

Oil supplement can help control 'good' fat in babies

June 26 2018



Credit: University of Nottingham

Researchers have uncovered a supplement that can control the production of brown 'good' fat in babies—a discovery that will help understand and tackle issues related to obesity and metabolism in later life.

The study, published today in *Scientific Reports*, shows how when mothers consume a diet supplemented with canola oil during lactation offspring fat development is modulated and delays the rate at which 'brown' [fat tissue](#) is lost.

What is Brown fat?

Brown (or good) fat burns energy and is usually replaced by 'white' fat, which typically functions as [fat storage](#). Brown fat is found most

commonly in babies and hibernating animals as nature's way of keeping them warm while at their most vulnerable.

Brown fat works in a different way to other fat in the body as it produces heat by burning sugar and fat, often in response to cold. Increasing its activity improves blood sugar control as well as improving blood lipid levels and the extra calories burnt help with weight loss.

Critical role of maternal diet

The research was led by Professor Michael Symonds and Professor Helen Budge of the Early Life Research Unit in the University's School of Medicine.

Professor Symonds says: "We have uncovered a new way to promote the ability of fat to produce heat and identified how this process can be modulated by the mother's diet in early life. Using an animal model of adipose tissue development, we uncovered the critical role of maternal diet on modulating the abundance of [fat cells](#) into metabolically active [brown fat](#).

"This means energy can be produced by brown fat rather than being used for depositing more [white fat](#). The Canola oil has this effect as it provides an additional source of long chain fatty acids in the offspring's diet. These could then promote the activity of the special mitochondrial protein (uncoupling protein 1) found in brown fat which is responsible for generating the extra heat. This suggests that modifying the mothers diet, or the composition of formula milk could have a similar beneficial effect."

These results, generated as part of a BBSRC-funded project, will now enable the team to further analyse the role of [maternal diet](#) in promoting brown fat function. This ongoing research will help understand and

better tackle issues related to obesity and metabolism, especially in [early life](#).

More information: Hernan P. Fainberg et al. Transcriptional analysis of adipose tissue during development reveals depot-specific responsiveness to maternal dietary supplementation, *Scientific Reports* (2018). [DOI: 10.1038/s41598-018-27376-3](https://doi.org/10.1038/s41598-018-27376-3)

Provided by University of Nottingham

Citation: Oil supplement can help control 'good' fat in babies (2018, June 26) retrieved 24 April 2024 from <https://medicalxpress.com/news/2018-06-oil-supplement-good-fat-babies.html>

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