

New study finds that fat consumption is the only cause of weight gain

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Scientists from the University of Aberdeen and the Chinese Academy of Sciences have undertaken the largest study of its kind looking at what components of diet—fat, carbohydrates or protein—caused mice to gain weight.

Since food consists of fat, [protein](#) and carbs, it has proven difficult to pinpoint exactly what aspect of the typical diet leads to weight gain.

Part of the problem is that it is very difficult to do studies on humans where what they eat is controlled for long enough periods to work out what are the most important factors, however studies on animals that are similar to us can help point in the right direction.

The study was published today (12 July) in the journal *Cell Metabolism* and includes 30 different diets that vary in their fat, carbohydrate (sugar) and protein contents.

The mice were fed these diets for three months, which is equivalent to nine years in humans. In total over 100,000 measurements were made of

body weight changes and their [body fat](#) was measured using a micro MRI machine.

Professor John Speakman, who led the study, said: "The result of this enormous study was unequivocal – the only thing that made the mice get fat was eating more fat in their diets.

"Carbohydrates including up to 30% of calories coming from sugar had no effect. Combining sugar with fat had no more impact than fat alone. There was no evidence that low protein (down to 5%) stimulated greater intake, suggesting there is no protein target. These effects of dietary fat seemed to be because uniquely fat in the [diet](#) stimulated the reward centres in the brain, stimulating greater intake.

"A clear limitation of this study is that it is based on mice rather than humans. However, [mice](#) have lots of similarities to humans in their physiology and metabolism, and we are never going to do studies where the diets of humans are controlled in the same way for such long periods. So the evidence it provides is a good clue to what the effects of different diets are likely to be in humans."

More information: Dietary Fat, but Not Protein or Carbohydrate, Regulates Energy Intake and Causes Adiposity in Mice. *Cell Metabolism*. DOI: doi.org/10.1016/j.cmet.2018.06.010

Provided by University of Aberdeen

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