

Scientists uncover a potential approach to combat obesity in those prone to weight gain

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For the first time scientists have kick-started the natural process by which genetically predisposed obese mice gain weight, opening up a new potential approach to fight off obesity. The study that was presented today at The International Liver Congress in Barcelona, Spain suggests that impaired brown adipose tissue (BAT), otherwise known as 'brown fat', drives obesity, and by stimulating heat production in this fatty tissue, weight-management and glucose tolerance can be improved.

Worldwide obesity has more than doubled since 1980. In 2014, there were over 600 million people classified as obese, making up 13% of the global population.¹ Obesity is now classified as an 'epidemic' by the World Health Organization and immediate action is being called for.²

"The results of our study show that certain cellular impairments found in one's metabolic make-up increases the likelihood of obesity and the associated issues, such as diabetes and high blood pressure," said study lead author, Laurence Poekes, Université Catholique de Louvain, Bruxelles, Belgium. "By intervening to reverse such impairments using a mouse model, we believe effective therapeutic strategies could be developed to combat obesity and associated comorbidities."

In the study, male *foz/foz* mice were studied as they are prone to developing metabolic syndrome, which is characterised by obesity, high blood pressure and diabetes. The *foz/foz* mice were studied alongside wild-type mice, that do not have the same metabolic predisposition.³ Metabolic syndrome in *foz/foz* mice was associated to impaired

thermogenesis in BAT in response to high fat diet feeding or to cold exposure. This could contribute to lower energy expenditure and increase fat storage.

To stimulate BAT activity in the overweight foz/foz mice, intermittent cold exposure (4°C, 2h/day, 5 days/week), β 3-adrenergic agonist treatment (CL-316,243, 1mg/kg/day) and [brown adipose tissue](#) (BAT) transplantation from wild type mice were performed.

The results showed that for the foz/foz mice that had stimulated BAT activity, they experienced decreased body weight gain (11g vs 16g, p

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