



# Gut check: assessing the role of the gut microbiota in the adverse cardiovascular effects of obstructive sleep apnoea

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**Obstructive sleep apnoea (OSA) disrupts the gut microbiota, contributing to adverse cardiovascular effects. Clinical research on patients' gut microbiota may help in finding treatments preventing OSA-associated cardiovascular outcomes.** <https://bit.ly/3TygLL4>

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Obstructive sleep apnoea (OSA) is characterised by repeated closure of the upper airway during sleep [1]. These apnoeic events are associated with intermittent hypoxia and hypercapnia, arousal, exaggerated negative intrathoracic pressure, and increased sympathetic output [1]. In the long term, OSA has been linked to a number of adverse metabolic, neurological, cardiovascular and malignant outcomes [2–5]. These include, but are not limited to, hypertension, atherosclerosis, diabetes mellitus, obesity, mood disorders and Alzheimer's disease. In regards to hypertension, OSA accounts for ~35% of primary hypertension, and ~75% of patients with treatment-resistant hypertension also have OSA [6]. In recent years, experimental models of OSA have demonstrated that this sleep breathing disorder significantly and persistently alters the makeup of the gut microbiota, termed gut dysbiosis [7–12]. Furthermore, gut dysbiosis has been shown to contribute to the development of hypertension [9, 13, 14]. In the current issue of the *European Respiratory Journal*, BADRAN *et al.* [15] demonstrate that exposing mice to intermittent hypoxia (IH) significantly alters the gut microbiota. Furthermore, when the dysbiotic microbiota from IH mice was transferred to naïve mice, this resulted in coronary artery dysfunction and hypertension. Intriguingly, when mice receiving IH microbiota were supplemented with probiotics, the adverse cardiovascular effects were abrogated. These findings extend our understanding of the gut microbiota as a mediator of the adverse cardiovascular outcomes associated with OSA, and raise the possibility that treatments targeted to maintain a healthy microbiota may prove effective in mitigating the consequences of OSA.