

## **Metabolic syndrome and Lipgene – 10 key facts for the general public**

1. The term metabolic syndrome covers a number of associated conditions which increase the risk of type-2 diabetes, heart disease and stroke. These include raised blood pressure, abnormal levels of fat in the blood, abdominal obesity (excess fat storage around the stomach), high blood glucose and a condition known as insulin resistance (which makes handling glucose very inefficient).
2. There is no universal definition of the metabolic syndrome which makes determining its true prevalence and ensuring a correct diagnosis of the disorder problematic. However, it is estimated that between 10-35% of middle aged and elderly Europeans have metabolic syndrome, but worryingly it is now being seen in children. Its prevalence has been increasing in parallel with the well recognised increase in obesity, and is also likely to rise further across Europe as life expectancy increases and the proportion of elderly people in the population rises.
3. Obesity cost the European economy an estimated €32.8 billion in the year 2002. This figure includes the costs associated with treating the complications of obesity and lost productivity from days taken off sick. The true cost of metabolic syndrome to the European economy is more than this, as obesity is only one component of the metabolic syndrome. Unless something is done to stop the predicted increase in metabolic syndrome the consequences for both health and the economy are likely to be great.
4. Obesity and insulin resistance both play key roles in the metabolic syndrome, but because of their close relationship it is difficult to disentangle their individual effects. Research is underway to help determine the causes of the metabolic syndrome. Once more is known, effective treatments can be developed to help prevent and manage the condition.
5. 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. For example, it has been suggested that diets high in saturates (found in animal products, cakes, biscuits, and pastries) may increase the risk of developing the metabolic syndrome. Whilst diets containing more monounsaturates (e.g. olive oil and rapeseed oil) and polyunsaturates (e.g. such as the omega-3 fatty acids found in oily fish) may offer some protection against the metabolic syndrome. The total amount of fat in the diet may also influence the risk of developing metabolic syndrome. Research to investigate these issues is underway as part of the Lipgene project.
6. The Lipgene project is a five year research project funded by the EU, which aims to find out more about the metabolic syndrome. The project involves 25 partners located across

- Europe. For more information on the project see: [www.nutrition.org.uk/lipgene](http://www.nutrition.org.uk/lipgene) or [www.lipgene.tcd.ie](http://www.lipgene.tcd.ie)
7. Modifying the composition of commonly consumed foods can make it easier for people to consume a favourable balance of fats in their diet. The Lipgene project will explore ways in which the types of fat present in meats and milks can be altered by changing the diets of animals. It is also hoped that a sustainable plant source of the particular omega-3 fatty acids found in oily fish can be developed.
  8. The Lipgene project will investigate whether changes to the nutritional composition of these foods will influence their taste and other sensory properties. It will also explore consumer opinions with regards to the acceptability of using new technologies to develop such foods.
  9. Foods that have been modified to benefit health may cost more than the standard version of that food. This may discourage those who would benefit from consuming the product from buying it. Therefore, options for public health policy, to encourage uptake of these foods are being investigated as part of the Lipgene project.
  10. It is not only diet that can influence risk of developing the metabolic syndrome. Physical activity is also important. For example, with diabetes type 2, it is thought that, together, improved diet and increased physical activity may offer more benefit than drug treatments. It is also thought that certain personality and behaviour traits may increase the risk of developing metabolic syndrome. The Lipgene project will investigate the association between risk of developing the metabolic syndrome and psychological and behavioural traits, social and demographic factors, and lifestyle.

**For more information visit:**

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

[www.nutrition.org.uk/lipgeneconference](http://www.nutrition.org.uk/lipgeneconference)

[www.nutrition.org.uk/lipgenepresspack](http://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>