

# New research into obesity - genetic and metabolic potential of gut microbiota

There is a growing interest in probiotics, prebiotics and synbiotics in offering insights into the inner workings of the digestive system and how these tiny organisms relate to weight-related issues, such as obesity.



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Dr Peter Hill is from Met-S Care and is a specialist in metabolic syndrome - a cluster of chronic conditions that include increased blood pressure, a high blood sugar level (or Type 2 diabetes), excess body fat around the waist, abnormal cholesterol (low HDL cholesterol) and high blood fat levels (triglyceride). He explains that the gut microbiota is a term used to describe what used to be called gut flora.

"This is the population of microbes living in our intestine, which are said to number some 100 trillion organisms. The human body is thought to consist of about 10 trillion cells. If we have 10 times the number of bugs living in us than we have cells, then we can believe that these are important to us."

The genetic and metabolic potential of our gut microbiota is both enormous and complex. The human gut microbiota is thought to consist of over 1000 different bacterial species with a 100 times the number of genes found in the human genome. Their importance is such that they are sometimes referred to as our hidden metabolic organ.

"Research has shown that there are differences in the gut microbiota of people who are overweight or obese and those who

are not. Similar differences occur in people who have Type 2 diabetes and those who do not. It is obvious that changes to the gut microbiota are associated with at least some, if not all, chronic diseases of the metabolic syndrome."

Disruption of gut microbiome, which is called dysbiosis, appears to be a contributing factor in the cause of chronic metabolic diseases such as obesity and diabetes. "The most obvious culprits are the antibiotics that are well known causes of dysbiosis. Other medicines, pesticides, food preservatives and even the chlorine in our drinking water are thought to play a role in upsetting the balance of our gut microbiome."

## Supporting gut microbiota

He believes we need to preserve our food, chlorinate our drinking water and take medicines (including antibiotics) but this should be done appropriately. "These chemicals are life-savers but they come at a price. This means that we need to support our gut microbiota and do so daily - not just occasionally and this is where probiotics, prebiotics and synbiotics come in."

Probiotics are the live microorganisms, prebiotics are fermented ingredients that are able to change the composition and or activity of the gut microbiota and a synbiotic is a combination of both a prebiotic and a probiotic.

"It follows, that if the gut microbiome has an important role to play in influencing human health, then what we give our bugs to eat must also be important and this is where it is important to understand what foods to eat and what foods to avoid." While there is still a great deal of work to be done to understand how food influences our gut microbiome, it is generally agreed that any food that has the potential to change the balance between our good and bad bugs, such as sugar, should be avoided. Similarly, any foods that may damage the lining of the gut, causing so-called leaky gut syndrome, should be off the menu. Foods that contain gluten, especially anything made from wheat, should be avoided altogether or consumption kept to a minimum. Eating processed foods, especially those that contain preservatives and other additives, crisps for example, may also not be the best thing we can do to protect our gut microbiota.

Hill suggests that if you are overweight, obese, have diabetes or want to improve your health, you should think about adding a daily dose of fermented foods to your diet. "Fermented milk products like Kefir, some yoghurts, cheese (not processed) as well as fermented vegetables such as pickles and sauerkraut, all provide natural support to our gut microbiota. In addition to fermented foods, there are various probiotic, prebiotic or synbiotic supplements available that you can take to assist the gut microbiota. However, before doing so, make sure you speak to a health practitioner with a good knowledge of this important aspect of health."

Reading food labels and developing an understanding of the impact that any of the ingredients may have on the health of your gut is also another obvious step to improved gut health. Other initiatives include the movement to eat more 'real food' and less convenience food. "While this is to be encouraged, the reality is that for many of us convenience food is exactly that: very convenient. Perhaps the challenge is not to rid our diets of convenience foods, but rather to demand that the food industry ensures that these foods are good for us, which means being good for our gut microbiota," concludes Hill.

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