Gut bacteria can cause obesity

February 12 2010, by Astrid Smit

Diet, exercise and genes are not the only factors which determine if someone can become obese. The composition of the intestinal bacteria may also account for a person's obesity. This is the contention of Wageningen microbiologists and colleagues from the University of Amsterdam end January in the scientific journal *Diabetologia*.

The authors base their viewpoint on tens of experimental studies carried out mostly on laboratory animals. These studies apparently show that the intestines of mice which suffer from obesity contain more bacteria types which efficiently convert indigestible food into manageable fatty acids. When researchers transplanted the gut flora of obese mice into mice without such gut flora, the fat percentage increased significantly in these so-called germ-free mice. It is suspected that the gut flora (known as gut microbiota) of these obese mice also affects hormones involved in fat storage.

Humans suffering from obesity also have such efficient gut bacteria, the authors surmise. They would therefore derive more energy from food and become fat easier. Various studies also point to this view, although the results are not always conclusive. Professor Willem de Vos, one of the authors of the publication, says: 'The study of gut bacteria in humans is rather complex. Every human being has a unique composition of microbiota, which makes research difficult. We want to use this review article as a first step into a territory which is abandoned by and large. Research into the relationship between microbiota and obesity in humans can only begin afterwards.'

It is therefore unclear as to how far efficient gut bacteria can increase the risk of obesity. Is their influence bigger or smaller than diet, exercise or a person's genetic profile? The Wageningen microbiologists will research into this in a big European study. In another project, they are examining, together with Amsterdam researchers, the extent to which the composition of the microbiota of obese patients can be influenced in favour of less efficient bacteria. They will introduce the gut bacteria of non-obese people into that of obese people. This experiment is in full swing.

Provided by Wageningen University