Diet, not exercise, may be key to addressing our biggest cause of liver disease

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Edith Cowan University researchers have found that a chronic disease affecting up to 80 per cent of overweight people may be causing an iron deficiency that simply leaves them too tired to get off the couch.

Fatty liver disease affects about one in three Australians and is often associated with being overweight or obese. If left untreated, it can lead to liver cirrhosis, liver cancer and increase the risk of a heart attack.

But the remedy—to lose weight through diet or exercise—is often difficult to achieve for affected individuals.

In other words, it may not be laziness but lack of iron which is important for energy production that is stopping people with non-alcoholic liver disease from addressing their condition. -

This research indicates that people with the condition may be physiologically incapable of exercise due to iron not being available for the body to use normally, which is very similar to the effects observed in people who have a true iron deficiency.

The new research, under the direction of lead researcher Professor John Olynyk, will help guide future treatment for people with non-alcoholic fatty liver disease.

The body is like a car

ECU researchers measured the cardiovascular fitness of 848 17-year-old West Australians enrolled in the well known Raine Study and found that those with non-alcoholic fatty liver disease had lower physical work capacity independent of their weight.,

This reduced physical work capacity was also strongly related to parameters suggesting that iron is not being made available to the body for normal metabolism.

Professor John Olynyk said the study showed that people with non-alcoholic-fatty-liver disease had lower cardiovascular fitness, which was

likely caused by a functional iron deficiency.

"We know that an iron deficiency can cause lethargy and fatigue, making it harder for people to exercise," he said.

"What is likely happening is that non-alcoholic fatty liver disease is impeding the body's ability to provide adequate iron into the blood to fuel processes such as energy and blood cell production.

"To use an analogy, if you imagine the body as a car and iron as its fuel, what is likely happening is that there is plenty of iron, or fuel in the tank, but the non-alcoholic fatty liver disease has caused the fuel line to shrink, so there's not enough fuel can get to the engine."

Diet before exercise

Professor Olynyk said the findings were useful for guiding the treatment of non-alcoholic fatty liver disease.

"The main treatment is lifestyle change aimed at reducing weight, primarily achieved through exercise and a modified diet," he said.

"In particular, there is evidence published by other investigators in the field that the Mediterranean diet can reduce the severity of non-alcoholic fatty liver disease. This is because it is high in foods like fruit and vegetables and whole grains, which have anti-inflammatory properties.

"This research shows that it may be more effective to first focus on new ways to improve the availability of iron to the body, enabling diet and physical activity to have better and more sustained effects on weight and the severity of their non-alcoholic fatty liver disease."

More information: Tim Mitchell et al, Decreased Physical Working

Capacity in Adolescents With Nonalcoholic Fatty Liver Disease Associates With Reduced Iron Availability, *Clinical Gastroenterology and Hepatology* (2019). DOI: 10.1016/j.cgh.2019.10.017