

The metabolic syndrome and Lipgene - 10 key facts for policy makers

1. The term metabolic syndrome describes a cluster of disorders (raised blood pressure, abdominal obesity, abnormal blood lipids, insulin resistance and high blood glucose concentrations) which are associated with an increased risk of developing type 2 diabetes (2-3/fold) and cardiovascular disease (5-6/fold). It is estimated that between 10-35% of middle aged and elderly Europeans have metabolic syndrome. The figure is likely to rise as the prevalence of both obesity and type 2 diabetes increases across the continent, with a concurrent increase in life expectancy.
2. It is estimated that, in 2002, the total cost of obesity in the EU was €32.8 billion. The estimated cost is based on extrapolation of the data from the UK National Audit Office Report, which calculated the direct health care costs and indirect costs associated with obesity in 1998, and the prevalence of obesity within the EU member states. Obesity is just one component of the metabolic syndrome, and therefore the associated costs of the metabolic syndrome will be higher. Furthermore, this figure is a conservative estimate as: EU membership has widened since 2002; the prevalence of obesity has continued to increase; and the true prevalence of the metabolic syndrome across the EU is not fully known.
3. It is believed that changing the amount and type of fat in the diet may reduce an individual's risk of developing the metabolic syndrome or help treat some of the related conditions associated with it. Research to investigate this is underway as part of the Lipgene project.
4. Lipgene is an EU 6th Framework Programme Integrated Project (contract FOOD-CT-2003-505944) focusing on the metabolic syndrome. The Project, entitled "Diet, genomics and the metabolic syndrome: an integrated nutrition, agro-food, social and economic analysis", began in 2004 and will run until 2009. The Lipgene consortium comprises 25 centres across Europe. For more information visit www.nutrition.org.uk/lipgene or www.lipgene.tcd.ie
5. Lipgene is looking at how changing the proportions of saturates, monounsaturates and n-3 (omega 3) polyunsaturated fatty acids consumed may reduce the risk of developing the metabolic syndrome. This may be of particular importance for some individuals because genetic differences are expected to influence future risk of developing the metabolic syndrome.
6. Modifying the composition of commonly consumed foods can make it easier for people to consume a favourable balance of fats. Thus, Lipgene research will also investigate changes that can be made to the food we eat. For example, research is underway to find ways in which the types of fat present in meats and milks can be altered by changing the

diets of animals. It is hoped that meats and milks can be developed which provide more unsaturated fatty acids and less saturated fatty acids.

7. Research is also underway to develop a sustainable and economically viable plant source of the long-chain *n*-3 fatty acids (EPA and DHA) which are found in oily fish and fish oils. If such research is successful, it is hoped that foods with improved fatty acid profiles will be available in the future.
8. However, modified food products may be more costly to produce than standard versions of the same food. This is due to: the price of inputs (i.e. ingredients and technologies that may be more expensive than those used in the production of conventional foods); identity preservation costs associated with segregation of ingredients; and costs associated with reduced productivity (e.g. in terms of reduced egg output or reduced weight gain amongst livestock). Also there may be additional costs associated with production on a smaller scale (i.e. lower production efficiency and smaller volume of sales). As a result of the increased costs associated with production, modified foods are likely to attract a price premium. Increased production costs are usually passed on to the consumer, and ways of covering these costs are also being considered.
9. A Cost benefit analysis, comparing the costs of producing modified foods and the cost savings in terms of prevention and treatment of the metabolic syndrome, is also being considered as part of the Lipgene project. These issues will be discussed at a workshop in Munich in December 2005.
10. Consumer studies, to explore consumer and health professionals' awareness of the metabolic syndrome, are underway. Their attitudes to the use of new technologies to develop healthier food products will also be explored as part of the Lipgene project. Findings from those studies will be the subject of workshops to be held in 2006.

For more information go to:

<http://www.lipgene.tcd.ie/>

www.nutrition.org.uk/lipgeneconference

www.nutrition.org.uk/lipgenepresspack

<http://www.blackwell-synergy.com/doi/abs/10.1111/j.1467-3010.2004.00403.x?prevSearch=allfield%3A%28metabolic+syndrome%29>