Gut microbiome composition after multi-donor fecal microbiota transplantation for obesity

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Video Byte

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Abstract

Obesity is a global health problem with wide-reaching health effects and limited effective treatment options. One new treatment, fecal microbiota transplantation (FMT), has received attention for its ability to affect the gut microbiota and microbial metabolism. Although researchers have found that donor selection influences microbiota engraftment and therefore the efficacy of FMT, the degree, variation, and stability of strain engraftment have not yet been examined in the context of multiple donors. In a new double-blind randomized control trial of FMT, researchers examined 87 adolescents with obesity receiving either multi-donor FMT or placebo. They found that over time, multi-donor FMT sustainably altered the structure and function of the gut microbiome. Two donor microbiomes – one female, one male – dominated in strain engraftment. These “super-donors” were characterised by high microbial diversity and a high *Prevotella*-to-*Bacteroides* (P/B) ratio. The engrafted strains shifted the microbial community compositions of the recipients, altering the metabolic potential of the community, and despite standardisation of FMT dose and origin, recipients varied widely in the degree of engraftment experienced. These results support the existence of FMT super-donors with microbiomes that are highly effective at engraftment, providing important insight into the effects of multi-donor FMT on microbial communities in treating obesity.