

JUL
AUG
2016
ISSUE
no.64

Lifewise

Prevent,
Screen,
Control

A FINE
BALANCE

HOW ONE
PATIENT KEEPS
HIS CONDITION
IN CHECK

**Tasty Myths
Debunked**

The lowdown on
low GI food **p19**

waging war on *diabetes*

FIND OUT
HOW INSIDE

A/PROF DANIEL CHEW >

SENIOR CONSULTANT, HEAD OF
ENDOCRINOLOGY DEPARTMENT,
TAN TOCK SENG HOSPITAL



Adding years of healthy life

WORKOUT > THE RIGHT WAY TO EXERCISE FOR MAXIMUM IMPACT **p28**

STARS FOR HEALTH

Health is Wealth

Exercise Regularly

Regular exercise keeps illness away.

By taking charge of our well-being, we can serve our patients and partners better and scale greater heights in healthcare.



National Healthcare Group is a Regional Health System for Singapore. NHG collaborates with Hospitals, Specialty Centres, Polyclinics, Patients, Caregivers, Partners, Volunteers and the Community to **Add Years of Healthy Life** to the nation.



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Together, We Can!

IT TAKES A VILLAGE to raise a child, but it needs a country to work together to stop diabetes from escalating. If left unchecked, this multi-organ disease can bring on a slew of serious conditions such as blindness, kidney malfunction and nerve damage. Medical advancements mean that diabetes patients can live longer with their conditions, but most may do so in poorer health if their diabetes is poorly controlled. That is why Singapore's health authorities have declared a nation-wide war on diabetes.

It is important to learn more about a condition that could affect nearly one million Singaporeans by 2050 (or to put it another way, you have a 1-in-3 chance of getting it). This issue of *Lifewise* has diabetes as its central theme, so read about the disease, and the strategies for defeating it in "D-Day for Diabetes" (p10).

Food and exercise play a central role in preventing, controlling and even reversing the condition, so get the food facts right in "Bitter Truths" (p19), as well as how to exercise right in "The X-cercise Factor" (p28). An average of four diabetes-related amputations are done per day in Singapore, and vascular surgeon Dr Sadhana Chandrasekar from Tan Tock Seng Hospital is among those involved in the Government's push to help Singaporeans "live life free from diabetes". So, too, is Dr Darren Seah from NHG's Family Development Division. Read their stories on p26 and p27.

Also, find out what happens at a diabetes screening (p34) and how to prepare for a worry-free vacation (p30). For a dose of inspiration, read how Mr Nagutha Mohamed Eusoof has controlled his condition for the past 18 years (p24). Knowledge is power, and armed with this, each of us can do our own part in the war on diabetes.

Stay well. Health is Wealth.

THE EDITORIAL TEAM

NEUROLOGY

MATCHA TO THE RESCUE

A team of Spanish scientists recently discovered a compound in green tea that could improve the cognitive abilities of those diagnosed with Down Syndrome. The compound, epigallocatechin gallate, when combined with cognitive stimulation, was found to improve visual memory and lead to more adaptive behaviour.

The study, recently published in medical journal *The Lancet Neurology*, was the result of a year-long clinical trial involving 84 participants aged between 16 and 34 years old. The researchers intend to further their study by holding a clinical trial involving children with the genetic condition.

Down Syndrome is the most common genetic cause of severe learning disabilities in children and affects one in every 700 babies. While there is no medical cure, early intervention can help improve the quality of life for people with the condition.



CARDIOLOGY

Head To Heart



Medical journal *BMJ* ran a report that women who suffer from migraine are at greater risk of having a heart attack and angina (chest pain), and of needing to undergo heart-related procedures, than women who did not suffer from the condition. They are also more likely to die from heart-related problems.



MIGRAINE MAKES WOMEN MORE PRONE TO DEVELOPING HEART DISEASE AND STROKE

Further research though, is needed to better understand why migraine makes women more prone to developing heart disease and stroke. The editorial also pointed out that migraines have a fairly small effect on cardiac disease compared with other known risk factors such as smoking, high blood pressure and high cholesterol.

For now, the advice is for women to continue to treat their migraine with existing therapies, and take steps to reduce their overall risk for heart disease and stroke.



ETIOLOGY

Weighing A Child Down

Research published in the journal *Eating and Weight Disorders* found that a woman’s dissatisfaction with her body and size could be linked to her parents’ comments about her childhood weight.

Some 501 women aged 20 to 35 were surveyed on their eating habits, body mass index (BMI) and body satisfaction. They were also asked to recall comments made by their parents about their weight. Women with a healthy BMI were 27 per cent less likely than overweight women to remember their parents’ comments about their childhood weight. However, both overweight women and those with healthy BMI who remembered their parents’ comments were more likely to be unhappy with their adult body size.

The lead researcher suggested that, instead of criticising or restricting, parents should let children choose what they want — but make the healthier choices more appealing and convenient.

PARENTS SHOULD MAKE HEALTHIER CHOICES MORE APPEALING AND CONVENIENT FOR THEIR CHILDREN

calendar JUL/AUG

TTSH PHARMACY PUBLIC FORUM

The annual TTSH Pharmacy Public Forum aims to increase awareness and encourage the public to be pro-active towards health management. Come join our pharmacists to learn more on how to manage your medications, avoid drug interactions and also to learn more about smoking cessation.

DATE
30 July 2016, Saturday

TIME
12pm - 4pm

VENUE
TTSH Theatrette, Level 1
11 Jalan Tan Tock Seng,
Singapore 308433

FEE
Registration is free, on a first-come, first-serve basis. To register, please contact Mr Dennis Yeoh at 6357 8266 between 8.30am - 6pm.



SPORTS PSYCHOLOGY

SHOOTING FAIRER

For some soccer fans, penalty shootouts represent the height of drama and excitement. For others, it is an unfair way to decide a match.

Shootouts, come into play when teams are still level after extra-time and usually favour the team that kicks first. However, game theory experts at New York University and Maastricht University have come up with a “Catch-up Rule” to ensure the level field is well, more level.

Their proposed system is the team that

fails to score during a penalty round gets to kick first in the next round. And if both teams were to score or miss on a round, then they would have to swap order for the following round.

Their rationale is that the team that won the coin toss and kicked first would have the unfair psychological advantage, and usually go on to win the shootout. Their catch-up strategy would make these shootouts fairer.

PHOTOS: GETTY IMAGES, SHUTTERSTOCK

NUTRITION

EAT ALL THE (HEALTHY) FATS YOU WANT

A Spanish study in the prestigious *Lancet Diabetes & Endocrinology* journal reaffirmed that fats should make their way back onto dieters' diets — provided they are the right kind.

In the experiment, participants were divided into three groups — two on a Mediterranean diet (one lot supplemented with nuts and the other, extra-virgin olive oil), and a third on a low-fat diet.

The Mediterranean diet is a healthy eating plan based on recipes of Mediterranean-style cooking, and features ingredients rich in good fats such as olive oil, fish, nuts and vegetables. It does not include red meat or butter.

Most of the participants, who were aged 55 to 80, were obese or overweight at the beginning. After five years, participants on the Mediterranean diet had the smallest increase in waist size and lost more weight than those on a low-fat diet.

The results supported the idea that healthy fats can contribute to weight control.

V
**FATS SHOULD
 MAKE THEIR
 WAY BACK ONTO
 DIETERS' DIETS —
 PROVIDED
 THEY ARE THE
 RIGHT KIND**



GENETICS

Genes That Weigh You Down

Many people who sign up for weight-loss programmes often miss the mark on their weight-loss goals. One reason could possibly be genetic.

A study involving 46 people showed that certain genetic markers predicted which participants could lose more than five per cent of their body weight, and who were likely to lose less than one per cent, by the end of the programme.

Researchers found five genetic markers linked with weight loss, which were accurate in predicting results 75 per cent of the time. The findings suggested that people's genes could be used to predict their response to behavioural modification programmes.

In such cases, doctors could try alternative methods to a standard weight-loss plan, such as meal replacements.

The study, which was presented in San Diego, California at Digestive Disease Week in May 2016, will need to be validated with larger studies.

PHOTOS: GETTY IMAGES, ISTOCKPHOTO, SHUTTERSTOCK

DIETETICS

LOW-SALT DIET: ONLY IF YOU HAVE HYPERTENSION



People with high blood pressure are often advised to keep a wary eye on their salt intake because excessive salt raises blood pressure. But a recent report in the British medical journal *The Lancet* found that consuming too little sodium might also increase the risk of heart disease.

The review looked at four studies that followed 70,000 research participants over four years. For those without high blood pressure or hypertension, consuming more than 7g of sodium daily did not increase the risk for heart disease or death. However, those who consumed less than 3g a day had a 26 per cent higher risk for diseases such as heart disease or stroke or death, compared

with those who ate 4g to 5g daily.

The current recommended salt intake is one teaspoon a day (about 2.3g) — less for older people or those suffering from hypertension.

For people with hypertension, the review stated that compared with those who ate 4g to 5g of salt a day, consuming more than 7g of sodium a day raised the risk of death or heart disease by 23 per cent; but eating less than 3g increased the risk by 34 per cent.

The review suggested that the advice to lower sodium intake is best targeted at hypertension sufferers who already have high-sodium diets, and encouraged moderate sodium intake for healthy individuals.

PSYCHOLOGY

Drinking Under Social Media's Influence



A recent study by the Michigan State University indicated that alcohol advertising on social media might have a stronger effect than TV commercials.

Studies showed that alcohol adverts on TV did not have much immediate effect on students. However, research in the *Journal of Interactive Advertising* found this was not the case for social media advertising.

Study participants were less able to distinguish paid adverts from user-generated content on social media, making messaging more influential. Social media users were more likely to want a drink than counterparts who viewed adverts on TV.

PSYCHOLOGY

Depressed? Meditate And Exercise

Both meditation and exercise have been known to be benefit people suffering from depression, but what happens if you combine both?

A short-term study published in *Translational Psychiatry* found that people with depression who meditated for 30 minutes and then jogged or pedalled at moderate pace for another 30 minutes saw a 40 per cent reduction in symptoms of depression.

Meditation helped the participants be mindful of their breathing — hence increasing their enjoyment of the workout — and is thought to keep neurons alive and well. The exercise likely increased new brain cells in the areas critical for learning and memory.

Researchers plan to conduct longer, more extensive studies to see if these synergistic effects are long-lasting.



MEDITATION IS THOUGHT TO KEEP NEURONS ALIVE AND WELL. EXERCISE LIKELY INCREASES NEW BRAIN CELLS...



GERONTOLOGY

STRETCH YOUR WAY TO A BETTER BRAIN

A study in the *Journal of Alzheimer's Disease* found that yoga could be as effective as any recognised brain-training programme in improving thinking skills and staving off age-related mental decline.

The study involved middle-aged and older adults in Los Angeles. They were divided into two groups — one to start on a well-established brain-training

programme called memory enhancement training (MET), while the other took up yoga and meditation.

By the end of 12 weeks, all participants did better on thinking tests. However, those who practiced yoga and meditation exhibited better moods and performed better on tests important for balance, depth perception and ability to recognise

objects. They also developed more communication between parts of the brain that controlled concentration, which suggested a greater ability to focus and multitask.

A reduction in stress hormones and anxiety is thought to improve brain performances, while movement raised levels of biochemicals in the body associated with brain health.

NEUROLOGY

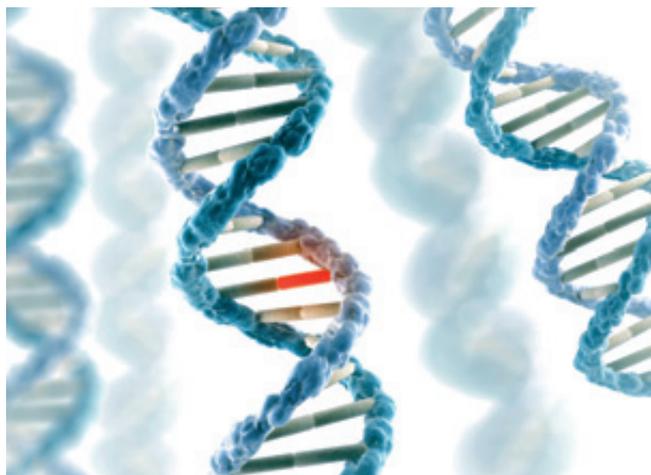
ROOT OF THE MATTER

Scientists have discovered that multiple sclerosis can be caused by a single genetic mutation — which can erase doubts on whether some forms of the disease could be inherited.

Multiple sclerosis is an unpredictable, often disabling disease of the central nervous system that disrupts the flow of information within the brain, and between the brain and body. The conventional view is that the risk of developing multiple sclerosis is raised by a combination of genetic variation.

However, researchers at two Canadian universities uncovered a single genetic mutation — found on a gene called NR1H3 — that significantly increases a person's chance of developing a progressive and severe form of the disease, which afflicts about 15 per cent of sufferers.

The findings, published in the journal *Neuron*, could help in the search for treatments that act on the gene or counteract the mutation's



disease-causing effects.

Screening for the mutation in high-risk individuals could also allow earlier diagnosis and for patients to be treated before symptoms appear. Identifying gene mutation gives doctors a window of opportunity to try to stop or slow down the spread, said a co-author of the study.

PSYCHIATRY

Happier For Worse

One of the main causes of stress is uncertainty i.e. not knowing how things will turn out. Interestingly, a study in the science journal *Nature Communications* found that being pessimistic, or expecting and accepting the worst, has a positive effect on a person's mental well-being — in that it helps them to cope better with bad news.

The author gave the example of real-time information at bus stops. It frees you from anxiety when you know the estimated arrival time of your bus, even if the wait is very long. But unexpected delays such as traffic jams can undermine peace of mind — unless there is an indication on the length of the jam.



PHOTOS: GETTY IMAGES, SHUTTERSTOCK



Men in their 50s with larger waistlines could be at higher risk of developing aggressive prostate cancer, said a University of Oxford study funded by Cancer Research UK, which was presented at the recent European Obesity Summit.

The research on 140,000 males from eight European countries found that overweight men were more at risk when their waist measured at least 94cm. The risk grew with every 10cm increase of waist size. Conversely, those who reduced their waist size by 10cm could cut their chances of getting a high-grade form of the cancer by 13 per cent. Like in other documented studies, early results from this research suggest that high-grade prostate cancer is linked with the disruption of testosterone and other hormones that occurs with weight gain. There is no known cause of prostate cancer, which is the most common form of cancer among men, and risk is known to increase with age. Genes, ethnicity, hormones, the environment and diet are also contributing factors.

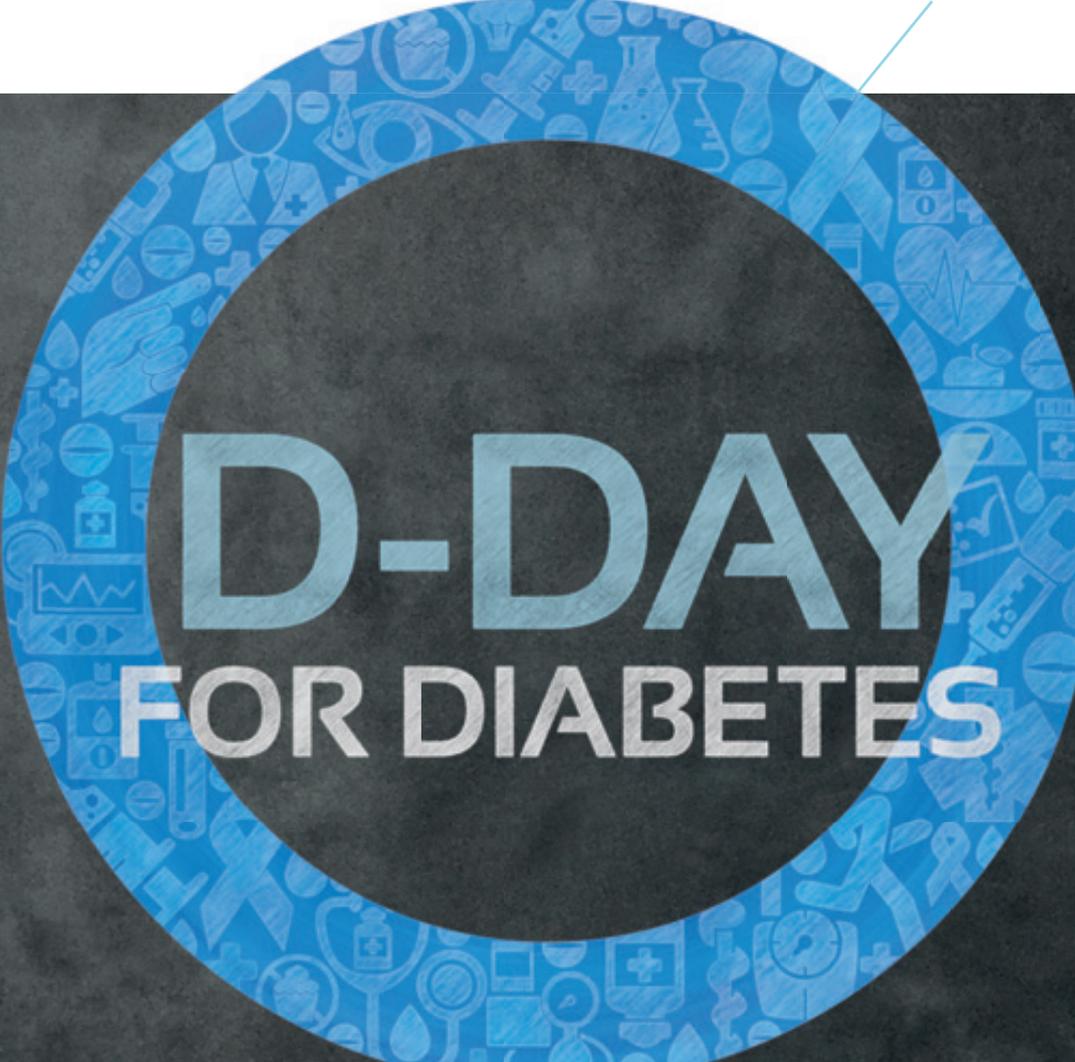
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The International Diabetes Federation adopted this as the global symbol for diabetes. The circle signifies unity in the fight against diabetes.



D-DAY FOR DIABETES

**THE NATIONWIDE FIGHT AGAINST DIABETES
STARTS NOW. WITH THE RIGHT STRATEGIES,
THIS MULTI-ORGAN DISEASE CAN BE
PREVENTED FROM ESCALATING.**

BY **FAIROZA MANSOR** IN CONSULTATION WITH
ADJUNCT ASSOCIATE PROFESSOR DANIEL CHEW HEAD AND SENIOR CONSULTANT // ENDOCRINOLOGY DEPARTMENT //
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THE SINGAPORE GOVERNMENT

has issued a clarion call — it officially declared war on diabetes, calling the disease one of the biggest drains on the healthcare system, and one which costs the country over \$1 billion a year to manage. During the 2016 Committee of Supply debates in Parliament, Health Minister Gan Kim Yong revealed that over 400,000 people have diabetes in Singapore.

Of these, one in three is not aware he/she has the disease, and of the rest who do know, one in three has poor control of it. If left unchecked, nearly one million people in Singapore will have diabetes by 2050.

PREVENT, SCREEN, CONTROL

To help Singaporeans “live life free from diabetes” and for patients to “control their condition to prevent deterioration”, Minister Gan announced the establishment of a new Diabetes Prevention and Care Taskforce. Its immediate goal is to implement a multi-year action plan to combat the disease. The plan aims to promote a healthy lifestyle to reduce the number of new cases, strengthen early screening and intervention in order to identify the disease among those at risk, and support better diabetes control programmes to slow progression and reduce associated complications.

Adjunct Associate Professor Daniel Chew, Head and Senior Consultant of the Endocrinology Department of Tan Tock Seng Hospital (TTSH), tells *Lifewise* that the decision is timely. “Many people involved in the care of patients with diabetes recognise the severity of the problem, which has grown worse over the years.”

“Medical advancements mean that diabetes patients can live longer with their conditions. The fear is most may do so in poor health if diabetes is not well-controlled,” he says. “We have reached a tipping point.”

In line with MOH’s rally to encourage residents to “prevent, screen and control” diabetes, the National Healthcare Group (NHG) is working towards more seamless integration

MEDICAL ADVANCEMENTS MEAN THAT DIABETES PATIENTS CAN LIVE LONGER WITH THEIR CONDITIONS. THE FEAR IS MOST MAY DO SO IN POORER HEALTH IF THEIR DIABETES IS POORLY CONTROLLED.

A/PROF DANIEL CHEW, SENIOR CONSULTANT AND HEAD OF THE ENDOCRINOLOGY DEPARTMENT AT TAN TOCK SENG HOSPITAL

between the acute hospital, primary care, and community sectors to provide patients with a robust support network for screening and disease management, as well as to promote wellness.

As Professor Philip Choo, Group CEO of NHG has said, “We need to move away from transactional medicine, where patients are told what to do. We need to encourage patients to take greater ownership of their health, promote behavioural changes and better lifestyle habits, as well as early detection of diseases through appropriate health screening and case-finding.”

WHAT CAUSES DIABETES?

There are two types of diabetes — Type 1, in which the body produces little or no insulin, and Type 2 (Diabetes Mellitus), where the body develops a resistance to insulin and is unable to use it properly. Both conditions result in high blood sugar levels which can lead to multi-organ complications. While the exact cause of Type 1 diabetes is unknown, Type 2 is often the result of poor diet and a sedentary lifestyle.

Researchers from the NHG Health Services & Outcomes Research department studied more than 22,000 patients from TTSH and NHG Polyclinics over a 10-year period. They found obesity to be the single largest contributor to developing Type 2 diabetes. Other factors include gender and ethnicity — with Malay and Indian males at higher risk. Smokers are also more likely to develop diabetes than their non-smoking counterparts.

THE FULL SPECTRUM

IF LEFT UNTREATED OR UNCONTROLLED, DIABETES CAN LEAD TO SEVERAL HEALTH COMPLICATIONS.



VASCULAR DEMENTIA

Brain cells die due to poor blood supply, leading to a loss of brain function.

BLINDNESS

(Diabetic retinopathy)

Diabetes can damage the blood vessels of the retina, potentially leading to blindness. Diabetes also increases the risk of other vision conditions such as cataracts, and more seriously, glaucoma.

ARTERIAL DISEASE

High blood sugar causes a shutdown of the process that maintains and protects healthy blood vessels from damage. This results in the hardening and narrowing of vessels throughout the body.

NERVE DAMAGE

(Neuropathy)

Excess sugar in the body can injure the walls of tiny blood vessels (capillaries) that nourish nerves, especially in the legs. Such damage can cause tingling, numbness, burning or pain that usually begins at the tips of the toes or fingers, and which gradually spreads upward — leading to a loss of feeling in the affected limbs. When nerves are damaged, the gastrointestinal tract can also be affected — resulting in nausea, vomiting, diarrhoea and constipation. Men may also suffer erectile dysfunction.

DEPRESSION

Patients with diabetes may be at higher risk of depression, although the link is not well-understood. Depression can have a serious impact on an individual's wellbeing, and affect the ability and motivation to care for his or her condition.

HEART DISEASE

Diabetes dramatically increases the risk of various cardiovascular problems, including coronary artery disease with chest pain (angina), heart attack, stroke, narrowing of the arteries (atherosclerosis) and high blood pressure (hypertension).



KIDNEY DISEASE

(Nephropathy)

The kidneys contain millions of tiny blood vessel clusters that filter waste from the blood. Diabetes can damage this filtering system. Severe damage can lead to kidney failure or irreversible end-stage kidney disease, for which dialysis or a kidney transplant is required.



SKIN INFECTIONS

Diabetes can cause a number of skin conditions including fungal and bacterial infections, skin-spotting and a variety of spots, rashes and bumpy or oddly-textured skin patches.

FOOT DISEASE

Nerve damage in the feet and poor blood flow to the body's lower limbs increase the risk of various foot complications. Left untreated, cuts and blisters can become serious infections which often heal poorly and may ultimately require toe, foot or leg amputation.

KNOW THE SYMPTOMS

Look out for these diabetes warning signs.

EXTREME HUNGER

Due to insulin resistance, your body can't convert food into energy.



SEXUAL PROBLEMS

Diabetes may damage blood vessels, including those in the penis.



People with diabetes may develop nerve damage.

NUMBING OR TINGLING HANDS OR FEET



High blood sugar causes the lens of the eye to swell, which affects the ability to see.

BLURRY VISION



ALWAYS TIRED

Your body is less able to use sugar for the energy it needs.

ALWAYS THIRSTY

Your tissues are dehydrated when there's too much glucose in your blood.



SUDDEN WEIGHT LOSS

You lose calories when you lose sugar through frequent urination.



FREQUENT URINATION

Since you are drinking more, you will have to urinate more.



WOUNDS THAT WON'T HEAL

High blood glucose level prevents cells from repairing themselves.



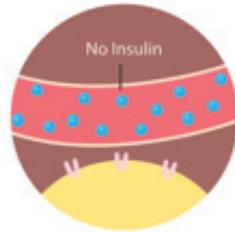
THE UPSIDE

While genetics play a part in a person's risk of developing diabetes, a healthy weight through good diet and exercise can more than make up for genes. "Diet and exercise are lifestyle choices which are controllable," says A/Prof Chew.

The complications of diabetes are less common and less severe in individuals with well-controlled blood glucose levels. Sustained lifestyle changes and smoking cessation have a significant impact on slowing the progression of diabetes.

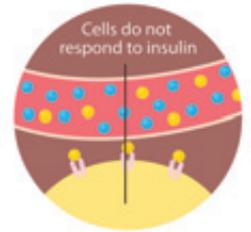
In the meantime, tried-and-tested interventions such as dietary modifications and exercise have proved to be effective. A/Prof Chew has had patients who have successfully reversed the progression of diabetes — from relying on prescribed medication to only requiring dietary control. "The reality is that we are all at risk if we don't watch what we eat and continue with a sedentary lifestyle," he says.

For diabetes patients who require insulin, ongoing research has helped improve the efficacy and safety of insulin. "Research is also being conducted to detect specific genetic defects that may be responsible for diabetes development in certain individuals," says Dr Darren Seah, Family Physician and Head of the Family Medicine Development at NHG Polyclinics. "While this has yet to yield a cure, it has started to improve the appropriateness of therapy among some of our patients with diabetes."



TYPE 1 DIABETES

Body produces little or no insulin and cannot remove sugar from the bloodstream



TYPE 2 DIABETES

Body is resistant to insulin and the pancreas is unable to maintain the required level of insulin to control sugar in the bloodstream

BATTLE BY THE NUMBERS FACTS

BY 2050
Nearly 1 million Singaporeans could be affected by diabetes

440,000

SINGAPOREANS AGED 18 AND ABOVE WITH DIABETES IN 2014

AN AVERAGE OF 4 AMPUTATIONS ARE DONE PER DAY IN SINGAPORE



IN A STUDY OF 2,170 PATIENTS WITH LOWER LIMB AMPUTATIONS,

22% DIED WITHIN ONE YEAR



CHANCE YOU WILL GET DIABETES IN YOUR LIFETIME

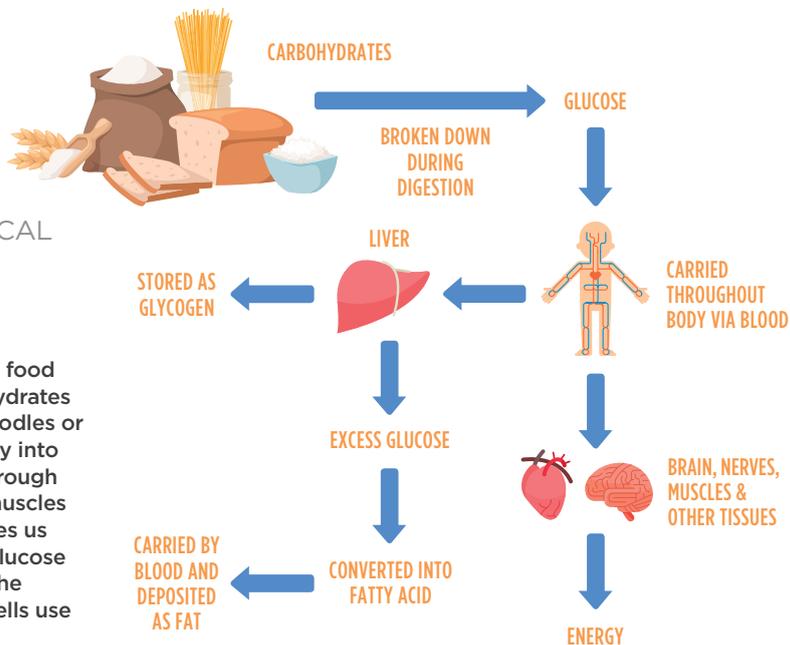
AGED 65 AND ABOVE IN SINGAPORE HAS DIABETES

*Source: Ministry of Health 2016 Budget Initiatives, NHG Health Services & Outcomes Research (HSOR)

Carbohydrate Metabolism

AN IMPORTANT BIOCHEMICAL PROCESS THAT ENSURES A CONSTANT SUPPLY OF ENERGY TO THE BODY.

Our body uses carbohydrates from food as our main supply of fuel. Carbohydrates from starchy foods such as rice, noodles or bread are broken down by the body into sugar (glucose). Glucose travels through the blood stream to supply cells, muscles and organs with energy that enables us to function. The body also stores glucose in the form of glycogen. Insulin is the hormone responsible for helping cells use or store glucose.



Tell us about your role in the effort to clamp down on diabetes.

My main role is to organise tertiary care in Tan Tock Seng Hospital so that we can attend to patients who require more complex services to manage their disease. Meanwhile, our partners in primary care, as well as the community, are doing their part to look after patients who are self-sufficient and still in control of their condition. These caregivers focus more on preventive care. Often our roles do overlap and we have to work together to provide seamless care for our patients. There is literally an army dealing with this epidemic.

Fighting Diabetes

with
A/PROF DANIEL CHEW

SENIOR CONSULTANT
AND HEAD OF THE
ENDOCRINOLOGY DEPARTMENT
TAN TOCK SENG HOSPITAL

AS DIABETES PROGRESSES

There are various stages of this disease, depending on blood glucose levels. It is possible to slow or, in some cases, reverse disease progression, especially in the pre-diabetes stages, with good diet control and exercise.

PRE-DIABETES

Impaired fasting glycaemia: **fasting plasma glucose (FPG): 6.1-6.9 mmol/L**

Impaired glucose tolerance: **fasting plasma glucose (FPG): <7.0 mmol/L and 2hr glucose 7.8-11.0 mmol/L**

DIABETES

Fasting plasma glucose (FPG): ≥ 7.0 mmol/L or Random plasma glucose (RPG): ≥ 11.1 mmol/L or 2hr glucose: ≥ 11.1 mmol/L

If an asymptomatic individual has raised RPG (≥ 11.1 mmol/L) or slightly raised FPG (≥ 7.0 mmol/L), a repeat FPG should be performed. If the FPG reading is significantly raised, a diagnosis of diabetes is made.

WAYS TO HELP PREVENT, RETARD, OR EVEN REVERSE THE PROGRESSION OF DIABETES.

Better Safe Than Sorry

↙ Eat right and exercise more to keep weight in the healthy range — the risk of diabetes is high in patients suffering from obesity.

➤ Go for regular health screenings/check-ups — the most effective way to reduce the risk for vascular complications in diabetes is to achieve optimal glucose control as early as possible. Studies show that medical treatment becomes less effective once complications progress beyond a certain point.

➤ Avoid consuming health products from dubious sources. Some of these may cause increased blood glucose levels that can lead to diabetes.



What is the biggest challenge that you face in your work?

Diabetes, as we know, is a multi-organ disease that is not isolated to one specialty. Battling it involves dealing with a range of conditions — across many different disciplines — and a vast number of patients at different stages of the disease. So when my team and I are planning initiatives or rolling out projects to improve care for patients with diabetes, there will never be a one-size-fits-all solution. The challenge is coping with the massive scale and spectrum of the disease.

On the personal side, how do you manage your diet and keep fit?

I've been trying to walk the talk as much as I can. I reduce the amounts of simple carbohydrates that I take, and substitute these with healthier forms that are rich in fibre, such as brown rice and wholemeal bread. In my experience, for this programme to be sustainable, the whole family has to be on board. I'm very happy that my children — aged 10, 12 and 14 years — have also taken to this diet. I also play tennis once a week and make it a point to take the stairs whenever possible. Because of how busy most people are, sometimes the best way to exercise is to incorporate little workouts into everyday routines. **LW**



↙ Stick with a regular GP — that doctor will then be familiar with your health conditions as you go through different stages in your life.

LOSING A LIMB is traumatic. One patient refused to look at her amputated limb for weeks, and only allowed the healthcare team to dress her wound if her leg was shielded from her sight with a blanket. Others are unable to accept the thought of an amputation and refuse treatment altogether. “Patients struggle most with the potential loss of independence after losing a limb, so their first instinct is to reject the operation,” says Dr Sadhana Chandrasekar, Senior Consultant and Vascular Surgeon at Tan Tock Seng Hospital (TTSH)’s General Surgery Department. “Many lose hope that they will ever be able to live a meaningful life again after amputation.”

Limb amputations are usually necessary for patients with poorly-controlled diabetes. Severe diabetes causes damage to nerve and blood vessels, resulting in loss of feeling and poor circulation. Patients are also often unable to feel pain. This toxic combination leads to a high risk of untreated sores on their feet, which can get infected and eventually turn gangrenous. Dead tissue must then be removed to prevent further spread of infection and blood poisoning.

The Ministry of Health estimates that four

amputation procedures are carried out daily in Singapore. According to research by the National Healthcare Group (NHG) Health Services & Outcomes Research (HSOR) department, Singapore has one of the highest rates of lower limb amputations due to diabetes, in the world.

Vascular surgeons only consider major amputations — removal of the leg above or below the knee — as a last resort after wound treatment or limb-salvage techniques are unsuccessful, says Dr Glenn Tan, Consultant for Vascular and Endovascular Surgery at TTSH. “Early detection and treatment are critical in preventing amputations. Unfortunately, most patients only come to the hospital as an emergency after their wounds become severely infected and sepsis has set in,” he explains.

In cases where an amputation is unavoidable, the healthcare team provides pre-operation counselling and psychological support. Doctors, physiotherapists and prosthetists/orthotists also help to map out potential rehabilitation plans based on the patient’s personal goals after an operation. “Having the rehabilitation team explain how we can help patients regain some mobility and independence gives them hope to push forward following their operations,” says Dr Chandrasekar.

IN CONSULTATION WITH
DR SADHANA CHANDRASEKAR
SENIOR CONSULTANT
// VASCULAR SURGEON
// GENERAL SURGERY
DEPARTMENT // TAN TOCK
SENG HOSPITAL

DR GLENN TAN
CONSULTANT // VASCULAR
AND ENDOVASCULAR
SURGERY // GENERAL
SURGERY DEPARTMENT //
TAN TOCK SENG HOSPITAL

MS RIE NAGAI
SENIOR PROSTHETIST/
ORTHOTIST // FOOT CARE &
LIMB DESIGN CENTRE //
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MR MATTHIAS HO
SENIOR PODIATRIST // FOOT
CARE & LIMB DESIGN CENTRE
// TAN TOCK SENG HOSPITAL
AND SURGERY CLINIC //
TAN TOCK SENG HOSPITAL

ROAD TO REC

**PERSONAL MOTIVATION
AND STRONG FAMILY
SUPPORT ARE KEY
INGREDIENTS IN HELPING
DIABETES PATIENTS
REGAIN INDEPENDENCE
AFTER LOSING A LIMB.**

A Collective Effort

Post-operation patients are looked after by a multi-disciplinary rehabilitation team which focuses on helping patients manage their diabetes more effectively, as well as improving their mobility. The goal is to help patients regain some form of independence. Some disciplines involved in recovery include:

- ▶ Vascular surgery
- ▶ Podiatry
- ▶ Reconstructive surgery
- ▶ Prosthetics and Orthotics
- ▶ Geriatric medicine
- ▶ Care & Counselling
- ▶ Orthopaedic Surgery
- ▶ Occupational Therapy
- ▶ Rehabilitation Medicine
- ▶ Nutrition & Dietetics
- ▶ Physiotherapy
- ▶ Nursing

Patients who require prostheses will undergo training for strengthening, balance and mobility exercises. They must also learn to walk with their prosthetic limbs, and training can take up to eight physiotherapy sessions. “Depending on the extent of the amputation and the patient’s physical ability, it is possible to reintegrate into the community, or even return to work,” says Ms Rie Nagai, Senior Prosthetist/Orthotist at the TTSH Foot Care and Limb Design Centre.

How far patients can go depend on their own motivation and social support from families or caregivers. Dr Chandrasekar cites the example of a patient who was “extremely positive” despite the

Ways to Prevent Amputation

- Patients with diabetes should focus on managing their condition well, as this will reduce the risk of complications associated with diabetes.
- Go for a diabetic foot screening once a year to check for sensation, blood supply and ulcers on the feet. Screenings can be done at polyclinics or hospitals.
- Wear comfortable footwear to avoid injuries. Trim toenails regularly.
- Avoid soaking feet as doing so weakens the skin barrier.
- Keep existing wounds clean to avoid infection.
- See a podiatrist or doctor immediately if ulcers are detected, as these can lead to infections and eventual amputations if left untreated.
- Take note of any wounds or blisters on the feet as these may become infected. A visual check is important, as patients may not feel wounds due to nerve damage and loss of sensation in their feet. Learning to identify warning signs and seeking immediate medical attention can help save limbs.

prospect of losing her leg, as she had a very supportive husband. “He immediately made plans to make their home wheelchair-friendly and was most encouraging during his wife’s rehabilitation journey.”

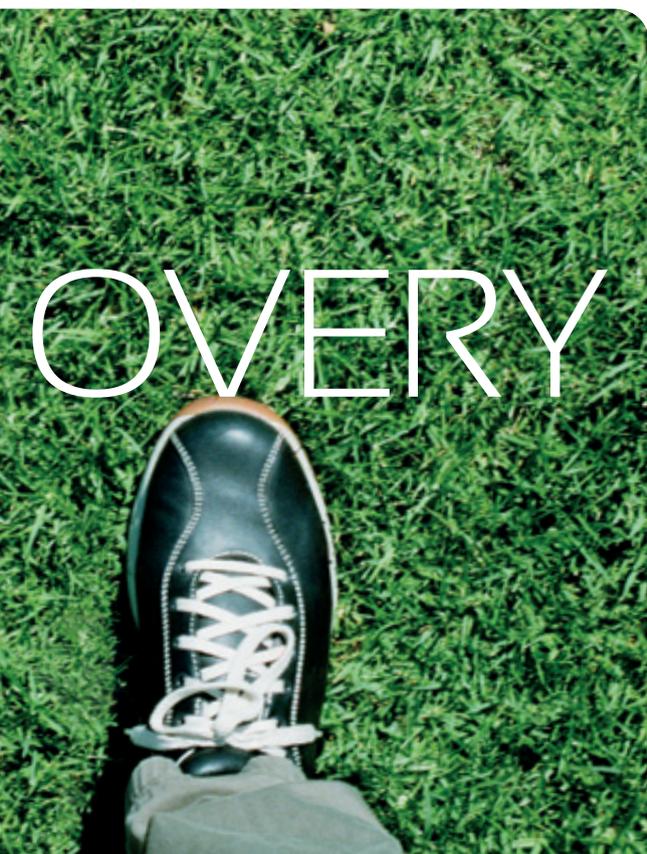
Caregivers are the primary companions who journey alongside patients in the recovery process. They provide wound care if patients are unable to do so, and physical assistance so they can move around, as well as emotional support. Caregivers are also taught to look out for signs of depression that may include emotional instability, unwillingness to communicate, worsening physical conditions, and general sense of hopelessness or apathy towards medical conditions.

Community support can also help the recovery process. Patients can consider joining the Amputee Support Group at the Ang Mo Kio Thye Hua Kwan Hospital, where they can find mutual support through activities, as well as the sharing of personal experiences and challenges. Eligible patients can also sign up with the Singapore Disability Sports Council to take part in sporting activities for amputees and disabled athletes.

Prevention — The Best Cure

Post-amputation rehabilitation is challenging but not impossible. However, experts say the best prevention is for diabetes patients to reduce their risk of amputations by controlling their conditions through sensible diet and lifestyle choices. “Awareness, ownership of lifestyle and prevention through screening can go a long way towards helping patients maintain their overall health,” says Dr Tan. **LW**

PHOTO: GETTY IMAGES



STARS FOR HEALTH

Health is Wealth

Eat Wisely

Eating well is fundamental to well-being – physical, psychological and social health.



National Healthcare Group is a Regional Health System for Singapore. NHG collaborates with Hospitals, Specialty Centres, Polyclinics, Patients, Caregivers, Partners, Volunteers and the Community to **Add Years of Healthy Life** to the nation.





DIABETES

is a metabolic disorder where the body produces little to no insulin (Type 1 diabetes) or is resistant to it (Type 2 or gestational diabetes). Good diet management is a key factor in preventing and controlling diabetes. *Lifewise* sets the record straight on some diabetes food myths that affect patients with diabetes and those at risk.

BITTER
TRUTHS

**SINGAPORE HAS EMBARKED ON ERADICATING DIABETES,
BUT DO WE HAVE OUR FOOD FACTS RIGHT
WHEN IT COMES TO THIS CHRONIC DISEASE?**

BY **GWENDOLYN LEE** IN CONSULTATION WITH
MS MELISSA HO DIETITIAN // TAN TOCK SENG HOSPITAL

myth

Sugar alone causes diabetes

TRUTH The known risk factors for diabetes are family history, ethnicity, increasing age, being overweight, high blood pressure, high cholesterol levels, a sedentary lifestyle and smoking. Sugar is not the only cause of diabetes. If an excessive intake of sugar leads to obesity, this further increases a person's risk of having diabetes.



SUGAR IS NOT THE ONLY CAUSE OF DIABETES.



myth

If I have diabetes, I can only consume foods labelled “sugar-free” or “suitable for diabetics”

TRUTH Agri-Food & Veterinary Authority of Singapore (AVA) requires “sugar-free” products to contain no more than 0.5g sugar per 100g or 100ml. These usually have less sugar than other similar products but may contain other artificial sweeteners like sorbitol.

Food labelled “no added sugar” or “suitable for diabetics” can be misleading, as naturally occurring sugars or fat, and calorie content are not taken into consideration. It is crucial to read the nutritional information for any type of food to check the amount of carbohydrates, natural sugars and calories it contains.

Products like fruit juices with “no added sugar” can still raise sugar levels as quickly as sugary drinks, since they contain natural fruit sugars. Snacks that use artificial sweeteners can still be high in carbohydrates, fat and calories even though they might be low in sugar. These products can affect blood sugar control and risk excessive weight gain — a major risk factor for diabetes.

myth Patients with diabetes must swear off sweets or chocolate

TRUTH Those with poor blood sugar control should avoid sugary treats like sweets and chocolate, as these can quickly cause unwanted spikes in sugar levels and provide little nutrition. Those with good glycaemic control should also exercise caution by eating sweets sparingly. Regular blood sugar monitoring is important when having sweet treats.



myth Alcohol does not affect diabetes

TRUTH Alcohol affects the liver — which regulates blood sugar — and can interact with certain diabetic medications. Diabetes patients should avoid alcohol in general. But if you have to, remember to check your blood sugar level before drinking to ensure that it is not too low. Accompany the drink with a carbohydrate-containing meal as alcohol can cause your blood sugar level to drop drastically within 24 hours of drinking.

Healthy individuals should drink responsibly. If you do not suffer from other health conditions and still want to drink, keep to only one serving of light beer, wine or spirits. One serving is equal to 330ml beer (one can) / 175ml wine (half a glass) / 35ml spirit (one shot).



myth

If I have Type 2 diabetes, I can reverse the condition by cutting carbohydrates out of my diet completely



TRUTH Diabetes is an incurable condition that can be well-controlled. Cutting out carbohydrates completely is not recommended. A person who avoids carbohydrates completely is susceptible to low blood sugar levels, and is likely to suffer from long-term deficiencies due to a lack of carbohydrate-containing food. In serious situations, hypoglycaemia can result in diabetic comas that may be life-threatening, especially for those who are not consuming sufficient carbohydrates and are currently on diabetic medications.

A balanced diet is essential for those with diabetes. Eat more wholegrains instead of refined grains, and enjoy a variety of other carbohydrate-containing food, including low-fat yoghurt, fruits, beans and vegetables such as broccoli, carrots and sweet potatoes. It is advisable that carbohydrates form around 50 per cent of the daily diet. Consult a dietitian for the recommended quantity as this differs for each individual.



myth

I should not eat white rice to avoid diabetes

TRUTH Although recent studies by the Harvard School of Public Health and the National University Health System found that white rice has a high Glycaemic Index (GI), it is important to understand its overall health impact when taken as a part of our daily meals. GI ranks carbohydrates in food based on the rate which they affect blood glucose levels.

The important difference between sugar and rice is that sugar contributes calories with little nutritional benefit, while rice provides satiety and can be part of a healthy, balanced diet if accompanied by side dishes such as tofu, fish, lean meat, eggs and vegetables. In contrast, it is easy to eat too much sugar as it does not give the feeling of fullness and can lead to obesity, raising the risk of diabetes.

Wholegrains like brown or red rice is better than white rice as these contain more nutrients like iron, magnesium, B vitamins and fibre. Wholegrains also take more time to digest, giving the feeling of fullness for longer. However, do note that any type of carbohydrates, including wholegrains, when taken in excess can still cause poor blood sugar control. Moderation is key.

ANY TYPE OF CARBOHYDRATES TAKEN IN EXCESS CAN STILL CAUSE POOR BLOOD SUGAR CONTROL.

myth

I should choose foods based on their GI

TRUTH In general, high GI foods raise blood sugar levels faster by releasing sugar quickly into the bloodstream. This is more useful for athletes post-exercise or for patients with hypoglycaemia. Some fad diets advise avoiding high GI foods completely. However, GI is just one measure of the nutritional value of food. Similarly, some low GI foods like cake, chocolate bars and potato chips are unhealthy and lack nutritional value, and are unsuitable for patients with diabetes.

Maintaining a balanced diet with fruits, vegetables and carbohydrates, and regular exercise are the best ways to stay fit and healthy.





Look out for this label

To help consumers make more informed food choices, the Health Promotion Board (HPB) introduced the **Healthier Choice Symbol (HCS)** on packaged food products in 2001. Products that qualify and carry the symbol are generally lower in total fat, saturated fat, sodium and sugar. Some are also higher in dietary fibre and calcium compared to similar products. There are about 2,600 such products on the shelves currently. As with all foods, HPB advises that you consume HCS food products in moderation.

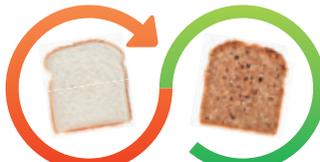
For the list of products with the HCS, visit the Health Promotion Board website at www.hpb.gov.sg

DO THE Food Swap

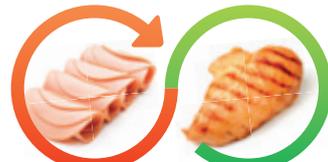
These are some foods patients with diabetes should avoid, and the healthier alternatives.



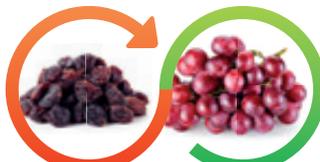
Kopi-o-kosong instead of *kopi*



Wholemeal bread instead of white bread



Skinless chicken breast instead of processed ham



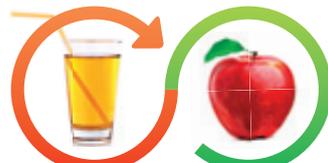
Fresh grapes (keep to a serving of 10 small ones) instead of raisins



Baked potato (without dressing) instead of French fries



Whole-grain oat cookies instead of chocolate chip cookies



Whole fruit instead of fruit juice



myth Fruits are healthy, so no matter how much I eat, my diabetic condition won't be affected

TRUTH Fruits contain many vitamins, minerals and fibre, so it is great to include them in your meals. They also contain sugars and carbohydrates, so stick to the recommended two portions daily.

Spreading out these two portions or eating them between meals can help to prevent a sudden sugar spike, and help with blood sugar control.

Pick fresh whole fruits instead of juiced, dried or canned ones as these can contain added sugar. **LW**

HE WAS DIAGNOSED WITH DIABETES AT 40, AND SINCE THEN MR NAGUTHA MOHAMED EUSOOF HAS BEEN GOING ALL OUT TO HALT THE DISEASE'S PROGRESSION.

BY WANDA TAN

A matter of SELF-DISCIPLINE



Mr Nagutha Mohamed EusooF first felt that something was amiss with his health in 1997 — the then-39-year-old started having severe headaches for which paracetamol did little to relieve the pain. Acting on the advice of a pharmacist friend, he went to Toa Payoh Polyclinic where he was diagnosed with hypertension.

“From then on, I was put on a diabetes tracking programme,”

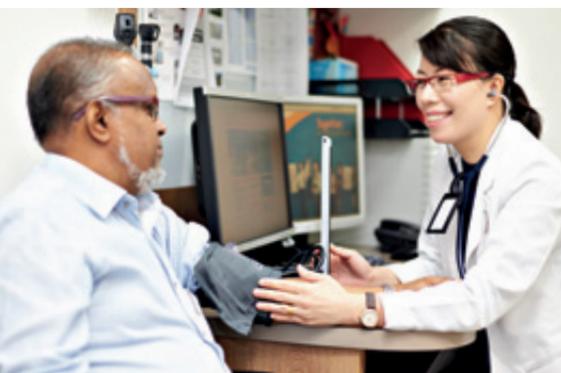
says Mr Nagutha. He tried ways to control his diet, including reducing food portion sizes, but found out he had Type 2 Diabetes Mellitus in 1998, just a year after he was diagnosed with hypertension. “There was no history of diabetes in my family; I was predisposed to it due to my high blood pressure.”

Mr Nagutha would later also develop high blood cholesterol, which is not uncommon for patients with diabetes. But rather than be defeated by his condition, he started making the much-needed dietary changes.

Processed red meats, oily foods and white rice

were out, and Mr Nagutha stopped adding salt and extra sugar to his food and beverages. In their place were lean white meats such as chicken, generous servings of a variety of vegetables, brown rice or *chapati* (Indian flatbread made with whole-wheat flour), and *teh si siew dai* (tea with evaporated milk and less sugar). Almost 20 years on, he is still sticking to this diet.

Mr Nagutha, now 58, holds two jobs as an accountant and a part-time accounting lecturer, which doesn't leave much time for regular workouts. But he still manages to fit in some form of exercise while going about his usual activities. “I don't like sitting still,”



HIS ENTHUSIASM IN SELF-CARE IS SOMETHING WE CAN ALL BE INSPIRED AND LEARN FROM.

MS WANG QINGLI, ADVANCED PRACTICE NURSE, SENIOR STAFF NURSE I, HOUGANG POLYCLINIC



Mr Nagutha Mohamed Eusooif with Advanced Practice Nurse Ms Wang Qingli.

Continuity Of Care

In 2005, Mr Nagutha switched from Toa Payoh Polyclinic to Hougang Polyclinic for his routine check-ups. He was seen by various doctors until March 2016, when he met Senior Staff Nurse Ms Wang Qingli, who is an Advanced Practice Nurse (APN) at Hougang Polyclinic.

APNs are registered nurses with postgraduate education and clinical training in the diagnosis and management of medical conditions. Many APNs, like Ms Wang, conduct clinical sessions in an outpatient setting, where they perform physical examinations, take patients' medical histories and order basic laboratory tests. Based on their assessment, they will draw up personalised treatment plans that include realistic, achievable goals for patients. In some cases, patients' caregivers are also involved.

"Patients under the care of APNs will be followed up by the same APN each time," says Ms Wang, 36, who specialises in chronic disease management.

"This allows us to build rapport and trust with our patients so they will be more willing to accept our advice and take action to meet their health needs."

Mr Nagutha was initially hesitant to meet Ms Wang, having consulted with doctors only in the past. But he was quickly won over by her clear explanation and patience. "She reminded me about what I needed to know, and told me to stick to the same foods I have been eating," says Mr Nagutha, who is looking forward to his next quarterly check-up with her.

Ms Wang is impressed with Mr Nagutha's determination to take charge of his own health. "He practises a healthy lifestyle as recommended by healthcare professionals, and also demonstrates enthusiasm to learn how to interpret various parameters in his blood test report," she says. "His enthusiasm in self-care is something we can all be inspired and learn from." **LW**

he explains. "I enjoy walking from one location to another, and prefer to stand and walk when teaching classes."

With stable HbA1c or blood sugar level readings of 6.1 to 6.3 per cent, he has successfully kept his diabetes in check over the years. The grandfather of two credits much of this to family support. "My wife and two adult children are not at risk for diabetes, yet they willingly adjusted their diet at home to suit mine," he says. His wife also makes sure he takes his medication as prescribed.

Earlier this year, Mr Nagutha found himself advising his mother-in-law, who is in her 70s, when she was diagnosed with diabetes. "She wanted to share my medication, but I said it wasn't safe because different patients require different dosages. I told her to see a doctor to sort out her medication, which she did," he recounts.

PHOTOS: CHEE YAN

Living With Diabetes

Ms Wang offers seven self-care tips to keep the condition under control.

▶ Eat healthy

Make sure the food you consume provides essential nutrients.



▶ Know your medicines

Understand how they work and the possible side effects. If your doctor increases the prescribed dosage, ask why.



▶ Be physically active

Exercise to control blood glucose levels and manage weight.

▶ Monitor blood sugar levels

Take a home blood glucose (finger-prick) test regularly, as recommended by your healthcare provider.



▶ Stay optimistic

Diabetes often affects patients physically and psychologically, so you need to deal with these challenges positively.



▶ Improve problem-solving skills

These skills will come in handy when you need to modify daily routines such as food intake and physical activities.

▶ Remember your check-ups

Engage in preventive care measures, including eye and foot screenings to avoid further complications.



Saving A Limb

DR SADHANA CHANDRASEKAR, 55, IS DOING HER PART TO REDUCE THE NUMBER OF DIABETES-RELATED LIMB AMPUTATIONS IN SINGAPORE.

INTERVIEW ASHUTOSH RAVIKRISHNAN

MY interest in vascular disease was sparked during my medical training in India, but there was no formal certification for vascular surgery. I therefore went to the UK and trained in London and Dundee in the 1990s. I came across many patients facing complications from diabetic vascular disease, and I was struck by how much of a difference I could make to their lives. As a vascular surgeon, I help to prevent patients with vascular diseases from having to amputate a limb.

After a long stint of service in the UK, I moved to Singapore three years ago. A lot of my experience in the UK translates very well to practice in Singapore. In the UK, I was on the staff of a foot clinic that also comprised endocrinologists, vascular and orthopaedic surgeons, podiatrists, diabetic nurses and a vascular technologist. This multi-disciplinary approach — together with greater awareness on the severity of diabetes-related complications — would help Singapore in its war on the disease, and help manage the population more effectively.

Outside of work, I enjoy baking. My line of work has made me conscious of the dangers of a sugar-laden diet but that doesn't stop me from enjoying my hobby. One must be sensible about food; sweets and puddings can be enjoyed as part of a balanced diet. To make healthier treats, I experiment regularly with sugar-free desserts. My three sons don't mind because they're conscious of their diets too.

On Sunday evenings, I usually relax with a book and music. I love Western classical music, in particular, the works of Frédéric Chopin, and I share this interest with my family. We've enjoyed many concerts at the Singapore Botanic Gardens — I prefer listening to music in an informal setting like this. It makes classical music, often governed by rigid etiquette, more accessible.

As a family, we enjoy entertaining guests. We often host a 'vascular dinner' for members of the team. The house buzzes with chatter and music as people come together for a night of merriment and relaxation from the stresses of our job! **LW**

Dr Sadhana Chandrasekar is a senior consultant at Tan Tock Seng Hospital's surgery and medicine departments. She specialises in vascular surgery.

PHOTO: KELVIN CHIA

INS AND OUTS OF VASCULAR SURGERY

The vascular system is responsible for blood circulation and the movement of nutrients within our bodies. Diabetes increases the risk of peripheral arterial disease, which occurs when arteries are narrowed. If left untreated, the condition can lead to gangrene and limb amputations. Public hospitals in Singapore conduct an average of four amputation procedures a day, one of the highest rates in the world.

Relationship-based Holistic Care

FOR NHG FAMILY MEDICINE RESIDENCY PROGRAM DIRECTOR DR DARREN SEAH, 39, LIFE IS ALL ABOUT STRIKING A BALANCE. INTERVIEW ASHUTOSH RAVIKRISHNAN



FUTURE OF HEALTHCARE

Family medicine will play an increasingly important role in Singapore's healthcare landscape. It will provide first-line primary care for a majority of the population, while also managing chronic diseases among the elderly. The NHG-AHPL Family Medicine Residency Program trains promising family physicians in a variety of disciplines including paediatric medicine, obstetrics and gynaecology, emergency medicine, geriatrics and mental health.

PHOTO: KELVIN CHIA

MY father suffers from various medical conditions, but it had never occurred to me to bring him for a diabetes screening because of his thin frame. You can imagine my surprise when he was diagnosed with the disease in 2008.

After his diagnosis, my parents made dietary changes. They started to eat a mixture of brown and white rice — much to my father's displeasure! Meanwhile, I turned to *basmati* rice, which has a lower Glycaemic Index than white rice. I've never had much of a sweet tooth but I do have a fondness for coffee, with sugar. It was tough to stop adding sugar but I got used to it within a month. That doesn't mean I don't indulge occasionally.

Even so, I've always been conscious of my body mass index. I try to squeeze in a quick run or swim before dinner, and maintaining a positive work-life balance is key to being able to do so. That got more important when I became a father. Having three young sons, I make it a point not to schedule too many after-work meetings.

The broad nature of family medicine has always attracted me. I've been involved in the National Healthcare Group (NHG) Family Medicine Residency Program since its inception in 2011. My team and I ensure that our medical residents get the right exposure and appropriate rotations throughout their three years in the programme. We also conduct an annual assessment of the curriculum to keep it relevant, so that future generations of Family Physicians remain well-trained.

Besides my involvement in the Residency Program, I also run three or four clinic sessions a week. Over the past seven years, I have built strong relationships with many patients. To my pleasant surprise, some of them have 'followed' me from Toa Payoh Polyclinic to my current place of work at Hougang Polyclinic. It is fulfilling to continue seeing them, especially since I do not just help them with medical issues but also counsel them on life events such as family bereavements and job loss. It's this continuity of care and treating patients as part of my community that is holistic in nature, which inspires me and makes my work even more meaningful. **LW**

Dr Darren Seah is the Program Director of NHG's Family Medicine Residency Program. He also heads NHG Polyclinics' Family Medicine Development Division.



THE X-CERCISE FACTOR

EXERCISE PLAYS A LARGE ROLE IN HELPING TO KEEP BLOOD GLUCOSE LEVELS STABLE. PATIENTS WITH DIABETES JUST HAVE TO GO ABOUT IT THE RIGHT WAY.

BY **ANDREW TAY**
IN CONSULTATION WITH
DR JASON CHIA KOK KIANG
SENIOR CONSULTANT //
HEAD OF THE SPORTS MEDICINE
& SURGERY CLINIC //
TAN TOCK SENG HOSPITAL

DILIGENTLY STICKING TO A MEAL PLAN and taking medicine as prescribed will keep diabetes in check. But exercise is an equally powerful weapon against the disease.

Research shows that physical activity is a crucial part of the treatment plan, particularly for Type 2 diabetes, because it helps to keep blood glucose levels in the healthy range and deter long-term complications such as heart problems.

According to Dr Jason Chia Kok Kiang, senior consultant and head of Sports Medicine and Surgery Clinic at Tan Tock Seng Hospital, the effects of exercise on blood glucose levels can also last for an extended period after each workout session. In fact, the American Diabetes Association noted that physical activity can lower blood glucose for more than 24 hours after exercise by making the body more sensitive to insulin.

Of course, as with every health condition, there are some things to take note of before launching into a workout. Here are five tips on exercising right for someone with diabetes.



Choose Whichever Workout Suits You Best

Exercise has beneficial effects at various levels, no matter which workout you choose. “During exercise, working muscles take up glucose from the bloodstream. With more prolonged aerobic exercise, such as cardio training, this utilisation of glucose can help to lower blood glucose levels,” says Dr Chia.

Meanwhile, muscle contraction during both aerobic and resistance exercise i.e. strength and weight training, also helps to increase the ability of muscles to transport glucose from the bloodstream.





Keep To An Exercise Routine

Dr Chia advises sticking to regular exercise sessions for maximum effect — at least thrice a week for a total of 150 minutes, with preferably “no more than two consecutive days between each session of moderate intensity”. He also suggests a combination of aerobic and resistance exercises for an all-round workout.



Eat Right

According to the American Diabetes Association, most people won't need to add extra carbohydrates to their meal plan unless they are exercising for more than an hour at a time. Maximise energy for physical activity by sticking to regular, healthy meals that include a balance of non-starchy vegetables and fruit, whole grains, low or non-fat dairy and lean meat.

If you have recently started an exercise regime and are on medication that increases the risk of hypoglycaemia (low blood sugar) or have blood glucose levels that can change quickly, bring along a sports drink or 15 to 20 grams of fast-acting carbohydrates (such as glucose tablets) when you work out, so you can right your sugar level quickly should it fall. Wait 15 to 20 minutes and check your blood glucose again. If you still experience light-headedness, shakiness, hunger or confusion — all signs of hypoglycaemia — repeat the treatment.

Remember to eat within 30 minutes to two hours of finishing your workout and don't skip meals, as doing so will increase the chances of low blood glucose occurring.

Tailor The Workout To Suit Your Condition

In general, brisk walking and daily activities are suitable for most patients with diabetes. But since the condition is sometimes accompanied by associated illnesses such as hypertension, diabetic retinopathy and peripheral vascular disease, it is a good idea to check with your doctor before starting any rigorous exercise routine.

Explains Dr Chia: “Consulting your doctor is useful to evaluate the control of the diabetes, as well as to diagnose possible complications. For example, if you have decreased sensation in your feet, you may need to take extra care so as to avoid foot ulcers. In addition, modification of medication may be necessary as blood glucose control improves with exercise.”

However, anyone whose diabetes is well-controlled and does not suffer from complications such as cardiovascular disease can exercise at high intensity, he says.



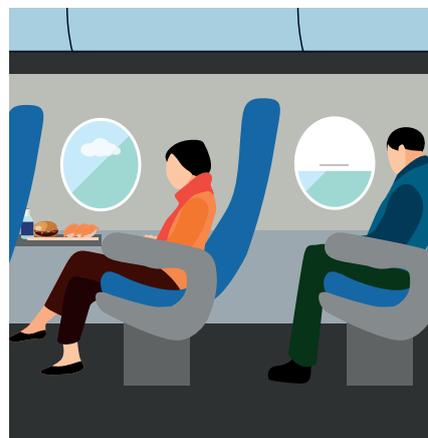
Increase Daily Movement

If you find yourself saying “I'm too busy to exercise”, Dr Chia has this advice for you:

“*Make* time to exercise to control your diabetes. On top of that, increasing daily movement — for example your step count — is to be encouraged.” **LW**



TRAVEL



BEFORE YOU GO

- Consult your doctor four to six weeks in advance so you have ample time to get the necessary medications, as well as a letter outlining your medical condition. Be sure to carry this document with you always in case you need to explain your medical items to airport security.
- Check with your doctor if you should modify your insulin dose or injection schedule when travelling across time zones.
- Research the locations of the pharmacies in your destination in case you run out of medical supplies.
- Contact the airline at least two days before your flight about your condition and meal options – certain airlines offer low-carb meals. Note that most budget airlines do not provide meals unless you pre-order.

AT THE AIRPORT

- Hand-carry your insulin medications always. If you check them in, they may freeze in the cargo hold and lose their potency.
- Notify the security screener that you have diabetes. You may be asked to remove your insulin pump and continuous glucose monitor (CGM) while going through an airport body scanner. Common security systems such as airport metal detectors will not damage your medical equipment or trigger an alarm, but do not send your medical equipment through an X-ray machine.
- It is important to discuss with your doctor the timing of insulin administration when you are travelling to a place with a time difference of more than four hours, so as to avoid the problem of over- or under-dosing of insulin.

ON THE FLIGHT

- Carry some snacks in case of hypoglycaemia (low blood glucose) or if meals are delayed. (See next page.)
- Check your blood glucose level every four to six hours.
- Request for an aisle seat for ease of toilet access and walking breaks.
- Take occasional walks up and down the aisle to stimulate circulation and prevent deep vein thrombosis.
- Keep hydrated with water rather than sweet beverages.
- Avoid alcohol and sleeping tablets, as these might make you sleepy, reduce mobility and increase the risk of leg vein clots.



SAFE



FOLLOW OUR DIABETES-FRIENDLY CHECKLIST FOR A WORRY-FREE TRIP.

IN CONSULTATION WITH **DR SEOW CHERNG JYE**
DEPARTMENT OF ENDOCRINOLOGY // TAN TOCK SENG HOSPITAL



WHEN OVERSEAS

- Watch out for symptoms of hypoglycaemia such as blurry vision, rapid heartbeat, light-headedness and chills.
- Keep well-hydrated at all times.
- Wear comfortable shoes at all times. Always wear slippers when at a beach.
- Avoid eating uncooked or undercooked meats, shellfish, salads and unpasteurised milk products, especially in a region where the risk of having “traveller’s diarrhoea” is high.
- Avoid tap water and ice cubes. Drink bottled water instead.
- Keep essential items in an insulated bag or container, especially in extreme temperature environments (< 2°C or > 30°C). Such temperatures can degrade insulin and make the medications ineffective.
- Watch for changes in insulin appearance and dispose of any insulin that is discoloured or contains solid particles.
- Bring available spare vials or pens of each type of insulin used.
- Inspect vials before injecting for clumping, frosting, precipitates or changes in clarity or colour that may signify loss of potency or contamination. Replace with the same type if in doubt. [LW](#)



What Should Be In Your Carry-On Bag?

- A copy of your medication prescription, with the generic name (as brand names may vary from country to country), dose and dosing schedule of all medications.
- Enough insulin and medications (in their original packaging), syringes or pens and needle tips to last the entire trip.
- Glucagon kit for use in hypoglycaemic emergencies. Instruct your travelling companion on the use of this.
- Spare medical supplies in case your trip is prolonged unexpectedly.
- Simple carbohydrates (glucose tablets, gels or sweets) in case of hypoglycaemia (low blood glucose).
- Complex carbohydrates such as granola bars to serve as snacks when meals are missed or delayed.

FASTING WISELY

A LOCAL STUDY ON THE EFFECTS OF ADJUSTING MEDICATION DOSAGES COULD IMPROVE DIABETES MANAGEMENT DURING RAMADAN.

BY **ASHUTOSH RAVIKRISHNAN** IN CONSULTATION WITH
DR S K ABDUL SHAKOOR CONSULTANT //
DEPARTMENT OF ENDOCRINOLOGY // TAN TOCK SENG HOSPITAL

A **N OBSERVATIONAL STUDY** published in the *International Journal of Endocrinology* (November 2014) has laid the groundwork for further research into the effects of adjusting dosages of diabetes medication in patients who are fasting. It was the first such study to examine the effects of Ramadan fasting on Muslims with Type 2 diabetes in Singapore.

A multi-disciplinary research team from Tan Tock Seng Hospital (TTSH)'s Endocrinology and Pharmacy departments, as well as the National University of Singapore (NUS) Department of Pharmacy, worked together in 2012 to understand how diabetes medication and fasting affected blood sugar levels.

Diet plays a major role in diabetes control, explains Dr S K Abdul Shakoor, consultant at TTSH Department of Endocrinology and an author of the study. Understanding the impact of changing diabetes medication dosages during fasting would help clinicians develop more effective care plans, and allow more patients to observe Ramadan safely, he says.

In fact, some patients were

already altering their doses — without consulting their doctors — during Ramadan, observed Fellow researcher, Associate Professor Joyce Lee, clinical pharmacist from the NUS Department of Pharmacy. This was “a risky practice” as patients increased their risk of hyperglycaemia (high blood glucose) or hypoglycaemia (low blood glucose). However, A/Prof Lee also noticed that altering medication dosage, when done correctly, appeared to improve glucose control. So she got in touch with Dr Shakoor, shared her observations, and they agreed to carry out a prospective study together.

Dosage And Diet

The team analysed blood tests (HbA1C) and surveys to track blood glucose levels, medication doses, dietary habits and activity levels of 153 TTSH patients, aged 47 to 65 years. HbA1c measures the blood-glucose level average over a period of three months.

According to Ms Melanie Siaw, an NUS graduate student involved in the study, there were challenges faced by the team in recruiting participants for the study: “Some



PATIENTS SHOULD ALWAYS CONSULT THEIR DOCTORS BEFORE MAKING ANY CHANGES TO THEIR MEDICATION DOSAGES.

DR S K ABDUL SHAKOOR

patients were initially not keen to come back for subsequent blood tests and surveys. However, once we built a rapport with them and they understood that the study could benefit the community, they were willing to help,” she says.

Patients with poor control of their diabetes condition (HbA1c levels ≥ 8.5 per cent) made up nearly seven in 10 of the study's participants.

Records showed these patients had their medication doses adjusted for the fasting period, as doctors attempted to mimic the physiological secretion of insulin. Adjustments comprised



FASTING RISK IN PATIENTS WITH DIABETES

- LOW RISK**
- Good control of diabetes, often done through diet alone
 - On diabetes medications with low risk of hypoglycaemia e.g. Metformin

- HIGH RISK (Advised not to fast)**
- Poorly-controlled Type 1 diabetes
 - Other medical conditions including renal failure on dialysis, cardiovascular conditions, etc.
 - Severe and/or repeated hypoglycemia
 - Cannot recognise hypoglycaemia

- MODERATE RISK**
- Type 2 diabetes with sustained poor glycaemic control
 - Well-controlled Type 1 diabetes

- Ketoacidosis or coma three months prior to Ramadan
- Pregnancy

In April 2016, the International Diabetes Foundation issued a set of guidelines for healthcare providers to assess patients' suitability for Ramadan fasting.

SOURCE: INTERNATIONAL DIABETES FOUNDATION

were only taking a few drugs or controlling their condition through diet alone," says Dr Shakoor, adding that these factors made dose adjustments unnecessary. These patients' blood glucose levels remained consistent throughout and after the Ramadan period.

He cautioned that patients should always consult their doctors before making any changes to their medication dosages.

The Road Ahead

Despite the study's encouraging results about the possible effects of dosage adjustments, the team says that more controlled studies are needed before any

conclusive relationships can be determined. These studies would also have to record participants' dietary and activity patterns in absolute figures.

The team is working towards such a study, which is currently being considered by NHG's Domain Specific Review Board. "We hope that future studies will help doctors and patients work together, to improve diabetes management during Ramadan," says A/Prof Lee. **LW**



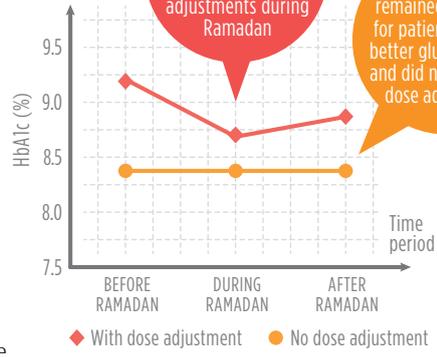
For issues of Catalyst, visit www.research.nhg.com.sg.

either smaller doses before *sahur* (pre-fasting meal), increased night-time doses or a complete cessation of medication. There was an improvement in glucose control among these patients.

However, Dr Shakoor believes that altering medication doses alone was not enough to improve glucose control. "The improvement was most likely due to a reduction in food intake," he says. Dr Shakoor also notes that these improvements were not maintained after Ramadan. He attributes this to the celebratory nature of Hari Raya Aidilfitri, which marks the end of Ramadan.

An improvement in mean HbA1c was observed in patients who made dose adjustments during Ramadan

The mean HbA1c remained consistent for patients who had better glucose control and did not make any dose adjustments



Sugar-laden foods are often heavily consumed during festivities.

Conversely, the team observed that doctors did not alter the medication of patients who already had better glucose control. "This may be because such patients

Q&A

ASK
THE
EXPERTS

* YOUR MEDICAL QUESTIONS ANSWERED

DIABETES SCREENING

ATTEND A SCREENING AT LEAST ONCE A YEAR IF YOU'RE AT RISK FOR DIABETES.

BY **IFFAH RAKINAH** IN CONSULTATION WITH
DR DARREN SEAH CONSULTANT //
HEAD OF THE FAMILY MEDICINE DEVELOPMENT //
NATIONAL HEALTHCARE GROUP POLYCLINICS AND
DR WEE WEI KEONG DIRECTOR //
HEALTH PROMOTION & PREVENTIVE CARE //
NATIONAL HEALTHCARE GROUP POLYCLINICS

WHY GO FOR DIABETES SCREENING?

While there is no known cure to diabetes, it is not a death sentence. Early detection can make treatment more effective in helping patients continue to live active and healthy lives. Screening tests and appropriate follow-ups actions can detect the disease early, allowing intervention to help patients better manage their conditions.



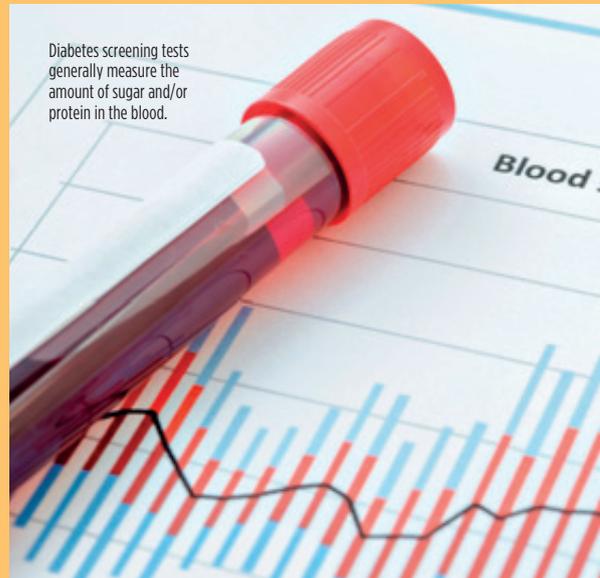
WHO SHOULD GO FOR IT?

Screening should be considered in adults of any age who have one or more risk factors for diabetes. In those without risk factors, testing should begin at 40 years old. Subsequent screenings should be carried out every three years for those with normal glucose tolerance, and annually for those with impaired fasting glycaemia or impaired glucose tolerance.

Risk factors for diabetes include having a history of Gestational Diabetes Mellitus (GDM), cardiovascular disease, hypertension, high cholesterol or polycystic ovarian syndrome. Having parents or siblings with diabetes, as well as being obese or overweight — with a body mass index of over 25 — also increase risk.

More women are being diagnosed with GDM, which occurs during pregnancy, so expectant mothers should go for screenings.

A growing number of obese children are also being diagnosed with Type 2 diabetes. This is likely due to poor diet, lack of exercise and a family history



Diabetes screening tests generally measure the amount of sugar and/or protein in the blood.

of diabetes. However, routine screening is unnecessary as children should only be screened if they show symptoms, including polyuria (urinating more than usual and passing abnormally large amounts of urine), polydipsia (excessive thirst), and weight loss. Parents should always consult a doctor first before having their children screened for diabetes.

WHAT ARE SOME DIABETES SCREENING TESTS?

▶▶ Fasting Blood Sugar Test

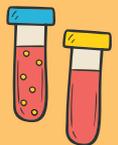
A blood sample is taken after you have fasted eight to 12 hours.

A fasting blood glucose level below 6.1mmol/L is ideal.

▶▶ Oral Glucose Tolerance Test

A blood sample is first taken, after which you will have to drink a glucose solution. Your blood glucose level will be measured again after two hours. A blood glucose level below 7.8mmol/L is ideal.

If you are undergoing any of these tests, you will have to abstain from food and drinks for eight to 12 hours. Plain water is allowed.



ALL ABOUT

WHEN SHOULD I DO A FOLLOW UP?

Follow-ups are critical for early intervention and treatment. Arrange a follow-up with your healthcare provider if test results show:

» **Impaired Glucose Tolerance (IGT)**

Blood sugar levels are higher than normal, which suggest insulin resistance

» **Impaired Fasting Glucose (IFG)** Blood sugar levels during fasting are higher than average as the body cannot process sugar normally.

Both IGT and IFG are precursors to diabetes and are reversible with proper diet management.

WHERE CAN I GO FOR SCREENINGS?

Screening tests can be arranged through your General Practitioner (GP) or at polyclinics. To make screenings more accessible and to encourage Singaporeans to take charge of their health, the National Healthcare Group (NHG) has been providing community health checks within Singapore's central region. Height, weight, BMI, blood pressure, as well as cholesterol levels are also tested.

To date, more than 4,000 residents have been screened. Participants with abnormal results can have a complimentary review at selected GPs.



+ IS THERE A CURE?

There is a broad range of study in the field of diabetes — ranging from new drug development to improving the efficacy of insulin to the range of treatments. Research is also being conducted to detect genetic defects that may be responsible for diabetes development in certain individuals. While it has not provided a cure, research has allowed healthcare providers to develop better care for patients. Surgical approaches to curtail appetite and treat obesity have also been shown to control diabetes symptoms. However, there are inherent risks involved in these procedures. Maintaining a healthy diet and lifestyle continues to be one of the most effective methods to control diabetes.



Q1

Evening Hive Time

I have been getting hives on my thighs and forearms, and this occurs almost every evening when I get home from work. I have no known food allergies; neither have I changed the brand of laundry detergent or body wash I use. Is it possible that I have now developed an allergy?

Hives, or urticaria, is a common skin condition due to the disordered release of histamines in your skin. The symptoms resolve within weeks in many cases, although they may persist for months in others. This is known as chronic urticaria.

Allergic reactions are only one possible cause of hives. Others include the use of new medicinal products, bee stings or contact with certain materials such as latex, as well as non-allergic causes such as infections and internal diseases. It is extremely rare to develop new food allergies in adulthood.

Consult your doctor for a proper check-up. He/she will evaluate your condition by going through your medical history and what you have used or done recently to possibly trigger the attack, and also conduct a physical examination. Based on this assessment, they will order laboratory investigations only if applicable. While a cause is not always identified, medications are available to control the symptoms effectively and safely.

DR TEE SHANG-IAN
CONSULTANT // NATIONAL SKIN CENTRE



Q2

All Night Long

My husband was posted to Boston last November. Since then, I've been corresponding with him almost nightly via Skype, and leaving my tablet on the bed when I sleep. Is sleeping beside such devices for long hours hazardous to health?

While there is no scientific evidence that the wavelengths from electronic devices affect sleep, not having them nearby removes the subtle stress of the need to be responsive and connected. This, in turn, will give you a more restful sleep.

Adequate sleep is vital to our health and sense of wellbeing. Inadequate sleep can lead to poor performance at work, as attention span and the ability to stay focused are diminished. Shortage of sleep may also result in migraine and tension-type headaches, attention difficulties, and affect memory and academic performance. Research has shown that sleep-deprived individuals are more prone to making mistakes they are not aware of. Short sleep is also associated with increased risk for psychiatric conditions, and can negatively impact mood and relationships.

Avoid having your mobile devices in the bedroom. If this is not possible, turn them off. Many people use their devices as alarm clocks — having these on hand make it too easy to check e-mails and messages “one last time” before going to bed. The itch to check in at all hours of the night or being awakened to the sound of an incoming message disrupts our sleep.

Activity on a laptop or tablet before sleeping will also increase your exposure to blue light (which is highly stimulating) and suppress melatonin production. Melatonin, produced in the pineal gland, is the primary sleep hormone. It is produced as we prepare for sleep and is important in giving you a good night's rest. In addition, your mind will be in an excited state, which works against sleep initiation.

DR CHONG YAW KHIAN

SENIOR CONSULTANT // GENERAL ENT CLINIC // TAN TOCK SENG HOSPITAL

Q3

Eating To Lose Weight

Is it possible to lose weight by controlling your diet and not exercising? Because of many old sports injuries, my boyfriend cannot undertake physical activity for extended periods of time, and he definitely can't do any high-impact exercises. Can he just eat less or just eat the “right” type of foods? And what sort of “safe” workouts can he do?

A healthy diet and physical activity are important for losing weight and preventing weight gain. Body weight is affected by the amount of energy (calories) that you consume from food and drinks, and the amount of energy you use up through physical activity. You gain weight when you take in more calories than you use. Cutting down your calorie intake and increasing physical activity help you burn more calories and hence help weight loss.

Eating less (portion control) and eating the right type of food may help your boyfriend lose weight, but this will only happen if the total amount of calories he takes is less than what he uses. A good way to eat healthily is



to have a balanced meal based on the healthy plate concept where half of the plate is filled with vegetables, one-quarter carbohydrates, one-quarter lean protein, and with a fruit to end the meal.

However, do note that while dieting may bring his weight down, this weight loss may not be sustainable if there is no physical activity. Incorporating appropriate and safe physical activity in his lifestyle is important for preventing weight regain and overall health.

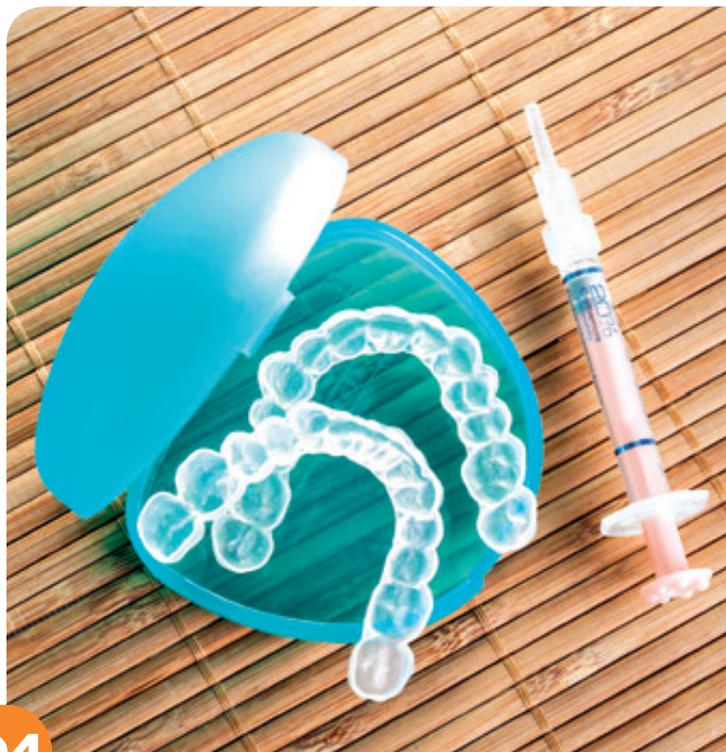
MS LYNETTE GOH
SENIOR DIETITIAN // NATIONAL HEALTHCARE
GROUP POLYCLINICS

Safe workouts vary for individuals especially if they have pre-existing sports injuries. Such workouts can include walking, swimming, cycling or aqua aerobics.

Exercise is based on the FITT principle (frequency, intensity, type and time). If your boyfriend is unable to engage in exercise of sufficient intensity, this can be balanced with increasing frequency of physical activity throughout the day or week and or prolonging the duration of each physical activity. In addition, muscle strengthening is crucial in improving resting metabolic rate, which in turn can improve calorie usage at rest and improve muscle-to-fat ratio. Muscle strengthening can be performed using resistant bands in a more controlled environment.

In order to have an individualised prescription of suitable exercises, it would be preferable for your boyfriend to have referral to a physiotherapist to assess the extent of his sports injuries and make the optimal recommendations of what is suitable for him.

MS CINDY SOH
PRINCIPAL PHYSIOTHERAPIST //
NATIONAL HEALTHCARE
GROUP POLYCLINICS



Q4

Pearly Whites

I don't like the colour of my teeth and have considered using teeth-whitening products. But complicated-sounding names such as phthalimidoperoxycaproic acid, hydrated aluminium oxide and carbamide peroxide in the ingredients list scare me off. Should I go ahead and try them? Surely, such products should be "safe" since you don't need a prescription to buy them. If not, how do I get my teeth whiter?

Teeth colour can be due to external or internal discolouration, or both. Generally, external discolouration can be cleaned by a thorough scale and polish. PAP, or 6-phthalimido peroxy hexanoic acid, and carbamide peroxide are chemical bleaching agents used to whiten teeth. Aluminium oxide is a mild abrasive used in certain types of toothpaste to help whiten teeth.

Over-the-counter (non-prescription) products for teeth whitening sold in licensed stores are generally safe, although the results of use may be limited due to the reduced concentration of effective ingredients in such products.

Advice and a better assessment should be sought from a dental practitioner before you consider teeth whitening.

DR HOLY KOH
SENIOR DENTAL SURGEON // ANG MO KIO POLYCLINIC //
NATIONAL HEALTHCARE GROUP POLYCLINICS

Q5

Cause And Effect

I have been diagnosed with sub-clinical hyperthyroidism. Since it does not display typical thyroid-related symptoms, can it be left untreated?

Patients with subclinical hyperthyroidism will have no symptoms, as the increase in blood thyroid hormone levels is mild. Patients with full-blown hyperthyroidism will have clearly-elevated blood thyroid hormone levels along with symptoms such as weight loss, heart palpitations, heat intolerance, hand tremors, loose stools and irritability.

Whether subclinical hyperthyroidism can be left untreated depends on the cause, if it progresses over time, the age of patient, and the state of health of other organs such as the bones and heart.

DR WINSTON KON

SENIOR CONSULTANT // DEPARTMENT OF ENDOCRINOLOGY // TAN TOCK SENG HOSPITAL



HE GOES SOLO

My husband prefers masturbation to sex, and I have caught him self-pleasuring a few times. Whenever I want to get intimate, he comes up with excuses to avoid physical contact. This is devastating to my self-esteem. I suggested seeing a counsellor together. But he won't. What should I do?

Sexual problems in married couples may occur at any point in the marriage. The problems could be related to issues such as lowered desire due to stress, after childbirth, during an illness, or anxiety about performance during the interaction. Partners may also have difficulty being aroused, or have orgasmic and ejaculation problems. Sexual difficulties could be related to physiological disorders, or psychological or relationship difficulties in one or both partners. Unresolved sexual difficulties between couples may contribute to serious marital and psychological problems.

Since your husband is not ready to see a professional, you could consult a doctor or marital therapist on your own for an initial assessment.

MS CHAN LAY LIN

DEPUTY HEAD // MEDICAL SOCIAL WORK // INSTITUTE OF MENTAL HEALTH

ASK THE SEXPERTS

Q6

Getting The Runs

I recently went on a 10-day trekking trip in Nepal and contracted "travellers' diarrhoea" by the second day. It lasted throughout the trip, only easing up slightly with medication. Is it because I have a weak stomach?

"Travellers' diarrhoea" is watery bowel movement usually caused by bacteria, parasites or viruses. It is not about having a "weak" stomach. You are more likely to get such diarrhoea if you travel in Africa, Asia (except Japan and Singapore), Central America, Mexico, South America, and countries around the Mediterranean Sea.

Preventive measures include:

- ▶▶ Drink only bottled water
- ▶▶ Brush teeth using bottled water
- ▶▶ Avoid having ice in any drink
- ▶▶ Avoid street food
- ▶▶ Avoid food or drinks made with unpasteurised milk
- ▶▶ Ensure meat and seafood are well-cooked, and eggs have a firm yolk
- ▶▶ Wash your hands after going to the bathroom, blowing your nose or touching an animal

If you have an existing serious health condition, consult your doctor before your trip. They might give you antibiotics to take while travelling or appropriate vaccination.

DR YEO HUI NIAN

FAMILY PHYSICIAN // ASSOCIATE CONSULTANT // JURONG POLYCLINIC // NATIONAL HEALTHCARE GROUP POLYCLINICS





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HEALTHCARE HEROES HONOURED

THE 13TH HEALTHCARE HUMANITY AWARDS (HHA) SALUTES THE WORK AND DEDICATION OF HEALTHCARE PROFESSIONALS.

The extraordinary efforts of 101 healthcare workers were recognised at the 13th Healthcare Humanity Awards (HHA) on 6 May 2016 at the Ci Yuan Community Club. HHA was first established in 2004 by The Courage Fund to pay tribute to medical professionals who provided aid during the Severe Acute Respiratory Syndrome (SARS) pandemic. It has since expanded to include those who go the extra mile in the healthcare field. A total of 655 healthcare workers have been honoured since its inception.

Awards were given out in five categories: Honourable Mention, Open, Intermediate and Long-Term Care (ILTC) Sector, Caregiver and Volunteer. Each HHA Honourable Mention winner received \$2,000. Winners of the HHA Open, ILTC Sector, Caregiver and Volunteer categories received \$1,500 each. All winners took home a HHA medallion. This year's recipients included:

HONOURABLE MENTIONS

- Tan Tock Seng Hospital Senior Staff Nurse **Ms Nadiyah Erniyanti Binte Maliki**, who was part of the medical team that helped victims of the Nepal earthquake in 2015. She is also a volunteer at the Red Cross Home for the Disabled and an active befriender at Community-led Action for Resilience Programme by the Singapore Red Cross.
- Staff Nurse **Ms Wong Li Wai**, who spent five weeks at an Ebola management centre in Sierra Leone during the 2014 outbreak, tending to victims of the deadly virus. A former nurse at the Institute of Mental Health (IMH), Ms Wong continues her work with Doctors Without Borders.



Recipients of the HHA 2016 at the Ci Yuan Community Club.

VOLUNTEER CATEGORY (NEW)

- **Mr Lee Soon Hong**, a medical student who spends Saturday afternoons caring and interacting with patients at IMH. He regularly organises recreational and rehabilitative activities to uplift the lives of the IMH patients.

Guest-of-honour President Tony Tan presented the awards. In his message, he acknowledged the important roles healthcare professionals play, "not only in caring for the sick and infirmed among us, but also in protecting and improving public health".



Tan Tock Seng Senior Staff Nurse Ms Nadiyah Erniyanti receives her award from President Tony Tan.



Left to right: Special guest Mr Lee Suan Yew and Mdm Kay Kuok at the awards ceremony.

Below: President Tony Tan with Award Winners and their senior management.



HEALTHCARE HUMANITY AWARDS 2016

GUEST-OF-HONOUR
PRESIDENT TONY TAN KENG YAM

6 May 2016



President Tony Tan with Ms Nadiah Erniyanti (second from left) and other recipients of the Healthcare Humanity Awards (Honorable Mentions).

The recipients of this award exemplify the values of courage, extraordinary dedication, selflessness, steadfastness in ethics, compassion and humanity in the course of their service.

MDM KAY KUOK, CHAIRMAN, BOARD OF DIRECTORS, THE COURAGE FUND, AND CHAIRMAN OF NATIONAL HEALTHCARE GROUP



Mr Loh Yew Kim Award Winner from the "Caregiver Category" with President Tony Tan.

AT THE FOREFRONT OF MENTAL HEALTH

THE SINGAPORE MENTAL HEALTH CONFERENCE (SMHC) 2016, INITIATED BY INSTITUTE OF MENTAL HEALTH (IMH), HAS BECOME A NATIONAL PLATFORM FOR LEARNING ABOUT MENTAL HEALTH.

Guest-of-honour
Mr Tan Chuan-Jin, Minister
for Social and Family
Development, delivering the
keynote address at the SMHC.



The Singapore Mental Health Conference 2016 was held on 27 and 28 May 2016 at Max Atria @ Singapore Expo. Themed “Mind Matters, Family Matters”, it featured international and local speakers who shared their knowledge and experiences in supporting persons with mental health issues across family, community and workplace settings. The event also showcased cross-sector efforts that allow more inclusive and integrative care across different contexts.

SMHC 2016 was jointly organised by IMH, the Agency for Integrated Care, National Council of Social Service and Health Promotion Board. About 500 professionals from the healthcare, social service, and Intermediate and Long-term Care sectors, as well as community-based workers and consumers of mental



Minister Tan Chuan-Jin with Ms Tina Hung, Deputy Chief Executive Officer of the National Council of Social Service, at the Agency's booth.

health services, participated in SMHC. The various activities included keynote presentations, five plenary sessions, 10 track and 14 breakout sessions.

Minister Tan Chuan-Jin delivered the opening keynote and spoke on the supportive roles of the family, as well as the “extended families” in the community and workplaces in promoting mental well being and helping persons with mental health issues recover successfully. He underscored the importance of addressing mental health issues holistically — not only from the medical perspective but also from a social standpoint.

Above: Mediacorp artist and M.A.D Race Ambassador Ms Eelyn Kok (centre) pledging her support for people with mental health issues at the booth by Touch Community Services.



Welcome Address by Adj A/Prof Ong Say How, Chief and Senior Consultant, Department Of Child & Adolescent Psychiatry, Institute Of Mental Health (IMH) & Chairman, 3rd Asian Congress on ADHD Organising Committee at the Opening Ceremony of the 3rd Asian Congress on ADHD 2016.

With early detection, intervention and support, children and teenagers with ADHD can manage their condition and achieve their goals.

ADJ A/PROF ONG SAY HOW

MANAGING AND LIVING WITH ADHD

THE 3RD ASIAN CONGRESS ON ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) FOCUSES ITS ATTENTION ON PEOPLE AFFECTED BY THE CONDITION.

Some 400 local and international healthcare professionals were joined by a group of young patients with ADHD and their caregivers at the 3rd Asian Congress on ADHD. Previously staged in Seoul and Tokyo, this was the first time the congress was held in Singapore.

Plenary lectures, poster presentations and talks by experts covered a variety of subjects on ADHD. They ranged from the use of technology to provide healthcare to patients with the disorder, to joint efforts between industries and ministries to manage the condition.

A symposium was also organised for parents and guardians of children and teenagers with ADHD. Attendees got a better understanding of the disorder and the important supporting role they play. Through discussions, they learnt how young patients react to and cope with difficulties, and how best to manage their behaviour.



Guest-of-Honour Dr Janil Puthuchearu's tour of the exhibition booths.

The highlight of the two-day event was the ACE Awards, which recognised children and teens with the disorder who overcame challenges to realise their potential. Mentors who made a positive impact in the patients' lives were also honoured. Dr Janil Puthuchearu, Minister of State, Ministry of Education and Ministry of Communications and Information, was the guest-of-honour.

The 3rd Asian Congress on ADHD was organised by the Institute of Mental Health with partners, Health Promotion Board, Ministry of Education, Ministry of Social and Family Development, KK Women's and Children's Hospital, National University Hospital, and the Society for the Promotion of ADHD Research and Knowledge (SPARK). It was held on 26 and 27 May 2016 in conjunction with the Singapore Mental Health Conference at the Singapore Expo.



ACE Awards 2016 Awards recipients.



WARD IMPROVEMENT

THE INSTITUTE OF MENTAL HEALTH (IMH) OPENS NEW WARDS FOR MOOD DISORDERS AND EARLY PSYCHOSIS.

From left to right: Dr Mok Yee Ming, Senior Consultant / Chief, Dept of General Psychiatry, Head, Mood Disorders Unit, IMH; Asst Prof Sujatha Rao, Consultant / Deputy Chief, Dept of Early Psychosis Intervention, IMH; Guest-of-Honour Mr Chan Heng Kee, Permanent Secretary, Ministry of Health; A/Prof Chua Hong Choon, Chief Executive Officer, IMH; A/Prof Daniel Fung, Vice Chairman Medical Board, IMH.

To create a more conducive environment for targeted treatment and recovery, IMH officially opened two specialised wards on 14 June 2016 — the 40-bedded Mood Disorders Unit (MDU) Inpatient Service and the 20-bedded Early Psychosis Intervention Programme (EPIP) Inpatient Centre. The latter is dedicated to the care of patients with early psychosis, a mental health condition with symptoms that include hallucinations, delusions (false beliefs), paranoia and disorganised thoughts and speech. The MDU ward provides assessment and customised treatment for patients with complex or severe mood disorders such as major depressive disorder and bipolar disorders.

With these new facilities, we will be better able to deliver integrated and holistic healthcare to patients in more therapeutic environments.

A/PROF CHUA HONG CHOON, CEO, INSTITUTE OF MENTAL HEALTH

Both wards are mixed-gender with Class B2 and C accommodation, and were re-designed from two existing wards originally built in 1993. The open-concept layouts, with walls removed and natural light introduced into spaces, are designed to decrease agitation and promote recovery in patients. Each ward also features garden views and designated rooms for therapy activities.



Mr Chan Heng Kee, Permanent Secretary, Ministry of Health viewing the Omnicell cabinet.



A/Prof Chua Hong Choon, CEO, IMH, giving the opening speech.

THANKS FOR THE HARD WORK

TAN TOCK SENG HOSPITAL (TTSH) RECOGNISES THE CONTRIBUTIONS OF ITS PATIENT SERVICE ASSOCIATES (PSA) WITH A THREE-DAY APPRECIATION EVENT.

In a show of appreciation to its 700-strong PSA team, TTSH marked its 4th PSA Day with three days of fun-filled activities. Held from 1 to 3 June 2016 at the hospital, “Beyond the Faces That Greet” featured team-bonding games, a movie night and a photo exhibition that captured PSAs at work.

The PSA Day Award Ceremony, which recognises



outstanding PSAs for their willingness in taking on extra tasks on top of their daily work, was held on the third day. It was graced by TTSH Chief Executive Officer Dr Eugene Fidelis Soh and TTSH Chief Operating Officer Dr Jamie Mervyn Lim. This year, the CEO PSA Award went to Ms Rajasoluchana, a Senior PSA from Clinic 3B, who has consistently displayed outstanding performance in her work.



The frontline staff.

Support For The Silver Generation

NANYANG TECHNOLOGICAL UNIVERSITY (NTU) PARTNERS TAN TOCK SENG HOSPITAL'S INSTITUTE OF GERIATRICS AND ACTIVE AGEING (IGA) TO LAUNCH A GERIATRICS RESEARCH PROGRAMME.

In May 2016, NTU launched the Ageing Research Institute for Society and Education (ARISE). Its aim is to create a healthy and active ageing society through research, innovation and education. To kick-start its research programme in geriatrics, the university inked a partnership with IGA.

“This partnership is a major step forward in boosting research in ageing and geriatrics. It also underpins NTU’s strong focus in

forging close ties with industry leaders and government agencies to develop innovative and sustainable solutions for a better society,” said Professor Lam Khin Yong, NTU’s Chief of Staff and Vice President for Research.

“The close collaboration between IGA and NTU ARISE will provide a catalytic platform for multi-disciplinary research and innovation, which will deliver the holistic and integrated solutions needed to meet the

complex challenges we face today in ageing and geriatrics,” said Associate Professor Chin Jing Jih, Director, IGA.



The TTSH Diabetes Outreach Organising Team.



From left to right: A/Prof J.J Chin, Dr Yaacob Ibrahim and A/Prof Daniel Chew.



DIABETES OUTREACH DURING RAMADAN

TAN TOCK SENG HOSPITAL (TTSH) BRINGS THE ANTI-DIABETES MESSAGE CLOSER TO THE COMMUNITY.

This year's Ramadan Talk by TTSH's Department of Endocrinology took place on 29 May 2016 at the Al Iman Mosque. It was part of the Majlis Ugama Islam Singapura' (MUIS) "Touch of Ramadan" event line-up.

Aimed at diabetes patients and their caregivers, the talk highlighted three key messages — "Seeking Knowledge", "Strengthen the Family Institution" and "Spread the Blessing".

Dr Abdul Shakoor, Consultant at the Department of Endocrinology, spoke on "Safe Fasting During Ramadan". He gave advice on how to fast safely during Ramadan without jeopardising blood glucose levels, through diet management and the proper use of insulin injections.

Diabetes Nurse Educator Sister Noorani Binte Othman then talked about "Blood Glucose Monitoring During Ramadan", and educated patients with diabetes on how to control their blood glucose levels during the Ramadan period.

Dietitian Edna Loh ended the session with "Healthy Eating at Ramadan" where she shared with patients and their caregivers strategies to control blood glucose levels by eating right.

Minister-in-charge of Muslim Affairs Dr Yaacob Ibrahim graced the event, along with MUIS leaders. TTSH Acting CMB Associate Professor Chin Jing Jih, and Head of Department, Endocrinology, Associate Professor Daniel Chew also graced the event.



Participants listening to the Ramadan talks by the TTSH Endocrinology team.



Sister Noorani Binte Othman, Diabetes Nurse Educator, giving a talk on Blood Glucose Monitoring during Ramadan.

FAMILY MEDICINE DOCTORS REACH OUT TO SENIORS

EMPOWERING PEOPLE WITH KNOWLEDGE AND BASIC SKILLS TO CARE FOR THEMSELVES ARE KEY INGREDIENTS IN CREATING WELLNESS IN THE COMMUNITY.

The NHG Family Medicine Residency Programme, in collaboration with the NHG Central Regional Health Office, recently introduced compulsory community health talks to be conducted by second-year Family Medicine (FM) doctors.

Programme director Dr Darren Seah said that the main objective of initiating the health talks is to provide the doctors with first-hand experience of engaging with community health initiatives. “We would like our residents and future primary care practitioners to gain first-hand experience in engaging the community outside the clinic. This helps them gain even better understanding of the needs of residents and the challenges they face at home,” he said.

Over two weekends in April 2016, FM residents reached out to the seniors at Kebun Baru Bestari Residents’ Committee

and Hougang Community Club (CC). Some 80 participants attended the talks.

“People do not usually attend health screenings when they feel fine, so rather than wait for patients to visit the clinic when they are unwell, it is better for us to reach out and hopefully help them prevent illness early on,” said Dr Jeremy Koh, one of the three presenters for the talks.

The initiative also created opportunities for doctors to have a better understanding of the community. “Patients tend to be anxious when they go to the clinic. However, in a familiar environment where they are more relaxed, such as the CC, they are able to speak their mind. This is where you might be able to pick up more things, and get a fuller picture of their background,” Dr Koh said.



Family Medicine Residents gain first-hand experience by engaging residents at the community health talks.

We would like our residents and future primary care practitioners to gain first-hand experience in engaging the community outside the clinic.

DR DARREN SEAH,
NHG FAMILY MEDICINE RESIDENCY
PROGRAMME DIRECTOR



Some 80 residents attended talks at Kebun Baru Bestari Residents’ Committee and Hougang Community Club.



DIRECTORY

AN EASY GUIDE FOR YOU TO CONTACT OR LOCATE US

NATIONAL HEALTHCARE GROUP CORPORATE OFFICE

3 Fusionopolis Link
#03-08, Nexus @ one-north
Singapore 138543
Tel: 6496-6000 / Fax: 6496-6870
www.nhg.com.sg

The National Healthcare Group (NHG) is a leader in public healthcare in Singapore, providing care through our integrated network of nine primary care polyclinics, acute care hospital, national specialty centres and business divisions. NHG's vision of "Adding Years of Healthy Life" is more than just about helping the sick. It encompasses the more difficult but more rewarding task of preventing illness and preserving health and quality of life. As the Regional Health System (RHS) for Central Singapore, it is vital for NHG to partner and collaborate with other stakeholders, community advisers, volunteer welfare organisations and others in this Care Network together with our patients, their families and caregivers to deliver integrated healthcare services and programmes that help in "Adding Years of Healthy Life" to all concerned.

TAN TOCK SENG HOSPITAL

11 Jalan Tan Tock Seng
Tel: 6256-6011 / Fax: 6252-7282
www.ttsh.com.sg

The second largest acute care general hospital in Singapore with specialty centres in Endoscopy, Foot Care & Limb Design, Rehabilitation Medicine and Communicable Diseases. It covers 27 clinical specialties, including cardiology, geriatric medicine, infectious diseases, rheumatology, allergy and immunology, diagnostic radiology, emergency medicine, gastroenterology, otorhinolaryngology, orthopaedic surgery, ophthalmology and general surgery.

INSTITUTE OF MENTAL HEALTH

Buangkok Green Medical Park,
10 Buangkok View
Singapore 539747
Tel: 6389-2000 / Fax: 6385-1050
www.imh.com.sg

Specialist mental health services are provided to meet the special needs of children and adolescents, adults and the elderly. There are sub-

specialty clinics such as the Neuro-Behavioural Clinic, Psychogeriatric Clinic, Mood Disorder Unit and an Addiction Medicine Department. The treatment at IMH integrates evidence-based therapies, supported by the departments of Clinical Psychology, Nursing, Occupational Therapy and Medical Social Work, to provide holistic care for patients. IMH also provides a 24-hour Psychiatric Emergency Service.

NATIONAL SKIN CENTRE

1 Mandalay Road
Tel: 6253-4455 / Fax: 6253-3225
www.nsc.com.sg

The centre has a team of trained dermatologists to treat patients with various skin problems. To serve patients better, there are sub-specialty clinics for the different skin disorders and laser surgeries.

NATIONAL HEALTHCARE GROUP POLYCLINICS

Contact centre: 6355-3000
www.nhgp.com.sg

National Healthcare Group Polyclinics (NHGP) forms NHG's primary healthcare arm. NHGP's nine polyclinics serve a significant proportion of the population in the central, northern and western parts of Singapore. NHGP's one-stop health centres provide treatment for acute medical conditions, management of chronic diseases, women-and-child health services and dental care. NHGP also enhances the field of family medicine through research and teaching. NHGP has also been awarded the prestigious Joint Commission International (JCI) accreditation under the Primary Care Standards. Through the Family Medicine Academy and the NHG Family Medicine Residency Programme, NHGP plays an integral role in the delivery of primary care training at medical undergraduate and post-graduate levels.

ANG MO KIO POLYCLINIC
Blk 723 Ang Mo Kio Ave 8
#01-4136 Fax: 6458-5664

BUKIT BATOK POLYCLINIC
50 Bukit Batok West Ave 3
Fax: 6566-2208

CHOA CHU KANG POLYCLINIC
2 Teck Whye Crescent
Fax: 6765-0851

CLEMENTI POLYCLINIC
Blk 451 Clementi Ave 3
#02-307 Fax: 6775-7594

HOUGANG POLYCLINIC
89 Hougang Ave 4
Fax: 6386-3783

JURONG POLYCLINIC
190 Jurong East Ave 1
Fax: 6562-0244

TOA PAYOH POLYCLINIC
2003 Toa Payoh Lor 8
Fax: 6259-4731

WOODLANDS POLYCLINIC
10 Woodlands St 31
Fax: 6367-4964

YISHUN POLYCLINIC
30A Yishun Central 1
Fax: 6852-1637

NHG COLLEGE

Tel: 6340-2351 / Fax: 6340-3275
college.nhg.com.sg

NHG College plays an instrumental role in facilitating continuous learning and development of our workforce, as well as driving leadership development and systems improvement in NHG. It collaborates with renowned institutions and industry partners to build the collective capabilities of NHG leaders, educators, healthcare professionals and staff in managing the health of the population in the central region.

NHG DIAGNOSTICS

Call centre: 6275-6443
(6-ASK-NHGD) /
Fax: 6496-6625
www.diagnostics.nhg.com.sg

National Healthcare Group Diagnostics (NHG Diagnostics) is a business division of NHG. It is the leading provider in primary healthcare for one-stop imaging and laboratory services that is accessible, cost effective, seamless, timely and accurate. NHG Diagnostics supports polyclinics, community hospitals, nursing homes, general practitioners and the community at large via its extensive network locally and regionally. Its services are available in static and mobile centres. Mobile services include general X-ray, mammogram, ultrasound, bone mineral densitometry, health screening and medical courier. It also provides tele-radiology service, laboratory and radiology management, and professional consultancy services in setting up of imaging centres and clinical laboratories.

NHG PHARMACY

Tel: 6340-2300
Fill your prescription online:
www.pharmacy.nhg.com.sg

NHG Pharmacy manages the dispensary and retail pharmacies at all nine NHG Polyclinics. Services include Smoking Cessation Clinics, pharmacist-led Anti-Coagulation Clinics and Hypertension-Diabetes-Lipidemia Clinics, where pharmacists monitor and help patients optimise their medication. Patients may also consult our pharmacists for treatment of minor ailments or for travel advice. NHG Pharmacy also provides comprehensive medication management services to Intermediate Long Term Care facilities (ILTCs) such as nursing homes. It also offers ConviDose™ Medication Management Service where medication is conveniently packed into individual sachets for patients according to the stipulated quantity and time the pills need to be consumed.

PRIMARY CARE ACADEMY

Tel: 6496-6682 / Fax: 6496-6669
www.pca.sg

The Primary Care Academy (PCA), a member of NHG, was set up to meet the professional training needs of primary healthcare professionals in Singapore and the region. PCA aims to be a platform for sharing of expertise and capacity building among community healthcare leaders and practitioners in and around ASEAN.

JOHNS HOPKINS SINGAPORE INTERNATIONAL MEDICAL CENTRE

11 Jalan Tan Tock Seng
Tel: 6880-2222 / Fax: 6880-2233
www.imc.jhmi.edu

Johns Hopkins Singapore International Medical Centre (JHSIMC) is a licensed 30-bed medical oncology facility located in Singapore, a joint venture between the NHG and Johns Hopkins Medicine International (JHMI). It is the only fully-branded Johns Hopkins facility outside the United States, providing inpatient and outpatient medical oncology care, medical intensive care, laboratory services, hospital and retail pharmacy, general internal medicine and health screenings.

NHG IS A REGIONAL HEALTH SYSTEM FOR SINGAPORE



Adding years of healthy life



STARS FOR HEALTH

Health is Wealth

Teamwork Makes Us Happy

We synergise with one another to become a high performing TEAM.



National Healthcare Group is a Regional Health System for Singapore. NHG collaborates with Hospitals, Specialty Centres, Polyclinics, Patients, Caregivers, Partners, Volunteers and the Community to **Add Years of Healthy Life** to the nation.

