

Cholesterol – An important risk factor in heart disease

It is known that a total cholesterol levels of 5.2 mmol/l and over can gradually increase the risk of Atherosclerosis, a condition that leads to coronary heart disease ('CHD'). CHD is one of the leading causes of death in Western society. In the UK, heart disease kills 180,000 people annually.

Atherosclerosis or arteriosclerosis (hardening of the arteries) results from a gradual process in which fat, cholesterol and calcium accumulate on the inner surface of an artery. This accumulation, called plaque, may partially or totally block the flow of blood in the vessels. When the coronary vessels of the heart are affected, this could result in a heart attack. If the cerebral vessels of the brain are affected by plaque this may lead to a stroke

Several risk factors contribute to our risk of CHD:

1. Smoking
2. High alcohol intake(more than 21 units weekly)
3. Obesity
4. High blood Cholesterol levels
5. High blood pressure
6. Diabetes
7. A family history of heart disease
8. Male Gender
9. Being over 50 years of age



By choosing to do something about 1 – 6 you can reduce your risk of heart disease.

What is Cholesterol ?

Cholesterol is a soft fat-like substance needed for normal bodily functions. It is a component of all cell membranes and is used for the production of many hormones, vitamin D and bile acids which are all important for the absorption of fat.

Cholesterol is present in all parts of the body, including the brain and nervous system, muscle, skin, intestines, heart and bones. The liver produces the bulk of the body's total cholesterol. In most individuals, their body can produce all the cholesterol it needs to maintain good health. Too much saturated fat and cholesterol eaten in food increases blood cholesterol and the risk of heart disease.

Is there a gradual increase in risk with increasing blood cholesterol levels ?

What level of cholesterol is 'safe'?

Yes, there is a graded risk. In adults levels of less than 5.2mmol/l are associated with low risk. However your other risk factors must also be taken into account.

If you are overweight, have high blood pressure and especially if you smoke even if your cholesterol is only 4.5mmol/l you may still have an increased risk of heart disease!

Levels over 5.2mmol/l can indicate, in the long term, an increasing risk of angina, heart attack and stroke, again taking into account the other risk factors listed above.

Does lowering blood cholesterol help prevent heart attacks.?

Yes. This has been shown in numerous large studies. In the Lipid Research Clinic study, for every 1% reduction in blood cholesterol there was a 2% decrease in the likelihood of heart attack.

How soon after the cholesterol level decreases does the risk diminish ?

In the Lipid Clinic study mentioned above, this 'lag' period was 2 years. However, it is likely that with more dramatic decreases in blood cholesterol the beneficial effects may be seen sooner.

Further Information

See the British Heart Foundation website : www.bhf.org.uk/publications and type in "reducing cholesterol".

Low cholesterol diet for a Healthy Heart

You may have recently found out that you have too high cholesterol level. High levels of cholesterol can cause blood vessels to gradually get blocked and become narrower. So if you have a raised cholesterol level, you may be more at risk of developing heart disease. A healthy diet, low in saturated animal fats can help to lower your blood cholesterol level.

If you have been, diagnosed with heart disease, but your blood lipid levels are normal it is still a good idea to follow the dietary advice below.

- **Eat regular meals and don't snack in between.**
- **Body weight:** If you are overweight its now time to start trying to lose the excess.

Reduce the total amount of fat you eat and change the type of fat you choose:

- **Polyunsaturated Fats** - In moderation these can help lower blood cholesterol. Polyunsaturated fats are found in vegetable oils like sunflower or Soya oil and products made from them, like margarine. Oily fish are also good sources.
- **Monounsaturated Fats** - are found in high proportions in olive and rapeseed oil and margarines made from these. These fats do not increase cholesterol and may lower some types of cholesterol in the blood.
- **Saturated and Trans Fatty Acids** - will increase blood cholesterol which in turn increases the risk of heart disease. Foods high in these fats include animal products like fatty meat and meat products, full fat dairy products, hard margarines and products containing them such as cakes, biscuits and pastries.

So if you eat meat have the leanest cut and avoid fatty meat products. Choose lower fat dairy products like skimmed or semi skimmed milk, low fat yoghurt or reduced fat cheese. Instead of fried food eat grilled, poached, steamed or micro-waved food.

- **Include oily fish twice weekly** -e.g. mackerel, sardines, pilchards, salmon, trout. These help to prevent clogging of the blood vessels.
- **Include starchy food at each meal** - These include bread, potatoes, rice,, pasta and breakfast cereals. High fibre varieties are particularly good.
- **Include more pulses and oats** - e.g. baked beans, kidney beans, lentils, porridge. These foods contain soluble fibre which helps to lower cholesterol levels.
- **Have at least five portions of fruit and vegetables a day.** - Fresh, frozen or tinned are all suitable. The antioxidant vitamins and minerals they contain protect the blood vessels from the damage of cholesterol.
- **Take alcohol in moderation** - Keep within sensible limits, which are 21 units a week for men, 14 units a week for women. The maximum that men should drink is 4 units and women 3 units per day. Everyone should have 1-2 days abstinence each week.

Ten Top Tips to Reduce Your Fat Intake to lose weight and lower your cholesterol

1. **Avoid using fat and oil in cooking.** Choose low fat cooking methods such as grilling, baking, steaming and microwaving. Where you do use oil, use as little as possible, remembering vegetable oils are just as high in calories as other cooking fats.
2. **Use butter or margarine in very small amounts.** Alternatively, try using a low fat spread, e.g. Flora Light, St Ivel Gold Light, Clover Light or supermarket own brands.
3. **Choose skimmed milk** (best) or semi-skimmed milk instead of full cream milk.
4. **Reduce the quantity of cheese you eat.** Choose small portions of lower fat varieties, e.g. Edam, cottage cheese, brie, feta. or try reduced fat instead of full fat for varieties such as Cheddar.
5. **Use low fat yoghurt or low fat fromage frais** instead of cream, ice-cream, evaporated or condensed milk.
6. **Choose lean cuts of meat** and remove all fat and skin.
7. **Chicken and turkey** are low in fat if the skin is removed. Try and choose these more often.
8. **Beans and pulses** are low in fat and a good source of fibre. Try replacing all or some of the meat in casseroles, curries, soups. etc. with pulses, e.g. baked beans, kidney beans, peas and lentils.
9. **Eat fish more often:** grill, poach, bake and microwave rather than fry.
10. **Cut down on biscuits, cakes, chocolate, crisps, pies and pastries.** Replace them with low fat healthy snacks, e.g. fruit, vegetable sticks, crisp breads, bread sticks, teacakes, plain or fruit scones, muffins or crumpets, especially whole meal varieties

Overleaf is a detailed list showing the fat contents of various food groups to help you plan your diet.

Healthy Foods for a healthy heart and low cholesterol

	Contains the least fat, salt and sugar BEST CHOICE	Contains a little fat, salt and sugar GOOD CHOICE	Contains more fat, salt and sugar OCCASIONAL	Contain too much fat, salt and sugar AVOID
CEREAALS	Fibre rich starchy foods such as whole meal bread, wholegrain breakfast cereals, brown rice and pasta, porridge oats, crisp breads.	Other plain breads, white rice and pasta. Teacakes and pancakes.	Sugar coated cereals, plain semi-sweet biscuits.	Sweet, cream-filled cheese biscuits, croissants and brioche, pastries eg Danish.
FRUIT	Plenty of fruit, vegetables, potatoes, pulses, salads raw, baked, boiled, steamed. Include all fresh, frozen, dried, canned.	Olives, avocado. Oven chips (cooked in suitable oil). Stir fry vegetables. Fruit stewed with minimal sugar.	Fruit in syrup, crystallised fruit. Vegetables (including chips Et roast potatoes) fried in suitable oil (see Fats).	Vegetables with butter or other fat added, fried in saturated fat (including chips Et roast potatoes). Coleslaw or other salad in unspecified dressing. Crisps a savory snacks.
FISH	All varieties of fish, particularly oily fish. When buying tinned, choose fish in brine and when in oil, drain off excess.	Fish fried in suitable oil. Shellfish eg prawn, lobster, shrimp, crab. Fish tinned in oil, drained.	Any fish battered or bread crumbed if fried in unsaturated fat.	White bait, fish roe eg taramasalata, fried fish or fish products in saturated fat, fish paste.
MEAT	Chicken and turkey with skin removed, veal, rabbit, game. Quorn or tofu. Soya protein meat substitute. Dhaal cooked without fat	Small portions of very lean trimmed beef, lamb and pork. Ham and gammon (very lean).	Lean mince, low-fat burgers. Liver, kidney, tripe, duck (without skin), low-fat pate, lean bacon (grilled not fried). Nuts.	Fatty meats, meat pies, hamburgers, sausages, sausage rolls, salami, pates and meat pastes, pork pies, scotch eggs. Coconut.
DAIRY + EGGS	Skimmed milk, low fat varieties of cottage cheese, fromage frais. Very low fat yogurt. Egg whites.	Semi-skimmed milk, Soya milk, reduced fat cheese or cheese alternatives made from sunflower oil. Low fat yogurt or fromage frais. Frozen low fat yogurt.	Milks: skimmed condensed, evaporated, goats, sheep, full-fat/medium-fat. Cheeses: eg Edam, Camembert, Gouda, Brie, cheese spreads. Eggs: boiled, poached with no added fat.	Milk: condensed, whole, dried with added vegetable fat, cream, craime fraiche, Greek yoghurt. Cheeses: cream, stilton, cheddar. Eggs- fried, scrambled, omelets.
FATS	Small amounts of fats only see next column.	Vegetable fat spreads or low fat spreads labeled 'high in polyunsaturates', fats and oils of named origin such as sunflower, olive oil. All used in small amounts.		Butter, hard margarines, vegetable oils from an unspecified source and hard vegetable fats, dripping, lard, suet, palm oil, ghee.
PREPARED	Pasta with tomato/fat free sauce, kedgeriee, potato crust pies with fish, vegetable, poultry filling. Fat-free homemade soups, consommé, clear broth.	Low fat recipe meals. Potato crust pies with lean meat filling. Home-made soups made with vegetables, lean meat, chicken or pulses.	Pasta in cream sauce. Packet soups.	Dim sum (fried), pastry dishes, quiche, samosa. Suet dumplings and puddings. Cream soups.
SWEETS	Jelly (low sugar), fruit sorbet, fruit puree, whips and puddings made with skimmed milk. Sugar free artificial sweeteners, reduced sugar jam and marmalade.	Jam, marmalade, honey. Chutneys and pickles.	Marmite and Bovril. Chutneys and pickles (if no salt restriction). Fruit crumble, fruit flan, milk puddings like custard, rice, sago etc, tray bakes or cakes using suitable ingredients.	Cakes, pastry, puddings and biscuits made with saturated fats. Chocolate spreads, chocolates, toffees, fudge, butterscotch, carob chocolate, coconut bars.
DRINKS	Plenty of water and/or low calorie soft drinks, tea with low fat milk, or without milk, unsweetened fruit juice, mineral water.	In moderation, coffee with skimmed/semi-skimmed milk. Low calorie chocolate, malted drinks.	Sweetened drinks, malted milk or hot chocolate drinks made with skimmed milks.	Whole milk drinks, cream based liqueur's/drinks, coffee with coffee whiteners.
DRESSING	Herbs, spices, lemon juice, garlic, pepper, vinegar.	Low fat mayonnaise, salad cream or vinaigrette using suitable oils. (See Fats)	Other 'low-fat' or 'low-calorie' mayonnaise and dressings	Bought salad dressings made with unspecified oils, mayonnaise, creamy dressings.

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YOUR CHOLESTEROL COUNT AND WHAT IT MEANS

Please read and follow carefully the advice below for your result and what action to take..

We rely on you to follow up your own results as we do not send out any further notification if you do require further tests. We will nevertheless endeavour to remind you if we see you in a future consultation.

Desirable Blood Cholesterol

Under 5.2 mmol/l

- This is the acceptable level recommended by the European Blood Cholesterol Atherosclerosis Society. Your risk of heart disease is low provided other risk factors for heart disease are also low. (eg smoking, high blood pressure, diabetes, family history, high alcohol intake)
- *Like all of us you should still eat a low fat diet.* It is only necessary to re-check your cholesterol about every 5 years or so, as unless your diet or lifestyle change dramatically, the cholesterol level is normally fairly stable.

Modestly Raised Blood Cholesterol

Between 5.2 - 6.4mmol/l

- You are in the moderate risk group typical of 2/3rds of the UK population.
- You should eat a low fat diet. If necessary lose weight, stop smoking and reduce your alcohol intake.
- Consider having another fasting cholesterol check in 6 months to assess improvement.
- If your cholesterol does not improve please see a doctor, particularly if you have **other risk factors** for heart disease. (eg smoking, high blood pressure, diabetes, family history, high alcohol intake)

Significantly Raised Blood Cholesterol

Between 6.5 - 7.8mmol/l.

- This result shows a significantly raised level of cholesterol. It is important that you adhere **strictly** to a low cholesterol diet. Please do read and practice the enclosed sheet regarding low cholesterol diet. **If you do have other risk factors**, (eg blood pressure, smoking, diabetes, family history, high alcohol intake etc) **please see a doctor at the surgery.**
- After 4- 6 months of the diet you should see the Health Care Assistant again for a repeat fasting blood cholesterol. Some additional blood tests may also be taken at this time to ensure there are no other rare cause for your high cholesterol.
- If your cholesterol does not improve please make an appointment to see your usual doctor.

Very Raised Blood Cholesterol

Over 7.8mmol/l

- Unfortunately this is a very high a level of cholesterol and does require your **diligent attention** to adopting a low cholesterol diet. **Please also make an appointment to see a Doctor**
- You should also make a further appointment with the Health Care Assistant in approximately 12 weeks for a repeat **fasting** cholesterol test (see note below). Some additional blood tests will also be taken at this time to ensure there are no other rare causes for your high cholesterol.
- It is very likely you will need to take a medication called Simvastatin to reduce your cholesterol to a safer level
- High cholesterol may run in your family and it is usually prudent for parents and brothers and sisters over the age of 18 to be tested.

Fasting blood cholesterol test. ie. nothing to eat or drink, except water, for 12 hours and no alcohol or smoking for 24 hours before your test.