

Research shows bariatric surgery may reduce severity of COVID-19 in patients with obesity

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A Cleveland Clinic study shows that among patients who have obesity and who tested positive for COVID-19, a past history of bariatric surgery was significantly associated with a lower risk of hospital and intensive care unit admission. The results were published in the journal of *Surgery for Obesity and Related Diseases*.

In the past months, researchers worldwide have identified obesity as a risk factor for developing a severe form of COVID-19, which may require hospital admission, need for intensive care and use of ventilator support. The Centers for Disease Control and Prevention reported that more than 70% of U.S. adults are overweight or have obesity, which may increase the risk of severe illness from the coronavirus.

Obesity is a complex disease caused by multiple factors that weaken the immune system. Obesity creates a chronic inflammatory state that causes excessive production of cytokines, which are small proteins involved in the immune response.

"Infection with the coronavirus also triggers the [immune system](#) to release cytokines, which may lead to excessive cytokine production that damages organs. That may partly explain the severity of infection in patients with obesity," says Ali Aminian, M.D., Director of the Bariatric & Metabolic Institute at Cleveland Clinic and principal investigator of the research.

In addition, obesity increases the risk for cardiovascular disease,

hypertension, diabetes, kidney disease and blood clot formation. Those conditions can lead to poor outcomes after an infection with SARS-CoV-2, which is the virus that causes COVID-19. Obesity may also affect the respiratory system. Many patients with obesity have underlying lung conditions, such as [sleep apnea](#) and obesity hypoventilation syndrome, that can worsen the outcomes of COVID-19 pneumonia.

"Dr. Aminian's study provides further evidence of the important link between obesity and poor outcomes from coronavirus infection. The study shows for the first time that substantial weight loss via bariatric surgery may actually reduce the risk from severe illness in these patients," says co-author Steven Nissen, M.D., Chief Academic Officer of the Heart, Vascular and Thoracic Institute at Cleveland Clinic.

Looking at 4,365 patients who tested positive for SARS-CoV-2 between March 8, 2020 and July 22, 2020, researchers identified 33 patients who had a prior history of weight-loss surgery (20 patients had a sleeve gastrectomy and 13 patients had a Roux-en-Y gastric bypass). The 33 surgical patients were carefully matched 1:10 to nonsurgical patients with obesity to assemble a cohort of 330 control patients with a body mass index of 40 or higher at the time of SARS-CoV-2 testing.

This matched cohort study of 363 patients showed that sustained weight loss and improvement of diabetes and hypertension in the bariatric surgical group prior to contracting COVID-19 was associated with a much lower rate of hospital and ICU admission.

Eighteen percent of patients in the weight-loss surgery group and 42 % of patients in the control group required hospitalization after contracting COVID-19. In addition, 13 % of patients in the control group required ICU admission, 7 % required mechanical ventilation, and 2.4 % died. None of these occurred in the surgical group.

"Patients after bariatric surgery become significantly healthier and can fight the virus better," adds Dr. Aminian. "If confirmed by future studies, this can be added to the long list of health benefits of [bariatric surgery](#) such as improvement of diabetes, hypertension, fatty liver disease, sleep apnea, and prevention of heart attack, stroke, kidney disease and death."

Another Cleveland Clinic study showed that weight-loss [surgery](#) was associated with a 40 % reduction in risk of death and heart complications in [patients](#) with diabetes and [obesity](#).

More information: Ali Aminian et al, Association of prior metabolic and bariatric surgery with severity of coronavirus disease 2019 (COVID-19) in patients with obesity, *Surgery for Obesity and Related Diseases* (2020). [DOI: 10.1016/j.soard.2020.10.026](https://doi.org/10.1016/j.soard.2020.10.026)

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