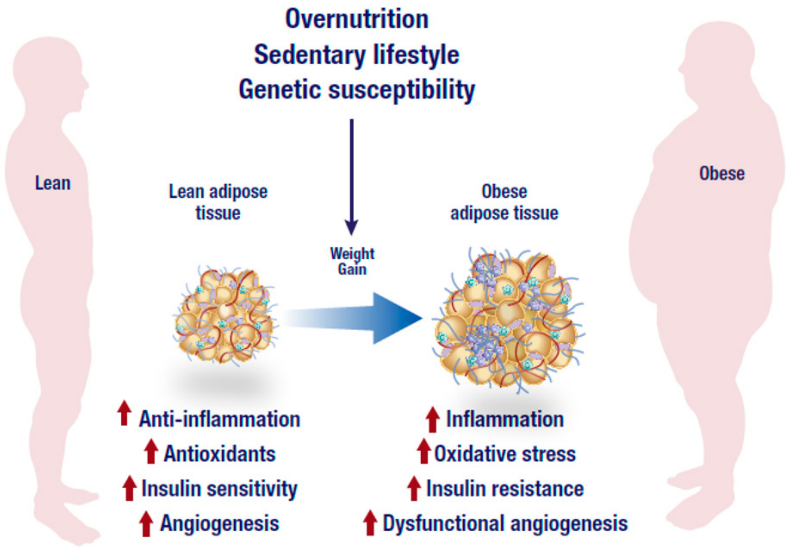
ADVANCED
LAPAROSCOPIC SURGEONS

Obesity and Surviving the COVID19 Pandemic
Weight loss Boosts Immunity

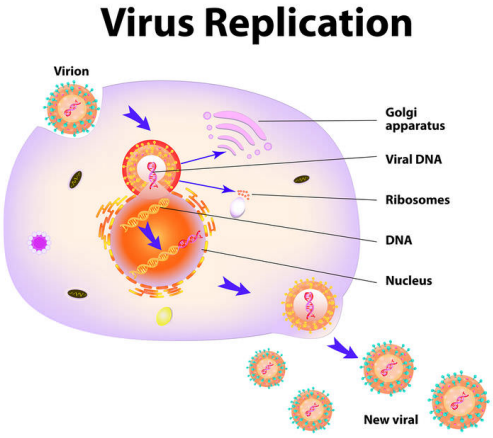
Aram E. Jawed, MD, FACS April 22, 2020

Lessons learned from the Spanish Flu pandemic of 1918 proved that malnutrition was just as bad as 'over nutrition' or obesity, both of which created a worse prognosis.[1] With the Asian Flu of the 1950's and 60's, the Hong Kong Flu of 1968, and even with the recent H1N1 Influenza virus, obesity increased both morbidity and mortality.[2]

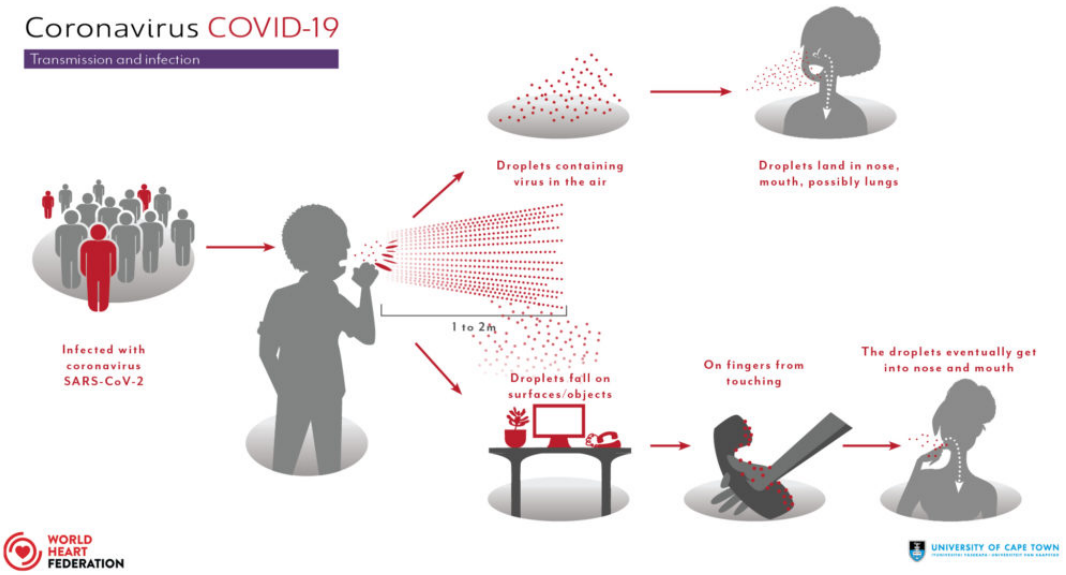


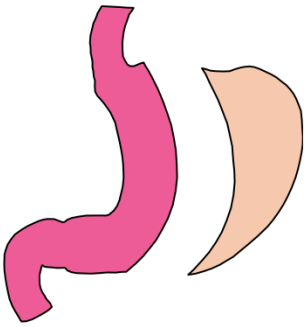
Dludla, et al. Inflammation and Oxidative Stress in an Obese State and the Protective Effects of Gallic Acid. *Nutrients* 2019, *11*, 23.

Obesity creates a chronic inflammatory state.[3] Fat cells (adipose tissue) increase inflammatory signals that are normally produced only when a foreign intruder such as a virus invades the body. When viruses attack, these signals are dampened. Immune cells such as 'macrophages' that eat viruses are reduced and not activated. Other immune defenses such as antibody 'B' cells and virus killer 'T' cells are also impaired with obesity. As a result, obesity has been shown to cause prolonged viral shedding.[4] Decreased immunity with obesity also increases chances of creating a more virulent viral strain.[5] The higher your body mass index (BMI), the higher concentration of infectious virus in exhaled breath![6] Obesity thus increases your risk of transmitting a more lethal mutated viral strain to others. In addition, as BMI increases, immune response to vaccination decreases. Thus, vaccines are less effective with obesity![7]



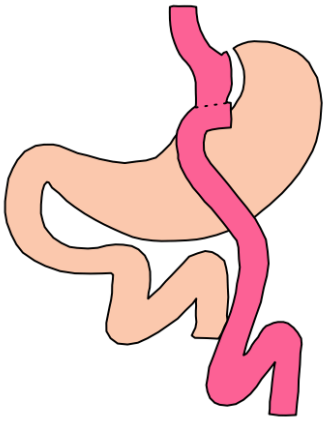
Obesity can cause prolonged viral shedding, more virulent viral strains, and ineffective vaccination all due to defective immunity





LSG

60.4% decrease in CRP [78]



RYGB

52.0% decrease in CRP [79]

José Romeo Villarreal-Calderón et al. Interplay between the Adaptive Immune System and Insulin Resistance in Weight Loss Induced by Bariatric Surgery. Oxidative Medicine and Cellular Longevity, 2019

The good news is that weight loss can reduce inflammation significantly —back to healthy levels[8] which strengthens immunity! C-Reactive Protein (CRP) is a measure of systemic, or whole body inflammation. Studies have shown that lifestyle changes such as diet and exercise can only achieve 5% *long term* weight loss at best.[9] Inflammation (or CRP) levels were only reduced with 15% or more sustained weight loss! Additionally, higher levels of inflammation from obesity in the body is associated with harder ability to lose weight.[10] A combined approach of lifestyle change with bariatric surgery for clinically or morbidly obese patients is the best way to decrease inflammation (CRP levels) and increase immunity for the long term.[11]

Bariatric Surgery is the most effective long term obesity treatment.[12] Patients following metabolic procedures such as gastric sleeve or gastric bypass significantly increase their immunity—the only defense against coronavirus. Vaccines will also be more effective once they are made available. We congratulate our patients on maintaining a healthy lifestyle and strengthening their immunity to overcome this pandemic.

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[12] J. Cheng, J. Gao, X. Shuai, G. Wang, and K. Tao, “The comprehensive summary of surgical versus non-surgical treatment for obesity: a systematic review and meta-analysis of randomized controlled trials,” Oncotarget, vol. 7, no. 26, pp. 39216–39230, 2016.