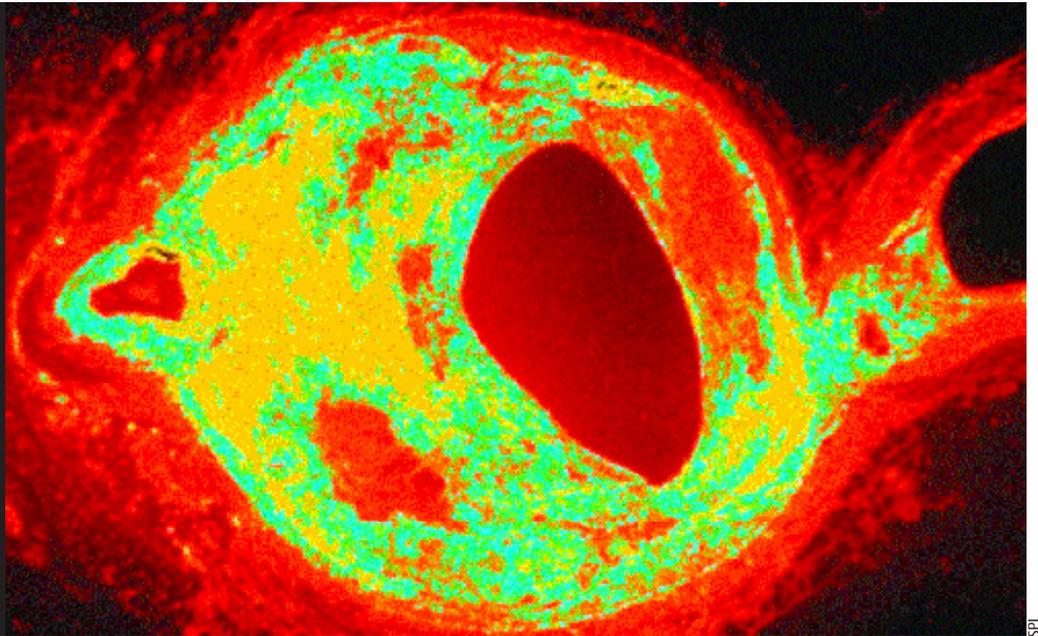


What you need to know about...
CHOLESTEROL

Cross-section through an atheroma plaque. The plaque is composed of fatty cholesterol (shown in yellow) and fibrous connective tissue (shown in blue)

**WHAT IS CHOLESTEROL?**

- A waxy lipid-soluble compound and a member of the sterol family.
- It is important as a constituent of cell membranes and nervous tissue and a precursor of many hormones and bile salts.
- Cholesterol is made mainly in the liver from acetate.

WHAT IS THE CONDITION HYPERCHOLESTEROLAEMIA?

- An elevated level of cholesterol in the blood.
- Hypercholesterolaemia is associated with atheroma and cardiovascular disease.

WHAT ARE THE CAUSES OF HYPERCHOLESTEROLAEMIA?

- Levels of cholesterol are influenced by the part of the world you live in: in northern European countries levels are higher than in southern Europe and much higher than they are in Asia.
- Primary or familial hypercholesterolaemia is a genetic, autosomal dominant condition caused mainly by mutations of the low-density lipoprotein receptor gene, which results in substantially raised serum cholesterol concentrations.
- Familial combined hyperlipidaemia

where triglyceride levels are also very high.

- Can be linked to: diabetes, alcohol abuse and metabolic conditions such as thyroid hormone problems.

LIPOPROTEINS

- Low-density lipoprotein (LDL), known as 'bad cholesterol'. It carries cholesterol from the liver to the cells and if supply exceeds demand can cause cholesterol build-up.
- High-density lipoprotein (HDL), or 'good cholesterol'. Takes cholesterol from the cells back to the liver.
- Triglycerides. The principal lipid in blood.

MEASURING CHOLESTEROL

- Levels of all forms of lipids can be calculated from a blood test.
- Laboratory lipid profile testing following a 14-hour fast is the most accurate testing method.
- Near patient testing – where a sample is checked immediately using hand-held or table-top equipment rather than sent to the laboratory – can be useful for screening.
- No recommended screening strategy currently exists in the UK.

ACCEPTABLE LEVELS

- Cholesterol levels in the blood rise slightly with age.
- Women generally have a higher HDL-cholesterol level than men.
- The significance of any particular cholesterol level cannot be assessed without taking into account either the person's total-cholesterol/HDL-cholesterol ratio or his or her LDL-cholesterol/HDL cholesterol ratio.
- People with diagnosed coronary heart disease or other occlusive arterial disease should reduce serum cholesterol concentrations to less than 5mmol/l (LDL-C to below 3mmol) or by 30 per cent, whichever is greater (Department of Health, 2000).
- Reducing raised cholesterol levels in people with diabetes may reduce their risk of cardiovascular disease (DoH, 2001).

REDUCING CHOLESTEROL LEVELS

- Dietary and lifestyle advice is first-line treatment, requiring motivation.
- Regular physical activity is important in cholesterol reduction.
- Healthy eating is recommended: cutting down on fats, and replacing saturated fats with unsaturated ones.
- Some foods may help to lower cholesterol levels, particularly soya, oats, plant sterol spreads and garlic

supplements (Sadler, 2003).

MEDICATIONS USED TO REDUCE CHOLESTEROL LEVELS

- Statins are the drug of first choice.
- Fibrates cause a marked fall in serum triglycerides.
- Nicotinic acid was the first lipid-lowering drug but is now limited in use.

REFERENCES

- Department of Health (2001) *National Service Framework for Diabetes*. London: DoH. www.doh.gov.uk/nsf/diabetes/pdfs/diabetesnsf.pdf
- Department of Health (2000) *National Service Framework for Coronary Heart Disease*. London: DoH. www.doh.gov.uk/pdfs/chdnfs.pdf

Sadler, M. (2003) Diet and health. *The British Journal of Cardiology*; 10: Supplement 1.

WEBSITES

For advice on healthy eating for a healthy heart visit the British Heart Foundation website: www.bhf.org.uk

Information for patients and families with inherited high cholesterol: www.heartuk.org.uk