

Fat facts

Types of Blood Fats

The Cholesterol Family

Cholesterol is a fatty substance made by our liver and found in our blood. Cholesterol is also present in some foods (this is known as dietary cholesterol). Cholesterol has many important functions but too much cholesterol can cause fatty deposits to build up in the blood vessels. This makes it harder for blood to flow through and can cause blockages leading to heart disease or stroke.

Risk factors that can contribute heart disease:

Non-modifiable risk factors (can't change)	Modifiable risk factors (can change or modify)
Age	Overweight
Male	Unhealthy diet
Family history	Inactivity
Ethnicity	High Alcohol intake
Diabetes	Smoking
	Stress / depression
	High blood cholesterol
	High blood glucose levels
	High blood pressure

What does your cholesterol blood test tell you?

Total cholesterol

This includes the good and the bad types of cholesterol (see below).

HDL (high density lipoprotein) cholesterol

This is "good" cholesterol which can help protect against coronary heart disease (CHD). HDL cholesterol can remove "bad" cholesterol from the lining of the arteries. The higher the level of "good" cholesterol, the better for your heart.

LDL (low density lipoprotein) cholesterol

This is "bad" cholesterol and can deposit in the inner lining of the arteries increasing your risk of coronary heart disease (CHD) and may eventually lead to a heart attack or stroke.

Triglycerides

This is another "bad" fat. High levels of triglycerides can lower "good" cholesterol (HDL) and increase your risk of coronary heart disease (CHD). High triglycerides can be caused by eating foods high in fat and energy, by being overweight and drinking alcohol.

What to aim for?

Blood fat targets for people with diabetes: (mmol/L)		Your results DATE:
Total cholesterol	less than 4	
LDL cholesterol	less than 2	
HDL cholesterol	more than 1	
Triglyceride	less than 2	

(Ref: Diabetes Management in General Practice, Diabetes Australia 2012)

Cholesterol in Food

Dietary cholesterol is found only in animal foods. Highest levels are found in eggs, offal, fatty meats, and some shellfish. Dietary cholesterol can increase LDL cholesterol levels, but to a lesser degree than saturated and trans fat. Moderate amounts of cholesterol-rich foods can be included if blood cholesterol levels are well controlled.

Fats found in food

Blood cholesterol levels can be affected by the *type* and *amount* of fat we eat. There are several different types of fat found in food (Table 1):

Saturated fat is "bad" fat as it can raise LDL cholesterol levels and can increase the risk of developing heart disease.

Polyunsaturated fat is "good" fat. There are two main types of polyunsaturated fat:

- **omega 6 fats:** can lower the "bad" LDL cholesterol and reduce the risk of heart disease.
- **omega 3 fats:** not only lower LDL cholesterol but can also lower triglycerides and have many other benefits for the heart. Omega 3 fatty acids are found in several plant oils and in even greater quantities in fish. The omega 3's from fish have been shown to be the most protective. In large doses, omega 3 fats from fish oil supplements have also been shown to have an anti-inflammatory effect, thereby reducing the symptoms of rheumatoid arthritis. Most Australians consume inadequate amounts of omega 3's.



Monounsaturated fat is "good" fat which lowers LDL cholesterol and triglyceride levels and increases HDL cholesterol in the bloodstream.

Trans fat is "bad" fat which increases LDL cholesterol levels and lowers HDL cholesterol. Trans fat is found in most foods containing saturated fat and is also produced in the manufacture of some margarines. Look for margarines with less than 1g of trans fat per 100g (less than 1%).

Table 1: Types of fat found in various foods.

Saturated and/or Trans X	Monounsaturated ✓	Polyunsaturated ✓
<p>Fats butter, lard, copha, ghee, cooking margarine, hydrogenated margarines (check the label for less than 1% trans fat), dripping, dairy blends, vegetable shortening, cream, sour cream</p> <p>Meat / meat products fatty meat (chops, poultry skin, chicken wings, fatty mince, fatty pork), smallgoods (sausages, saveloys, fritz, salami, bacon, mettwurst), paté</p> <p>Dairy full fat dairy products (full cream milk, cheese, cream cheese, yoghurt, ice cream)</p> <p>Plant sources coconut oil / cream / milk palm oil (in fast foods, cakes / biscuits/ pastries)</p> <p>Take away foods commercial cakes / biscuits / donuts/ chocolates crisps, hot chips, deep fried or battered foods, pies, pasties, sausage rolls, pastries</p>	<p>Oils / margarines canola* olive macadamia sunola* peanut</p> <p>Vegetables avocado olives</p> <p>Nuts & seeds almonds peanuts, peanut paste cashews hazel nuts macadamia pecans</p>	<p>Oils / margarines sunflower, safflower corn soybean*, sesame cottonseed grapeseed flaxseed oil/linseed oil*</p> <p>Nuts & seeds walnuts* pine nuts brazil nuts sesame seeds, tahini sunflower seeds linseeds*</p> <p>Fish / seafood <i>Canned:</i> sardines*, salmon* and mackerel* <i>Fresh:</i> Atlantic salmon*, tuna*, mullet*, swordfish*, gem fish*, trevally*, snook* flathead, calamari*</p>

* Good sources of omega 3 fats

What can you do to improve your blood fats?

- Maintain a healthy weight.
- Limit takeaways and fatty snack foods such as crisps, chocolate, cakes, pastries and high fat biscuits. Choose healthy alternatives such as fruit, low fat crackers and fruit loaf.
- Use lean meats, trimmed of visible fat. Remove skin from poultry.
- Use low fat milk and yoghurt.
- Cheese is high in saturated fat. Limit to 1-2 slices, up to four times a week. Lower fat cheeses such as ricotta, cottage and light cheddar are better choices.
- Use small amounts of poly or mono-unsaturated oils and margarines.
- Increase dietary fibre from legumes, fruit, vegetables, wholemeal or wholegrain bread and cereals.
- Eat fish 2-3 times a week preferably deep-sea fish such as sardines, mackerel, herring, tuna and salmon.
- Limit alcohol intake. Aim for no more than two standard drinks a day.
- Exercise regularly. Aim for at least 30 minutes a day for five or more days of the week.
- Quit smoking.



How much fat should we eat?

Although too much fat in the diet is unhealthy, we still need to eat a certain amount of fat (approximately 25 – 30% of our total calorie/kilojoule intake should come from fat). The average adult should consume less than 20g of saturated fat a day.

	Activity Level	Kilojoule (Calorie) Intake	Total Fat Intake Per Day (grams)	Saturated Fat Per Day (grams)
Women	Moderately active	8400 (2000)	55 – 65	<16
	Sedentary	6300 (1500)	40 – 50	<12
	Aiming for weight loss	5000 (1200)	30 – 40	<10
Men	Moderately active	10,500 (2500)	70 – 85	<20
	Sedentary	8400 (2000)	55 – 65	<16
	Aiming for weight loss	6300 (1500)	40 – 50	<12

(Nutrition for Life – Catherine Saxelby 2006)

(Total Fat and Saturated Fat – National Heart Foundation Guidelines)

Fat content of various foods

High fat choice	Fat (g)	Saturated fat (g)	Lower fat choice	Fat (g)	Saturated fat (g)
Milk, full cream, 1 cup	9	6	Milk, reduced fat (1.4%) 1 cup	3.5	2.5
Cheese, full fat, 30g	10	6.5	Cottage cheese, reduced fat, 30 g	1	0.5
Yoghurt, full fat, 200g tub	7	4	Yoghurt, diet, 200g tub	0	0
Chicken leg with skin, 100g (bone)	12	4	Chicken breast, no skin, 100g	5	2
Lamb forequarter chop, untrimmed, 100g (raw)	20	5	Lamb forequarter chop, trimmed, 100g (raw)	11	3.5
Beef mince, regular, 100g	15	6	Beef mince, lean, 100g	7	2.5
Pork midloin chop, untrimmed, 100g (raw)	17	7	Pork midloin chop, trimmed, 100g (raw)	2	1
Salami, 3 slices, 30g	12	5	Lean ham, 30g	2.5	1
Butter, 1 tbsp	16	10	Margarine, extra light, 1 tbsp	6	1.5
Potato crisps, 50g	15	6.5	Low fat crackers (Salada) x 4	0.5	0
Chocolate, 1 row, 25g	7.5	5	Dried fruit, 30g	0	0
Fish and chips, 1 serve, average	38	11	Dim Sims, steamed, 3	12	6
Pizza, pan, meat supreme, 2 slices	24	9	Pizza, thin crust, vegetarian, 2 slices	9	5

Commonly asked questions

Q: Should I use food products that contain 'plant sterols'?

A: Plant sterols occur naturally in plants. There is evidence that they are effective in reducing total cholesterol, when 2-3 grams of plant sterols are consumed per day. In addition to the small quantities of these substances naturally available in fruit and vegetables, they are now allowed to be added to some margarines, low fat milk, breakfast cereals and low fat yoghurts. As part of a healthy balanced diet these products may be beneficial in lowering cholesterol levels by an average of 10%. It is recommended to include 2-3 serves per day (one serve is equivalent to 2 tsp plant sterol enriched margarine or 1 cup milk). Be careful of unwanted weight gain that may result from using extra margarine. Discuss with a dietitian.

Q: Should I be adding Psyllium to my food?

A: Psyllium is a seed husk high in soluble fibre. Cholesterol can be lowered by increasing soluble fibre intake from a variety of foods like oats, oat bran, barley bran, legumes, lentils, fruits, vegetables, grains, rice and pasta. As part of a healthy well balanced diet psyllium may be beneficial in lowering cholesterol levels. Manufacturers mainly add psyllium to breads and cereals. It can also be bought in powder form and added at home to breakfast cereals, drinks and casseroles. Drink extra fluid if adding psyllium to your diet to avoid constipation.

Q: Should I be having soy milk and soy products?

A: Soy products are plant derived and hence are cholesterol free. The protein found in soy products is thought to assist in lowering LDL cholesterol and prevent clogging of arteries. Soy products can be part of a healthy diet as long as they are low in fat and calcium enriched. Twenty five grams of soy protein a day, as part of a diet low in saturated fat, may reduce the risk of heart disease (you can get this in 2 to 3 cups of soy milk per day).

Q: Should I be avoiding eggs if my cholesterol is high?

A: No. Although eggs contain a moderate amount of dietary cholesterol, they also contain a number of valuable nutrients (such as protein, zinc and vitamins). Cholesterol in foods is less of a concern to heart health than saturated or trans fats. For people with type 2 diabetes, egg intake should be limited to less than 6 eggs per week. Use low fat cooking methods such as boiling or poaching.

Q: Should I be taking fish oil capsules?

A: The Heart Foundation currently recommends consuming at least two to three serves of oily fish a week (150g per serve). Eating oily fish helps reduce your risk of coronary health disease as it contains healthy omega 3 fats. If you are unable to meet the recommended dietary intake you can use fish oil capsules and/or omega 3 enriched foods to supplement your intake. If you choose to take fish oil supplements, make sure you use standard fish oil rather than cod liver oil. Although cod liver oil is a good source of omega 3 fats, it also contains vitamin A which, in large doses can be harmful and has been associated with lower bone density (a potential risk for bone fracture).

Useful web sites for more information on fish oils are: www.omega-3centre.com, www.heartfoundation.com.au

Q: What about plant based omega 3's?

A: The National Heart Foundation recommends 2g per day of plant based omega 3 fats. This is equivalent to two slices of soy and linseed bread or 30g of walnuts to improve heart health.

Q: Is it ok to eat nuts?

A: Nuts are a good source of protein, polyunsaturated and monounsaturated fat, and can help reduce cholesterol and risk of heart disease. However because they contain a lot of energy, be careful of unwanted weight gain. Look for raw or dry roasted and unsalted nuts. 30g of nuts 5 x per week may reduce cholesterol by 10%.

References:

**Cholesterol, Triglycerides and Coronary Heart Disease*, Heart Foundation Australia 2010 – 2012

**Healthy Eating and Cholesterol*, Heart Foundation Australia 2010.

**Diabetes Management in General Practice 2012/13*, Diabetes Australia, 2012.

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Non-English speaking:

For information in languages other than English, call the Interpreting and Translating Centre and ask them to call The Department of Health. This service is available at no cost to you, contact (08) 8226 1990.

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