

Fact Sheet

Central Adelaide Local Health Network
Diabetes Education Service

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 your 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:

Risk factors you can't change

Age
Male
Family history
Ethnicity
Diabetes

Risk factors you can change

Overweight
Unhealthy diet
Inactivity
High alcohol intake
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 heart disease. HDL cholesterol can remove "bad" cholesterol (LDL) from the lining of the arteries. The higher the level of "good" cholesterol (HDL), 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 heart disease and may eventually lead to a heart attack or stroke.

Triglycerides

This is also a "bad" fat. High levels of triglycerides can lower "good" cholesterol (HDL) and increase your risk of heart disease. High triglycerides can be caused by eating foods high in saturated fat and sugar, by being overweight and drinking too much 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: General Practice management of Type 2 Diabetes, Diabetes Australia 2014-15)

Cholesterol in Food

Dietary cholesterol is found only in animal foods. Highest levels are found in eggs, offal (organ meats), fatty meats, and some shellfish. Dietary cholesterol can increase "bad" cholesterol (LDL) levels, but to a lesser degree than saturated and trans fat. Moderate amounts of cholesterol-rich foods can be included in a healthy diet.

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 "bad" cholesterol (LDL) and can increase the risk of developing heart disease.

Trans fat is "bad" fat which increases "bad" cholesterol (LDL) and lowers "good" cholesterol (HDL). Trans fat is found in most foods containing saturated fat most commonly in commercially baked foods.

Polyunsaturated fat is "good" fat.

There are two main types of polyunsaturated fat:

- > **Omega-6 fats** can lower the "bad" cholesterol (LDL) and reduce the risk of heart disease.
- > **Omega-3 fats** not only lower "bad" cholesterol (LDL) 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.



Monounsaturated fat is "good" fat which lowers "bad" cholesterol (LDL) and triglycerides and increases "good" cholesterol (HDL) in the bloodstream.

Table 1: Types of fat found in food

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, coconut cream, coconut 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, trim off 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.
- > Choose 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 Per Day	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

Catherine Saxelby <http://foodwatch.com.au/blog/fats-and-oils/item/how-much-fat-should-i-eat-a-day.html> (2016)
(Total Fat and Saturated Fat – National Heart Foundation Guidelines)

Fat content of 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, 30g	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 mid loin chop, untrimmed, 100g (raw)	17	7	Pork mid loin 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 plant sterols are effective in reducing total cholesterol when about 2 grams are consumed per day. In addition to the small quantities naturally available in fruit and vegetables, plant sterols are 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 about 9%. It is recommended to include 2-3 serves per day (one serve is equivalent to 2 teaspoons of plant sterol enriched margarine or 1 cup plant sterol enriched milk). Be careful of 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 about 3% by including 7-10g of soluble fibre per day from psyllium and other foods like oats, oat bran, barley bran, legumes, lentils, fruits, vegetables, grains, rice and pasta. Psyllium can be bought in powder form and added at home to breakfast cereals, drinks and casseroles. Drink extra fluid if adding psyllium or other soluble fibres 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 "bad" cholesterol (LDL) and prevent arteries from clogging. Soy products can be part of a healthy diet as long as they are low in fat and calcium enriched. An intake of at least 20g of soy protein a day, consumed for 1-3 months 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 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 heart disease as it contains healthy omega 3 fats. Eating fish is the best way to consume essential omega-3 fats for heart health. Fish oil capsules and/or other omega-3 enriched foods could assist in meeting your requirements if you are unable to meet the recommended dietary intake of omega-3 fats from eating fish. 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. 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). For more information on fish oils, visit the Heart Foundation website on www.heartfoundation.com.au

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

A: No. Although eggs contain dietary cholesterol, they also contain a number of valuable nutrients (such as protein, zinc and vitamins). The cholesterol in eggs has almost no effect on our blood cholesterol levels. Saturated and trans fats in food have a larger impact on blood cholesterol levels. Up to 6 eggs per week can be eaten as part of a healthy diet. Use low fat cooking methods such as boiling or poaching.

Q: What about plant based omega-3's?

A: The National Heart Foundation recommends at least 1g per day of plant based omega-3 fats to improve heart health. This is equivalent to one slice of soy and linseed bread or 20g of walnuts.

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 weight gain. Look for raw or dry roasted and unsalted nuts. 30g of nuts 5 times 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.
- Dietary fats, dietary cholesterol and heart health 2009
- Fish and Seafood, Heart Foundation Australia 2015
- Fish and Omega-3, Heart Foundation Australia 2015
- General Practice management of Type 2 Diabetes, Diabetes Australia 2014-15

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The information contained within this publication does not constitute medical advice, and is for general information only. Readers should always seek independent, professional advice where appropriate

For more information

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