Eating customs

Danger of food binge

Two days of 'wrong' food enough to cause health issues, says study

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The Walter and Eliza Hall Institute of Medical Research team believes a build-up of these silent changes may play a role in chronic inflammatory illnesses that emerge years later.

But, in positive news, they also discovered that just a few days of consistently eating meals high in "good" fats triggered positive changes and boosted the body's inflammation fighting abilities.

While saturated fats have never been held up as healthy, the researchers were shocked to find only a handful of meals caused microscopic changes.

WEHI laboratory head Professor Stephen Nutt said our gut needed to maintain a delicate balance of microorganisms to ensure healthy function – but high-fat diets upset this balance.

"The changes happen quickly, long before you ever know there's a problem," he said.

Senior author Dr Cyril Seillet said their study was a "significant breakthrough" and showed "every meal we consume actively shapes our gut health".

"The more saturated fats we eat, the more inflammation that builds up," he said.

"But this inflammation buildup is initially silent, remaining hidden in our bodies until years later, where it can present as chronic inflammation."

About a third of Australians have a chronic inflammatory disease – such as inflammatory bowel disease, coeliac disease and rheumatoid arthritis – but how the inflammation arises, and then causes disease, has remained largely unknown.

The study, published in the Cell Press journal Immunity, showed short-term exposure to high-fat diets triggered inflammation in mice and also reduced their bodies' ability to fight it.

Researcher Le Xiong likened it to the "double-hit" on the gut barrier, and said exposure to fat reduced the production of a "critically important" protein called IL-22. "Without it, the gut loses its ability to prevent inflammation," he said.

On the flip-side, eating foods high in unsaturated fats – found in foods such as nuts and avocadoes – boosted the protein's production, strengthening our gut protection.

Dr Seillet said they believed the findings of the mice trials translated to people because they also tested mouse and human cells in a laboratory and found they responded similarly to saturated fatty acids. He said their findings did not, however, mean occasional fatty meals – spread out across a healthy diet – were inflammatory.

Professor Nutt said they hoped the findings could be adopted into dietary guidelines, encouraging people to eat less saturated fats and more unsaturated fats. "It's a small cost change that can really, I think, can start to give very quick, rapid benefits," he said.