

thank you

For bringing  hope



You have made possible life-changing research that could help the thousands who suffer heart disease, including Taylor - who was born with just half a heart.



Taylor after heart surgery at just 3 years old

Doctors and researchers have wondered for some time whether specific exercises and training would safely help people living with half a heart improve their ability to exercise.

While the benefits of physical activity are well-recognised, the situation could be quite different for those with hypoplastic left heart syndrome (HLHS) and other types of congenital heart disease.

In a preliminary study, HRI's Dr Rachael Cordina found exciting results showing that specific lower leg resistance exercises helped HLHS participants improve their exercise ability and heart function.

Now, in a world first, Dr Cordina is embarking on a larger trial called "CH-FIT: The Congenital Heart Fitness Intervention Trial". CH-FIT will investigate the benefits of her specific exercise program, which includes resistance training for people with HLHS and other heart birth defects.

Dr Rachael Cordina answers questions about her groundbreaking research.



Why is this study so important?

Until recently, people with congenital heart disease were not expected to survive to adulthood. But now we have more adults than children living with congenital heart disease. But they've grown up in a culture where they've been told not to exercise, as it could be dangerous. It's hard if you've not learnt to be active in childhood, to suddenly change your ways in adulthood and become an active person.

What group of people with congenital heart disease are you focusing on?

The subgroup that we're studying in most detail is people like Taylor, with HLHS, who are living with half a heart. They have traditionally had the most complex type of disease, the worst life expectancy, and the worst health outcomes.

My PhD research showed that because there's no heart pump that pushes blood up through the lungs, people with half a heart rely much more heavily on the exercising muscles in the body to circulate the blood, making healthy muscles and regular exercise even more important for these people than for the general population.





CH-FIT Exercise Physiologist Sally Gosbell guiding an exercise program

How will the study work?

We'll be recruiting almost 400 people across Australia, by far the largest number of any similar studies. The children will all train face-to-face, in focused groups in their local area. Fitness First has partnered with us, and we've developed a tele-health model for the adults that is just like being trained in Fitness First gyms. We plan to work out each person's optimum levels of exercise and create a personalised plan for each.

What type of impact could the results of your research have for people with HLHS?

The potential is massive. In our preliminary study, we showed that with our specific resistance training, people living with half a heart could improve their heart output, and

at the same time their exercise capacity and circulation worked much better.

With exercise also benefitting mental health, quality of life and social functioning, the changes brought about by our study hold huge hope to increase life expectancy for people with HLHS.

Why are you so passionate about research into congenital heart disease?

I just am so passionate about my patients, and the work is very rewarding. So many people were never expected to even get through school, let alone university, or go on to have a family.

But one of my patients is now a junior surgeon, who's looking after one of my other patients. She sent me a message to say how well her patient is doing, 'better than I was on day two post-op' – which really shows the advances of research and how it can save or extend lives. It makes me so proud.

Dr Rachael Cordina conducting an ultrasound on a patient's heart



The team working to help give hope to people living with half a heart: (L-R) Dr Derek Tran, Senior Exercise Physiologist; Ms Sally Gosbell, Exercise Physiologist and PhD Student; Dr Rachael Cordina, Cardiologist and Team Leader; Ms Charlotte Verrall, Psychologist and PhD Student

Thank you.

Today's research is tomorrow's cure.

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