



Tackling cholesterol through diet and lifestyle

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CVD is the most common cause of death in Ireland, accounting for 36% of all deaths.

Cardiovascular disease (CVD) is the number one cause of death globally. According to the World Health Organisation (WHO)¹ 16.7 million individuals worldwide die each year from CVD, and this is predicted to remain the number one global cause of mortality for decades.² In Ireland, approximately 10,000 people die each year from cardiovascular disease (CVD) – including coronary heart disease (CHD), stroke and other circulatory diseases. The largest number of these deaths relate to CHD – mainly heart attack – at 5,000. 22% of premature deaths (under age 65) are from CVD.³ About 80% of CVD is attributable to modifiable risk factors, highlighting the potential for lifestyle changes including a healthy diet to substantially reduce the risk of mortality.

Diet and lifestyle

Coronary heart disease is the main form of CVD. Elevated LDL-cholesterol is widely accepted to be one of the main risk factors for CHD. Elevated total, and in particular, LDL-cholesterol are major modifiable risk factors for CHD. Of the four key contributors to CHD (high blood cholesterol, sub-optimal blood pressure, low fruit and vegetable intake and physical inactivity), high blood cholesterol has the greatest impact¹ and yet more than half the population in most Western countries have cholesterol levels higher than desirable.⁴

Making positive dietary changes can lower cholesterol levels and help in the prevention of CHD. Many diet and lifestyle factors affect LDL-cholesterol levels. The addition of some components and the restrictions of others are reflected in

dietary recommendations (Table 1). For example plant sterols and fibres lower LDL-cholesterol and should be included, whereas saturated fatty acids raise LDL-cholesterol and are therefore restricted. (Table 1)

Dietary fat plays a key role in lowering LDL-cholesterol. Saturated fatty acids and dietary cholesterol have been shown to raise total and LDL-cholesterol levels. Replacing saturated fatty acids in a diet with polyunsaturated or monounsaturated fatty acids will lower both total and LDL-cholesterol.⁵

Plant sterols

Eating 2-2.5 g of plant sterols daily has been proven to lower LDL cholesterol by 10-15% when moving to a healthy diet. Plant sterols are found naturally in very small quantities in everyday foods like vegetable oils, nuts, seeds, grain products, fruit and vegetables. Table 2 shows a selection of regular foods required to provide 2g of plant sterols. Plant sterols maintain cell membrane structure and function in plants similar to the biological function of cholesterol in humans. They also have a chemical structure similar to that of cholesterol. (Table 2.)

Cholesterol is an essential building block in the human body and plays a key role in maintaining cell membranes and comes from two sources, from the liver and from the diet. For those consuming a typical diet the liver is the largest source of cholesterol producing up to 1.5g of cholesterol per day. Food contributes up to 0.5g of cholesterol per day depending on a person's dietary pattern.

As part of normal metabolism, cholesterol is absorbed from the gut into the body. Cholesterol mixes with bile salts,

Table 1: Diet and lifestyle factors and their effect on LDL-cholesterol levels

Component	Effect on LDL-cholesterol	LDL-cholesterol reduction (approx %)	Recommendation
Plant sterols	↓	10	2-2.5g/day
Saturated fatty acids	↑	5	<7% of energy
Viscous dietary fibre	↓	5	5-10g/day
Body weight	↑	5	Lose approx 10% of body weight
Soy protein	↓	Up to 6	Consume at least 25g/day
Polyunsaturated fatty acids	↓	3	Consume up to 10% of energy intake

Adapted from Jenkins et al. *Curr Opin Lipidol* 2000

Table 2. The quantity of a selection of regular foods required to provide 2g of plant sterols

2g plant sterols =	425 tomatoes 210 carrots 150 apples 83 oranges 70 slices of wholemeal bread 11 cups of peanuts
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lecithin and triglycerides in the gut to form tiny water-soluble packets called dietary mixed micelles. Micelles play a vital role in cholesterol absorption, as they deliver cholesterol into the body when they make contact with the intestinal cell wall. Plant sterols act by competing with and displacing cholesterol from these mixed micelles, reducing cholesterol absorption and therefore serum LDL cholesterol without affecting HDL cholesterol or triglyceride levels.

Clinical evidence – plant sterols

The use of plant sterols to lower cholesterol has been studied extensively since the 1950s, and has been reviewed by independent experts and international regulatory authorities.⁶ To date over 50 clinical studies have proven that plant sterols significantly lower cholesterol.⁷ The efficacy and safety of the longterm consumption of spread containing plant sterols has also been studied demonstrating that plant sterol enriched foods are an effective way to lower blood cholesterol concentrations and are safe to use over a longer period of time.⁸

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References

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Dr Patricia Heavey, Consultant Nutritionist, Flora pro.activ, is available to speak at IPNA regional branch meetings, providing members with further information and helpful literature when dealing with patients who have raised cholesterol. To make a booking or obtain further information please contact Lisa Porter on 01 522 5200 or lisaporter@uniquemedia.ie.

Practice nurse required

Practice Nurse required from mid-February 2013 for 3 month period by Glasnevin Family Practice. You would be working as part of a team in our group training practice. Excellent rate paid. Experience an advantage but not essential.

**Please forward CV to practice manager
dw@gfp.ie or phone 01-8600275.**

Practice nurse required

Practice Nurse required for urban group practice in Sligo Town. Part-time/full-time.

Please reply to Box No. with C.V. before Friday 22nd February 2013.