



THE VICTOR CHANG  
CARDIAC RESEARCH INSTITUTE

## MEDIA RELEASE

---

November 15, 2006

# GRANDMA, EAT YOUR VEGGIES: HOW YOUR DIET CAN AFFECT THE HEALTH OF YOUR CHILDREN, AND YOUR CHILDREN'S CHILDREN

## Victor Chang Cardiac Research Institute releases groundbreaking evidence showing how dietary choices in pregnancy affect children for at least two generations

In an international first, researchers from the Victor Chang Cardiac Research Institute reported in a paper just published in the prestigious biomedical journal, *Proceedings of the National Academy of Sciences (USA)* that the diet of pregnant mothers can affect the activity of genes – not only in their children but in their grandchildren as well.

“It's known that children can be affected by how healthy their mothers are – if she gets too much or too little nutrition during pregnancy, this can have long-reaching effects on their health,” said Dr Jennifer Cropley, who carried out the research. “Recent evidence suggests that these effects can also be passed on to the grandchildren too – but until now, nobody knew how it worked.”

When Dr Cropley added extra vitamins – such as folate and vitamin B12 – to the diet of pregnant laboratory mice, she found that a certain gene in their offsprings had been “switched off”. This gene causes obesity and diabetes in these mice, but only when it is “switched on”. What's more, the health effect was carried into the grandchildren of the vitamin-supplemented mothers, who were also more likely to “switch off” the gene.

The inheritance to the grandchildren was surprising, because such changes in gene activity (called “epigenetic” changes) are usually thought to be cleared between generations.

“Most people know that genes are passed on from generation to generation but our research suggests that lifestyle choices – such as diet – can directly affect the health of future generations, meaning that you inherit not only the genes of your parents and grandparents, but the consequences of their lifestyle,” Dr Cropley explained.

“The diet of your pregnant grandmother might “switch on” or “switch off” genes in your mother, and these “epigenetic” states can then be passed on to you, for life,” says Professor David Martin, who supervised the research. “Essentially, you are not only what you eat, but also what your mum ate *and* what your grandmother ate.

“Luckily for us we don't carry the exact diabetes gene analysed in the mice, but our question now is, what genes in humans *are* being affected by diet?”

This research was conducted by Dr Jennifer Cropley at the Victor Chang Cardiac Research Institute, where she works with Dr Catherine Suter who also has a Conjoint Lecturing position with the University of New South Wales.. The work was led by Professor David Martin who is also an adjunct Professor with the University of New South Wales.

---

Established in 1994, the Victor Chang Cardiac Research Institute (VCCRI) is committed to excellence in research into heart disease and cardiovascular biology, cardiovascular research training, and facilitating the rapid application of research discoveries to patient care.

---

To donate to the Victor Chang Cardiac Research Institute call (02) 8382 3022 or visit [www.victorchang.com.au](http://www.victorchang.com.au)

---



THE VICTOR CHANG  
CARDIAC RESEARCH INSTITUTE

## MEDIA RELEASE

Further Information:

Prue MacSween  
Verve Communications  
(02) 8234 4300 or 0417 635 045

Gabrielle Thomson  
Victor Chang Cardiac Research Institute  
(02) 8382 3586 or 0408 862 040