The remarkable effects of fat loss on the immune system

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Australian scientists have shown for the first time that even modest weight loss reverses many of the damaging changes often seen in the immune cells of obese people, particularly those with Type 2 diabetes.

The immune system is made up of many different kinds of cells that protect the body from germs, viruses and other invaders. These cells need to co-exist in a certain balance for good health to be maintained. Many factors, including diet and excess body fat, can tip this balance, creating cells that can attack, rather than protect, our bodies.

It has been known for some time that excess body fat, particularly abdominal fat, triggers the production of 'pro-inflammatory' immune cells, which circulate in the blood and can damage our bodies. In addition, other inflammatory immune cells, known as macrophages, are also activated within fat tissue.

The recent study looked at 13 obese people with Type 2 diabetes or prediabetes who were limited to a diet of between 1000 and 1600 calories a day for 24 weeks. Gastric banding was performed at 12 weeks to help restrict food intake further. The study determined the effects of weight loss on immune cells

Undertaken by Dr Alex Viardot and Associate Professor Katherine Samaras from Sydney's Garvan Institute of Medical Research, the results showed an 80% reduction of pro-inflammatory T-helper cells, as well as reduced activation of other circulating immune cells (T cells, monocytes

and neutrophils) and decreased activation of macrophages in fat. They are published in the prestigious Journal of Clinical Endocrinology Metabolism, now online.

"Excess weight disorders now affect 50% of adult Australians, with obesity being the major cause of Type 2 diabetes and some cancers," said Associate Professor Samaras.

"The situation has reached crisis point, and people must be made aware that excess fat will affect their immune systems and therefore their survival."

"We have found that a modest weight loss of about 6 kg is enough to bring the pro-inflammatory nature of circulating immune cells back to that found in lean people."

"These inflammatory cells are involved in promoting coronary artery disease and other illnesses associated with obesity."

"This is the first time it has been shown that modest weight reduction reverses some of the very adverse inflammatory changes we see in obese people with diabetes."

"We also showed that the activation status of immune cells found in fat predicted how much weight people would lose following a calorie restricted diet and bariatric surgery. Those with more activated immune cells lost less weight."

"It's the first time this has been described and is important because it helps us understand why some people lose weight more easily than others, and that inflammation is involved in regulating the response to bariatric surgery."

The Garvan study reinforces a message we hear regularly - to optimise your health, keep your weight and waist in the healthy range.

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