

Media Release



Embargoed: 00.01, Friday February 19, 2010

New research challenges common advice that exercise may be harmful to those with a genetic heart condition

New Australian research reveals regular moderate exercise from a young age could help prevent rather than contribute to a common genetic heart condition that can lead to heart failure and sudden death.

The research, carried out by scientists at the [Victor Chang Cardiac Research Institute](#), found two new approaches that could be used to prevent dilated cardiomyopathy (DCM), a common disease of the heart muscle that reduces the pumping action of the heart.

As well as a regular exercise program, the beta blocking drug *carvedilol*, commonly used to treat patients with symptomatic heart failure, was also found to reduce the development of DCM, if taken from a young age.

Around 1 in 2000 Australians are affected by DCM, including newborns, children, adolescents, adults and the elderly. At least 30 per cent of cases, where there are no traditional risk factors such as coronary artery disease or virus infection, are caused by an inherited gene change.

The study, published today in the prestigious [Circulation Research](#) journal, used a mouse model, in which a nuclear protein gene widely known to cause DCM was altered, to mimic the human genetic defect.

Head of the Sr Bernice Research Program in Inherited Heart Diseases at the Victor Chang Cardiac Research Institute and senior author on the study, A/Professor Diane Fatkin, said the results of the mouse study challenge existing dogma.

“People who present at the doctor’s surgery with a family history of cardiomyopathies are often told not to exercise, because it can put too much stress on their heart. Our research shows that moderate exercise from a young age could actually be beneficial.

“Those mice that underwent repetitive, moderate exercise training early on, were less likely to develop the condition than those that remained ‘couch potatoes’,” added A/Professor Fatkin. “Similar results were found in mice that didn’t exercise but received carvedilol treatment from an early age. This gives us two very promising approaches for slowing or preventing the development of heart failure and/or death.”

DCM is the third most common cause of heart failure. Patients with DCM often experience a rapid downhill progression, requiring pace-makers or a heart transplant, and face an increased risk of sudden death.

A/Professor Fatkin said the results of the study are promising, yet family members should seek medical advice before engaging in high-level competitive exercise.

“While the effects of different exercise regimens remain to be determined, these results are really exciting. Rather than dealing with the end stage of heart failure, which places an enormous economic and social burden on our community, we can recommend patient therapies and exercise programs that will slow down the progression of the disease from an early age,” added A/Professor Fatkin.

The next step will be to validate the study in humans, with planning for clinical trials currently underway.

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About the Victor Chang Cardiac Research Institute

Established in 1994, the Victor Chang Cardiac Research Institute (VCCRI) is committed to excellence into heart disease and cardiovascular biology, cardiovascular research training and facilitating the rapid application of research discoveries to patient care. In Australia alone, heart muscle diseases - the cause of heart failure - are responsible for the death of over 130,000 people annually with 400 new cases being added each week. For more information visit www.victorchang.edu.au

Sources:

1. <http://www.genetics.com.au/factsheet/fs54.html>
2. http://www.nhmrc.gov.au/files/nhmrc/file/your_health/egenetics/practioners/gems/sections/06_-_cardiovascular_conditions_web.pdf

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