GI - <http://www.glycemicindex.com/> (extract below)

*What are the Benefits of the Glycemic Index?*

All carbohydrate foods have an effect on your blood sugar levels-think of the glycaemic index (GI) as a way of measuring that effect. Research has shown that slowly digested or low-GI carbohydrates produce less fluctuation & help keep your blood glucose on an even keel-helping you feel fuller for longer. Foods with a high GI produce a marked rise in blood glucose levels after consumption. In the long-term, raised blood glucose is a health risk & there is good evidence that a modest loss of body weight can normalize blood glucose levels. The carbohydrate sources recommended in the TWD are generally low in GI (eg fruit & dairy) & because the total amount of carbohydrate in the diet is controlled, the diet is low in glycaemic load (GL).

### **Gluten Intolerance/Coeliac Disease**

CSIRO Human Nutrition response:

The Total Wellbeing Diet may be used effectively by people with coeliac disease. Just use Gluten free bread and cereal ordinary bread and cereal. Make sure that the weight of these foods corresponds to the diet requirements. Foods such as rice and corn thins can also be exchanged for bread – 3 thins = 1 slice bread. Chickpeas, beans and lentils can also be exchanged for bread in the Total Wellbeing Diet. For example: one x 35 g slice = ½ cup beans, lentils or chickpeas. (see B2- page 34)

You may also like to look at the following websites which suggest gluten-free alternatives:

- Better Health Channel Victoria - Gluten-free alternatives:  
[http://www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Gluten-free\\_alternatives?OpenDocument](http://www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Gluten-free_alternatives?OpenDocument)
- Australian Institute of Sport - Gluten-free Diets:  
[http://www.ausport.gov.au/ais/nutrition/factsheets/special\\_diets2/gluten-free\\_diets](http://www.ausport.gov.au/ais/nutrition/factsheets/special_diets2/gluten-free_diets)

### **International Rights** (various editions of the TWD)

The rights for the CSIRO Total Wellbeing Diet book are held by Penguin Australia and any queries regarding international rights should be forwarded to: [Peg.McColl@au.penguin.com](mailto:Peg.McColl@au.penguin.com)

The CSIRO Total Wellbeing Diet book has been released in the following countries and/or languages: Australia (Book 1 & 2), Brazil, Canada, Denmark, Finland, France, Israel, Italy, New Zealand, Norway, South Africa, Sweden, United Kingdom, USA. Arabic, Czechoslovakian, Dutch, French, German, Polish, Portuguese, Slovakian, Spanish.

### **Irritable Bowel Syndrome**

*I have Irritable Bowel Syndrome and can't eat bran. I notice most of the breakfast cereals are high fibre or you have to add bran to them. Is there something I can substitute for this?*

People with food intolerances can take supplements (eg. psyllium) that can help maintain adequate fibre intake. The recommended daily intake of dietary fibre is 30g. The TWD ensures adequate fibre intake through wholegrain products, fruits and vegetables. For people with irritable bowel syndrome, products such as probiotics may be of assistance. Probiotics are foods containing live bacterial cultures such as some yoghurts. You can choose a lower fibre cereal if that is better tolerated as long as it has the same kilojoule content. It is advisable to discuss with your doctor any medical issues or concerns you may have before embarking on a new dietary regime.

### **Ketosis and carbohydrates**

*I have just started the TWD - I usually eat quite a high carb diet and am concerned about the lack of carbohydrates in this diet and whether at any stage this can lead to ketosis\*.*

Although the TWD is lower in carbohydrate than other diets it is not a very low carbohydrate diet in fact carbohydrates provide around 40% of your total daily kilojoule needs-quite a moderate level. Ketosis generally does not occur with this level of carbohydrate although very mild ketosis will occur during any active weight loss diet

\*Ketosis: if the body doesn't receive enough carbohydrate, it breaks down muscle and other tissues to produce glucose. This causes a build-up of waste products called 'ketones'. This state, known as ketosis, is commonly seen in people who are starving, suffering from anorexia nervosa or with untreated insulin-dependent diabetes (see also: Carbohydrates)

### **Lunchbox ideas** (see Book 2, pages 104-113)

Book 2 has 10 pages which contain ideas for items that can be easily packed into a lunchbox for school or work. Fresh foods – including sandwiches and salads – and packaged food are both included, with ideas ranging from quick-and-easy lunches that can be thrown together in the morning rush, to meats, vegies or bakes that have been prepared the day or night before.

### **Maintenance Checklist** (see Weekly Shopping lists)

**Margarine** (see under: *Fat / types of fat / oils*)

**Marinades** – see *Sauces, rubs and marinades*

### **Men - is there a version of the TWD for men?**

We haven't developed a book specifically for men but various levels of the TWD can be adapted for men - depending on kilojoule requirements.

Is the Diet applicable to men? (*Book 2 page 32*)

It can be a healthy weight-loss approach for men. Because men tend to be taller and heavier than women, we would suggest Levels 2, 3 or 4 of the Diet. Many men have used the Diet very successfully.

Approximate amounts of foods for men are:

*Cereal:* 40-50g any high fibre cereal

*Low-fat dairy:* 3 serves

*Fruit:* 2 pieces/day

*Vegetables:* 2 cups/day

*Margarine/oil:* 4 teaspoons

*Meat:* \* Lean meat/chicken/fish: 200-250g (raw weight) for dinner,  
\* Ham, chicken, tuna, meat etc: 100g (cooked weight) for lunch

*Bread wholemeal:* 2 slices per day (1 slice = 35g)

*Wine:* 1 glass/day (optional) or

Individual metabolic rates may alter the level of food intake required, so please calculate this first (see page 28 and below: Metabolic rate). Generally speaking levels 1 and 2 are suitable for women and levels 3 and 4 are suitable for men. The weekly menu plans are based on level 1 of the diet (approx 5600kJ/day) so levels 3 and 4 would have higher allowances of lean protein, low-fat dairy and high fibre cereal more in keeping with the energy requirements for a male.

### **Metabolic Rate (how to calculate)**

In TWD Book 1 (and B2), the calculation is correct. It is slightly different depending on gender. The calculation is based on the Harris-Benedict Formula used throughout the world. The Harris-Benedict Equation is a formula that calculates your RMR (Resting Metabolic Rate) and then applies an activity factor to determine your total daily energy expenditure (calories/kilojoules).

The original scientific paper by Harris & Benedict [*A Biometric Study of Human Basal Metabolism*] is available online: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pubmed&pubmedid=16576330>

**Oils / fats** (see *Fat / type of fat / oils*)

### **Order of meals**

*Can I change the order of meals if I don't have the ingredients I need at the time?*

Absolutely! Remember that the menu plans are only examples of how to put together the recommended foods. Meals may also be swapped between different days. You can also choose your own menu and recipes as long as they conform to the foods included in the daily plan (*see also: Amount of food*).

*Is it ok to interchange the lunch and dinner protein allowances?*

If you wish to reverse the lunch and dinner protein allowances i.e. having the 200g protein allowance at lunch and the 100g allowance at dinner is quite acceptable (*see also: Protein*).

### **Overweight**

*"Do I need to lose weight?"*

Most people know if they need to lose weight, but sometimes a reference point can help you be realistic about how much you really need to lose. By using a calculation known as the Body Mass Index (*see: BMI*) and measuring your waist circumference, you can roughly assess whether you need to lose weight.

### **Protein**

*The protein portions seem like a lot and not what I normally eat. Do I have to eat all of the protein portion in a meal?*  
The high protein diet doesn't suit everyone's food preferences. You might find that you are better suited to a high

carbohydrate diet. Participants in the study ate 200g (raw weight) of meat/chicken/fish at evening meals and 100g (cooked weight) of chicken/fish at lunch.

*Does the lunch-time protein allowance refer to cooked or raw weight?*

The difference for the lunch protein option is not critical enough to differentiate. Our calculations are based on processed meat. The dinner protein allowance refers to raw weight.

*Is it ok to interchange the lunch and dinner protein allowances? (see also: Order of meals, Amount of food)*

Absolutely. If you wish to reverse the lunch and dinner protein allowances ie have the 200g protein allowance at lunch and the 100g allowance at dinner this is quite acceptable.

### **Protein (non meat)**

*Are lentils and beans considered protein or carbohydrates?*

It is a mixture of both. Lentils and chick peas are higher in protein than most vegetables which mainly supply carbohydrate. In the TWD lentils & beans are a substitute for bread. Vegetarians can substitute them for meat/chicken/fish—they provide a good level of satiety but do not provide the same amount of protein. A great reference book on food composition is Alan Borushek's Calorie Counter.

Exchanges: 200g meat/fish/chicken=200g tofu or 260g cooked beans or lentils.

1 x 35g slice bread = ½ cup beans, lentils or chickpeas

*Can I eat fish and eggs instead of red meat?*

You can substitute your 100 g protein allowance for: two eggs, or 100 g chicken, pork or fish.

You can also substitute with legumes, including: beans, split peas, lentils and chickpeas, tofu and other soy products. Try to include at least two main meals of fish per week.

*I do not eat meat and tend to substitute with fish, eggs and cheese - do you have any suggestions for increasing the protein for quick lunches?*

Suitable substitutions for the 100g protein allowance at lunch-time would be 2 eggs or 100g low fat cheese. Other alternatives for non-meat protein substitutes at lunch or dinner would be legumes, including beans, split peas, lentils and chickpeas, tofu and other soy products. Try to include at least 2 main meals of fish per week.

**Rubs** – see *Sauces, rubs and marinades*

**Salt and the TWD** (see B2 – pages 10-11)

There's a well known connection between a high salt intake and high blood pressure. Cutting down on salt can reduce blood pressure, both in people with high blood pressure and those with normal blood pressure.

The CSIRO Total Wellbeing Diet minimises salt as much as possible, but since you are free to choose certain foods, your salt intake could go up without you really realising it. Try to minimise your use of processed meats for lunches, or make them special or occasional foods. Fresh (unprocessed) foods are naturally low in salt. See opposite for some suggestions for lower-salt meals.

### **Sauces, rubs and marinades**

In Book 1 there are a number of recipes for sauces, rubs and marinades (B1 – pages 120-125).

If you are using Book 2, which does not repeat these recipes, a factsheet is available from CSIRO Enquiries (ph: 1300 363 400) or email: [enquiries@csiro.au](mailto:enquiries@csiro.au)

### **Serve sizes and meal plans**

(see: *Amount of food, Freezing food, Order of meals*)

*Why do many recognised diet plans have a different meal for everyday? This makes it very difficult if there are leftovers from the day or two before because there is only one in the family, and most recipes are for four people.*

The main reason most diet/menu plans have a different meal for everyday is to illustrate that there is scope for plenty of variety and flexibility. This does not mean however you must have different meals everyday. As most of the recipes are designed for four people the best solution when cooking for 1 or 2 is to either halve the recipe amount or cook it in full and freeze half of the prepared meal for use later. Be careful which recipes and meals you choose to freeze as some foods and cooked meals are not appropriate or suitable (see: *Freezing food and meals*). It is perfectly reasonable to have the same breakfast and lunch every day if you find that easier.

**Shopping lists** (see Weekly Shopping lists)

**Snacks** (see also: *Free food, Free list, Diet soups*)

The guidelines for snacks are (as alternative morning and afternoon teas ideas):

low kilojoule soups, skim milk cappuccino or café latte (from milk allowance), low fat yoghurt, low fat custard, low fat fruche (from dairy allowance) or a piece of fresh fruit (from fruit allowance).

Foods from meals can be saved & used as snacks.

*Can I fiddle around with the times of day that I eat the allocated foods?*

It is quite OK to save something from a main meal (eg. fruit or low-fat yoghurt or other low-fat dairy item) to have as a mid-meal snack. As long as you eat the foods specified and you have some protein at each meal it is not critical to eat it in the order outlined in the book. However, it is best to get into a routine with your eating pattern.

**Sugar and honey to sweeten foods and drinks**

Sugar and honey can be used in small amounts only as they can contribute excess kilojoules if eaten in larger amounts. To eat less kilojoules, you can opt for non nutritive sweeteners such as Equal (see also B2 – page 32).

**Sugar in cooking**

It is acceptable to use small amounts of cornflour, custard powder or sugar to thicken or sweeten dishes. 1 level teaspoon cornflour, custard powder or sugar has 40-60kJ. This is low enough not to worry about if you only use them occasionally.

**Teenage girls - Suitability of TWD for teenage girls**

The information below provides answers taken from the TWD book (B1 - pages:

- The diet is aimed at women (i.e. 18 years +).
- The whole family can follow the diet as suggested below.
- For younger members of the family, please follow the advice as per suitability for children.
- Dieticians would be able to recommend a food range/quantity applicable for teenagers with variable energy needs.

From (B1 - pages 16-17) TWD book:

*Will I be able to feed my whole family with the suggested meals?*

Yes, you can. The recipes fit easily into family meal plans. However, members of the family who do not need to lose weight may need to include extra carbohydrate foods with their meals, such as bread, pasta, rice or potatoes.

*Is the diet suitable for children?*

The diet is adequate for overweight children from a nutritional perspective as long as it contains 3 units of dairy foods. However, the level of kilojoules will need to be adjusted for the age, size and activity of the child, which is best done by a qualified dietician. Because children are growing, excessive kilojoule restriction can retard growth, so some care needs to be taken to ensure their diet is not overly restrictive. We would recommend smaller weight losses per week than for adults, unless the child is very overweight. Sometimes even keeping a child's weight stable as they grow will result in fat loss. If the whole family is eating meals based on the CSIRO Total Wellbeing Diet, this will provide good nutrition for everyone. Extra snacks (mostly fruit and low-fat dairy snacks) may be necessary for some overweight children. We recommend you consult with your doctor and seek a referral to a dietician, who will keep an eye on your child's weight and growth.

**Using the TWD in other countries**

(see also: *Editions of the TWD book, International Rights*)

*The TWD has been based on research done in Australia. Could you tell me if there are any factors that prevent it being directly used in other countries (eg. in Asian countries)?*

The TWD would not suit cultures with very divergent eating preferences. From a metabolic perspective however, the effect of the diet would be similar. As to whether Asian countries would need slightly different weight management plans due to their high carbohydrate diets and higher cost of meat and whether the TWD only be recommended for Western style diet regions - the bottom line is that the TWD is based on Australian research and local food availability, so there would necessarily be variants in cost and culture to diet regimes from country to country.

**Vegetables**

Many vegetables are listed on the FREE LIST (B1 - page 23 & B2 – page 9). The average amount of vegetables in TWD is about 2.5 cups per day (or about 400g). If you feel like more there should be no problems as the kilojoules in vegetables tend to be very low. For most people eating as much as this amount presents a challenge!

**Vegetarian diets - Is there a diet for vegetarians?**

The research carried out by CSIRO does not investigate whether a vegetarian high protein diet is any more effective than a high carbohydrate vegetarian diet. You may want to contact a company that specialises in vegetarian

products to seek further information regarding vegetarian diet information. Alternatively you may want to consult a dietician or GP in order to modify the original plan and/or obtain individual diet advice.

The TWD diet was tested using mainly protein from meat and dairy foods. We don't know whether vegetable protein works in the same way. If vegetarians want to substitute the non-meat protein, we would suggest the following exchanges which provide approx. the same kilojoules:

200g meat/fish/chicken = 200g tofu or 260g cooked beans/lentils

#### **Water – Can I drink as much water as I like?**

Up to 8 glasses/day is recommended-according to thirst. You also get a certain amount of fluid from fruits & vegetables. Additional free foods can be found in the FREE LIST.

#### **Weekly Shopping Lists**

If you are following the diet from Book 1 (2005) there is a section at the back (appendix 6, pages 203 – 207) which provides weekly shopping lists and an "in the cupboard" list. You may find it useful to photocopy these for reference when shopping. These shopping lists are also available as a pdf document on the CSIRO web site. The weekly Diet Checklist (appendix 1, page 195) and Maintenance Checklist (appendix 2, page 196) are available from CSIRO Enquiries. For those using Book 2, the shopping lists are also available on the CSIRO web site.

#### **Shopping Lists**

Book 1: Weeks 1 to 12: <http://www.csiro.au/resources/pf8p.html> (Appendix 6 – pages 203-207)

Book 2: Weeks 1 to 6: <http://www.csiro.au/resources/ShoppinglistWeeks1-6.html> (pages 221-2)

Book 2: Weeks 7 to 12: <http://www.csiro.au/resources/ShoppinglistWeek7-12.html> (pages 223-4)

#### **Diet Checklists**

Book 1: (copy from Appendix 1 – page 195)

Book 2: <http://www.csiro.au/resources/pfml.html> (Appendix 1 – page 214)

#### **Maintenance Checklists**

Book 1: <http://www.csiro.au/resources/pf7o.html> (Appendix 2 – page 196)

Book 2: <http://www.csiro.au/resources/pfmn.html> (Appendix 2 – page 215)

*Is there a version of the shopping lists for the TWD that has quantities on it? It would have been very useful to have the quantities of ingredients required for the menu plans.*

There is not a version of the shopping lists for the TWD that has quantities in it. The shopping lists for weeks 1-12 are set up in such a way that the amounts of food needed to be purchased will depend on how many people in the household are on the diet and/or how many people are eating the suggested main meals. You need to copy these pages and fill in the required quantities.

**Weights and measures in recipes** (see *Conversion Tables*)

#### **What has changed from Book 1 to Book 2?**

The level of kilojoules is slightly higher, there is one extra dairy unit each day and the recommended requirements for vitamins and minerals have been updated in line with the recent NHMRC revisions – especially for calcium and folate (see B2 – page ix). See also web page: <http://www.csiro.au/org/ps2cn.html>

**Wholemeal and wholegrain breads** (see under *Bread*)

Updated FAQ list compiled by CSIRO Human Nutrition, June 2008

For more information please contact: **CSIRO Enquiries**

- Email: [enquiries@csiro.au](mailto:enquiries@csiro.au)
- Phone: 1300 363 400



[www.csiro.au](http://www.csiro.au)