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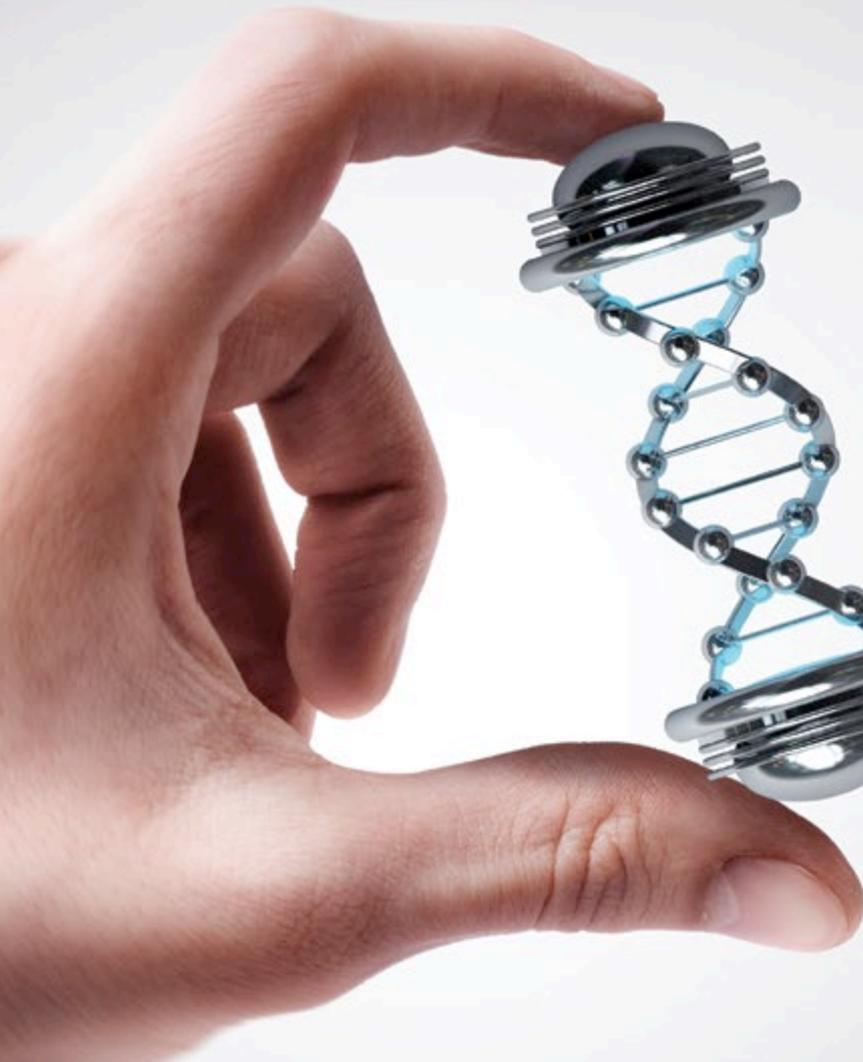


PATIENTS. AT THE HEART OF ALL WE DO.®

OCT 2014 - MAR 2015 ISSUE 22 MICA (P) 101/07/2014

A quarterly publication of National Heart Centre Singapore

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LOOKING
EASTWARDS
IN CARDIAC
GENETICS

FINDING HEART
DISEASE-CAUSING
MUTATIONS IN
ASIANS

INAUGURAL HEART TO HEART GALA
RAISES OVER \$760,000



NEW SAF CARDIAC
FITNESS CENTRE
AT NHCS

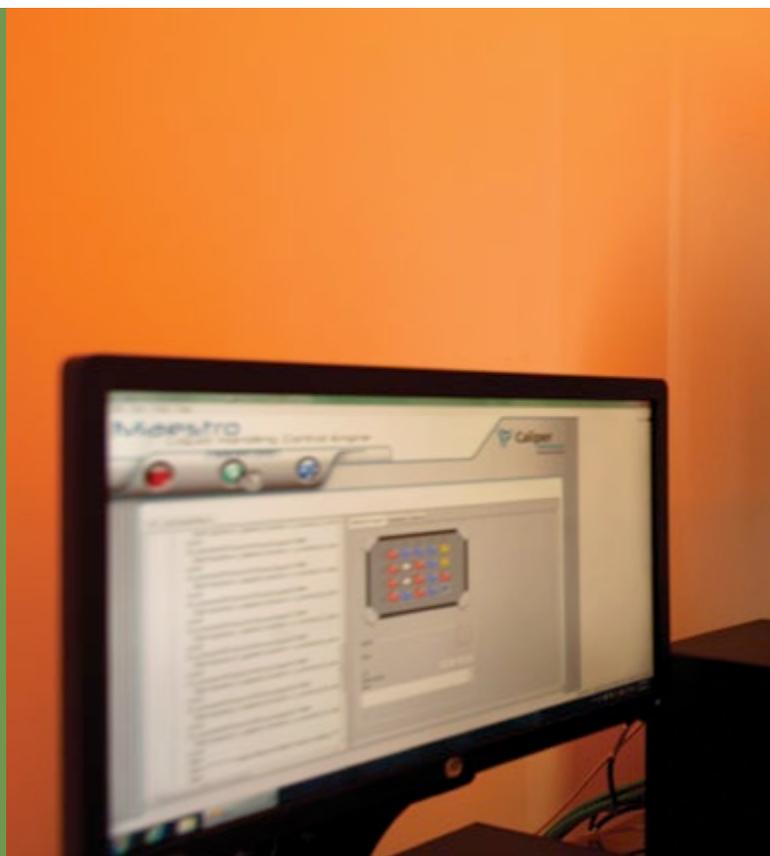
NHCS DOCTOR WINS
SHQSA SUPERSTAR
AWARD – CLINICIAN
CATEGORY

THE GOOD AND
BAD OF INTENSE
WORKOUTS

NHCS BOOSTS
CARDIAC
CAPABILITIES
IN PAPUA
NEW GUINEA

BETWEEN ASIAN GENES AND HEART DISEASE

NATIONAL HEART RESEARCH
INSTITUTE SINGAPORE STUDIES
GENETIC LINK TO HEART
MUSCLE CONDITION



Do genetic causes of heart disease differ between Asians and Caucasians?

Part of the answer will be found in a local study on whether a specific mutation of a gene called titin, found to cause a heart muscle condition in Caucasians, will do the same in Asians.

Leading the study is Prof Stuart Cook, Tanoto Foundation Professor in Cardiovascular Medicine, SingHealth Duke-NUS Academic Medical Centre.

“We can use this information to screen patients’ relatives to identify those at risk of developing the disease, and help them to manage their condition early,” said Prof Cook, who is also the Director of the National Heart Research Institute Singapore (NHRIS), on the potential of the findings.

The Tanoto Foundation Professorship in Cardiovascular Medicine was established as part of a \$3 million gift from the Tanoto Foundation to advance research in cardiovascular medicine.

Linking genetic mutation to heart disease

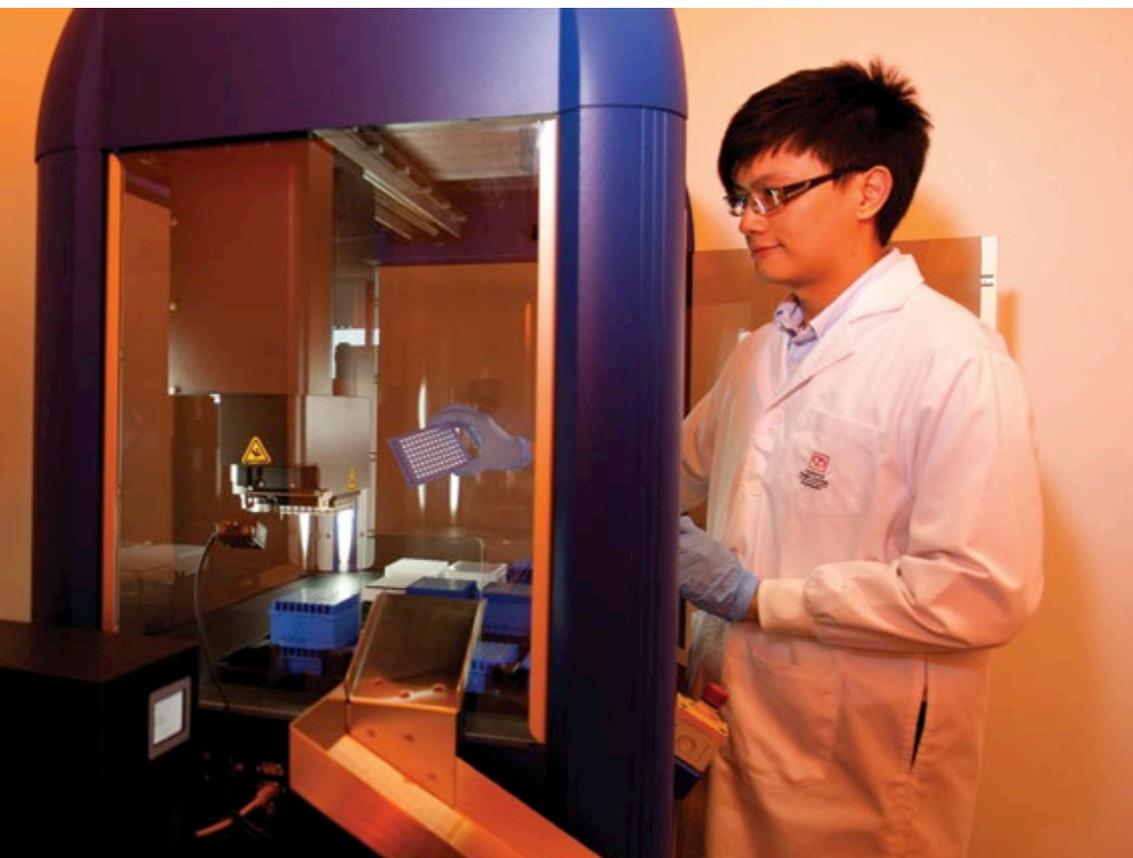
In his other capacity as Professor of Clinical and Molecular Cardiology at the Imperial College London, Prof Cook led a multinational research team that sequenced the titin gene of more than 5,000 patients and non-patients and found that mutations near the end of the gene will cause dilated cardiomyopathy, while mutations along other parts of the gene will not.

Such mutations are fairly common with a prevalence of about two in 100 people worldwide, but only one of the two will go on to develop dilated cardiomyopathy. The findings were published in the *Science Translational Medicine* scientific journal in January 2015.

“If you have the mutated gene, there is a 50 per cent chance you will pass it to your child,” said Prof Cook, who also holds the title of Deputy Director of the Cardiovascular and Metabolic Disorders Programme at Duke-NUS Graduate Medical School Singapore. He added that patients found to have this particular titin gene mutation may wish to test their children for the same.

Dilated cardiomyopathy is a condition where the heart muscle becomes weakened, stretched and unable to pump blood efficiently. It can lead to cardiac arrhythmia, heart failure and even sudden cardiac death.

The condition is usually treated with medications or devices implanted to regulate or assist the heart, or a combination of both. Patients with dilated cardiomyopathy may have to consider a heart transplantation if their condition can no longer be managed by all other forms of treatment.



NHRIS leverages on the latest technology and techniques to perform genetic sequencing with high efficiency and precision.

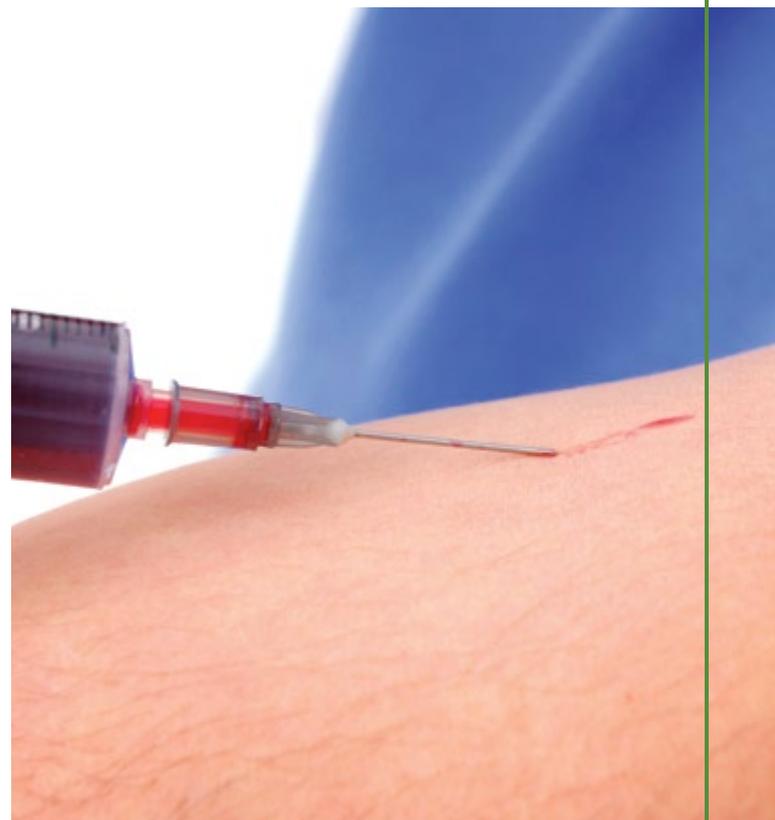
Local database needed for cardiovascular research

To identify the genetic mutation and its location, blood or saliva samples from heart patients and healthy volunteers are processed via a sequencer which extracts an individual's genetic data. The genetic sequences will then be analysed by trained bioinformaticians against a database. NHRIS, a research collaboration between the National Heart Centre Singapore (NHCS) and Duke-NUS, has the capability to complete the simultaneous genetic sequencing of samples from 12 people within 24 hours. Due to the large size of the titin gene, older technology and techniques from five years ago would have taken six months to a year to sequence the gene for a single person.

Blood samples and other biospecimens such as saliva and tissue are stored at the NHCS Biobank for future research on molecular, imaging and outcome studies of cardiovascular disease.

"It will be very difficult for us to progress in our research in cardiovascular medicine without an established database," said Prof Cook, whose local team plans to get more people into the study, including healthy volunteers to act as the control group.

Healthy individuals who wish to volunteer for the study can call the NHCS Biobank at 9159 7029, Mondays to Fridays, 8.30am to 5.30pm, except public holidays.



The NHCS Biobank obtains a 20ml blood sample from its volunteers to be added to the bio-repository to aid researchers in their work. For people who cannot donate their blood sample, saliva will be collected using a kit instead.

HEALING AND TEACHING BY EXAMPLE

NHCS CARDIOLOGIST WINS SHQSA SUPERSTAR AWARD – CLINICIAN CATEGORY



When Adj Asst Prof Tan Ju Le is seeing patients, there is a high chance she will have a medical student or two by her side.

“Medical students are the next generation of doctors and must be trained well to look after future patients,” said Adj Asst Prof Tan, a Senior Consultant at the Department of Cardiology, National Heart Centre Singapore (NHCS).

To Adj Asst Prof Tan, teaching is part and parcel of her role as a doctor so that good skills get passed on to junior doctors and make them better at treating patients. In fact, she imparts invaluable guidance drawn from her 21 years of medical experience to students to help them go beyond medical jargon and deliver quality holistic care.

“Medical students have to receive lessons in the social aspects of doctoring,” said Adj Asst Prof Tan, who is also Director of the Adult Congenital Heart Disease programme at NHCS, “and patients have to understand their illnesses more to help generate a greater interest and ownership over their conditions to help them on their healing journey.”

She prefers to teach by example and carries her educator role into her interactions with patients as well, such as by making a point to discuss procedures and results with patients and their families. Through simple and open communication like this, Adj Asst Prof Tan has built a good rapport with many of her patients. She recalls one who was born with a combination of heart defects at birth and underwent surgical treatment at the age of 23.

“The patient had a stormy post-op period but with her incredibly positive attitude, she recovered well and eventually managed to get a job, get married and is now trying to start a family. I attended her wedding and was very happy for her and her family.”

Adj Asst Prof Tan’s exemplary work with patients and budding doctors has earned her the Superstar Award – Clinician Category at the Singapore Health Quality Service Award 2015, where staff from NHCS clinched its highest record of awards from the annual event – 232 individual awards and three team awards. The Award recognises healthcare professionals for their commitment to giving quality patient care and excellent service.



Adj Asst Prof Tan Ju Le (centre), Senior Consultant, Department of Cardiology, NHCS, with Assoc Prof Muhammad Faishal Ibrahim, Parliamentary Secretary, Ministry of Health (left) who is the guest-of-honour and Prof Ivy Ng, Group CEO, SingHealth, at the Singapore Health Quality Service Award 2015 ceremony on 16 January 2015.

When asked what keeps her in healthcare, Adj Asst Prof Tan replied, “Being in healthcare gives you the opportunity to change the lives of others every day. Some of my patients need special care for life. Seeing them show signs of improvement makes my day.”

SAF CARDIAC FITNESS CENTRE OFFICIALLY OPENS AT NHCS



Former Second Minister for Defence Mr Chan Chun Sing officiating the SAF Cardiac Fitness Centre opening. (From left: Chief of Army Major-General Perry Lim; former Second Minister for Defence, Mr Chan Chun Sing; Adj Prof Terrance Chua, Medical Director, NHCS; Chief of Defence Force Lieutenant-General Ng Chee Meng and Mr Peter Seah, Chairman, SingHealth)

The Singapore Armed Forces (SAF) has partnered the National Heart Centre Singapore (NHCS) to set up a dedicated one-stop facility, providing national servicemen with specialised cardiac screening tests and treatments under one roof.

Known as the SAF Cardiac Fitness Centre (SCFC), the facility was officially opened by former Second Minister for Defence, Mr Chan Chun Sing on 16 January 2015.

“For the soldiers, it will translate to shorter waiting time and more comprehensive healthcare checks, without having to run to a few different places,” said Mr Chan in his speech.

Before the SCFC came about, pre-enlistees and servicemen had to shuttle between the SAF’s Medical Classification Centre, the Military Medicine Institute and six public hospitals to complete their series of cardiac tests. These tests are a compulsory part of SAF’s medical screening before soldiers can be enlisted or deployed for military training and operations.

Since the SCFC began operations at NHCS, it takes about three months, half the time from the old system, for pre-enlistees and servicemen to know if they are medically fit for combat training.



One of the tests servicemen undergo at the SCFC is the treadmill exercise ECG, which tests how the heart responds to different levels of exercise intensity in a safe and controlled environment.

NHCS has been working closely with the SAF to review various investigation modalities in optimising cardiac screening since 2008. The SCFC was developed as part of the SAF’s two-tiered cardiac screening system.

In Tier 1, soldiers undergo an electrocardiogram (ECG), blood tests and a physical examination to check for any existing risk factors for cardiovascular disease.

Therefore, someone who is found to have abnormal ECG readings, heart murmurs, diabetes, high cholesterol or other risk factors by SAF Medical Officers will be referred to the SCFC for Tier 2 screening.

At the SCFC, specialised cardiac screening tests will be done to obtain a clearer picture on the condition of the servicemen’s heart health. These tests include the treadmill exercise ECG, heart perfusion imaging, echocardiography and computed tomography coronary calcium score which assess how the heart responds during physical exertion. The test results will determine whether they can participate in operational and physical training.

“These robust cardiac screening protocols have enabled the SAF to actively enhance the overall cardiac fitness of our armed forces by identifying heart conditions in its servicemen that are amenable to curative treatment,” said Adj Prof Terrance Chua, Medical Director, NHCS.

FROM GENEROSITY TO HOPE

INAUGURAL NHCS HEART TO HEART GALA RAISES MORE THAN \$760,000



Minister for Defence Dr Ng Eng Hen (left) presenting to Mr Gordon Tang a token of appreciation in the form of a miniature sculpture for the latter's acknowledgment of the 'Professionalism' sculpture.

Sculptures. Paintings. A miniature engraving smaller than your fingertip.

These were some of the many variations of art that shone through at the National Heart Centre Singapore's (NHCS) first fund-raising gala held at the Conrad Centennial Singapore on 6 March 2015.

Themed 'The First Beat', the inaugural NHCS Heart to Heart Gala was attended by more than 300 guests and raised \$764,950 for the Heart2Heart Fund.

"Heart disease is the largest contributor to the burden of disease in Singapore. With heart attack rates on the rise, every donation we receive will help boost research in heart disease to aid in prevention and treatment, and help our needy patients," said Adj Prof Terrance Chua, Medical Director, NHCS.

The fundraising dinner was graced by Minister for Defence Dr Ng Eng Hen as the guest-of-honour, who commended physicians in Singapore for being "very good doctors who care and who are honest" in his impromptu speech.

At the event, Dr Ng presented tokens of appreciation to donors who made generous contributions to the Heart2Heart Fund through supporting original sculptures created by students from the School of the Arts (SOTA), commissioned by NHCS.

The acknowledgment of four out of six of the sculptures – centred on NHCS' values of collaboration, collegiality, compassion, respect, integrity and professionalism – brought in a collective sum of \$373,000 to the Heart2Heart Fund. The remaining two sculptures are available for donor acknowledgment.



The exquisite miniature engraving donated by Mrs Wong Mah Jia Lan is smaller than your fingertip and requires a magnifying glass to read the inscription.

The atmosphere was charged with excitement and adrenaline during the auction, the final segment of the programme before the climactic tabulation of the evening's fund-raising results. Among the most highly bid items was an intricate 10mm-wide miniature engraving of the deity of longevity cradled in the palm of a Goddess of Mercy jade statue deftly created by China's renowned artist Chang Shi Qi. This exquisite artwork was donated by local philanthropist Mrs Wong-Mah Jia Lan. Other auction items included a commissioned portrait by Namiko Chan Takahashi, whose oil painting *Charisse* clinched the UOB Painting of the Year award in 2006.

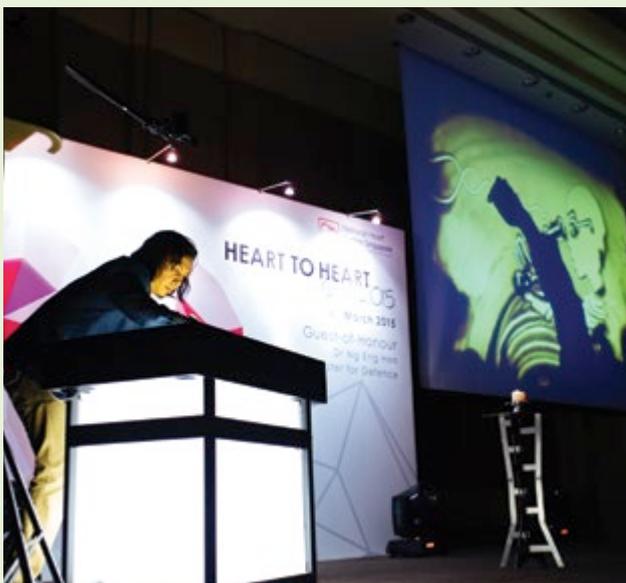
Half of the funds raised from the Heart to Heart Gala will be funnelled into critical research that will improve the diagnosis and treatment of heart disease, while the other half will go towards helping beneficiaries like 25-year-old Kelvin Wong.

In 2012, Kelvin was diagnosed with dilated cardiomyopathy, a condition where the heart becomes weakened, enlarged and unable to pump blood efficiently. He entered a critical state shortly after and had to be put on short-term life support to preserve the function of his organs and stabilise his condition.

As a last resort, Kelvin was implanted with a mechanical heart device that takes over the function of his failing heart, giving him a new lease of life. He was able to resume his studies and graduate with an engineering diploma following his recovery.

The NHCS Heart2Heart Fund financed a new set of batteries for Mr Wong's artificial heart pump, as the batteries need to be replaced every one to two years and cost about \$5,000 per set.

If you would like to contribute to or have any questions on the NHCS Heart2Heart Fund, please call 6704 2384 or email us at development@nhcs.com.sg. More details can be found on www.nhcs.com.sg. Singapore tax residents will receive a tax deduction three times the amount of their donations made to the NHCS Heart2Heart Fund between 1 January and 31 December 2015.



The sand art performance captivates the audience with a narration of a heart patient's challenges.

HELPING HEART PATIENTS, 1KM AT A TIME

VOLUNTEER RUNS AND RAISES \$10,000 FOR NEEDY HEART PATIENTS



Mr Justin Roberts crosses the marathon's finishing line and raises \$10,000 for needy heart patients.

To some, completing a marathon is a personal challenge. To others, it is part of a bigger cause.

Mr Justin Roberts, who works in the medical device industry, understood the life-changing importance of implantable medical devices in helping patients with heart disease.

Through his own initiative, Mr Roberts decided to raise funds for needy heart patients at the National Heart Centre Singapore (NHCS), especially those who need a heart valve repaired or replaced, by completing the Standard Chartered Marathon on 7 December 2014 and tapping into his employer, Medtronic's corporate social responsibility programme.

Mr Roberts succeeded in getting an enthusiastic stream of pledges that snowballed to \$5,000 as he crossed the finishing line of his 42.195km run. As part of his company's corporate social responsibility programme, the amount raised was matched dollar-for-dollar, culminating in a generous donation of \$10,000.

The money will go into the NHCS Heart2Heart Fund to help financially needy patients who have exhausted all other sources of financial aid, support critical research in the diagnosis and treatment of heart disease and introduce new treatment modalities.

EXERCISE - CAN YOU GET TOO MUCH OF A GOOD THING?

Without doubt, regular physical activity is a good thing; disease outcomes inversely related to regular physical activity in observational studies are wide ranging. They include cardiovascular disease, thrombo-embolic stroke, hypertension, type 2 diabetes mellitus, osteoporosis, obesity, colon cancer, breast cancer, anxiety and depression.

People who exercise regularly have markedly lower rates of disability and a mean life expectancy seven years longer than that of their physically inactive counterparts. Furthermore, large-scale prospective observational studies have also clearly demonstrated a dose-response relation between physical activity and the risk of cardiovascular disease and premature mortality in men and women.

However, can one be exercising “too much”? Is there an upper limit of exercise beyond which a physical activity’s risk outweighs its benefits? This is a topic with much controversy and no dichotomous answer.

On one hand, we have evidence to show that high level of athletics is associated with beneficial health outcome. For example, in a paper published in 2013 on mortality of French participants in the Tour de France (1947–2012), there was a substantial reduction in mortality (40 per cent) compared with the French male non-cyclist population. On the other hand, it was reported that intense endurance exercise efforts

caused acute elevations in biomarkers of myocardial injury (troponin and B-type natriuretic peptide), which were correlated with acute reductions in right ventricular ejection fraction.

Cardiovascular changes in physical training

Different forms of exercise impose differing loads on the cardiovascular system; pure endurance sports (long distance jogging for instance) tend to place a high dynamic (isotonic) load on working muscles, and pure strength sports (such as weight lifting) place a high static (isometric) load on the muscles. Irrespective of exercise types, highly trained individuals develop cardiac adaptations include increased left ventricular (LV) mass, LV wall thickness (more pronounced in static exercise) and left and right atrial sizes, as well as enlarged left and right ventricles (more prominent in endurance sports). The most commonly observed forms of electrical remodelling include sinus bradycardia, first degree atrioventricular (AV) block, incomplete right bundle branch block (RBBB), early repolarisation and QRS amplitude fulfilling left ventricular hypertrophy (LVH) criteria. These structural and electrical changes are generally termed as “athlete heart”.

In general, these changes are considered physiological adaptation. Upon cessation of training, the changes of athlete heart will usually regress, though whether longstanding changes of older athletes (LV/RV sizes and mass) will regress as effectively in younger ones is not entirely certain.

Adverse remodelling

Accumulating evidence suggests that the adverse effects of both short-term intense and chronic endurance exercise training are most apparent in the right-sided cardiac chambers. Chronic dilatation of the RV and right atrium (RA) with patchy myocardial scarring (seen by cardiac MRI in 12 to 50 per cent of extensively trained veteran athletes) in response to the recurrent volume overload was reported in the literature. These observations have led to some authors speculating on the possible existence of exercise-induced arrhythmogenic right ventricular cardiomyopathy (ARVC) that shares some feature with familial ARVC.

Rhythm abnormalities may be the most common cardiovascular problems encountered by endurance athletes. A recent meta-analysis estimated that endurance athletes faced a 5.3-fold greater risk of atrial fibrillation. Possible postulated mechanisms are increased autonomic tone, bradycardia, atrial wall fibrosis, and increased atrial size.

Premature ventricular contractions (PVCs) are also quite common in the athletic population. The prevalence ranges from six to 70 per cent in most 24-hour holter ECG studies in athletes, and up to 25 per cent of complex forms (e.g. couplets, non-sustained or sustained VT) in selected populations. PVCs typically originate from a mildly dysfunctional RV and/or the interventricular septum. The patchy myocardial fibrosis from intense physical training could be the substrate for the arrhythmia. Of course, before attributing the ventricular arrhythmias to an



Adj Asst Prof Tang Hak Chiaw

Senior Consultant
Department of Cardiology
National Heart Centre Singapore

Adj Asst Prof Tang’s subspecialty interests are in imaging and cardiomyopathy. He is also the Director of the Allied Health and Nursing Programme in the Cardiovascular Academic Clinical Programme.



A paper published in 2013 reported that French participants in the Tour de France had a substantially lower mortality rate compared with the French male non-cyclist population.

exercise adaptation, one should search for possible underlying structural heart diseases such as coronary artery disease and cardiomyopathy.

Although frequent and complex ventricular ectopics in athletes are generally benign, catheter ablation is done for symptomatic athletes with right ventricular outflow tract (RVOT) ventricular tachycardia. There are also reported cases of aborted sudden death in athletes that were thought to be due to exercise-induced RV cardiomyopathy.

How much exercise is too much?

There is no straightforward answer to this question as there are many variables in place. Cardiac remodelling depends on the interplay of genetic and environment factors. For example, cardiac hypertrophy is determined by haemodynamic factors such as blood pressure and genetic predisposition. As such, the same amount of exercise may produce different degrees of hypertrophy among athletes. One study reported cardiac changes could be observed in those performing three hours or more of sports per week. Profound cardiac remodelling is most relevant to endurance athletes who typically perform 15 to 40 hours of training per week.

Chronic physical training is beneficial most times to the large majority of people. In certain individuals, however, especially those who undergo chronic, prolonged and intense endurance exercise, adverse cardiac remodelling may happen and this is associated with an elevated risk of atrial and ventricular arrhythmia.

In the current era where physical inactivity and its associated risks are prevalent, the benefits of promoting and participating in physical activities exceed any excess risk of arrhythmias.



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- 3D echocardiography

OUR SPECIALISTS (NON-INVASIVE IMAGING)

Adj Prof Terrance Chua	Medical Director Senior Consultant and Director, Non-invasive Laboratory
Prof Stuart Cook	Senior Consultant and Director, National Heart Research Institute Singapore
Assoc Prof Ding Zee Pin	Senior Consultant and Director, Echocardiography
Asst Prof K Gunasegaran	Senior Consultant
Adj Asst Prof Felix Keng	Senior Consultant and Director, Nuclear Cardiology
Adj Asst Prof Tan Ju Le	Senior Consultant and Director, Adult Congenital Heart Disease
Adj Assoc Prof Tan Ru San	Senior Consultant and Deputy Director, National Heart Research Institute Singapore
Adj Asst Prof Tan Swee Yaw	Senior Consultant and Director, Cardiovascular Rehabilitation and Preventive Cardiology
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Dr Lohendran Baskaran	Associate Consultant
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For the full list of NHCS services and specialists, please visit www.nhcs.com.sg.

RESEARCH HIGHLIGHT

Association between Clinical Determinants of Mid-Wall Fibrosis and Cardiovascular Mortality in Patients with Aortic Stenosis

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J Am Coll Cardiol. 2015;65(10_S):
doi:10.1016/S0735-1097(15)62154-4



ABSTRACT

BACKGROUND: Mid-wall myocardial fibrosis assessed by cardiovascular magnetic resonance imaging (CMR) predicts worse outcomes in patients with aortic stenosis but the clinical utility of CMR can be limited by cost, availability and patient suitability. We aimed to develop a clinical model of mid-wall fibrosis and to explore its prognostic value.

METHODS: One hundred and sixty four patients with aortic stenosis (70 [65,76] years old; 68% males; peak aortic velocity (Vm) 3.8 ± 0.9 m/s) underwent echocardiography to assess aortic stenosis severity and CMR to determine the presence of mid-wall fibrosis (CMR Cohort). Clinical variables associated with mid-wall fibrosis in univariate and multivariate logistic regression analyses were selected in the final model. We examined the prognosis associated with predicted probabilities of 98% sensitivity and 98% specificity for mid-wall fibrosis in a separate cohort of 121 asymptomatic patients from the Scottish Aortic Stenosis and Lipid Lowering Trial, Impact on REgression study (SALTIRE Cohort; 69 [62,75] years old; 70% males; Vm 3.4 ± 0.6 m/s).

RESULTS: Forty-nine patients in the CMR Cohort had mid-wall fibrosis. The clinical model consisted of age, sex, Vm, high-sensitivity plasma troponin I concentration and presence of left ventricular hypertrophy with strain on the electrocardiogram. The model demonstrated high discrimination and calibration for mid-wall fibrosis (c statistic 0.85 [95% CI 0.79-0.92], $P < 0.001$; Hosmer-Lemeshow χ^2 6.05, $P = 0.64$).

Using the predicted probabilities corresponding to 98% sensitivity and 98% specificity, 18% (n=22) and 17% (n=20) of the patients were classified to low- and high-risk for mid-wall myocardial fibrosis, respectively, in the SALTIRE Cohort. Over 8.3 years of follow-up, there was only one cardiovascular death in the lowest strata. Conversely, 67% of the cardiac deaths in the highest strata died within the first 5 years of follow-up (log-rank $P < 0.01$).

CONCLUSION: A clinical model associated with mid-wall myocardial fibrosis holds potential in risk-stratifying patients with aortic stenosis.

EMPOWERING HEALTHCARE ACROSS BORDERS

NHCS HELPS PAPUA NEW GUINEA ASSEMBLE FIRST CARDIAC SURGICAL TEAM

Imagine living in a place where heart surgeries were performed only once a year in the entire country.

That was the reality faced by Papua New Guinea (PNG) residents until this year.

For the first time in history, the island nation of 7.3 million now has a local cardiac surgery team to call her own, and the team at PNG's Port Moresby General Hospital performed its maiden heart valve replacement surgery on 30 March 2015.

Through close collaboration with the National Heart Centre Singapore (NHCS) and SingHealth that spanned more than seven years, a complete team of PNG cardiologists, cardiothoracic surgeons, perfusionists and operating theatre nurses were trained at NHCS to equip them with the necessary skills to run an independent heart surgery unit to serve the PNG population.

Surgical operations are often complex in nature and hinge on cohesive teamwork beyond the surgeon's dexterous hands.

"We need to train the whole team," said Adj Assoc Prof Chua Yeow Leng, Senior Consultant at the Department of Cardiothoracic Surgery, NHCS, and Director of International Cooperation, SingHealth, who has been working closely with the PNG team since the beginning of the initiative, "You cannot train one person, and expect him to make a difference."



PNG's Dr Noah Tapaua (centre) with perfusionists Alex Tipiso (left) and Norman Kambo outside the NHCS operating theatres during their training stint.
Image courtesy of Singapore Press Holdings Ltd (ST PHOTO: NEO XIAOBIN)

Previously, only 60 PNG patients needing open-heart surgery shortlisted from more than a thousand others get to be operated on by an Australian medical team that flew in just once a year.

"The rest of the patients will just continue on medications," said Dr Noah Tapaua, a key member of the PNG team who trained for two years under the wings of cardiothoracic surgeons at NHCS. "A few, who can afford it, fly out (to get surgery)."

All that will change in time, now that the country has a local surgical team capable of performing open-heart surgeries year-round.

Dr Tapaua hopes to perform between 50 to 100 operations a year for a start, with an initial focus on "straightforward" surgery such as fixing holes in the heart for children born with the congenital condition.

NHCS SCORES TRIPLE AWARDS IN PATIENT CARE AND RESEARCH



Dr Calvin Chin, Consultant, Department of Cardiology, National Heart Centre Singapore (NHCS), emerged first place in the prestigious American College of Cardiology (ACC) Young Investigator Awards 2015 (Clinical Investigations, Congenital Heart Disease and Cardiac Surgery). The award, announced at the ACC Scientific Sessions held from 14 to 16 Mar 2015 in San Diego, USA, recognises promising young doctors and researchers whose achievements may have an impact on cardiovascular care. Dr Chin's winning submission is titled "Association Between Clinical Determinants of Mid-Wall Fibrosis and Cardiovascular Mortality in Patients with Aortic Stenosis".



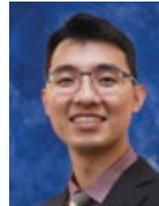
For his paper titled "Myocardial contractile dysfunction associated with increased 3-month and 1-year mortality in hospitalised patients with heart failure and preserved ejection fraction", Dr Zhong Liang, Staff Research Scientist, National Heart Research Institute Singapore, won a SingHealth Publish! Award in the Medical Research category. The annual award celebrates the efforts of researchers who have published quality articles in internationally acclaimed journals.



A representative of the Union of Japanese Scientists and Engineers presenting the SGA KAIZEN Gold award to NHCS medical social workers (from right) Ms Jariah Binte Jantan, Ms Tan Sok Hiang and Ms Lim Simin.

Team MegaSparkS at NHCS bagged the Gold award at the SGA KAIZEN competition held in Tokyo, Japan, from 19 to 22 October 2014. The team of medical social workers were sponsored by the Singapore Productivity Association to participate in this international competition with their winning project on "Increasing Patients' Autonomy and Understanding Their Preferences for Care through Advance Care Planning". The competition was attended by more than 50 teams from eight countries.

PROMOTIONS



DR LIM CHOON PIN
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Subspecialty interests: Heart failure and echocardiography



DR LAURA CHAN
Associate Consultant,
Department of Cardiology, NHCS
Subspecialty interest: Heart failure



DR KELVIN CHUA
Associate Consultant,
Department of Cardiology, NHCS
Subspecialty interest: Electrophysiology and Pacing



DR GO YUN YUN
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Subspecialty interests: Echocardiography and cardiac MRI

APPOINTMENTS



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Tanoto Foundation Professor
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