



# The Microbes Made me Eat It



As an experiment, some of our SciBar participants prepared this glossary, independently of Dr Ian Wilson. You may find it informative to consider these concepts and visit the website. Your comments on this experiment are most welcome.

<p><b>Hyperglycemia</b> higher than normal blood glucose levels.</p> <p><b>Hyperlipidemia</b> higher than normal levels of fat and cholesterol in the blood.</p> <p><b>Hyperphagia</b> higher than normal appetite; overeating.</p> <p><b>Hypertension</b> high blood pressure.</p> <p><b>Immune system</b> the defence system that helps protect the body against infection by microorganisms. It is thought that part of the immune system plays a role in the development of metabolic syndrome.</p> <p><b>Insulin resistance</b> when the body cannot properly use the insulin it produces, leading to high blood glucose levels. An underlying cause of type 2 diabetes.</p> <p><b>Intestinal bacteria</b> over 400 different species of bacteria living in the gut. Many are beneficial – suppressing undesirable bacteria but also providing vitamins and nutrients. Diet and antibiotics can influence the numbers and species present. It is thought that intestinal bacteria can influence appetite and also the intestine's ability to extract energy from food. In mice, changes in gut bacteria affect their eating behaviour and the development of metabolic syndrome.</p> <p><b>Lactobacillus gasseri</b> part of intestinal bacteria in humans. It is thought that <i>L. gasseri</i> may inhibit fat absorption in the intestine, so probiotics may in future be able to influence obesity.</p> <p><b>Metabolic syndrome</b> collective term for obesity-related conditions such as high blood glucose, insulin resistance and</p>	<p>high blood pressure, which then increase the risk of developing type 2 diabetes and heart disease.</p> <p><b>Metabolism</b> a set of chemical reactions in living cells which produce energy (in animals, from digested food).</p> <p><b>Pharmacogenomics</b> using the human genome to more carefully target drugs at individual patients (personalised medicine).</p> <p><b>Pharmacometabonomics</b> using the patient's 'metabolic phenotype' or biochemical state, which is influenced by their intestinal bacteria.</p> <p><b>Probiotic</b> food supplement with live bacteria (particularly <i>Lactobacillus</i> species) that has a beneficial effect on health by maintaining the balance of 'good' vs 'bad' intestinal bacteria.</p> <p><b>Receptor</b> a molecule on a cell's surface, which binds to a specific substance and, by 'recognising' this, signals to other cells.</p> <p><b>Rheumatoid arthritis</b> a disease that causes the immune system to mistakenly attack normal body tissue, causing pain and inflammation in joints. One theory is that some microorganisms may trigger such 'autoimmune diseases'.</p> <p><b>Toll-like receptor (TLR)</b> a component of the immune system, which helps cells recognise the presence of bacteria. Genetically modified mice, lacking TLR5, became obese and developed insulin resistance, hyperglycemia, hypertension and hyperlipidemia.</p> <p><b>Type 2 diabetes</b> formerly called adult-onset diabetes; a condition in which the body either makes too little insulin or cannot properly use the insulin it produces.</p>
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**Useful weblinks:** A news report on how intestinal bacteria drive obesity and metabolic disease in mice is here

[www.wired.com/wiredscience/2010/03/bacteria-obesity/](http://www.wired.com/wiredscience/2010/03/bacteria-obesity/)

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