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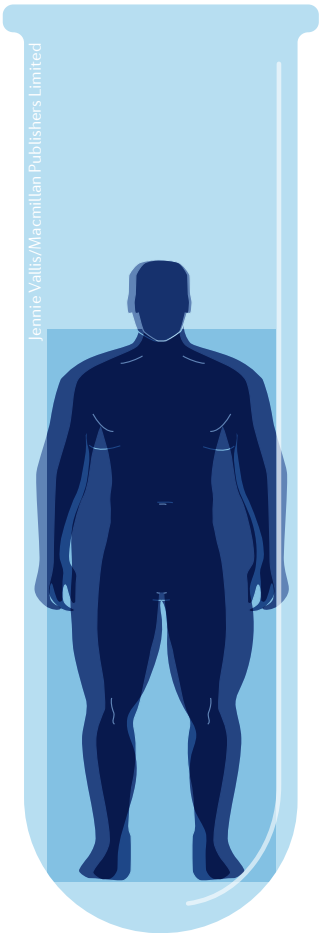

MICROBIOTA

FMT transiently improves insulin sensitivity

The intestinal microbiota has been implicated in a range of metabolic disorders, but causal findings have so far been lacking. New research published in *Cell Metabolism* now suggests that faecal microbiota transplantation (FMT) from a lean donor can induce transient metabolic improvements in patients with the metabolic syndrome.

The study included 38 white male participants with the metabolic syndrome and 11 healthy lean donors who provided material for FMT. Eighteen weeks after FMT, recipients showed no metabolic changes and their duodenal and faecal microbiota composition remained the same as at baseline. However, improvements in insulin sensitivity, changes in levels of plasma metabolites and alterations in microbiota composition were seen at 6 weeks after FMT. Participants also exhibited a small, but statistically significant, decrease in HbA_{1c} at 6 weeks. Overall, half of the participants had clinically relevant improvements at 6 weeks after FMT.

"Moreover, we were able to show that we can predict, based on a baseline faecal sample, who will respond to lean donor FMT and who will not," explains corresponding author Max Nieuwdorp. "This finding will help to design future targeted intervention studies." Participants who responded to the FMT had lower baseline faecal microbiota diversity than participants who did not respond. Responders also had higher abundance of *Subdoligranulum variabile* and *Dorea longicatena* and lower abundance of *Eubacterium ventriosum* and *Ruminococcus torques* than participants who did not respond to FMT.

The authors suggest that the transient nature of the effects of FMT might be due to the recipient's immune system developing resistance, possibly in combination with continuing to adhere to their own particular lifestyle (including diet). "We are now executing a randomized controlled trial where we combine lean donor FMT with beneficial diet, to see if we can enhance the effect on glucose metabolism," says Nieuwdorp.

Claire Greenhill

ORIGINAL ARTICLE Kootte, R. S. *et al.* Improvement of insulin sensitivity after lean donor feces in metabolic syndrome id driven by baseline intestinal microbiota composition. *Cell Metab.* http://dx.doi.org/10.1016/j.cmet.2017.09.008 (2017)