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Red meat and zinc

Zinc is essential for growth and helps with the healing of wounds. In the UK diet meat and meat products are the main source of zinc, providing about one third of the daily intake. Red meat is both a rich and highly bio-available source of zinc, while the zinc in plant foods has a lower bioavailability. A diet containing no meat can be more critical for zinc deficiency than for iron deficiency.

Dietary Zinc

Zinc has a wide range of biological functions and is a component of more than 100 enzymes. It is required for normal functioning of many major metabolic pathways and for the synthesis of lean tissue and normal cell growth and cell division. It is also necessary for normal reproductive development, a healthy immune system and healing of wounds. Zinc is essential for good health in adults and for normal growth and development in children.

National Diet and Nutrition Survey (NDNS)

The Reference Nutrient Intake (RNI) for zinc is 9.5mg/day for men and 7.0mg/day for women. In the 2001 NDNS data indicated¹ that 43 per cent of men and 45 per cent of women aged 19-64 years failed to achieve the RNI. Among the 19-24 year old population, these figures are worse with 57 per cent of men and 58 per cent of women failing to achieve the RNI.

Zinc in the diet

The bioavailability of zinc depends on other foods present in the diet. When diets contain a reasonable amount of meat and animal foods, the bioavailability of zinc is around 55%. However, when diets are low in animal protein and rich in phytate-containing cereals, this figure falls to only 15%.²

¹ Henderson et al 2003. National Diet and Nutrition Survey. Adults aged 19 to 64 years. Volume 3. London: The Stationery Office, 2003/

² Millward DJ & Garnett T. Proc Nutr Soc 2010;69:103-118.

Therefore, people consuming cereal-rich diets which are devoid of meat and animal products can be at a much greater risk of zinc deficiency than people who regularly eat meat.

Zinc content of various types of red meat compared with other foods

Food. Per 100g	Zinc (mg)	Food. Per 100g	Zinc (mg)
Lean grilled rump steak	5.6	Grilled chicken breast	0.8
Lean roast beef topside	5.7	Whole roast chicken, dark meat	2.1
Lean braised steak	9.5	Cheddar cheese	4.1
Lean grilled lamb cutlets	3.6	Milk	0.4
Lean roast leg of lamb	4.6	Granary bread	1.1
Lean diced lamb shoulder, grilled	5.6	Cooked wholemeal spaghetti	1.1
Lean grilled pork loin chops	2.4	Bran flakes	2.5
Lean roast pork leg joint	3.3	Canned kidney beans	0.7
Lean diced pork, grilled	3.4	Mixed nuts	3.1

Contribution made by red meat

Meat contains substantial amounts of highly bioavailable zinc. In European law, beef and lamb are classified as *rich sources* of zinc, while pork is classed as a *source* of zinc.

Red meat makes a greater contribution to total zinc intake from all foods (32% for men; 27% for women) than to total iron intake (12% for men; 9% for women) (SACN 2009)³. Modelling by SACN suggests that a reduction in meat intake could have an even greater impact on the adequacy of zinc intakes than on iron intakes (SACN 2009).

Please visit www.meatandhealth.com for more information.

³ Scientific Advisory Committee on Nutrition (SACN) (2009) *Draft SACN report on iron and health*. Available at: http://www.sacn.gov.uk/reports_position_statements/reports/draft_iron_and_health_report_scientific_consultation_-_june_2009.html (accessed 1 November 2010).