

Obesity protects dialysis patients with chronic inflammation

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A high body mass index (BMI) is linked to longer survival terms for several chronic serious diseases. A large European epidemiological study now shows that the protective effect does not apply to all patients with a high BMI. The findings, which are published in the *Journal of the American Society of Nephrology*, indicate that chronic inflammation plays an important part in this so-called obesity paradox.

Obesity increases the risk of numerous diseases and has well-documented adverse effects on health. So it might seem paradoxical for it also to be linked to longer survival terms for the same chronic diseases for which it is a risk factor. This 'obesity paradox' has been observed for several chronic diseases, such as serious [kidney disease](#), coronary artery disease, heart failure, stroke, rheumatoid arthritis, type 2 diabetes, cancer and dementia. A common denominator of all these [chronic diseases](#) is that persistent low-grade inflammation is a common feature.

Researchers have now examined for the first time if inflammation influences the documented link between high BMI and survival in patients with a severe kidney disease requiring haemodialysis. Their epidemiological study included about 6,000 such patients, half of whom showed signs of low-grade [chronic inflammation](#).

"We found that high BMI had a protective action, by which I mean that it was linked to longer survival rates for the dialysis patients with chronic inflammation," says the study's lead author Peter Stenvinkel, MD, PhD, Professor at the Department of Clinical Science, Intervention and

Technology at Karolinska Institutet. "On the other hand, we observed no such [protective effect](#) of high BMI in dialysis patients who were inflammation free. This correlation remains even after controlling for a large number of other factors that can influence survival rates for this patient group."

Reflect stored nutrient reserves

There are several reasons for why a high BMI protects patients with chronic inflammation. According to the team behind the study, a high BMI can reflect stored nutrient reserves in the form of body fat and muscle mass and a good appetite, which are particularly important for people with severe kidney disease. Differences in the ability to repair damaged tissue with stem cells can also have some part to play in the observed association. Earlier studies have shown that the formation of new stem cells is boosted by fat mass but inhibited by inflammation.

Since BMI (kg/m²) is determined by both muscle and fat mass, this commonly used metric is a relatively poor measure of body composition. The study does therefore not say whether the protection for inflamed dialysis patients is provided by the higher amount of fat or muscle, or both.

"The study shows that overweight [dialysis patients](#) showing signs of chronic inflammation should not be recommended to lose weight," says Professor Stenvinkel. "It is however, important to address the causes of the inflammation. It is up to future studies to show if a high BMI also protects other patient groups with chronic inflammation, such as those with heart failure, stroke, dementia, [chronic pulmonary disease](#), rheumatism and cancer."

More information: P. Stenvinkel et al. Inflammation Modifies the Paradoxical Association between Body Mass Index and Mortality in

Hemodialysis Patients, *Journal of the American Society of Nephrology* (2015). [DOI: 10.1681/ASN.2015030252](https://doi.org/10.1681/ASN.2015030252)

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