

# The Beat

Edition 1 2014



AUSTRALIAN  
HEART RESEARCH  
*beating heart disease*



## New Treatment Hope for Heart Disease



**A new drug developed by researchers at The Queen Elizabeth Hospital (TQEH) has the potential to benefit people worldwide who suffer with some types of untreatable heart disease. Researchers are hopeful that clinical trials will begin within the next 24 months.**

The team of scientists from TQEH, together with collaborators from the University of Adelaide and UniSA, have been investigating a new drug over the last six years. The new drug offers improvements over a current medicine called Perhexiline, which is used to treat angina (recurrent chest pain).

“Perhexiline is an older medicine and although it’s been effective, its ability to help many people with heart disease is being held back because it can be potentially toxic if not closely monitored,” explained Associate Professor Betty Sallustio (picture above) from the Clinical Pharmacology Department at TQEH and the University of Adelaide.

“Some of the symptoms from toxicity are nausea and dizziness; if you are an older person this may be particularly debilitating as it can increase your risk of falling and fractures. More severe toxicity can include liver damage and peripheral neuropathy (pins and needles in the fingers and toes and loss of sensation), although this very rarely happens when patients are closely monitored.”

“So the aim of our study was to develop a drug that has the same or better mechanism of beneficial activity, but not the negative side effects,” said A/Prof Sallustio.

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### ♥ Colin's Story...

Having spent time in seven different hospitals 23 times throughout his life, Colin has very good reason to support medical research, having personally reaped many of its benefits.

One of the most serious incidents that landed him in hospital was a heart attack in 2001 just after he retired. Colin was 62 years old.

“I was outside gardening with a friend who was helping me unload a truck of mulch when I suddenly felt a pain in my chest,” recalls Colin, pictured below with wife Sue.

“I thought maybe I was just tired and decided to relax in the bath. However, the pain didn’t improve and I called my neighbour who took me to hospital.”

“As soon as I got there and mentioned “heart” I was straight away hooked up to an ECG machine being monitored.”

It turned out that Colin had four blocked arteries and required a quadruple bypass.

“I have never smoked, rarely drink and eat a relatively low fat diet, but as my dad, uncle and cousin have all had heart problems I think genes may have played a part in me having a heart attack.”

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# New Treatment Hope for Heart Disease

continued from page 1

“And we think we have done that, fingers crossed!”

The team’s efforts have been recognised as very promising with venture capitalists showing interest.

“The new drug has been patented in Australia and the US and a license of the technology has been negotiated by Adelaide Research & Innovation (ARI), which has also brokered commercial funds to develop our work further, with phase 1 clinical trials potentially starting in the next year or so,” said A/Prof Sallustio.

*“We are hoping this drug will...help many more people with different kinds of heart disease.”*

ARI commercial manager Greg Macpherson said, “The license of the new drug to Heart Metabolics, a cardiac pharmaceutical company has enabled fast tracking of the research from bench to bedside with some very experienced drug development partners.”

A/Prof Sallustio explained that this drug is a ‘different’ way of treating heart disease as it works by improving the way the heart uses and stores energy.

“A lot of medicines that treat heart disease work by decreasing the amount of work the heart does so that it needs less energy, or by causing the blood to be more efficiently pumped to the heart so that it has more oxygen to make energy.”

“Perhexiline is mainly being used for angina at the

moment because of its limitations, but we think our new drug might be able to treat many more types of heart disease, including some inherited forms of heart failure, for which there is no current treatment.”

The data collected by the team to-date is based on in vitro and in vivo models, so clinical trials in humans are still needed to test for safety.

“Considering we have been working on this project for six years it’s extremely exciting that we have reached this point. Our phase 1 trial will be on healthy volunteers to test the drug doses that we anticipate might be needed,” said A/Prof Sallustio.

“We are hoping that this drug will ultimately eliminate the need for close patient monitoring and help many more people with different kinds of heart disease.”

“At the moment Perhexiline is mainly used in Australia but if we can prove that our drug shows efficacy and lack of toxicity, this will open up markets in the US, Europe and other countries worldwide.”

*Funding contributors to this project have been Australian Heart Research in collaboration with The Hospital Research Foundation, and the Heart Foundation. ♥*



## Healthy Heart Tip

If you are someone who has never participated in any form of routine exercise, just gentle-brisk walking for 15 minutes a day can reduce your risk of heart disease by 14%.



## Colin's Story...

continued from page 1

“Dad died when he was 75 after years of suffering from hardening of the arteries, my uncle died at 57 and my cousin at 61 both from heart attacks,” said Colin.

Colin believes if his dad were living today with the benefits of medical research available now, he wouldn't



have suffered so much and died when he did.

“Medical research has improved treatments dramatically,” he said.

“I recovered well from the bypass and was only in hospital for eight days which I thought was quite extraordinary.”

10 years after his heart attack and bypass surgery, Colin was advised by his surgeon that his heart was now working fifteen per cent better than the average person his age with his condition.

“Colin really is a living example of the benefits of medical research,” said his wife Sue.

“He has personally benefited from research into heart disease, and drugs used to improve heart function have meant his life span has been lengthened, as well as improved. These drugs are only available because of ongoing medical research,” said Sue.

“We support medical research so that others can benefit from better health and hospital care like our family has.” ♥

You can join Colin and Sue and support life-saving heart disease research, visit [www.australianheartresearch.com.au](http://www.australianheartresearch.com.au)

# Treating Slow Flow with Exercise

**Patients who suffer painful recurrent chest pain due to the Coronary Slow Flow Phenomenon (CSFP) sadly don't have any effective therapies currently available.**

Patients with CSFP have dysfunctional microscopic blood vessels causing blood to flow slower through their major heart vessels, producing recurring chest pain. The condition is extremely debilitating and has a severe impact on sufferer's quality of life.

Over the past 15 years, researchers at The Queen Elizabeth Hospital (TQEH) in South Australia have been evaluating the effectiveness of a number of different drug therapies for CSFP. A drug called Mifibradil was an outstanding therapeutic option for CSFP sufferers but unfortunately, it was withdrawn from the market because of negative drug interactions; thus the search for an effective therapy continues.

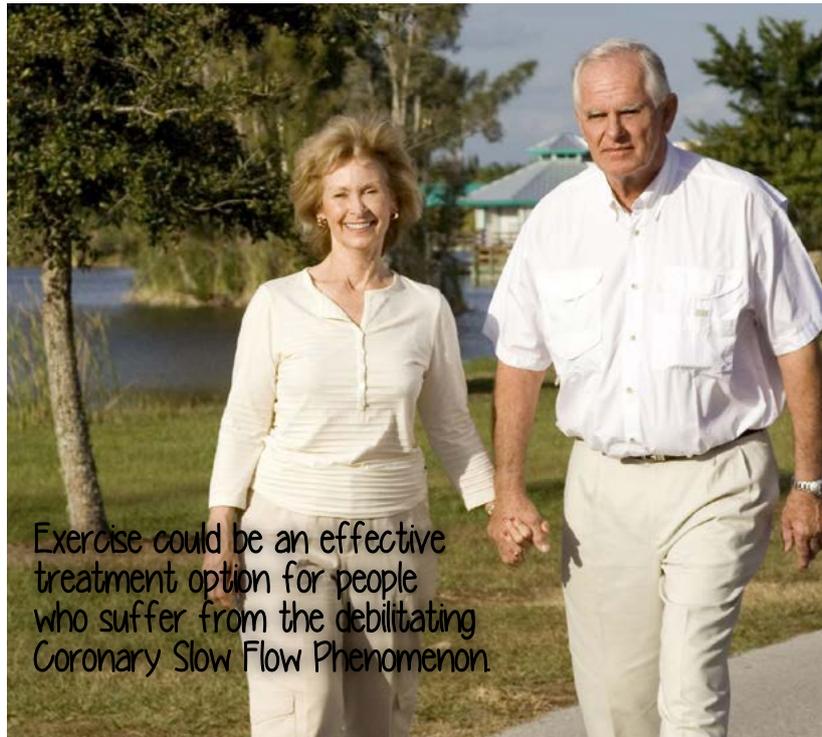
A recent project grant awarded by Australian Heart Research in collaboration with The Hospital Research Foundation (THRF) will enable Professor John Beltrame, who was instrumental in first characterising CSFP, and his team to investigate a new therapy. This time they are changing direction and looking at exercise therapy.

The concept of exercise therapy was born out of a collaboration between the Cardiology and Vascular Surgery Departments at TQEH. The Vascular Surgery team has demonstrated that patients with leg pain due to blocked blood vessels have benefited enormously from exercise therapy.

*"We are very hopeful that this will be a viable treatment option..."*

"Considering exercise as a good therapy for chest pain is not instinctive. We know chest pain can often be caused by physical activity, so to think of it as a potential therapy is counter-intuitive," explains Professor John Beltrame, Cardiologist and Professor of Medicine at TQEH.

"Fortuitously, a Program Grant awarded by THRF four years ago brought Professor Robert Fitridge, Head



*Exercise could be an effective treatment option for people who suffer from the debilitating Coronary Slow Flow Phenomenon.*

of Vascular Surgery, and I together as collaborators. If it wasn't for that grant we may not have had the opportunity to put our heads together and develop the exercise therapy concept for CSFP," said Prof Beltrame.

Teaming up with expert exercise physiologists at the University of Adelaide, the project team will evaluate the effectiveness of exercise therapy in a group of 56 CSFP patients, both men and women.

Many CSFP patients experience angina (chest pain) episodes several times a week, and Prof Beltrame explains that patients are desperate for some relief, as their quality of life is so poor.

"We are very hopeful that the exercise therapy will be a viable treatment option, but even if the study is negative, it is likely to incite similar studies into related coronary disorders, which have largely ignored exercise therapy," said Prof Beltrame.

"We are breaking new ground here at TQEH in Adelaide and it's fantastic that Australian Heart Research in collaboration with The Hospital Research Foundation is able to assist with getting this project started. ♥



**DID  
YOU  
KNOW?**

Smokers are 4 times more likely to die from cardiovascular events (ie heart attacks) than non-smokers. Benefits of a healthy diet and regular exercise can be completely negated if you are a smoker. BUT, once you quit, the negative impacts of smoking can be reversed with time.

# Improving Women's Heart Health

**As a young woman and a clinical researcher in women's heart health, Dr Rachel Dreyer is driven by the knowledge that heart disease is the number one cause of death in women.**

This is a statistic that is not commonly realised.

Dr Dreyer is investigating why young women under the age of 55 are more likely to suffer fatal consequences following a heart attack than similarly aged men. Her research will identify why this may be, in order to improve the prevention, care and long-term health of this vulnerable population.

Dr Dreyer is well recognised in Australia for her studies into women's heart health. She completed her PhD at the University of Adelaide and is currently continuing her cardiology research at Yale University in the United States (US), as the Sir Keith Murdoch Fellow, a Postdoctoral Research position supported by the prestigious American Australian Association Fellowship.

Dr Dreyer's research follows findings that young women are more likely to suffer fatal consequences after having a heart attack, and face more difficult recoveries compared to men of the same age.

"The VIRGO study, which I have been working on as part of my PhD and my postdoctoral studies will, for the first time, help provide evidence-based and actionable information for doctors to inform and manage their patients with heart disease," said Dr Dreyer.

"This research is crucial as it will ultimately improve the lives of young women and their families," she said. Practical benefits from the VIRGO study will potentially allow researchers to predict long-term outcomes based on risk factors and to ultimately prevent women having heart attacks through early intervention.

"For example, information from VIRGO could lead to the development of a sex specific readmission tool that predicts whether a woman may experience health issues requiring re-hospitalisation after previously suffering a heart attack."

"I feel passionate about improving the health of women with heart disease and so I take my research very personally."



Dr Rachel Dreyer is determined to improve women's cardiac health.

"One problem we have is with education - young women are presumed to be at low risk for coronary artery disease and thus there is a misconception among the public that they are immune to having a heart attack."

"To overcome this, I combine my research with advocacy work for charities in Australia, and more recently the American Heart Association."

Having the opportunity to conduct research at Yale University over the past 12 months has been an "eye opening experience" explains Dr Dreyer.

"Yale University has such a breadth of world class facilities. I am undergoing advanced training and establishing collaborations with prominent researchers in my field, both in the US, Europe and China. These networks will be extremely beneficial to my career trajectory when returning to Australia."

"Women's cardiac health is an area of investigation that I am absolutely determined to have impact upon."

"We need to bridge the known gender differences in heart health to ultimately improve the lives of women, and their families, worldwide." ♥

## Did You Know?

Heart Disease is the number one cause of death in Australian women

We want to change this

HELP NOW [www.australianheartresearch.com.au](http://www.australianheartresearch.com.au)



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