Roux-en-Y Gastric bypass-induced bacterial perturbation contributed to an altered metabolic phenotype

Jia V. Li
Hutan Ashrafian
Magali Sarafian
Daniel Homola
Laura Rushton
Grace Barker
Paula Momo Cabrera
Matthew R. Lewis
Ara Darzi
Edward Lin
Nana Adwoa Gletsu-Miller
Stephen L. Atkin
Thozhukat Sathyapalan
Nigel J. Gooderham
Jeremy K. Nicholson
Julian R. Marchesi
Thanos Athanasiou
Elaine Holmes

Video Byte

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Abstract

Bariatric surgery can improve health outcomes when a patient's severe obesity is resistant to changes in diet and exercise. These procedures also modify the gut microbiota and system-wide metabolism. The benefits go beyond weight loss and include the resolution of type 2 diabetes, hypertension, and obstructive sleep apnea, but we don't yet understand the mechanisms of these metabolic health outcomes. Recently, researchers examined three cohorts with patients who had undergone Roux-en-Y gastric bypass (RYGB), sleeve gastrectomy (SG), or laparoscopic gastric banding (LGB). RYGB patients had the most profound metabolic changes, which included changes in the urinary metabolome, the gut microbiome, and an associated metabolic shift. These changes in metabolic activity may contribute to the many downstream physiological effects of bariatric surgery. These results showed that a subset of bacterial species likely drive the observed changes to metabolite signatures in urine and feces. Continuing to examine the host-bacterial crosstalk after bariatric operations could lead to improved selection criteria of patients or even the development of future non-surgical interventions.