

Obstructive sleep apnea linked to inflammation, organ dysfunction

February 12 2019

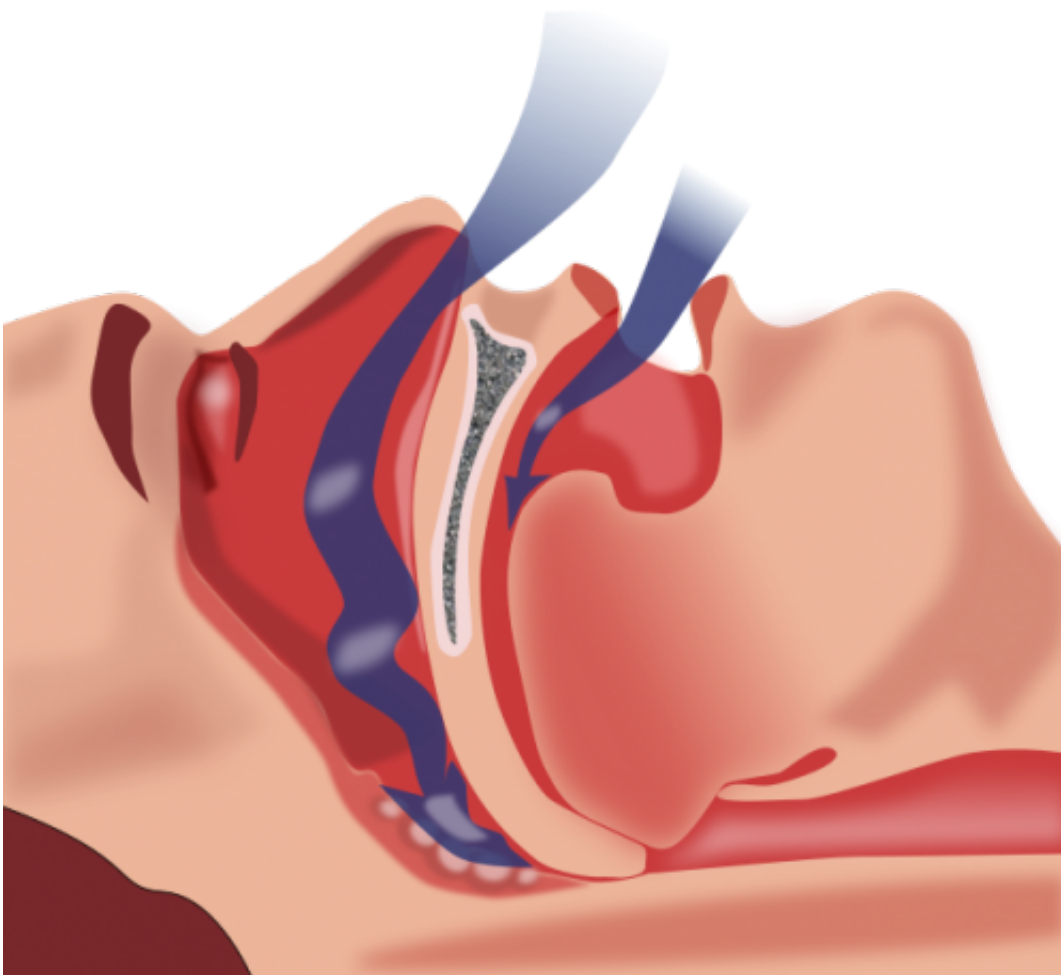


Illustration of obstruction of ventilation. Credit: Habib M'henni / public domain

Voyagers no longer embark in search of the storied Fountain of Youth,

but the quest for longevity is still very much alive for researchers.

"Aging has become the next frontier in medicine," said renowned sleep specialist David Gozal, MD, chair of the Department of Child Health at the University of Missouri School of Medicine.

Chronological age—the passing of time one spends on this planet—cannot be reversed, Gozal said. However, biological age—one's health relative to that of one's peers—can be turned back. Healthy lifestyle habits contribute to "aging well," meaning one's [biological age](#) is younger than one's [chronological age](#), Gozal said. And sleep is a major factor in how well one ages.

In the study, "Obstructive Sleep Apnea and Inflammation: Proof of Concept Based on Two Illustrative Cytokines," published recently in the *International Journal of Molecular Sciences*, researchers examined the link between [obstructive sleep apnea](#) syndrome (OSAS) and [inflammation](#) and the ensuing damage caused to organs. They concluded that OSAS promotes a persistent low-intensity inflammatory state.

Gozal and Leila Kheirandish-Gozal, MD, director of the MU School of Medicine's Child Health Research Institute, make the case that sleep-disordered breathing such as OSAS should be viewed as a low-grade chronic inflammatory disease. That's because OSAS often leads to altered lung ventilation and low concentrations of oxygen in the blood, which can trigger inflammation.

Inflammation is associated with changes in neurocognition, mood, behavior, cardiovascular function and metabolism, as well as a host of related conditions including chronic kidney disease, erectile dysfunction, eye disease and cancer.

In their study, Kheirandish-Gozal and Gozal performed an intensive

review on previous studies, focusing on two specific pro-inflammatory cytokines, or substances secreted by certain cells in the immune system. By comparing and contrasting the ways these cytokines affect cells, the researchers were able to glean a better understanding of the various mechanisms of inflammation. This, in turn, could eventually lead to better, more precise treatments, Gozal said.

"We would like to be very precise in how we treat [sleep apnea](#)," Gozal said.

Currently, the most common treatments for OSAS are the surgical removal of tonsil and adenoid tissues for children and the use of CPAP machines for adults. However, more precise treatments might include vitamin C or plant-derived antioxidants to reverse the damage caused by the specific inflammatory processes and protect the body from future damage.

Gozal is hopeful future studies will help researchers better understand the biomarkers that point to a person's unique vulnerabilities to the nuances of inflammation and, in turn, improved treatments to correct and prevent cellular damage.

These treatments, Gozal said, could help reverse patients' biological ages, leading to longer, healthier lives.

More information: Leila Kheirandish-Gozal et al, Obstructive Sleep Apnea and Inflammation: Proof of Concept Based on Two Illustrative Cytokines, *International Journal of Molecular Sciences* (2019). [DOI: 10.3390/ijms20030459](https://doi.org/10.3390/ijms20030459)

Provided by University of Missouri-Columbia

Citation: Obstructive sleep apnea linked to inflammation, organ dysfunction (2019, February 12)
retrieved 20 April 2024 from

<https://medicalxpress.com/news/2019-02-obstructive-apnea-linked-inflammation-dysfunction.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.