

Sins of the father could weigh on the next generation, study shows

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The amount of food consumed by fathers could have a direct impact on their unborn children's health and wellbeing, according to new RMIT University research.

The study suggested a dad's [diet](#) before they conceive could be genetically passed onto the next generation, with a subsequent impact on those children's [mental health](#).

While mothers' diet and impact on children has been widely researched, this is believed to be the first time the behavioural and hormonal effects of the male diet on offspring has been studied.

Professor Antonio Paolini from RMIT's School of Health Sciences, who led the cross-generational study, said male rats allowed to eat abundant amounts of food were compared to those with access to 25 percent fewer calories in their diet.

"Even though the father's had no contact with their offspring and the mother's behaviour remained relatively unchanged, the offspring of the food-limited rats were lighter, ate less and showed less evidence of anxiety," he said.

Paolini, who researches how environment produces changes to brain, genes and behaviour, said the differences appeared to be 'epigenetic', meaning the younger rats' genes functioned differently as a result of their fathers' experience.

"The results suggest that the diet of one generation may affect the next," Paolini said.

"When you see the lower levels of anxiety as a result of reduced diet crossing generations, it raises alarm bells for the long-term potential health consequences of a society with rising levels of obesity."

Paolini said that reduced calories may sharpen survival instincts, making animals less anxious and more adventurous in the way they explore their environment.

"This generation lives in a world where food is plentiful, something that could have profound implications for future generations and society as a whole."

Paolini said environmental factors could also have an effect on sperm production in men in the days leading up to conception, posing an additional risk to the health of their children.

"This makes it important for both mothers and fathers to consider their environment and things such as diet, alcohol consumption and smoking, before conceiving."

The research, which was funded by Jim's Group Pty Ltd, will be published in an upcoming edition of the international scientific journal *Psychoneuroendocrinology*.

Provided by RMIT University

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