

# Nuts! their health benefits

✉ Alexandra Chisholm

*Although rates of cardiovascular disease (CVD) are declining in many developed countries, it remains the number one cause of death. In developing countries, CVD rates are increasing. People with diabetes are two to four times more likely to develop CVD than people without diabetes. The prevention and treatment of CVD by diet is an important issue both for persons with diabetes and those without. Dr Alexandra Chisholm explains the benefits of eating nuts as part of a healthy balanced diet.*

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Nuts are grown all over the world. They are an intrinsic part of traditional dietary patterns in many regions where both blood **cholesterol** levels and the incidence of heart disease are low. A small serving of nuts four to five times per week has been observed to reduce the risk of CVD in population studies. Intervention studies have shown that the addition of nuts to the diet can help to lower blood cholesterol levels, reduce the oxidation of **low density lipoprotein (LDL) cholesterol** and improve a number of other indices related to CVD risk.

Eating small quantities of nuts has been shown to reduce the risk of CVD by up to 51%.

## The evidence – epidemiology

Initial evidence for the benefit of nut consumption came from population studies which looked at the diets of large numbers of people over long periods of time. In four US studies, the Adventist Health Study, the Iowa Women's Health Study, the Nurses' Health Study and the Physicians' Health Study, a total of over 160 000 men and women were followed for between 6 and 14 years. These studies showed very consistent indications for the health benefits of nuts. When compared with never eating nuts, the effect of eating small quantities of nuts (30 g) four to five times per week or more was a reduction in CVD risk of between 18 and 51%.<sup>1</sup>

## Intervention studies

A number of studies have looked at the effect on blood lipids (fats) and **lipoproteins** of including nuts in the diet. Different population groups and both men and women have taken part in these research studies. The studies included participants with lipid levels in the normal range as well as those with hyperlipidaemia (high levels of blood fat). The participants ranged in age from 18 to 81 years. In spite of this diversity in subject characteristics, and study

design, reductions of between 9 and 31% in LDL cholesterol were observed. The quantities of nuts consumed in the studies varied from 30 to 100 g per day. Almonds, macadamias, pistachios, walnuts, pecans, and hazelnuts (tree nuts) have all been used in studies, as have peanuts (which are a legume).<sup>1</sup>

A recent study of people with Type 2 diabetes indicates the beneficial effect of eating almonds.

### Studies including people with diabetes

Thirty volunteers with Type 2 diabetes took part in a recent study using almonds. Including almonds in the diet had no effect on glycaemia (blood sugar) but there was a drop in LDL cholesterol and a slight drop in **high density lipoprotein (HDL)** cholesterol. However, there was still a reduction in the ratio of **total cholesterol** to HDL cholesterol and in the ratio of LDL to HDL cholesterol. It is thought that these ratios reflect CVD risk from blood **cholesterol** levels. Their highly significant reduction in this study indicates the beneficial effect of eating almonds as part of a healthy diet.<sup>2</sup> Further research involving the addition of nuts to the diets of postmenopausal women with Type 2 diabetes is in progress.

Studies have shown that eating nuts does not lead to weight gain.



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### Studies relating to weight

Nuts have often had a 'bad press' – a 'fatty food' to be avoided by those trying to reduce or control their weight. Two recent studies have shown that the reasonable inclusion of nuts in the diet did not lead to weight gain. One study added almonds and the other peanuts. The participants were not asked to make any other changes in their diets and

did not know that the researchers were studying bodyweight.<sup>3,4</sup>

### The nutrient profile of nuts

#### Fat

Nuts contain many constituents, which may contribute to their beneficial effects. Although nuts are high in fat (about 49% in cashews to more than 70% in macadamia nuts), they are low in the saturated fat >>

**Cholesterol** is a type of fat found in all cell membranes, but which can be laid down in excess in the walls of the major arteries which are then predisposed to significant damage.

Cholesterol is carried in the blood stream by particles called **lipoproteins**. A distinction is made between cholesterol carried by **low-density lipoproteins (LDL cholesterol)**, or 'bad' cholesterol, which can be oxidized and is the principal source of arterial wall cholesterol, and that carried by **high-density lipoproteins (HDL cholesterol)**, or 'good' cholesterol, which transfers cholesterol out of the blood and into the liver.

The level of **total blood cholesterol** is the sum of HDL and LDL cholesterol levels, together with that of very low density cholesterol (VLDL), the particles which transport fat between the gut or liver and the peripheral tissues.

that is believed to elevate blood cholesterol levels and lead to damage of the arteries. Nuts contain no dietary cholesterol.

### Protein

The protein content of nuts ranges from 10% in walnuts to 17% in almonds and most nuts are rich in the amino acid L-arginine, which is the precursor of nitric oxide. Nitric oxide is a potent compound, which helps the blood vessels to dilate and helps to prevent the platelets in blood from clumping into blood clots which can block vessels.

### Fibre

The dietary fibre levels of nuts varies from 5% in macadamia nuts to 10-14% in almonds and pistachios. Nuts are unique in that they are one of the very few fat sources which is also rich in fibre.

### Vitamins

Some nuts are particularly good sources of vitamin E.

### Minerals

Nuts are good to moderate sources of minerals including those which may play

a role in cardio-protection: magnesium, copper, selenium, manganese and zinc. Boron may prove to be an essential mineral and nuts are a rich source.

### Minor constituents

Resveratrol is a phytoestrogen found in red wine and peanuts. It has been shown to protect **LDL** lipoprotein particles from oxidative damage. Oxidized LDL is highly damaging to arteries. Ellagic acid is a polyphenol found in walnuts and pecans and may help to depress tumour growth. Co-enzyme Q10, a powerful anti-oxidant found in high concentrations in LDL, is found in peanuts, pistachio nuts, and walnuts.<sup>5</sup>

### Conclusion

The health benefits of nut consumption, particularly their cardio-protective effects, are often under-recognized. Nuts provide a concentrated and palatable source of essential unsaturated fatty acids, fibre and a number of other nutrients often in short supply in the modern diet. They are filling and can thus be useful in helping to prevent weight gain, and provide a concentrated source for

those needing additional energy. People with diabetes as well as those who do not have diabetes should be encouraged to include a small serving of nuts in their diet several times a week.

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### References

1. Kris-Etherton PM, Zhao G, Binkoski AE, Coval SM, Etherton TD. The effects of nuts on coronary heart disease risk. *Nutr Rev* 2001; 59: 103-111.
2. Lovejoy JC, Most MM, Lefevre M, Greenway FL, Rood JC. Effect of diets enriched in almonds on insulin action and serum lipids in adults with normal glucose tolerance or Type 2 diabetes. *Am J Clin Nutr* 2002; 76: 1000-1006
3. Alper CM, Mattes RD. Effects of chronic peanut consumption on energy balance and hedonics. *Int J Obes Relat Metab Disord* 2002; 26: 1129-1137.
4. Fraser GE, Bennett HW, Jaceldo KB, Sabate J. Effect on body weight of a free 76 Kilojoule (320 calorie) daily supplement of almonds for six months. *J Am Coll Nutr* 2002; 21: 275-278. Correction: In the title and several times elsewhere in this article, the value 76 kilojoules was given for 320 calories. The correct value is 1340 kilojoules.
5. Rainey CJ, Nyquist LA. Nuts-Nutrition and health benefits of daily use. *Nutrition Today* 1997; 32: 157-163.

### In a nutshell

- Nuts make a wonderful snack, particularly in place of foods like cakes or biscuits. The ultimate healthy 'fast food' they are easy to carry.
- Nuts are a good choice for a healthy fat exchange or a sustaining snack together with some carbohydrate.
- Getting as much variety as possible into your diet is important and this applies to nuts as well as other foods.
- To get the maximum benefit from eating nuts, it is important to make sure they are very fresh and keep them in a cool, dark place (especially ground or chopped nuts).
- As they contain enough of their own fat, nuts can simply be 'roasted' by putting them in a shallow dish in the oven at a low to medium heat (stirring frequently) until they have the desired crunch. Do not add salt or other fats or oils.