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Gut microbiota and obesity: Role in aetiology and potential therapeutic target



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A B S T R A C T

Keywords:

Microbiota

Obesity

Endocannabinoids

Bile acids

Obesity is epidemic; chronic energy surplus is clearly important in obesity development but other factors are at play. Indigenous gut microbiota are implicated in the aetiopathogenesis of obesity and obesity-related disorders. Evidence from murine models initially suggested a role for the gut microbiota in weight regulation and the microbiota has been shown to contribute to the low grade inflammation that characterises obesity. The microbiota and its metabolites mediate some of the alterations of the microbiota–gut–brain axis, the endocannabinoid system, and bile acid metabolism, found in obesity-related disorders. Modulation of the gut microbiota is an attractive proposition for prevention or treatment of obesity, particularly as traditional measures have been sub-optimal

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Introduction: microbiota and obesity

The striking increase in incidence of obesity in recent decades has several adverse health implications. While weight gain and obesity are usually considered as an imbalance in energy consumption vs expenditure [1], this is too simplistic and belies more complex underlying events (Figs. 1 and 2). Obesity is a consequence of complex interactions among genetic, environmental, socio-economic and

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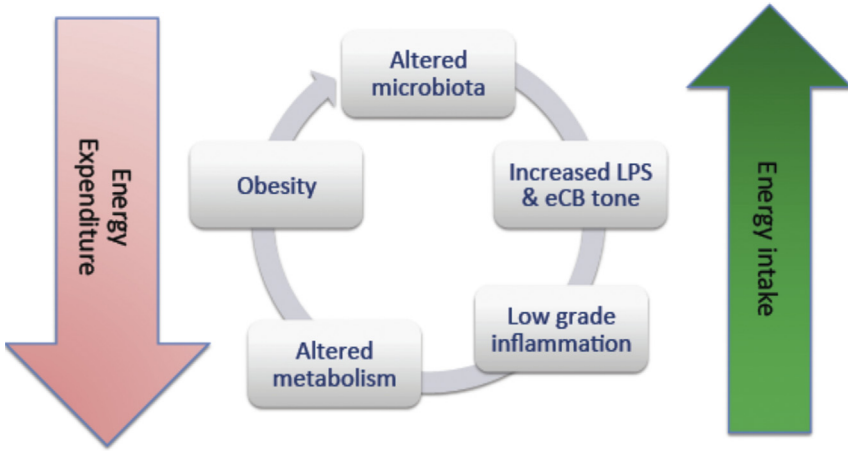


Fig. 1. Mechanisms involved in the pathogenesis of obesity include altered gut microbiota, increased gut permeability and LPS levels leading to low grade inflammation, in addition to chronic energy excess.

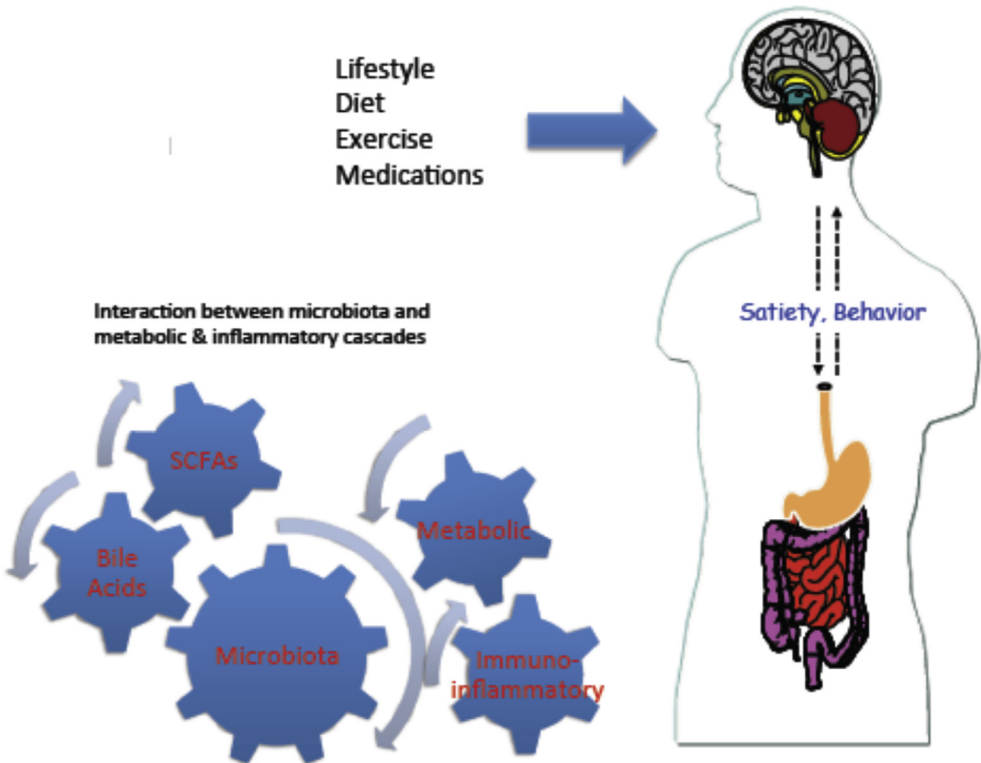


Fig. 2. Factors which influence gut microbiota include diet, medications, lifestyle habits such as exercise. Higher function is affected by the microbiota–gut–brain axis. The gut microbiota interacts with metabolic and immune–inflammatory cascades.

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