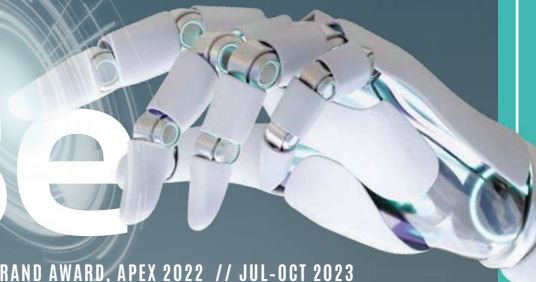


Lifewise

BEST MAGAZINE INFOGRAPHICS, WAN-IFRA ASIAN MEDIA AWARDS 2022 • WINNER, GRAND AWARD, APEX 2022 // JUL-OCT 2023



ASSOCIATE PROFESSOR
LOH YONG JOO

HEAD AND SENIOR CONSULTANT, DEPARTMENT OF
REHABILITATION MEDICINE, TAN TOCK SENG HOSPITAL

ISSUE
96



BELLY BATTLES

Comparing
stomach flu and
food poisoning

20

STEP BY STEP

Improve
mobility with
walking aids

25

GET TECH FOR REHAB

How robotics and
virtual reality
are transforming
patient experiences
in Singapore



Adding years of healthy life



NHG HSG Primer for General Practice

Primary care will play a pivotal role in the healthcare of our population with the upcoming launch of Healthier SG (HSG) in July 2023. The national enrolment programme will have residents commit to seeing one family doctor, with whom they will develop health plans to guide their health maintenance, manage long term conditions and facilitate preventive care. This course aims to provide just-in-time, relevant and applicable training to deliver HSG services, packaged in digestible modules delivered both online and in-person with our GPs and CAs in mind.



Blended Learning Package for

● modules for GPs | ● modules for GPs and CAs

General Practitioner + Clinic Assistant (GP) (CA)

4 CME points for GPs

Topics covered

- Diabetes Mellitus
- Hypertension
- Hyperlipidaemia
- Smoking Cessation
- Healthy Diet
- Exercise Prescription

- Weight Management
- Adult Vaccination
- Cardiovascular Risk Assessment
- Cancer Screening

- Basic Health Parameters
- Understanding DHL
- Health Promotion & Preventive Care
- Health Screening Skills & Questionnaire Administration

- Use of Digital Health Applications



A eLEARN modules

Self Directed Learning



● For GPs

With Cat 3B CME points

● For CAs

Essential pre-reading for GPs and CAs

B In-Person Workshops

Day 1
CA Skills

Day 2
Team-Based Skills Workshop
With Cat 1B Core CME points

Register in time for HSG launch!



for.sg/nhghsgprimer-regform

Quick & easy via FormSG

Full course fees* (subject to prevailing GST)
For 1GP + 1CA: \$570

*PCN training fund claimable, subject to approval

Workshop Dates

Day 1

(Fri, 1pm – 6pm)

Day 2

(Sat, 1pm – 6pm)

Run 4

Venue: Ang Mo Kio Polyclinic

~~14 Jul 23~~

~~5 Aug 23~~

Run 5

Venue: Ang Mo Kio Polyclinic

15 Sep 23

14 Oct 23



More runs to come!

06

COVER STORY

THE ROAD TO REHAB: ANYTIME, ANYWHERE, ANYONE

NHG enhances patient care with technology-aided rehabilitation.



Rehabilitation medicine tries to solve the daily functional needs of individuals with disabilities and improve their quality of life."

ASSOCIATE PROFESSOR LOH YONG JOO, HEAD AND SENIOR CONSULTANT, DEPARTMENT OF REHABILITATION MEDICINE, TAN TOCK SENG HOSPITAL



FEATURES

12

WHEN SCARS RUN DEEP

Prevent self-harm from escalating into suicidal behaviour.

14

THE POWER OF SPEECH THERAPY

Patients with communication and swallowing difficulties can greatly benefit with the right treatment.



16

WATCH YOUR BACK

Ignoring that persistent back pain can lead to dire consequences.

20

BELLY BATTLES

Know the difference between stomach flu and food poisoning.

22

OPTICAL APPEAL

Diagnose skin cancer with a non-invasive imaging tool.

25

A STEP IN THE RIGHT DIRECTION

The right walking aid can positively impact a senior's quality of life.

MEET YOUR FAMILY DOCTOR



Dr Benjamin Lam

KHOO TECK PUAT HOSPITAL



18

CONTENTS

ISSUE 96 JUL-OCT 2023



The World Association of News Publishers

WAN-IFRA ASIAN MEDIA AWARDS 2022
Best Magazine
Infographics



Lifewise clinched the following awards at APEX 2022:

GRAND AWARD
Magazine, Journals & Tabloids

AWARD OF EXCELLENCE
Magazine, Journals & Tabloids
- Magazine Series

AWARD OF EXCELLENCE
Magazines, Journals & Tabloids
- COVID-19 Media



REGULARS

EDITOR'S NOTE	03
THE BIG PICTURE	04
SPOTLIGHT	34
NHG DIRECTORY	40

HEALTH 360

28

BALL IN HAND

Experience the thrill of tchoukball and discover a new way to stay fit.

30

PUCKER UP IN PLEASURE

Sour food, when taken as part of a balanced meal, packs a healthy punch.

32

HOME ALONE

Tips to safeguard seniors who live by themselves.



04

A GRADING SYSTEM FOR HEALTHIER BEVERAGES.



32



28

A GAME THAT IS FAST-PACED YET NON-AGGRESSIVE.



TRANSFORMING LIVES, IMPROVING CARE

SINCE THE ESTABLISHMENT OF SINGAPORE'S FIRST DEDICATED REHABILITATION MEDICINE SERVICE AT TAN TOCK SENG HOSPITAL (TTSH) IN 1973, rehabilitation medicine has had a profound impact on the lives of many patients. Today, this specialised field of medicine is more relevant than ever as the nation's ageing population brings along with it a surge in demand to restore lost function due to age-related chronic ailments or accidents.

Technological advancements play pivotal roles in revolutionising the tools used in treatment, consequently leading to better and more efficient care. In *Road to Rehab: Anytime, Anywhere, Anyone* (page 6), *Lifewise* explores the future of rehabilitation medicine, including the services to be offered by the upcoming TTSH's Integrated Care Hub (ICH).

Multidisciplinary partnerships among doctors, nurses, and allied health professionals form the backbone of rehabilitation medicine. This is showcased in *The Power of Speech Therapy* (page 14), where we shed light on how speech therapists improve patients' quality of life by effectively addressing communication disorders and swallowing difficulties caused by various medical conditions. In *A Step in the Right Direction* (page 25), we delve into how physiotherapists help individuals with mobility issues maintain their independence by recommending assistive devices to suit specific medical issues and needs.

Technology can power preventive care as well. As the sixth most common cancer in Singapore, early and accurate detection of skin cancer is crucial. At the National Skin Centre (NSC), a cutting-edge skin imaging tool is enhancing the process by offering a non-invasive and painless option. Reflectance Confocal Microscopy not only alleviates patient anxiety, but also enables prompt detection and treatment. Learn more about it in *Optical Appeal* (page 22).

While technology continues to be instrumental in enabling better health and care, there are tangible elements of human support from family and the community that cannot be replaced. This especially applies to the special bonds that can be cultivated between family doctors and their patients. This is precisely what motivated Dr Benjamin Lam to take up Family Medicine in *Inspired to Make a Difference* (page 18).

Indeed, true wellness is a journey that the NHG Family must embrace together with our patients, staff, partners, and the community, to achieve a more meaningful, healthier future for all.

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MAKING THE GRADE

Choosing a healthier drink option is now as easy as A, B, C, and D. BY JOYCE LIM

THE NUTRI-GRADE MARK PRINTED ON THE PACKAGING OF BEVERAGES HELPS IDENTIFY HEALTHIER OPTIONS. GRADES RANGE FROM **A (LOWEST IN SUGAR AND SATURATED FAT) TO D.**

A 0% sugar

B 4% sugar

C 8% sugar

D 12% sugar

➤ **SUGAR LEVELS** are displayed as a percentage of total volume.

Introduced by the Ministry of Health (MOH) and the Health Promotion Board (HPB), the grading system aims to promote informed, healthier choices to reduce the risk of diabetes and obesity.

01
Over

1/2
of our daily sugar intake comes from beverages.



✓ Singaporeans consume a daily average of **12 teaspoons (60g).**



✓ This exceeds the World Health Organization (WHO)'s recommended daily intake of **10 teaspoons (50g).**

✓ Sugar-sweetened beverages account for **over half of our daily intake.**

Source: National Nutrition Survey 2018

02 Beverages that **REQUIRE** a Nutri-Grade label:

➤ Beverages in **bottles, cans, cartons, or packets** (soft drinks, milk, fruit juices).

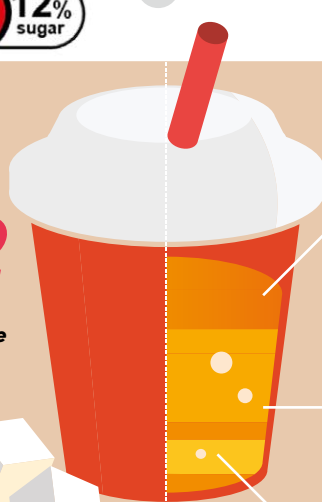
➤ **Powders or concentrates** (three-in-one coffee, cordials).



➤ Beverages dispensed from **non-customisable beverage dispensers** (fountain drinks, automated coffee machines).



➤ From end-2023, Nutri-Grade will apply to **freshly-prepared** beverages that can be customised (coffee, tea, juices, smoothies, bubble tea, herbal drinks, beverages).



03 MANDATORY LABELLING OF BEVERAGES GRADED C AND D.



✓ **Must display Nutri-Grade mark** on front of package or next to physical or online menu.



✓ **Products graded A or B** are not obligated to include Nutri-Grade mark.



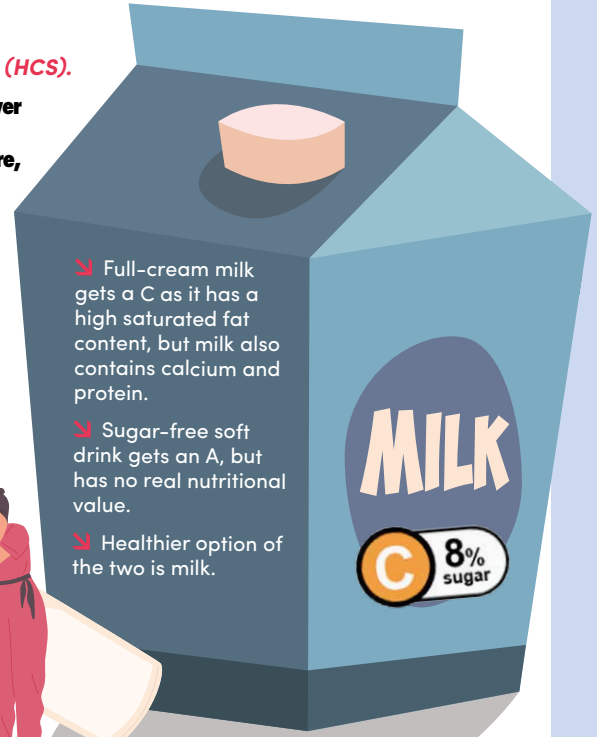
✓ **Healthier Choice Symbol** can be featured for products graded A or B.

04 DIFFERENCE BETWEEN NUTRI-GRADE AND HEALTHIER CHOICE SYMBOL (HCS).

✓ **Nutri-Grade** grades **sugar and saturated fat** content in beverages.

✓ **HCS** indicates that a product is **lower in saturated fat, sodium, and sugar, and higher in dietary fibre, calcium, and wholegrains** across both food and beverage categories.

VS



➤ Full-cream milk gets a C as it has a high saturated fat content, but milk also contains calcium and protein.

➤ Sugar-free soft drink gets an A, but has no real nutritional value.

➤ Healthier option of the two is milk.

05 YOU DON'T HAVE TO ALWAYS AVOID BEVERAGES GRADED C OR D.

➤ Nutri-Grade provides a simple and convenient way to identify beverages high in sugar and saturated fat.

➤ It does not measure other types of nutrients.

➤ A lower grade does not always mean less healthy.



➤ **IT IS BETTER TO USE NUTRI-GRADE AS A GUIDE TO COMPARE WITHIN THE SAME CATEGORY, SUCH AS SOFT DRINKS.**



OR

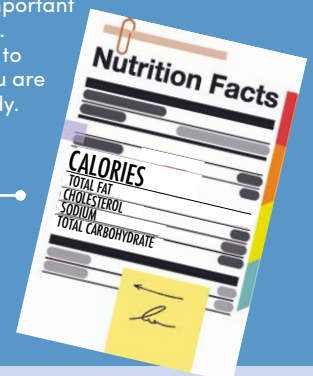


06 FIND OUT HOW YOUR FAVOURITE BEVERAGE RANKS WITH THE NUTRI-GRADE CALCULATOR:



07 FOOD AND BEVERAGE GRADING SYSTEMS ARE NOT AN EXACT SCIENCE.

While grades can be useful, it is important to look beyond them. Read ingredient lists to understand what you are putting into your body.





I am an innovator at heart, which resonates strongly with rehabilitation medicine that tries to solve the daily functional needs of individuals with disabilities and improve their quality of life.”

ASSOCIATE PROFESSOR LOH YONG JOO, HEAD AND SENIOR CONSULTANT,
DEPARTMENT OF REHABILITATION MEDICINE, TAN TOCK SENG HOSPITAL



**THE ROAD
TO REHAB:
ANYTIME,
ANYWHERE,
ANYONE**

Technology-aided rehabilitation is offering patients better odds of recovery, empowering them to lead active and fulfilling lives.

**BY WANDA TAN
IN CONSULTATION WITH
ASSOCIATE
PROFESSOR
LOH YONG JOO
HEAD // SENIOR CONSULTANT
// DEPARTMENT OF
REHABILITATION MEDICINE //
TAN TOCK SENG HOSPITAL**



**MORE REHAB
CARE REQUIRED**

Around

**20,000
PEOPLE**

in Singapore suffer from major health conditions such as stroke, heart attack, and cancer each year.

IN BRIEF

- ▶ As Singapore's population ages, rehabilitation services are being expanded beyond the hospital to the community, and closer to the homes of patients.
- ▶ TTSH, through its Clinic for Advanced Rehabilitation Therapeutics (CART), plays a leading role in these efforts.
- ▶ CART collaborates with academic, industry, and community partners to bring innovative rehabilitation technologies from bench to bedside.
- ▶ These devices are designed to boost functional recovery and empower patients in their rehabilitation journey.



Big developments are on the horizon for the field of rehabilitation medicine in Singapore. In September 2023, Tan Tock Seng Hospital (TTSH)'s long-awaited Integrated Care Hub (ICH) opens in Novena to serve as the new home of the TTSH Rehabilitation Centre (currently at Ang Mo Kio). On the global front, rehabilitation engineers, device manufacturers, clinicians, scientists, and industry representatives from all over the world will also meet in Singapore from 24 to 28 September for the biennial RehabWeek 2023 conference.

These upcoming events denote a major milestone as the specialty celebrates its 50th year of clinical service on our shores — half a century of helping patients recover from stroke, spinal cord injuries, and other conditions that affect the musculoskeletal and nervous systems. Over the years, the demand for rehabilitation services has grown exponentially, alongside the range of tools and technologies that healthcare professionals are leveraging to treat those who require such care.

RAMPING UP STEP-DOWN REHAB

Rehabilitation medicine is a distinct medical specialty that focuses on restoring function in patients with disabilities due to illnesses or accidents. It covers a wide variety of neurological conditions (for example, stroke, traumatic brain injury, spinal cord injury) and orthopaedic disorders (for example, bone fracture, joint replacement, limb amputation). These may be congenital, such as a baby born with cerebral palsy, or acquired, like a sports injury. Some patients undergo surgery prior to rehabilitation (such as for cancer), while others do not (like those with chronic back pain). In all cases, the goal is for patients to achieve optimal functional ability and mobility, so that they can successfully reintegrate into society.

Doctors who specialise in this field — known as rehabilitation physicians — prescribe both rehabilitation plans and medications as part of customised treatment plans for patients. These rehabilitation plans may incorporate assistive devices, such as braces, splints, artificial limbs, and robots, to help patients relearn and regain lost skills, be it the ability to walk, self-feed, or speak. This holistic care approach sees rehabilitation physicians working closely with allied health professionals, particularly physiotherapists, occupational and speech therapists, prosthetists, and orthotists.

For Associate Professor Loh Yong Joo, the sheer "breadth and depth of patient care" was the deciding factor that inspired him to be a rehabilitation physician. "It is meaningful work that serves patients of all ages," says the Head and Senior Consultant at TTSH's Department of Rehabilitation Medicine. "I am an innovator at heart, which resonates strongly with rehabilitation medicine that tries to solve the daily functional needs of individuals with disabilities and improve their quality of life."

"As a tech geek, the advances in relevant technologies — and getting to implement them, in partnership with academia and industry — excite me as well."

Indeed, A/Prof Loh's work has become even more meaningful in the two decades since he embarked on this specialty track. Singapore's rapidly-ageing population has caused the burden of chronic diseases to soar, with more elderly patients developing disabilities that require rehabilitation. To put a number on this, around 20,000 people in Singapore suffer from major health conditions such as stroke, heart attack, and cancer each year.

The *Healthier SG* strategy, an initiative by the Ministry of Health (MOH) that emphasises preventive care, adds another layer of complexity to the discipline. Instead of only providing post-stroke or post-surgery care, rehabilitation physicians are now also involved in preoperative rehabilitation (or 'prehabilitation'). "In 'prehabilitation', individuals already have existing health conditions," says A/Prof Loh. "Our aim is to prevent them from deteriorating further through exercise interventions."

INNOVATIVE SOLUTIONS

He shortlists three areas of focus for 'prehabilitation':

- **Frailty** — to predict and reverse age-related physical decline in older adults.
- **Osteoarthritis** — to prevent individuals with this degenerative joint disease from having to undergo surgery (for example, knee replacement surgery).
- **Pre-surgery** — to enhance a patient's functional capacity prior to surgery, thus improving post-operative outcomes and minimising side effects or complications.

To contribute towards preventive care and better population health, rehabilitation physicians must engage patients earlier in their health journey. The ongoing care transformation beyond the hospital to the community seeks to do just that. Rehabilitation medicine is no longer confined to inpatient wards. Today, patients can visit outpatient clinics at the hospitals or opt for treatment within their own neighbourhoods, such as at community hospitals and day rehabilitation centres. Home-based therapy is also an option for those who have difficulty commuting to their sessions. Plans to further expand the role of rehabilitation physicians in the community are underway, in line with the National One-Rehab framework (see box below).



The Armeo Spring is a single-arm exoskeleton that simultaneously trains arm movements and grasp functions.

Within the National Healthcare Group (NHG), TTSH's A/Prof Loh and his colleagues work together with community hospitals, day rehabilitation centres, and home-based rehabilitation care providers to care for patients in the Central and North regions of Singapore. For example, TTSH has a close partnership with Ang Mo Kio – Thye Hua Kwan Hospital (AMK-THKH), a community hospital that provides mainly rehabilitative and geriatric care. It is where the TTSH Rehabilitation Centre is currently located until it moves to ICH in HealthCity Novena in September this year. Strong care coordination is key to ensuring that patients' transition between care settings is well-supported.

For instance, A/Prof Loh's team has formed a tripartite collaboration with the National Neuroscience Institute (NNI) — which has a campus at TTSH — and AMK-THKH. "The collaboration facilitates fast-track, seamless transfers of stabilised stroke patients from NNI@TTSH to AMK-THKH, where we work with clinicians to co-manage them," he says. "We also train AMK-THKH staff to use the robotic rehabilitation technologies at its premises."

TECHNOLOGY WITH A HUMAN TOUCH

The rehabilitation technologies offered at AMK-THKH can also be found at TTSH's outpatient Clinic for Advanced Rehabilitation Therapeutics (CART). High-tech equipment is a



► TOWARDS PATIENT-CENTRED REHABILITATION

Introduced by MOH in 2021, the National One-Rehab framework aims to improve rehabilitation outcomes by facilitating patients' access to timely and appropriate care. It has three core components:

1. A STANDARDISED REHABILITATION CLASSIFICATION SYSTEM
Care needs, pathways, and outcomes for common conditions requiring rehabilitation will be standardised. This will help therapists and service providers better plan and facilitate care across each patient's rehabilitation journey.

2. A ONE-REHAB CARE PLAN
Patients will each have a customised care plan as they transition from the hospital to the community. Leveraging IT, therapists across different settings can track each patient's progress and jointly make informed decisions, enabling seamless shared care.

3. AN EXPANDED SCOPE OF COMMUNITY REHABILITATION SERVICES
More rehabilitation services will be created in community and primary care settings, including polyclinics, senior care centres, and day rehabilitation centres. This will enable acute hospitals to focus on patients with more complex rehabilitation care needs.



We hope to expand CART's clinical services and cater to more outpatient tertiary rehabilitation needs."

ASSOCIATE PROFESSOR LOH YONG JOO

key feature of the clinic, and may account for why many patients report positive experiences and succeed in achieving their rehabilitation goals.

Opened in 2011, CART was the first centre in Singapore to combine robotics and virtual reality (VR) with conventional rehabilitation therapy. It was also acclaimed for its multidisciplinary team-based approach, with rehabilitation physicians working alongside nurses, therapists, prosthetists and orthotists, psychologists, medical social workers, and dietitians to provide holistic care. These features are still in place, and even more evident, at the new and improved CART, which reopened in April 2022.

Spanning 19,935 square feet, the revamped facility is four times larger than before and houses state-of-the-art rehabilitative robots and a bigger gym. "The conditions we most commonly treat at CART are stroke, traumatic brain injury, spinal cord injury, and amputation. With the increased space, we have recently started managing patients with cancer, demyelinating diseases such as multiple sclerosis, and those who are ventilator-dependent too. We hope to expand our clinical services and cater to more outpatient tertiary rehabilitation needs," says A/Prof Loh. While patients range in age from 12 to 85 years old, he notes, "Most of our patients here are in the older age bracket, with an average age of 64 years old."

CART's suite of tech-aided rehabilitation programmes includes those targeting the upper and lower limbs. For example, patients with lower limb impairment can relearn to walk using the **Lokomat** or the **Ekso**. The Lokomat is a robot-assisted gait training system that straps patients into a harness while they practise walking on a treadmill. The Ekso is a wearable exoskeleton inbuilt with programmable



The Lokomat is a robot-assisted gait training system that straps patients into a harness while they practise walking on a treadmill.

▶ STEP BY STEP

Diagnosed with multiple sclerosis (MS), Amelia*, 54, had to adjust to life in a wheelchair as her symptoms progressively worsened. But with the help of the Ekso, she is slowly learning to get back on her feet.

When did you start going to CART?

AMELIA: I started outpatient treatment in September 2019 at the TTSH Rehabilitation Centre in Ang Mo Kio. That was where I first tried on the Ekso. I moved to CART after it reopened last year. On average, I visit CART once or twice a month. The team is very welcoming, patient, and kind. I feel safe doing my exercises with them.

What was your first time using the Ekso like?

AMELIA: At first, I was worried about walking with the Ekso, after being wheelchair-bound for several years. However, my fears quickly went away, thanks to the assurance and trust established with my physiotherapist, Dr Wee Seng Kwee. Currently, I can walk about 500 to 600 metres in one hour with the Ekso. I always feel a sense of achievement at the end

of each session because it proves I have not forgotten how to walk. I feel uplifted, emotionally strengthened, and enjoy socialising and shopping.

How are you doing at present?

AMELIA: I try my best to eat well as it helps maintain my general health. I hope the Ekso will continue to improve my lower limb strength for easier transfer ability. To stay active, I do daily exercises at home. These include stretching, cycling on the MOTomed (a motorised movement therapy device), and standing on the EasyStand (a standing frame), assisted by my husband and helper. Until a cure for MS is found, being hopeful and staying positive is my mantra to keep going.

*Not her real name.





▶ A NEW FRONTIER

In a recent *The Straits Times* article, Associate Professor Loh and his co-authors highlighted a nascent field: regenerative rehabilitation. “It combines the regeneration of new tissue (muscle, bone, nerve, or spinal cord) with rehabilitation therapy to optimise recovery,” they write, adding that some local companies have got on board. “This includes biotech companies developing cell therapies to restore joint health and function in osteoarthritis. Another works on 3D-printed bone scaffolds to aid orthopaedic surgery and to help with bone regeneration.”

sensors and motors to help users relearn the correct stepping pattern, weight shifting, and balance. Both devices give instant feedback, reduce the burden on therapists, and empower patients to walk for longer distances than they would via conventional physiotherapy, thus improving their mobility potential.

To tackle upper limb weakness, rehabilitation programmes employ technologies like the **Amadeo** (which trains the hands and fingers) and the **Armeo Spring** (a single-arm exoskeleton that simultaneously trains arm movements and grasp functions). A made-in-Singapore solution is the **H-Man** — a portable, artificial intelligence (AI)-enabled arm rehabilitation robot co-developed by the Nanyang Technological University (NTU) and CART. All three devices are connected to a computer screen and present training exercises in the form of interactive video games, for a fun and engaging experience. “Fun gamification elements motivate patients to increase the frequency and intensity of repetitive, task-specific training,” says A/Prof Loh.

FROM IDEA TO REALITY

As in the case of the H-Man, CART does more than provide sophisticated rehabilitation technologies for the benefit of patients — it also helps make some of these inventions a reality. Through collaborations with academic and industry partners, the

clinic co-develops and test-beds novel technologies, which are then scaled up and rolled out to the market.

Following successful H-Man trials at CART, a medtech start-up called Articares was spun off from NTU to commercialise the product. H-Man is now used in different rehabilitation settings around Singapore — including acute and community hospitals, senior care centres, and nursing homes — and has attracted overseas interest. Moreover, the device’s portable and user-friendly design makes it conducive to home use. This may speed up patients’ recovery, by allowing them to continue therapy in the comfort of their own homes.

“We are in the process of rolling out the H-Man as a home-ready service, possibly on a subscription model,” says A/Prof Loh, adding that a pilot study is ongoing to explore its suitability for tele-robotics rehabilitation. “Currently, we offer video consultation via Zoom, where we advise patients remotely on recommended exercises they can do at home. What we hope to do is move beyond tele-rehabilitation to tele-robotics rehabilitation — patients set up the device at home and we supervise them in real time when they use it.”

Mobile applications offer another avenue for patients to

exercise anywhere and at any time. During the pandemic, TTSH partnered local company Taggle to develop two applications: **HeartTrack** for cardiac rehabilitation (to help patients who have undergone heart surgery), and **MoveVID** for pulmonary rehabilitation (to help patients with respiratory symptoms, such as those with long COVID). Both applications provide a customised, gamified exercise programme for users, and are paired with wearable sensors. That way, patients can perform the exercises on their own while having their vital signs continuously monitored, for safety and effectiveness.

Staying with ‘exergaming’ applications, a new digital set-top box with VR simulations — called the **HealthKiosk** — has been installed at CART. Co-created with Taggle, it contains fun and motivational video game-based exercises that cater to the needs of elderly individuals, such as fall prevention or recovery from stroke. Other similar devices currently undergoing clinical trials at CART include **DancingMind**’s immersive VR headset (which offers a library of therapeutic games) and the **EvolvRehab** platform (which combines VR, motion capture, and gaming technologies).

CART has embarked on a multi-year partnership with Fourier



The H-Man is a portable, AI-enabled arm rehabilitation robot.

GOLDEN JUBILEE

How rehabilitation medicine in Singapore, especially within NHG, has evolved over the last 50 years.

- 1973** TTSH Rehabilitation Centre officially opens at Mandalay Road in June 1973. It is the nation's first dedicated rehabilitation centre.
- 1994** TTSH moves its rehabilitation centre to Ang Mo Kio Community Hospital (now Ang Mo Kio - Thye Hua Kwan Hospital).
- 1998** Rehabilitation medicine becomes an officially recognised medical specialty in Singapore. Subsequently, other public hospitals also set up rehabilitation services.
- 2011** TTSH establishes its outpatient Clinic for Advanced Rehabilitation Therapeutics (CART).
- 2022** CART reopens with a more modern, larger facility in April 2022.
- 2023** TTSH Rehabilitation Centre relocates from Ang Mo Kio to its new on-site premises at the TTSH Integrated Care Hub (ICH) in September 2023.



TTSH CART reopened in April 2022, with a more modern, larger facility.

▶ REHABWEEK 2023

24 TO 28 SEPTEMBER 2023
RESORTS WORLD CONVENTION CENTRE

Held for the first time in Asia (Singapore), this international conference brings together various organisations and experts in the field of Rehabilitation Technology to share ideas, exchange knowledge, and contribute to scientific and clinical advancements. It is co-organised by NHG, Shanghai's Rujin Hospital, and Shanghai Jiao Tong University School of Medicine.

▶ Scan the QR Code for more details and to sign up for RehabWeek 2023:



We have an 'Every Moment Is a Rehabilitation Moment' mindset."

ASSOCIATE PROFESSOR LOH YONG JOO

Intelligence, a global rehabilitation robotics leader, to validate and implement rehabilitation technologies more widely across the community. Similarly, interdisciplinary research at the Rehabilitation Research Institute of Singapore (RRIS) aims to provide Asian-centric solutions that harness the latest robotic, AI, and machine learning technologies. The RRIS was jointly founded by NHG, NTU, and the Agency for Science, Technology and Research (A*STAR) in 2016. A/Prof Loh shares, "Through RRIS, we have developed a wearable exosuit that can potentially improve upper limb function in stroke survivors. The project is still in the prototype stage, and it holds much promise."

THE NEXT 50 YEARS

Soon, NHG will welcome the TTSH Rehabilitation Centre back at the new TTSH ICH. This 22-storey building will serve as HealthCity Novena's rehabilitative pillar, with 500 beds dedicated to rehabilitation and sub-acute care, and another 100 beds for palliative care. Other purpose-built spaces include a multi-sports arena and rehabilitation gardens. Looking ahead, CART is expected to move to TTSH's future ambulatory block in the mid-2030s, hopefully to an even bigger clinic than the present one. Co-locating and upgrading these facilities within

HealthCity Novena will enable closer coordination of care and patient transfers, and ultimately facilitate patients' transition back to the community.

"In the coming years, our services will continue to focus on major conditions such as stroke, musculoskeletal, and geriatric rehabilitation. Cancer rehabilitation will be another major area, due to better screening diagnostics and therapeutics," A/Prof Loh predicts. He believes this will open a wealth of possibilities in advanced robotics, VR, serious gaming, tele-robotics rehabilitation, mobile applications, wearables, brain-computer interfaces (where a person can control a device using brain signals), as well as AI and machine learning software. Such tools will enable data-driven precision rehabilitation, characterised by personalised care and accurate tracking of patients' movements wherever they are.

"We have an 'Every Moment Is a Rehabilitation Moment' mindset," says A/Prof Loh on the notion of patient empowerment. "It entails supporting patients post-discharge by connecting them to a community of rehabilitation providers, motivating patients and their caregivers to take ownership of their rehabilitation, and using technology enablers to support their recovery in the community and at home." LW

For years, 21-year-old Lisa (not her real name) was self-harming as a coping mechanism to manage her personal and academic woes. She would cut her arm whenever she felt overwhelmed with stress. To avoid detection of her injuries and scars, long-sleeved tops and pants became her choice of clothing.

Lisa's self-harming tendencies reached a tipping point when she split up with her boyfriend. She became suicidal, and eventually overdosed on her mother's painkiller medication. Thankfully, Lisa's mother discovered her in time and rushed her to the hospital, saving her life.

Lisa was then referred to a psychiatrist and underwent longer-term psychotherapy, to help break her out of the destructive cycle she had fallen into. This essential intervention taught her to approach life with a more positive outlook.

"Lisa acquired more adaptive ways to overcome her negative thinking, including her emotional and behavioural patterns. She also started to identify her strengths and aspirations, and was focused on achieving these positive goals," says Dr Alex Su, Senior Consultant and Chief, Recovery Care and Clinical Director, Care Transformation, at the Institute of Mental Health (IMH), who manages Lisa's case.

Families and friends are key lifelines, as they are well-placed to help connect distressed individuals to support and resources available in the community.



WHEN SCARS RUN DEEP

Recognising self-harming tendencies, showing empathy and offering help can prevent such behaviour from turning suicidal.

Lisa's story is hardly unique. According to a 2019 survey conducted by international research agency YouGov, one in three young adults tends to inflict self-harm, with one in 10 frequently doing so.

"Self-harm is the deliberate act of causing physical or psychological harm to oneself, often as a form of escape or self-punishment," explains Dr Su. "However, it does not solve the problem and can also develop into a maladaptive habit in the longer term," he adds.

More young females aged between 16 to 19 years old indulge in such behaviour compared to their male counterparts, but common risk factors include a history of unhappy childhood or

trauma, living with other mental health disorders such as substance misuse or mood disorders, or physical disabilities that may induce stress or low self-esteem.

Common tell-tale signs of self-harm include unexplainable scars, wounds, or bruises, as well as a tendency to 'collect' cigarette lighters or sharp objects such as razors, scissors, and pins. Individuals at risk often dress to cover up their arms and legs, where wounds are typically located. Additionally, their personalities may change — they become quieter, socially withdrawn, and display mood swings.

Although not as severe as suicidal behaviour, studies have shown that chronic self-harm is associated with an increased risk of suicide attempts.

BY KAREN TEE

**IN CONSULTATION WITH
DR ALEX SU**
SENIOR CONSULTANT AND
CHIEF // RECOVERY CARE
AND CLINICAL DIRECTOR //
CARE TRANSFORMATION //
INSTITUTE OF MENTAL HEALTH



A RISING CONCERN

Latest figures from Samaritans of Singapore (SOS) reveal that while suicide rates in Singapore have decreased overall, more young individuals are taking their own lives. Suicide among those aged between 10 and 29 years old hit a record high of 112 cases in 2021 – accounting for one in three cases of suicide, and is an increase of 11 cases from the previous year.

World Suicide Prevention Day, observed on 10 September, serves as a timely reminder that many suicide cases could have been offered life-saving help and therapy with early detection. Such intervention is especially relevant for youths, as self-harming tendencies often emerge during adolescence and young adulthood. Empathy, help, and therapy during this critical stage can have a profound impact on the lives of these vulnerable and distressed young individuals.

Given the rise in youth suicide cases in recent years, Dr Su stresses the importance of raising awareness among the younger population and those who have close connections with young adults, such as teachers, family members, and friends. "Seeking help, including calling anonymous hotline numbers, can be essential to saving lives," he emphasises.

Chronic self-harm can persist into adulthood, particularly if this behaviour has gone unnoticed, or there has been no intervention.

Triggers for self-harming behaviour tend to vary by age. For teenagers, these include academic stress, difficulty in relating to and bonding with other individuals, and issues at home. In young adults, bullying, peer influence, and relationship issues are common triggers. Older adults may struggle to cope with work or financial pressures, marital problems, mental and physical illnesses, or the loss of a loved one.

"When individuals at risk are overwhelmed by their stressors and develop an overwhelming sense of hopelessness, they may reach a conclusion that death is the only way to end the suffering," says Dr Su.

He urges people who are close to individuals at risk to pay careful attention to changes in their mood and behaviour. Some early warning signs that individuals at risk may be contemplating suicide include a withdrawn or socially-isolated behaviour.

Another indicator is when they search the internet for ways to end their lives. Older adults may turn to alcohol to "drown their sorrows", or speak of giving away treasured items to family and loved ones.

HERE TO LISTEN

According to SOS, one way to help individuals at risk is to show empathy, such as speaking to them in a non-judgemental and supportive manner. Having open conversations about mental health can also de-stigmatise the topic and help them understand that they are not alone.

"Talking to such individuals about their problems and trying to understand if they have suicidal tendencies will not worsen the risk – it is actually an opportunity to show them support. It provides a platform for them to feel relieved that they can talk to someone who cares," says Dr Su.

Families and friends are key lifelines, as they are well-placed to help connect distressed individuals to support and resources available in the community. Professional support includes family service centres

A CALL AWAY

► If you are feeling stressed from a crisis and need someone to talk to, reach out to 24-hour hotlines such as the Mental Health Helpline (6389 2222) and SOS (1800 221 4444). Rest assured that your call will remain anonymous.



(FSCs), counselling helplines, and primary care doctors who are trained to manage mental health conditions.

At schools, there are teachers and counsellors who are assisted by REACH (Response, Early intervention and Assessment in Community mental Health) teams, and they can provide support to students at risk. REACH is a programme led by IMH. Those aged between 16 to 30 years old can also approach CHAT (Community Health Assessment Team) for mental health assessments and professional help.

Diverse forms of medical treatment are available to individuals in distress. At IMH, treatment is tailored to meet a patient's needs, and involves a multidisciplinary, holistic approach by a team comprising psychiatrists, psychologists, nurses, medical social workers, occupational therapists, and case managers.

Recovery, says Dr Su, is not merely a relief from symptoms, but also about enabling these individuals to address their stressors and restore their functions in life and society.

Underlying these professional treatments is a need for strong family and community support. As Dr Su highlights, "Being there, either physically or virtually for one another, is important as 'connectedness' is a key protective factor against suicide. Being there for someone with suicidal thoughts can be life-saving." LW

BY EVELINE GAN

IN CONSULTATION WITH
MS CHAI CAI LING
SPEECH THERAPIST //
REHABILITATION SERVICES //
KHOO TECK PUAT HOSPITAL



THE POWER OF SPEECH THERAPY



Not being able to speak, communicate effectively, or swallow without difficulty can severely impair your quality of life. The right treatment can make a huge difference.

SIGNS OF COMMUNICATION DISORDERS

- Difficulty finding words
- Talking around a word or idea
- Using short, grammatically incorrect sentences
- Difficulty understanding simple or two-step instructions
- Slurred speech
- Breathlessness while speaking
- Frequent pauses during speech
- Visible frustration when trying to communicate



Last year, Madam Agnes Fong's 87-year-old father was referred to a speech therapist after he had recurrent bouts of pneumonia. Initially, Mdm Fong was puzzled by the referral, wondering how a speech therapist could help with her father's chest infection.

To her surprise, it was revealed that the pneumonia episodes stemmed from her father's deteriorating ability to swallow properly, causing food particles to enter his airways and lungs. After a thorough evaluation, the speech therapist worked with Mdm Fong and her father's caregiver to modify the elderly man's diet. The speech therapist also taught them safer feeding techniques.

"Consulting with the speech therapist proved invaluable as we were unsure how to prevent choking incidents at home," Mdm Fong explains. "We learnt to blend food to a consistency suitable for my father, and even discovered techniques to thicken water to prevent it from entering his airways."

Similar to physical therapy and occupational therapy, speech therapy plays a pivotal role in supporting individuals with medical conditions or injuries that limit their physical capabilities during the recovery process.

Speech therapists assist patients of all ages with various communication, voice, and speech disorders or impairments. They enable individuals to improve their verbal abilities so that they can understand others and effectively express and communicate their thoughts.

Ms Chai Cai Ling, a speech therapist from the Rehabilitation Services Department at Khoo Teck Puat Hospital (KTPH), highlights a common misconception — that speech therapy solely addresses speech disorders. In reality, these healthcare professionals also work with patients and their caregivers in managing swallowing difficulties, as seen in Mdm Fong's case.

At KTPH, speech therapists work collaboratively within a multidisciplinary rehabilitation team that includes other medical and allied health professionals. Most of their patients are middle-aged to elderly individuals. Conditions they often encounter range from congenital (present from birth) disorders or those that develop during childhood, to acquired disorders arising from medical conditions or injuries such as stroke, brain injury, and dementia.

SPEECH AND COMMUNICATION DISORDERS

One common communication disorder encountered by Ms Chai and her colleagues is aphasia — a condition caused by damage to

the brain region responsible for language expression and comprehension, often as a result of stroke. Patients with aphasia have trouble speaking or understanding spoken language.

Dysarthria and apraxia are other frequently observed speech and communication disorders. Dysarthria causes slurred or slow speech due to weak muscles involved in speech. This is often caused by brain or nerve damage or medication side effects. Apraxia refers to difficulties in coordinating tongue and mouth movements for speech. It can develop in childhood or as an acquired condition from head trauma, stroke, or a brain tumour.



Speech therapists also help patients with cognitive communication disorders resulting from conditions like stroke, brain injury, tumours, degenerative brain disorders, or neurological damage. These disorders impact memory, organisation, and problem-solving, and hinder abilities in speaking, listening, reading, writing, and social interaction.

During rehabilitation, speech therapists use behavioural techniques, strategies rooted in neuroplasticity, and devices to enhance or restore specific skills. Neuroplasticity is the brain's ability to reorganise and establish new connections in response to new experiences, aiding the relearning of skills in individuals with brain injuries.

Patients' loved ones are also roped in to undergo education to learn how to better support them. "In addition, we set collaborative and functional goals to ensure that therapy is meaningful to patients. For example, in language therapy, we may target items for daily activities at home, such as fruits or household items. The patient is taught to figure out the attributes of the item, including its location, use, and category. This process can be repeated several times daily for a range of target items before moving on to other targets," Ms Chai shares.

Speech therapy sessions may involve activities such as tongue and mouth exercises to improve coordination, and playing word games and crossword puzzles

“ We set collaborative and functional goals to ensure that therapy is meaningful to patients.”

MS CHAI CAI LING, SPEECH THERAPIST, REHABILITATION SERVICES, KHOO TECK PUAT HOSPITAL

to enhance cognitive skills. For individuals with speech disorders that hinder proper mouth and tongue movements, they may practise reading aloud.

WHEN EATING AND SWALLOWING BECOME A CHALLENGE

The ability to eat and drink is essential for our nourishment. However, for those experiencing swallowing difficulties, even drinking water can become a health hazard. "If left untreated, this may lead to chest infections, increased phlegm production, fever, and malnutrition," says Ms Chai.

Patients with dementia, degenerative disorders like Parkinson's disease, or long-term respiratory issues such as chronic obstructive pulmonary disease (COPD), face a higher risk of developing swallowing problems. COPD is a condition characterised by damaged lungs and airways, resulting in breathing-related difficulties.

Speech therapists employ a range of tests to assess and diagnose swallowing issues. Bedside examinations are commonly conducted, during which the therapist physically evaluates the patient's swallowing function by having them ingest substances of various consistencies, such as thickened fluids, soft foods, biscuits, or oats. If necessary, the speech therapist may request additional tests like a swallowing test with X-ray or endoscopy.

To manage swallowing issues, patients and caregivers are taught techniques to modify food types, textures, and consistencies. For instance, thickeners can be added to fluids like water or soup to give individuals more time to swallow.

In some cases, novel devices are used to assess and manage swallowing difficulties. For example, surface electromyography (sEMG) is a biofeedback tool that records muscle activity during treatment for dysphagia. It involves placing electrical pads on swallowing muscles

in the throat to visualise muscle activity. This biofeedback can help patients increase effort and duration during swallowing attempts.

THE RECOVERY JOURNEY

The extent of recovery from speech, language, communication, or swallowing disorders depends on various factors. "If the cause of the disorder is neurological, complete recovery may not be attainable. However, individuals can still reach an adequate level of function and adapt to their new lives. For patients with other reversible conditions, full recovery from speech and cognitive difficulties is possible," says Ms Chai.

For those who have trouble coordinating their swallowing process, identifying the underlying cause is crucial. "A swallowing disorder typically stems from an underlying medical condition. If the condition is reversible, the swallowing problem can improve," says Ms Chai.

While not everyone may achieve a full recovery, early and timely intervention will undoubtedly enhance outcomes and prevent the condition from worsening, empowering individuals to lead more fulfilling lives. [LW](#)

SIGNS OF SWALLOWING DIFFICULTIES

- Drooling or difficulty in swallowing saliva
- Food or fluid residue in the mouth after swallowing
- Wet voice or throat noises after swallowing
- Throat-clearing, choking, or coughing following swallowing
- Shortness of breath after swallowing
- Recurrent chest infections or fevers
- Unexplained weight loss



WATCH YOUR BACK

The pain arising from sciatica has been compared to “electric shocks” by those afflicted.

BY EVELINE GAN

IN CONSULTATION WITH
DR KELVIN LOR
CONSULTANT // DEPARTMENT
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When critically-acclaimed singer-songwriter Adele was diagnosed with sciatica, she probably did not expect she would have to waddle to get around. Yet this is what the 35-year-old did, as she hobbled across the stage during a New Year's Eve performance in Las Vegas last year — an example of how painful and debilitating this condition can be. “I have to waddle these days as I have really bad sciatica,” she reportedly told the audience.

Sciatica is a condition caused by pain radiating along the course of the sciatic nerve, which is a large nerve running down the back of each leg. While the term may suggest that the problem is in the sciatic nerve, the pain is in fact most commonly caused by compression or irritation of a lumbar spinal nerve, and not the sciatic nerve itself. Sciatica causes extreme discomfort and pain in the legs and lower back.

Apart from Adele, other celebrities have opened up about their experience living with

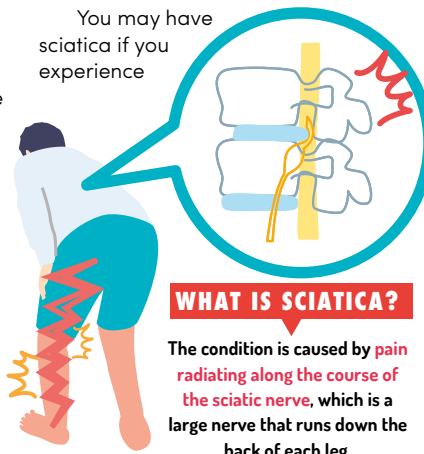
sciatica. They include actress Whoopi Goldberg, who had to use a Zimmer frame (mobility aid), and golfer Tiger Woods, who underwent multiple surgeries to ease his pain.

Sciatica is not uncommon. Even though there are no local statistics on sciatica, it is estimated that the condition affects up to 40 per cent of people in their lifetime worldwide.

WHAT SCIATICA FEELS LIKE

Sciatica is not a disease, but rather, a symptom that can arise from a range of causes.

You may have sciatica if you experience



WHAT IS SCIATICA?

The condition is caused by pain radiating along the course of the sciatic nerve, which is a large nerve that runs down the back of each leg.

pain that runs from your lower back or buttock to the back of the thigh, and onto the calf or foot. This pain may be accompanied by “pins and needles” numbness and leg weakness, says Dr Kelvin Lor, Consultant at Khoo Teck Puat Hospital (KTPH)'s Department of Orthopaedic Surgery. Some people describe the pain as “a sharp, electric shock-like sensation”, while others may experience a “pulling” pain, says Dr Lor.

Depending on how severe the symptoms are, sciatica can affect a person's daily life to the extent that mobility is impacted and physical activities have to be cut back.

POSSIBLE RED FLAGS

Dr Lor says that the most common cause of sciatica is a slipped disc or spinal degeneration. In such cases, a disc fragment, bone spurs, or thickened ligaments exert pressure on or irritate the lumbar spinal nerve.

Sciatica may also be a sign of more serious concerns such as fractures, infections, or tumours of the spine. Additionally, sciatica may be a sign of a rare condition called

cauda equina syndrome, which occurs when not just one spinal nerve, but all the spinal nerves below the spinal cord, known as the cauda equina, are compressed together. "The 'red flags' for cauda equina syndrome include sciatica that affects both legs instead of just one leg, as well as any disturbances in bladder or bowel function," says Dr Lor.

Serious warning signs of sciatica include severe pain that interferes with a person's ability to walk, fever, weight loss, and poor appetite.

Another important sign is significant or progressive numbness, and, especially, weakness in the affected leg — for example, not being able to lift the affected foot. This condition is known as 'foot drop'.

Sciatica is potentially dangerous if the underlying condition is causing severe nerve compression as it may lead to permanent nerve damage. "This is why progressively worsening lower limb numbness and especially weakness should never be ignored," warns Dr Lor.

WHO IS AT RISK?

According to Dr Lor, some risk factors include ageing, being overweight, and smoking.

Certain types of occupations can

also increase the risk of sciatica. For instance, manual workers face a higher risk of developing sciatica due to the physically-demanding nature of their jobs, which often require heavy lifting or frequent twisting of the back.

In a study published in *Scientific Reports* in 2019, the risk of hospitalisation for sciatica was found to be the highest among obese people who are exposed to 'whole-body vibration' such as motor vehicle drivers and machine operators, as well as those who lift or carry heavy objects regularly.

A sedentary lifestyle, which revolves around sitting for prolonged periods of time, can also lead to sciatica as such inactivity increases pressure on the discs (jelly-like cushions between each bone in the spine) in the lower back.

TREATMENT OPTIONS

Sciatica is usually diagnosed through careful history-taking and physical examination by a healthcare provider. In some cases, additional investigations with X-rays and an MRI scan may be required.

The good news is that most patients recover in about six weeks with pain-relieving medications, and regular exercise routines that



It is estimated that sciatica affects up to

40%

of people in their lifetime worldwide."

include gentle stretching and core strengthening. Patients should consult a physiotherapist on which physical exercises would be suitable for them.

"Massages and hot packs can be useful, while short courses of over-the-counter medications, such as paracetamol or non-steroidal anti-inflammatory drugs (NSAIDs) may also be taken," says Dr Lor.

However, in more severe cases of sciatica or those associated with progressive neurological disorders, in which the condition does not improve with conservative treatments, more invasive treatments may be required. Such treatments may include steroid injections around the inflamed nerve or surgery to decompress the pinched nerve. **LW**



EXERCISING WITH SCIATICA

Getting up and moving around may be the last thing on the mind when sciatica strikes, but physical exercises and gentle stretching can help relieve symptoms. Here are some do's and don'ts when exercising with sciatica.

DO:

- ✓ Opt for low-impact aerobic exercises that do not place excessive stress on the spine, such as walking or swimming.

- ✓ Consider exercises that strengthen the core and gluteal muscles as the pain subsides; these can help to prevent symptoms from recurring.
- ✓ Ensure good posture at all times. For example, when picking up something from ground level, bend the knees instead of bending at the waist.
- ✓ See a physiotherapist to learn stretching exercises to relieve symptoms.

AVOID:

- ✗ High-impact exercises or sports such as tennis and contact sports (e.g. football, mixed martial arts).

- ✗ Activities that involve excessive or forceful bending or twisting of the spine (e.g. cycling and doing burpees).
- ✗ Loading the spine excessively with heavy weights by lifting or carrying heavy loads; any increase in weight should be done gradually and progressively.
- ✗ Prolonged periods of sitting or standing.



MEET YOUR
FAMILY
DOCTOR



**Dr Benjamin
Lam, 45**

KHOO TECK PUAT HOSPITAL

Head and Senior Consultant, Family & Community Medicine, Clinical Director, Integrated Care for Obesity & Diabetes

.....
THE TIES THAT BIND

➤ **Dr Lam discovered his passion for Family Medicine during a posting to a General Practitioner (GP) clinic when he was an undergraduate.**

He saw an elderly gentleman who came to the clinic, not because he was unwell, but because he needed to understand a letter he had received from the Government. "He was illiterate and trusted the GP, his doctor, to be his source of information, even when it came to things that were not medical-related," shares Dr Lam. "I realised how much of a rapport and relationship Family Physicians could build with their patients, and how much of a difference this could make to their lives."

INSPIRED TO MAKE A DIFFERENCE

A stint at a GP's clinic while he was a medical student motivated Dr Benjamin Lam to make Family Medicine his calling. **BY KEENAN PEREIRA PHOTOS AIK CHEN**

"EARLY ON IN THEIR CAREER, DOCTORS DECIDE IF THEY ARE MORE 'SURGICAL' OR 'MEDICAL'.

Those who opt for the former are good with their hands and are well-suited to perform surgeries. I fall into the latter – the 'medical' category. Within this area, there are several tracks. Some individuals enjoy the adrenaline rush of working in an emergency department, while I prefer to journey with patients and see them even before they become ill. That was why I chose Family Medicine.

FAMILY MEDICINE LOOKS AT A PATIENT'S WELL-BEING HOLISTICALLY, BEYOND JUST PHYSICAL AILMENTS. You may have a patient coming in regularly because of headaches. You could just prescribe painkillers, issue a medical certificate, and be done with the case. However, Family Physicians are taught to dive deeper. There may be an underlying condition, or a difficult circumstance that has prompted the patient's visits. For example, if the patient is a student, he/she may be facing bullying and using headaches as an excuse to avoid school.

FAMILY PHYSICIANS CANNOT SEE PATIENTS FROM A PURELY MEDICAL POINT OF VIEW.

Certain patients with difficult circumstances at home would not be able to eat healthily or exercise more regularly because they are preoccupied with other issues. In such cases, we must tailor our advice, and perhaps work with them to find possible solutions to address their issues. Family Physicians are trained to identify such social factors. That is why the *Healthier SG* initiative is so welcomed, as we are no longer just managing illnesses but preventing them. Family Physicians are a key pillar in this shift.

I STARTED AS A FAMILY PHYSICIAN AT YISHUN POLYCLINIC.

Today, I lead the Family and Community Medicine Clinic at Khoo Teck Puat Hospital (KTPH), where we focus on population health, and coordinate the care of patients with complex conditions in the hospital. There is also an obesity clinic, where I treat referred patients who need to lose weight. The Family and Community Medicine Clinic also includes a clinic for KTPH staff; it oversees staff who are unwell, organises vaccinations, runs health screenings, and helps them better manage their chronic diseases.

THE PATIENTS I SEE IN THE OBESITY CLINIC ARE REFERRED BY GPs OR OTHER SPECIALISTS AT KTPH.

These patients usually also present with obesity-related conditions, such as diabetes. Getting a handle on their weight is important to managing the other chronic conditions that they have.

THE ROLE OF PHYSICIANS IN PUBLIC HEALTHCARE GOES BEYOND JUST TREATING PATIENTS.

We are trained to wear multiple hats. Many of us are administrators who help to ensure the smooth running of hospital operations. We also invest our time in research and teaching — I am the Associate Programme Director for the Family Medicine residency programme. Additionally, I am continuing my own research in obesity and pursuing a PhD at the



Lee Kong Chian School of Medicine (LKCMedicine).

THERE IS NO RUNNING AWAY FROM A HEALTHY LIFESTYLE.

Some individuals have a genetic disposition to obesity. Conversely, it explains why some can pile their plates with food and not gain weight. Unfortunately, that is not something we can change at this time. What we can do is try to eat healthier, cultivate an active lifestyle, manage our stress levels, and sleep better. As a society, we have neglected the importance of mental wellness and good sleep habits. I am guilty of it myself — I tend to be on my phone until I fall asleep, which may disrupt the quality and duration of my rest.

HEALTHY HABITS SHOULD BE CULTIVATED FROM AN EARLY AGE.

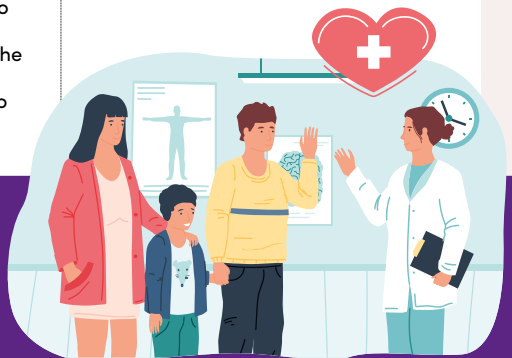
As a father of two teenagers — a daughter aged 16 and a son aged 13 — I try to walk the talk. They grew up playing sports, especially football, and continue to do so today.

FOOTBALL HAS REALLY BROUGHT MY FAMILY CLOSER TOGETHER.

We spend our weekends watching English Premier League matches. My daughter and I are Liverpool supporters, while my son switched his allegiance from Liverpool to Spanish club, Barcelona, when he trained at the Barca Academy in Singapore. My wife, on the other hand, has always been a Tottenham Hotspur fan, right from the first time we met.

IT IS IMPORTANT TO REST AND RECHARGE.

I have not had a chance to travel since the COVID-19 pandemic hit us. The PhD that I am currently pursuing is also weighing on my mind, and hence, I am looking forward to a good holiday at the end of the year, after I am done with my thesis. **"LW"**



THE 3P's AND 3C's OF FAMILY MEDICINE

Here are some basic tenets of the medical practice, according to Dr Lam:

- The relationship between a Family Physician and his/her patient is highly **personal**, built on trust and understanding.
- Family Medicine is a medical specialty within **primary care**, which not only deals with diseases, but focuses on **preventive care** as well.

- Family Physicians aim to provide **comprehensive care** and, if necessary, **continuing care** after a patient has been discharged from the hospital or has seen a specialist.
- Family Physicians treat their patients holistically with an integrated, joined-up **coordinated care** approach.

BELLY BATTLES

Is it stomach flu
or food poisoning?
Knowing the difference
will guide treatment.



BY TINA WANG



IN CONSULTATION WITH
DR GLORIJOY TAN
// ASSOCIATE CONSULTANT //
NATIONAL CENTRE FOR
INFECTIOUS DISEASES



DR STEPHANIE SUTJIPTO
// ASSOCIATE CONSULTANT //
NATIONAL CENTRE FOR
INFECTIOUS DISEASES

A

ll members of a family fall ill around the same time, with diarrhoea, vomiting, and abdominal pain. Retracing their activities, they recall

having gone out for a meal together the day before.

But is it stomach flu they have spread to each other, or is it food poisoning? Symptoms for these two conditions overlap and are commonly mistaken for each other.

According to Associate Consultants Dr Glorijoy Tan and Dr Stephanie Sutjipto from the National Centre for Infectious Diseases (NCID), stomach flu and food poisoning both fall under the medical term “infective gastroenteritis” – symptoms of which include diarrhoea, nausea, vomiting, abdominal pain, and fever.

The term “stomach flu” usually refers to a viral infection that leads to the inflammation of the stomach or the intestines (viral gastroenteritis). The global annual estimate is that one in five cases of viral gastroenteritis – or about 685 million cases – is caused by the norovirus. It spreads through direct contact with infected persons, or by

touching surfaces contaminated by an infected person and then touching your own mouth. Another virus which may cause stomach flu is the rotavirus.

On the other hand, “food poisoning” is an umbrella term commonly used to describe foodborne illness, and this occurs when people consume contaminated food or water. Thus, stomach flu is a subset of food poisoning.

Another common cause of food poisoning is “non-viral gastroenteritis” – and this may be due to bacteria, parasites, or toxins from bacteria, or moulds (less common). Raw or undercooked food often harbours higher levels of such germs or toxins. According to the World Health Organization (WHO), approximately one in 10 people fall ill from consuming contaminated food every year worldwide, with children under five years old being particularly vulnerable.

Both viral and non-viral gastroenteritis can be contagious, and their modes of transmissions are similar. Dr Tan and Dr Sutjipto emphasise that understanding the differences between viral and non-viral gastroenteritis not only helps us to manage our health effectively, but also prevent the spread to others.

A PUBLIC HEALTH CHALLENGE

A common guideline to ascertain if an individual is suffering from stomach flu or non-viral gastroenteritis is the timeframe in which symptoms appear.

Stomach flu symptoms typically emerge after an incubation period of 24 to 48 hours in your body. Non-viral gastroenteritis caused by bacteria generally emerges between two to five days after exposure to the contaminated food, although symptoms may emerge earlier if there is heavy exposure or if the illness is due

▶ TRANSMISSION IN PROGRESS

What leads to the spread of contagious illnesses like stomach flu and other causes of food poisoning?

- 1. Person-to-person contact:**
Direct contact can occur through shaking hands, hugging, or caring for someone who is infected.
- 2. Contaminated surfaces:**
If an individual touches a contaminated surface and then touches his/her mouth, nose,

to toxins. The incubation period refers to the time between exposure to the germ and the onset of symptoms.

Dr Tan points out that the timeframe is not a definitive guideline for all cases. "The speed at which symptoms appear and their severity can vary depending on several factors, such as the specific pathogens involved and a person's immunity level," she says.

While they are rare, complications such as sepsis, organ failure, dehydration, electrolyte imbalances, severe inflammation, and secondary infections may occur and these can lead to a poor outcome or death, especially if the patient has underlying health conditions that make them more frail. Prompt medical attention, adequate hydration, and appropriate treatment are crucial in addressing these complications, as they can also affect other organs.

WHO IS MORE SUSCEPTIBLE?

Both adults and children can be affected, although the incidence rates may differ. "Children are generally more prone to these illnesses due to their less-developed hygiene practices and underdeveloped immune systems," says Dr Sutjipto.

Children may also take a slightly longer time to recover compared to adults. Firstly, their immune systems are still immature and require more time to effectively fight off the infection. Their smaller physical frames and higher fluid requirements also make them more

susceptible to dehydration compared to adults, which can prolong the recovery process.

Other factors include delayed recognition and treatment of the illness since young children cannot articulate their discomfort, and are often in close contact with their classmates at school or day-care, which increases their exposure to germs.

Besides children, older adults and those with poor immune systems (e.g. due to disease or medications) may also be more prone to such infections and complications.

WHEN TO SEEK MEDICAL HELP

When it comes to food poisoning and stomach flu, visiting a doctor may not be necessary as most cases resolve on their own through self-care measures, such as drinking plenty of fluids, avoiding spicy food, dairy products, or high-acidity food, and getting enough rest. "However, patients are recommended to seek medical attention if their symptoms persist or worsen; when complications such as severe dehydration arise, or if their illness is suspected to be part of a larger outbreak," says Dr Sutjipto. "High-risk individuals who may be more susceptible to severe illness or complications — including pregnant women, infants, the elderly, or those with underlying health conditions — are also advised to consult a doctor promptly," Dr Tan adds.

Treatment typically involves the prescription of anti-diarrheal medications and/or antibiotics (if appropriate), along with advice to consume clear fluids such as water, oral rehydration solutions, broths, or sports drinks. Proper rest aids in a speedier recovery, while avoiding spicy, fried, high-fibre foods, dairy products such as milk and cheese, caffeine, and alcohol is recommended.

The specific treatment approach may vary based on the individual's age, overall health, severity of symptoms, and the identified cause of the illness. Symptoms generally subside within a few days to a week, but some cases may require a longer recovery period. **LW**

or eyes, he/she can become infected. Sharing utensils, cutting boards, and countertops between contaminated and non-contaminated food items without proper cleaning also poses a risk of cross-contamination and the spread of viral and bacterial pathogens.

3. Contaminated food and water: Consuming contaminated food due to improper storage, undercooking, cross-contamination, or poor hygiene during preparation and handling.



WAYS TO MINIMISE INFECTIONS

DR TAN AND DR SUTJIPTO HIGHLIGHT IMPORTANT CONSIDERATIONS.

► PRACTISE GOOD PERSONAL HYGIENE:

Thoroughly wash your hands with soap and water to prevent the spread of germs and reduce the risk of ingesting or transmitting harmful bacteria or viruses, especially before handling or consuming food and drinks, after using the restroom, as well as after contact with animals, and in public places. Avoiding close contact with visibly-ill individuals is also helpful.



► UPDATE VACCINATIONS:

Some causes of gastroenteritis, such as rotavirus, can be prevented through vaccination that is available for infants.

► **CLEAN SURFACES REGULARLY:** Clean kitchen countertops, cutting boards, and utensils to minimise the risk of cross-contamination.

► **HANDLE FOOD SAFELY:** Store perishable foods at the correct temperatures to prevent bacterial growth, and cook raw foods to the recommended internal temperatures to kill any potential pathogens. Separate the preparation and handling of raw and ready-to-eat foods, and consume leftovers within a safe timeframe.



► DEVELOP WISE HABITS:

Exercise caution when consuming raw or undercooked foods, such as raw eggs, raw seafood, or undercooked meats, which may carry harmful bacteria or parasites. When travelling, avoid consuming raw or uncooked foods, and drink bottled or treated water.

SAVING TIME, SAVING LIVES

BY KEENAN PEREIRA

IN CONSULTATION WITH
DR CHUAH SAI YEE
SENIOR CONSULTANT //
CONSULTANT-IN-CHARGE //
PIGMENT AND SKIN IMAGING CLINIC //
NATIONAL SKIN CENTRE



A lesion on his forehead that Mr Lim had for more than a year suddenly started bleeding. Alarmed, Mr Lim's family members urged him to get it examined at the National Skin Centre (NSC).

It turned out to be the right thing to do, as Mr Lim was diagnosed with basal cell carcinoma, one of the most prevalent types of skin cancer, both in Singapore and globally.

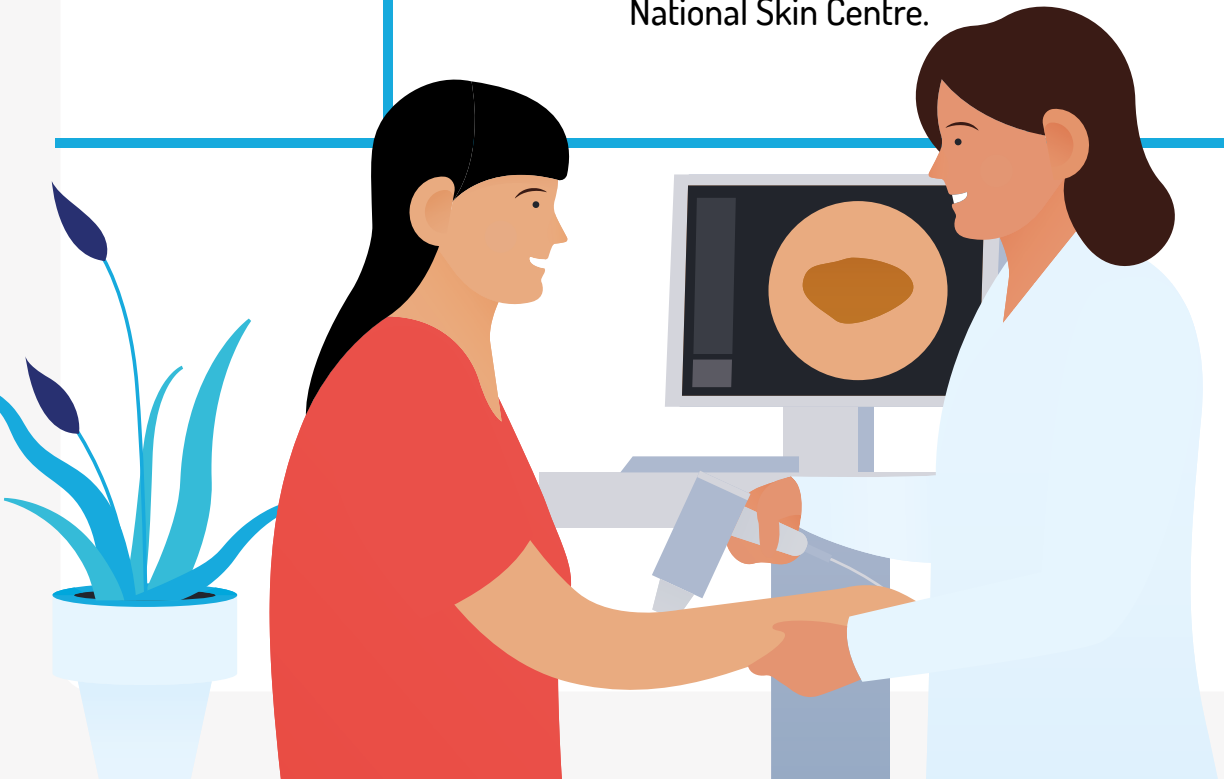
Naturally, Mr Lim, a retiree in his 70s, was anxious before his diagnosis, but it helped that he did not have to wait long to get the results. In fact, Mr Lim received his results on the same day.

Until recently, diagnosing basal cell carcinoma was a time-consuming process that could take up to two weeks, including waiting time for a biopsy appointment and a histopathology report. Now, thanks to a faster and less invasive diagnostic imaging method introduced at the NSC, the diagnostic process has been reduced to same-day diagnosis in most cases.

The method, known as Reflectance Confocal Microscopy (RCM), was introduced as a clinical service at the NSC in November 2021*. RCM is considered a ground-breaking skin cancer imaging and diagnostic technique in Singapore, where skin cancers rank as the sixth most common form of cancer. Its introduction at the NSC marks the first application of this method in Southeast Asia, following its successful implementation in Europe, the United States, and Australia.

OPTICAL APPEAL

A novel non-invasive skin imaging tool is changing the way cancers are diagnosed at the National Skin Centre.





GOING SKIN DEEP

The term 'skin cancer' encompasses a range of cancers that affect different parts of the skin. The most common type, basal cell carcinoma, affects the basal cells responsible for producing new skin cells. Other prevalent forms of skin cancer include squamous cell carcinoma, which affects the squamous cells just below the outer surface, and melanoma skin cancer, which refers to a malignant tumour in the melanocytes — the skin cells that produce melanin, which gives skin its colour.



ZOOMING IN ON RCM

RCM is non-invasive and painless. It employs a low-power laser to produce a black-and-white image of skin lesions. "The process was comfortable and not at all frightening," recalls Mr Lim, who underwent the procedure in April this year.

"It felt almost like undergoing an ultrasound. The doctor directed the device towards the lesion, and within 15 to 20 minutes, we were done. All I had to do was just lie on the bed."

An added advantage of RCM is that the procedure is safe for most patients, including pregnant women.

On the other hand, the traditional method for diagnosing skin cancers is through a biopsy. It is an invasive procedure in which a small sample of skin is extracted for further investigation. Removing the sample requires a dose of local anaesthetic, and stitches are needed to close the wound. "After a biopsy, there may be bleeding, bruising, and a risk of infection. All biopsies result in scarring," notes Dr Chuah Sai Yee, Senior Consultant at the NSC and Consultant-in-Charge of the Pigment and Skin Imaging Clinic.

After a dressing is applied, patients are given instructions on wound care. They would have to return in about two weeks to have the stitches removed — and to receive their diagnosis.

Shortening this procedure is one of the primary advantages of RCM, explains Dr Chuah. By delivering a diagnosis within minutes, patients are spared the emotional distress of having to wait for days for their test results. The reduced diagnostic time with RCM also enables treatment, if needed, to be started promptly.

These factors appealed to Mr Lim, who was given a choice between a traditional biopsy and RCM. "I chose RCM because of the faster diagnosis. We could get certainty whether the lesion was cancerous, or not, within a day, and if it was, we could arrange for it to be surgically removed." Mr Lim had his lesion removed on the same day as his surgeon was available to perform the procedure.

RCM is also more cost-effective as compared to a biopsy and histology report for a similar lesion. "RCM is particularly useful for patients with multiple lesions that need to be examined for cancer," says Dr Chuah. "With RCM, we can assess all these lesions at once, eliminating the need for multiple biopsies."

RCM can also be used to diagnose other skin conditions, including pigmentary disorders like vitiligo and melasma, as well as skin infections and inflammatory skin conditions.

With RCM, we can assess all these lesions at once, eliminating the need for multiple biopsies."

DR CHUAH SAI YEE, SENIOR CONSULTANT, CONSULTANT-IN-CHARGE, PIGMENT AND SKIN IMAGING CLINIC, NATIONAL SKIN CENTRE



SPOT THE SPOTS

The risk of skin cancer increases with age. "With our ageing population, skin cancer incidence is expected to continue rising," says Dr Chuah, adding that the NSC is seeing a gradual increase in the number of skin cancer cases.

Here are the signs to look out for in any mole or skin growth:

- Asymmetry in colour or surface
- Irregular borders
- Variegated or unusual colours, for example, black, brown, blue or red
- Diameter greater than 6mm
- Bleeding, pain, and itchiness
- Evolving or changes in any of the signs above



Dr Chuah Sai Yee (centre) and research staff with the RCM at NSC's Skin Imaging Clinic.

Given the multiple advantages of RCM, why is it not used as the default method of diagnosing skin cancers? "Like all skin imaging tools, RCM has its limitations," says Dr Chuah. "RCM may not be able to visualise deeper skin structures and may be less effective on lesions that are ulcerated, bleeding, or those with thick scales."

However, a medical professional can determine the best approach of finding out whether a lesion is benign or cancerous. "When the results of a RCM are unclear, we will carry out a biopsy to be certain."

Accuracy is crucial in medical settings, and according to Dr Chuah, RCM is a dependable diagnostic tool. Based on data analysis collected over three years*, RCM has a success rate of between 80 and 90 per cent in diagnosing skin cancers.

That is why RCM is part of a wider suite of diagnostic tools, which include biopsies and dermoscopy examinations. The latter is performed with a dermatoscope, a handheld visual aid used to examine skin lesions in greater detail. Regardless of the tool used, Dr Chuah advises those with unusual skin lesions to seek medical advice as soon as possible – the earlier, the better.

Mr Lim echoes this advice, "If you notice anything suspicious about your skin, have it examined by a healthcare professional. I am glad I had my lesion checked and promptly removed. It left me with peace of mind." **LW**

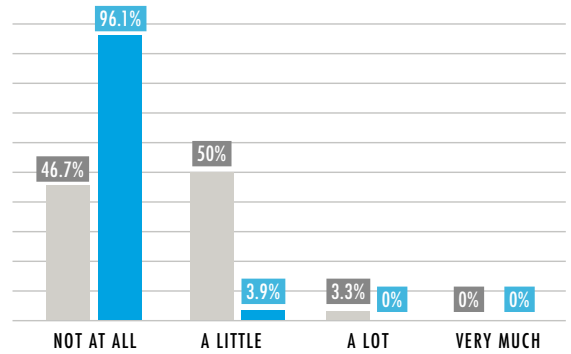


PATIENT SATISFACTION COMPARISON

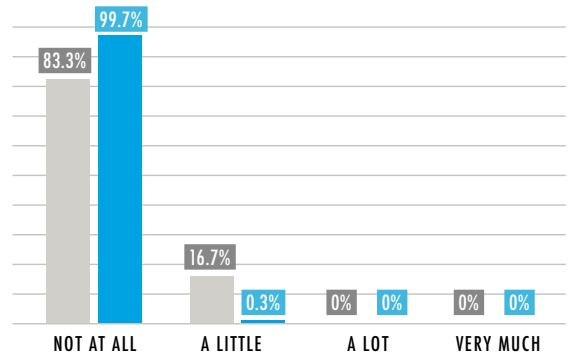
Data collected from patients who underwent biopsy and RCM.

BIOPSY RCM

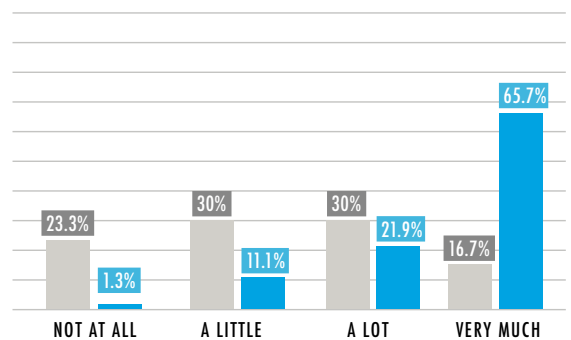
LEVEL OF PAIN EXPERIENCED THROUGHOUT THE PROCESS



LEVEL OF PAIN EXPERIENCED AFTER THE TEST



WILLINGNESS TO UNDERGO THE TEST AGAIN



Based on data analysis collected over three years, RCM has a success rate of between 80 and 90 per cent in diagnosing skin cancers.

ENHANCING MOBILITY

BY EVELINE GAN

.....
IN CONSULTATION WITH
MS KAHMINI
PHYSIOTHERAPIST //
DEPARTMENT OF PHYSIOTHERAPY//
TAN TOCK SENG HOSPITAL



A STEP IN THE RIGHT DIRECTION

A suitable walking aid can help seniors with mobility issues retain their independence.

Less-mobile seniors using umbrella sticks, grocery carts, and even foldable trolleys as makeshift walking aids are a common sight on our streets. These alternatives are, however, inadequate for those in need of proper assistance to move around safely.

Walking aids can significantly enhance mobility and help in maintaining an elderly person's independence. However, using the wrong type of walking aid can increase the risk of falls, cautions Ms Kahmini, a physiotherapist at Tan Tock Seng Hospital (TTSH)'s Department of Physiotherapy. "Grocery carts and folding trolleys should not be used as walking aids as their wheels can pose a risk of falling if not controlled properly," she says. "Moreover, these items are not designed to support body weight, and can bend and break if excessive

weight is applied," adds Ms Kahmini.

Umbrellas and hiking sticks, which are not height-adjustable, are also not recommended. "Ideally, the handles of walking aids should be at wrist level. Too low a height may in turn lead to back pain. Conversely, if they are too high, the support may be inadequate," she adds.

Despite the hazards associated with makeshift aids, many seniors resist using a proper walking aid because of the perceived stigma of appearing weak and aged. "Elderly individuals often find it embarrassing to be seen with a walking aid. Another reason is that they may not view a walking aid as a long-term investment and fear it may become a 'white elephant'," says Ms Kahmini.

WHEN TO USE A WALKING AID

The necessity for a walking aid varies depending on an individual's specific circumstances and



Persuading an elderly person to use a walking aid can be challenging. Ms Kahmini suggests explaining the importance of a walking aid and allowing them to try it out for themselves to feel the difference.



mobility issues. For instance, those with reduced leg strength and standing balance may require a walking aid for stability so that they can carry out their daily activities safely and independently, especially if there has been a history of recurrent falls.

Others may need a walking aid to ease the pain that occurs during standing and walking. They may need to use a walking frame or axillary crutches — also called underarm crutches — to offload body weight from their affected or injured leg. “Even if the individual can bear the pain, there is still a risk of falling when attempting to walk without aid, particularly in unstable environments such as crowded areas, stairs, or public transport,” explains Ms Kahmini.

In Singapore, about a third of seniors aged between 60 and above have experienced multiple falls. Falls can leave a life-altering impact on the elderly, not only causing physical repercussions and disrupting daily routines, but also adversely impacting them psychologically and socially.

HOW A PHYSIOTHERAPIST CAN HELP

While a prescription is not required to purchase a walking aid, selecting an appropriate one from the wide range available is not a straightforward task. There are different types of walking aids designed to address specific medical issues and needs (see *The Right Pick*).

Adjustments are usually needed, and individuals must be taught how to use the walking aid correctly. “If one cannot remember the correct technique for using the walking aid safely, the risk of falls may increase instead,” says Ms Kahmini.

A thorough assessment by a physiotherapist is highly recommended before purchasing any walking aid. The physiotherapist will analyse the individual’s walking pattern and activity level, evaluate his/her ability to use the walking aid safely, and assess his/her management of common obstacles in the environment, such as threshold kerbs and stairs.

This assessment will help determine the most suitable walking aid needed. “For example, if an elderly person needs to navigate two steps at their home entrance, a single-sided aid may be necessary, since a walking frame will not fit onto a step,” says Ms Kahmini.

Another example is when an individual needs to avoid putting weight on a leg that has been operated on and has poor single-leg standing balance. “In such

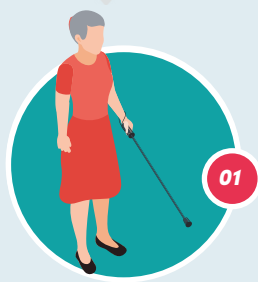
HELPING AFFECTED PATIENTS WALK BETTER

→ **Project GOAL (Give Orthopaedic Aids Life), organised by TTSH’s Orthopaedic Surgery Department and Centre for Healthcare Innovation (CHI)’s Healthcare Advanced Management Programme, aims to provide individuals in need of walking aids with one. They may approach TTSH Clinic B1A in person, or call 6357 1000 for more details. Equipment is subject to availability.**





THE RIGHT PICK



1. Walking stick

- > Provides some stability and support, enables the most normal walking pattern and allows the user to go out into the community easily.
- > Least stable of the five walking aids, as it is not designed to support an individual's entire body weight.

2. Quad stick

- > Available in narrow-based and broad-based versions.
- > Meant for users who need more support than a walking stick but still have adequate lower limb strength and standing balance.
- > Can take on slightly more weight than a walking stick.
- > Individuals with certain conditions, such as stroke or upper limb fractures, may only be able to use these one-sided walking aids.



3. Walking frame

- > Prescribed to those who need two-hand support due to significant lower limb weakness and poor standing balance.
- > One of the most stable walking aids, and can take on significant body weight.



4. Rollator frame

- > Similar to a walking frame but with wheels, so that the frame does not need to be lifted up and placed forward when walking.
- > May benefit users with reduced upper limb strength and muscular endurance.
- > May also benefit those with certain medical conditions such as Parkinson's disease, where repeated stopping and lifting of walking frames may interfere with their walking pattern.



5. Axillary crutch

- > Typically prescribed to individuals with good strength across all four limbs, endurance, and standing balance.
- > Provides upper limb support but requires good core control and strength.



cases, a walking frame may be more suitable than axillary crutches," she adds.

A physiotherapist can also provide specifications for the height and features of the walking aid in the prescription. "For instance, broad and narrow-based quad sticks must be carried on the user's stronger side, which is determined after assessment by a physiotherapist," says Ms Kahmini.

It is also important to consider other medical conditions a user may have. "Those with Parkinson's disease will likely benefit from using a walking stick or rollator frame, instead of a walking frame or quad stick," points out Ms Kahmini. "This is because a walking frame and quad stick may require the user to stop frequently, and this could trigger the characteristic 'freezing gait' in patients with this condition, thereby increasing their risk of falling," she explains.

ENCOURAGING SENIORS TO USE WALKING AIDS

Persuading an elderly person to use a walking aid can be challenging. Ms Kahmini suggests explaining the importance of a walking aid and allowing them to try it out for

themselves to feel the difference. "Some elderly may indicate that using an aid provides greater stability, which can be a motivating factor," says Ms Kahmini.

As most seniors do not like being seen with a walking aid, believing that it indicates their frailty or weakness, Ms Kahmini recommends shifting the focus to safety, independence, and empowerment. "One approach is to

identify activities or leisure tasks they enjoy and emphasise that using a walking aid would make these activities easier and safer to engage in.

"Most elderly people desire to participate in these activities independently and on their own schedule. Hence, highlighting that a walking aid could facilitate that may motivate them to use one," she says. **LW**



WORKOUT

EQUIPMENT
YOU NEED

BALL IN HAND



Tchoukball is played on a wooden or synthetic court surface — an indoor basketball court comes closest to a standard playing court — with the following required:

1

TWO REBOUNDEURS

1m x 1m in size, each consists of a metal frame with a tensioned nylon net. These are angled at 55 degrees on the court.

2

BALL

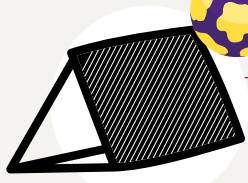
Made to be grippy and sweat-resistant, to make catching and control easier. Comes in five sizes (00, 0, 1, 2, and 3).

3

KNEEPADS (OPTIONAL)

Help prevent injury, should a player land or slide on their knees during a game.

▶ All equipment available for sale at tchoukball.org.sg



Up your fun and fitness level — try tchoukball.

BY MORGAN AWYONG

At the beginning of the year, Singapore's women tchoukball team notched a significant milestone; they claimed top spot in the world rankings. This achievement followed their historic victory over Chinese Taipei in the final round of the 2022 Asia Pacific Tchoukball Championships, which took place in Malaysia last August.

Tchoukball (pronounced "chook-ball") is a non-contact sport that combines elements of handball, volleyball, and squash. It was invented in the 1970s by Swiss biologist Dr Hermann Brandt, whose work

involved researching the effects of physical activities as a way to eliminate injuries.

Tchoukball is played on an indoor court and has a unique scoring mechanism. Each team consists of up to 12 players, with only seven on the court at any time. Teams score points when they bounce the ball off a netted frame — known as a rebounder — positioned at each end of the court.

With tackling or physical blocking prohibited, the game focuses on speed, strategy, and aim, while also requiring a certain level of strength to execute passes and throws.

A SPORT FOR ALL

According to the International Tchoukball Federation, tchoukball has a presence in more than 80 countries. In Singapore, sports event company Edusport estimates that there are more than 2,000 people playing the game. The inaugural ActiveSG Tchoukball Cup organised by Edusport in 2022 attracted 400 participants.

Tchoukball's growing popularity can be attributed to two key factors.

"CHOOK THAT!"

THE NAME, TCHOUKBALL, IS DERIVED FROM THE SOUND THE BALL MAKES WHEN IT HITS THE NET.

RULES OF THE GAME

Ms Irene Tan, 32, captain of the Singapore's women tchoukball team, says that a notable attraction of the game is the absence of physical contact between players. Its rules of play also mean tchoukball is open to people of varying physical abilities and ages.

While there is no age range specified and play is limited by only individual mobility and fitness, the balls used in the sport come in different weights, with appropriate weights used by each age group of players. The heaviest ball weighs 475g and is used only in competitions. The lightest, at 325g, is often used for participants six years old and under. Made of rubber, the balls are similar in feel and grip to those used in handball and basketball.

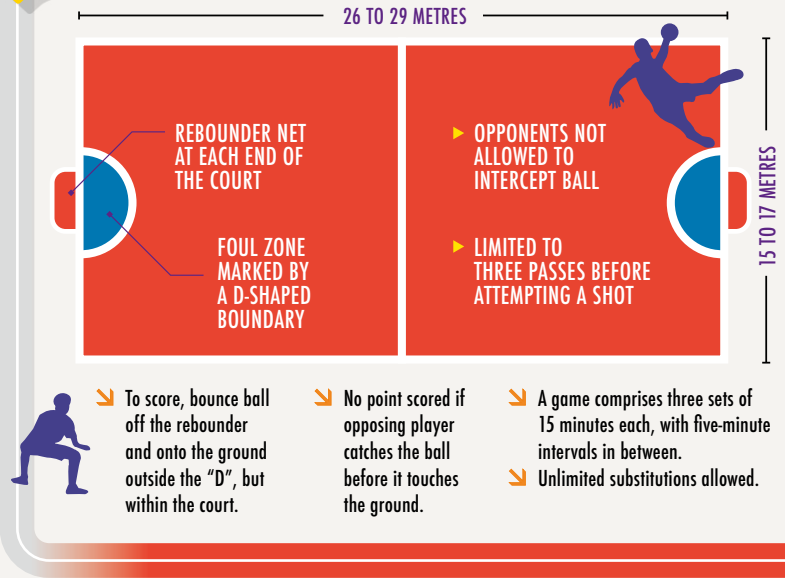
ACE THAT WORKOUT

There are different positions in tchoukball that cater to the different physiques of players. "For example, defending positions require agility and physical fitness, while attacking positions require strength and jumping ability," explains Ms Tan, who took up the sport about four years ago.

Furthermore, the sport is adjustable to one's fitness level, and can be played both leisurely and competitively. "At the competitive level, it is played at a higher intensity and requires a higher level of physical fitness," says Ms Tan.

While scientific research on its health effects is limited, tchoukball shares similarities with other popular sports and provides many traditional advantages.

Tchoukball is primarily an aerobic activity, offering an effective



cardiovascular workout. The high-intensity movements involved in shuttling back and forth contribute to improved stamina and lung capacity.

The energetic nature of the game also requires power, leading to increased strength and endurance. Players must exhibit agility, speed, and coordination in using their upper limbs for throwing and catching, and lower limbs for running and jumping.

Additionally, tchoukball improves hand-eye coordination,

for passing the ball between teammates, and when a player pitches the ball towards the rebounder.

The sport's emphasis on strategy and quick thinking also sharpens mental functions, while the combination of physical movement and mental engagement is excellent for motor skills. Lastly, tchoukball's non-aggressive gameplay and focus on teamwork promote a healthy competitive attitude. **LW**

With tackling and physical blocking prohibited, tchoukball focuses on speed, strategy, and aim, while also requiring a certain level of strength to execute passes and throws.



▶ WHERE TO PLAY

The Tchoukball Association of Singapore organises regular workshops and coach licensing courses. It also holds try-outs to determine the teams that represent the country for competitions. Visit its website (tchoukball.org.sg) and social media accounts for up-to-date information and to purchase equipment.

Other private companies, such as Edusports and Zovb, offer tchoukball programmes too, while there are lessons every Saturday at SAFRA Jurong.

EAT
WELL

PUCKER UP IN PLEASURE

What makes sour flavours so addictive? *Lifewise* finds out.



BY MORGAN AWYONG

Whether it is a squeeze of a lime on your *mee siam*, the tangy bite of *kimchi*, or the tartness of a cherry, sourness is a sensory experience like no other.

A sour taste is one of the five basic taste elements, alongside sweet, salty, bitter, and umami tastes. Sourness is the result of high amounts of acid in foods such as citrus fruits, vinegars, *asam* (tamarind), and kombucha. It is a taste that makes you squeeze your eyes tight and purse your lips in pleasure and/or pain.

At times, sourness can be the first indicator of unsafe consumption. Think milk that has 'gone off', for example. On the flipside, foods high in sourness are purported to have health benefits. Fruits with a sour taste, such as citrus fruits and berries, are rich in vitamins and antioxidants. The acidity in sour foods can also aid

digestion, stimulate appetite, and provide a refreshing sensation on hot days.

Pastry chef Hannah Wong used to make sour meringues by adding a secret acidic ingredient — appropriately dubbed 'pucker' by her. A self-proclaimed lover of all things sour, Ms Wong, 43, says, "It's refreshing to have something 'sharp' to wake up the palette, especially after you've had something sweet."

An excessive amount of sourness can sometimes be overwhelming or unpleasant. Besides, the high acidity in say, vinegars or citrus juices, may wear away tooth enamel or cause digestive sensitivities for some individuals.

UNDERSTANDING SOUR

The 'sourness' of foods comes from two primary sources: natural occurrence and degeneration.

What we perceive as sourness is actually our taste buds detecting the presence of acids. Organic acids like ascorbic acid, citric acid, malic acid, lactic acid, and acetic acid — found in sourdough bread, wine, and cheese, for example — are responsible for a sharp, tangy, or acidic sensation.

Sourness occurs naturally in various fruits and vegetables, but can also arise from food deterioration due to the action of microorganisms, such as bacteria, yeasts, and moulds.

Some foods are allowed to 'spoil' for enhanced health benefits. Such deliberate spoilage of food through controlled decomposition is known as fermentation. This process converts natural sugars into organic acids, and is used to preserve food, enhance flavour, and produce a variety of beverages — think yoghurt, *kimchi*, vinegar, and wine.

THE TASTE OF GOODNESS

Many sour foods contain high levels of ascorbic acid, or vitamin C, which is essential for various biological processes in the human body. Vitamin C acts as an antioxidant to protect cells from damage caused by free radicals. It also aids in the formation of collagen, iron absorption, immune function, and the maintenance of healthy skin, teeth, and bones.



SOUR FOODS ARE KNOWN TO BE EXCELLENT SOURCES OF



VITAMIN C

SOUR FOODS OFFER OTHER HEALTH BENEFITS

> Improves digestion and gut health

Fermented foods contain beneficial bacteria known as probiotics, which promote the growth of healthy gut flora. This can enhance digestion, boost immune function, and help in weight management over time. Yoghurt provides additional protein, calcium, and phosphorus for bone health, while kefir serves as a lactose-intolerant-friendly alternative. A 2016 Japanese study suggests that fermented soybeans, which make *miso*, can help with Irritable Bowel Syndrome (IBS). Additionally, sourdough bread, pineapples, and mangoes also contain digestive enzymes that aid in better meal absorption.

> Increases nutrient absorption

The acidic nature of sour foods, akin to the stomach's gastric juice, helps break down and facilitate the absorption of specific nutrients including iron and calcium in the digestive tract, which leads to better use of nutrients by the body. According to a study published in the National Library of Medicine, vitamin C and iron work particularly well together. Hence, when enjoying spinach, *tofu*, or broccoli, a squeeze of lemon can actually enhance iron absorption. Vinegars have also been found to aid in calcium absorption

and prevent kidney stones. Furthermore, it breaks down the phytate content, which can inhibit the absorption of zinc, in foods like whole grains, nuts, and legumes.

> Provides anti-inflammatory effects

Certain sour foods contain natural compounds with anti-inflammatory properties. Harvard researchers have linked chronic inflammation to diseases such as cancer, diabetes, arthritis, heart disease, depression, and Alzheimer's. To combat inflammation and mitigate the risk of chronic diseases, incorporate tart (or sour) berries into your diet. Tart cherries and cranberries, in particular, are known to effectively reduce inflammatory stress caused by exercise and aid in the recovery process for muscle soreness. These fruits contain polyphenols — plant compounds that reduce inflammation, while improving brain and heart health. Strawberries, raspberries, blueberries, and blackberries are also highly regarded for their rich antioxidant content.

> Enhances skin health

Sour foods rich in vitamin C, such as grapefruits, pineapples, oranges, tomatoes, and bell peppers, can nourish the skin from within. Vitamin C promotes collagen growth, which is essential for healthy skin. A diet rich in vitamin C can help improve skin texture, reduce wrinkles, and enhance overall skin health. Furthermore, vitamin C protects

against ultraviolet-induced damage, reducing the occurrence of pigmentation.

> Regulates blood sugar

Certain sour foods can help regulate blood sugar levels — particularly beneficial for individuals with diabetes or other blood sugar disorders. A study published in the National Library of Medicine found that consuming apple cider vinegar before meals reduces blood glucose levels, especially in individuals with type 2 diabetes. In another study, grapefruit juice has also been shown to improve insulin sensitivity in overweight adults.

THE DOWNSIDES

It is important not to go overboard with sour foods. Health experts recommend taking citrus fruits in moderate amounts and rinsing the mouth with water soon after consumption.

Consuming too much sour food can also be detrimental. As these foods stimulate the production of stomach acid, it can lead to acid reflux, heartburn, and stomach upset, especially for individuals with pre-existing digestive conditions such as gastroesophageal reflux disease (GERD) and gastritis.

Additionally, taking excessive amounts of sour food can disrupt the natural pH balance in the body, which should be slightly alkaline. An imbalance in pH can lead to fatigue and shortness of breath, as well as disrupt other metabolic processes.

Furthermore, certain sour foods that contain the compound tyramine, such as aged or blue cheese, oranges, grapefruits, and sauerkraut, can trigger migraines in some individuals. **LW**

Taking excessive amounts of sour food can disrupt the natural pH balance in the body, which should be slightly alkaline.



HOME ALONE

With more seniors living by themselves these days, here is how to ensure their safety and security.

BY KEENAN PEREIRA

In May this year, a 64-year-old man was found dead in his flat at Toa Payoh. What made the incident more distressing was that his death was only discovered after neighbours had endured – for three to four days – a foul smell that was eventually traced to his decomposing body.

It has been forecast that in a rapidly-ageing Singapore, the number of seniors living alone will reach 83,000 by 2030, up from 47,000 in 2016. Recognising this trend, the Ministry of National Development (MND) is contemplating preventive measures, such as home visits to seniors whose records show they have defaulted on rent and utility payments. These efforts aim to bolster existing safety nets, including alert alarm systems in studio apartments and rental blocks for seniors.

The following enhancements can help ensure the safety of the aged living alone:



> INSTALL AN ELDERLY MONITORING SYSTEM

These include motion sensors, door contact detectors, and a wearable distress button. The sensors track seniors' daily habits and notify caregivers in times of need, or when irregular patterns are detected, such as prolonged inactivity.



> MINIMISE FIRE HAZARDS

Gas burners should be replaced with induction cookers. The latter eliminates the danger of overheating and sparking fires. Appliances that automatically switch off after use, such as electric kettles, are also recommended.

> ENSURE FLOOR SAFETY

Rugs and carpets can lead to falls and slips. Enhance grip with anti-slip carpet underlays and choose rugs that do not rumple easily. Bathrooms should be fitted with anti-slip mats as well. Avoid slippery materials like marble and opt for safer options such as ceramic tiles, vinyl floors, or lacquered wood.

> LEVEL KERBS

Kerbs at the doorways to rooms are a tripping hazard. Level these to avoid losing balance and tripping.

HOW SENIORS LIVE IN SINGAPORE

34.5%
WITH SPOUSE
AND CHILDREN

26.5%
WITH SPOUSE,
WITHOUT CHILDREN

21.1%
WITH CHILDREN,
WITHOUT SPOUSE

10.2%
ALONE

7.7%
OTHERS

SOURCE: DEPARTMENT OF STATISTICS



The Housing and Development Board (HDB)'s Enhancement for Active Seniors (EASE) programme provides subsidies of up to 95 per cent to retrofit homes with some of the mentioned fittings. Scan the QR Code to find out more:



> EMPLOY BATHROOM SAFETY MEASURES

Grab bars provide added support and should be installed next to the toilet and shower. Consider a shower chair if standing for extended periods is challenging for the elderly person.



> DECLUTTER FOR MOBILITY

Create ample space within the home for easy movement. Having a clear passageway reduces the likelihood of accidental falls.

> MAKE STORAGE ACCESSIBLE

Eliminate the need to use ladders and stools to retrieve items. Store frequently-used items at a comfortable height.

> IMPROVE LIGHTING

Research shows that most falls occur at night because of poor lighting. Install motion-activated lights to reduce the risk of accidents when seniors need to navigate in the dark. Alternatively, replace existing small light switches with big and easy-touch switches for better accessibility. **LW**

ALONE BUT NOT LONELY

A recent National University of Singapore (NUS) study showed that seniors with strong community links enjoy better overall health. Engaging in group activities such as art, music, gardening, mindfulness, and health education improves mood and cognitive abilities. This study builds upon previous research conducted by Duke-NUS Medical School and Japan's Nihon University, which found that self-perceived loneliness among individuals aged 60 and above is correlated with a reduction in life expectancy of three to five years, compared to their non-lonely counterparts.



A NEW MODEL OF LIVING



To support ageing in place, the Ministry of Health (MOH), MND, and HDB have introduced Community Care Apartments (CCAs). These new housing models, with sizes of around 32 square metres — about half the size of a squash court — are set to be completed next year.

These apartments have been designed based on feedback gathered from focus group discussions with seniors, caregivers, healthcare professionals, and service providers. Built-in fittings include a wardrobe, cabinets, and a furnished kitchen (without a

refrigerator). Senior-centric features like grab bars, large wheelchair-accessible bathrooms with slip-resistant flooring, and wide wheelchair-friendly main doors are also included. Each flat is fitted with two personal alert buttons that connect to a

centre that is manned round-the-clock. To combat loneliness, each floor features a communal space to encourage community bonding, where seniors can share meals together or participate in curated programmes. Initial CCAs will be located in Bedok, Bukit Batok, and Queenstown.

SOURCE: JURONG AGEING STUDY AND JOURNAL OF THE AMERICAN GERIATRICS SOCIETY

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SPOTLIGHT

▶ EMPOWERING BREAST CANCER PATIENTS



Left: Signing of the Memorandum of Understanding (MOU) on 26 April 2023 between KTPH and BCF to establish BCSC. Present were (left to right) Dr Clement Chia, Head of Breast Surgery Service, KTPH; A/Prof Tan Kok Yang, Deputy Chairman, Medical Board, KTPH; Prof Chua Hong Choon, Deputy Group CEO (Strategy & Transformation), NHG and CEO, KTPH & Yishun Health; Guest-of-Honour A/Prof Muhammad Faishal Ibrahim, Minister of State, Ministry of Home Affairs & Ministry of National Development and Member of Parliament for Nee Soon GRC; Ms Staphnie Tang, President, BCF; Ms Susan Leen, General Manager, BCF; and Dr Jerry Goo, Head of Department, General Surgery, KTPH.

➤ Breast cancer is the most common cancer among Singapore women – about one in 13 is diagnosed with the disease in their lifetime. To address the needs of breast cancer patients in the northern region of Singapore, as well as cater to referrals from across the country, Khoo Teck Puat Hospital (KTPH) and Breast Cancer Foundation (BCF) established the first Breast Cancer Support Centre (BCSC).

Situated within the KTPH Breast Clinic, BCSC serves as a vital complement to the

hospital's medical care, offering comprehensive guidance and support to both newly-diagnosed patients and those undergoing treatment. A dedicated team of trained BCF staff and volunteer befrienders is on hand to provide complimentary psychosocial support and services, including benefits advisory assistance such as financial aid and help with form-filling. Additionally, patients have the opportunity to engage in various activities organised by BCF.



Prof Chua presenting a basket of vegetables fresh from KTPH's roof-top garden to A/Prof Faishal.



HAVING BCF'S SUPPORT SYSTEM ON OUR CAMPUS COMPLEMENTS OUR MEDICAL SERVICES AND ELEVATES THE CARE JOURNEY FOR OUR BREAST CANCER PATIENTS. AS A PSYCHIATRIST, THE VALUE OF MENTAL HEALTH, ESPECIALLY FOR PEOPLE GOING THROUGH MEDICAL DIFFICULTIES, IS VERY IMPORTANT TO ME. DOCTORS AND SURGEONS CANNOT ALWAYS PROVIDE THE ADDITIONAL SUPPORT THAT PATIENTS NEED, SO I AM GLAD THAT WE ARE PARTNERING WITH PEOPLE WHO CAN PROVIDE THIS ASPECT OF CARE, AND I KNOW THAT MANY OF OUR PATIENTS WILL BENEFIT FROM THIS WORK."

PROFESSOR CHUA HONG CHOON, DEPUTY GROUP CEO (STRATEGY & TRANSFORMATION), NHG, AND CEO, KHOO TECK PUAT HOSPITAL & YISHUN HEALTH

WELCOME TO HEALTH KAMPUNG

At NHG's "marketplace", residents can choose from hundreds of health and social care programmes to participate in.

Aligned with *Healthier SG*, the National Healthcare Group (NHG) has launched *Health Kampung*, a "marketplace" that features more than 450 health and social care programmes. Residents living in Central and North Singapore can sign up for *Health Kampung* programmes, which cover exercise and movement, diet and nutrition, mental wellness, practical skills, and volunteering. NHG has collaborated with community partners and national agencies to offer these programmes as one menu, designed to activate residents towards healthier living.

WITHIN EASY REACH
Health Kampung was unveiled



Minister for Health Ong Ye Kung (centre) at the POPCollect Annual Workplan Seminar 2023.

on 14 April 2023 at NHG's Population Health Collective (POPCollect) Annual Workplan Seminar 2023 at the Ng Teng Fong Centre for Healthcare Innovation. It can be accessed via a web portal, mobile application or call centre, thereby freeing residents from the need to contact or visit different or multiple providers.



Health Kampung is an example of our close collaboration with local partners to integrate health and social care. Together with our General Practitioners on board Healthier SG, we hope to support our residents to live well and fulfil their health plan, and connect them to programmes near to where they live.

Professor Eugene Fidelis Soh, Deputy Group CEO (Integrated Care), NHG, and CEO, Tan Tock Seng Hospital & Central Health.



Health Minister Ong, NHG board and senior management, staff, and participants performing a stretching exercise.





▶ GUIDE TO EATING WELL IN EARLY CHILDHOOD

New standard on nutrition and food services introduced to ensure the healthy development of young children.



➤ To support care centre operators and their food service providers in preparing safe and nutritious food in appropriate portions for infants and children up to the age of 12 years old, a new set of guidelines was introduced on 31 May 2023.

The Singapore Standard (SS) 692 Guidelines for Nutrition and Food Services for Infants and Children was launched by Mr Masagos Zulkifli, Minister for Social and Family Development, and Second Minister for Health – together with the National Healthcare Group (NHG), the Singapore Standards Council (SSC), which is overseen by Enterprise Singapore (ESG), and the Singapore Manufacturing Federation–Standards Development Organisation (SMF–SDO) – at My First Skool at New Punggol Road.

A FOUNDATION FOR HEALTHY HABITS

Serving as an additional resource to complement existing regulatory requirements and standards, SS 692 comes amid findings from a study on birth cohorts in Singapore that good eating behaviour can mitigate



Minister Masagos Zulkifli (fifth from left) and representatives from partner organisations at the launch of SS 692.

a child's risk of obesity, even in children with risk factors such as having a parent who is overweight.

The guidelines were developed by an NHG-led, 20-member multi-stakeholder Working Group, which comprised representatives from healthcare, national agencies, research institutes, institutes of higher learning, relevant industry associations, and service providers.

“Being able to lead the development of SS 692 is testament to NHG’s commitment towards promoting good health and well-being in Singapore, with the aim of creating a healthier and more resilient society,” said Ms Wong Suat Li, Deputy Director, Group Integrated Care, NHG, and Chair of the Working Group.

NHG plans to develop resources based on SS 692, such as portion guides and recipes, to support the adoption of the standard.



Sample serving portions of meals that meet SS 692 recommendations.

NUTRITIOUS, BALANCED, AND VARIED

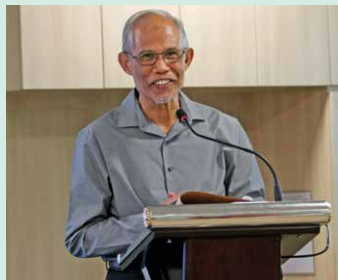
Examples of recommendations in SS 692:

➤ **Infants and children should be served age-appropriate meal portions which consist of four food groups (rice and others, fruits, vegetables, and meat and others), together with their daily calcium-containing food requirements.**

➤ **Fruits should not be used to replace vegetables, as they contain different types of nutrients.**



Minister Masagos being briefed on the age-appropriate serving portion and proportion of food by Ms Wong Suat Li, Deputy Director, Group Integrated Care, NHG.



Minister Masagos addressing the audience at the event.

▶ SETTING THE STAGE FOR PARTNERSHIP IN HEALTHCARE INNOVATION

NHG signed a MOU to boost research and development in ageing and rehabilitation.



The fourth Singapore-Shanghai Comprehensive Cooperation Council (SSCCC) meeting on 24 April 2023 witnessed the signing of 15 agreements between the two cities to boost cooperation in areas such as the digital economy, healthcare, and tourism.

Among the notable agreements inked was a Memorandum of Understanding (MOU) between the National Healthcare Group (NHG), Shanghai Ruijin Hospital, and Ruijin Rehabilitation Hospital. The tripartite partnership aims to foster research and development collaborations that would enable more patients to gain greater access to innovation technology-enabled rehabilitation. It also seeks to establish an international knowledge-sharing network and create an innovation ecosystem among all key stakeholders, including



Prof Benjamin Seet, Deputy Group CEO (Education and Research), NHG (third from left), A/Prof Loh Yong Joo, Head, Senior Consultant, Department of Rehabilitation Medicine, TTSH (fifth from left), and representatives from NHG and TTSH, with delegates from Shanghai.

NHG clinicians, international researchers, and engineers.

Hosted in Singapore for the first time, the SSCCC was jointly chaired by Minister for Culture, Community and Youth and Second Minister for Law, Mr Edwin Tong, and Shanghai Mayor, Mr Gong Zheng.

On 25 April 2023, the delegates from Shanghai also visited Tan Tock Seng Hospital (TTSH)'s Clinic for Advanced Rehabilitation Therapeutics (CART) and the Rehabilitation Research Institute of Singapore (RRIS). Hosted by NHG's Centre for Medical Technologies and Innovations (CMTI), the visits sought to explore potential collaborations in rehabilitation medicine.



As part of the itinerary, the Shanghai delegates visited TTSH's CART.



The signing of the MOU between NHG, Shanghai Ruijin Hospital, and Ruijin Rehabilitation Hospital.



▶ CELEBRATING NEARLY A CENTURY OF MENTAL WELLNESS

IMH marked its 95th anniversary with an open house and the unveiling of a new community garden.



Above: Adviser to Ang Mo Kio GRC Ms Ng Ling Ling (front row, left) and A/Prof Daniel Fung, CEO, IMH (front row, right) at the opening of Mindful Meadows.



> The Institute of Mental Health (IMH) hosted an open house on 20 May 2023, as part of its 95th anniversary celebrations.

Themed “Good Mental Health for All”, the event underscored IMH’s commitment to promoting preventive care and improving understanding of mental health issues.

Some 1,000 visitors attended workshops and talks, listened to personal stories of recovery, and went on guided tours of the campus. At booths run by community partners, visitors learnt about support and resources. They also picked up unique finds at a car boot bazaar, and enjoyed refreshments from food trucks.

“Through such initiatives, we hope to bring

people together to start conversations about mental health and wellness, reduce stigma, and improve resilience,” said Associate Professor Daniel Fung, Chief Executive Officer (CEO) of IMH.

FORGING CONNECTIONS, ACQUIRING HORTICULTURE SKILLS

Another highlight of the event was the unveiling of a new community garden by Guest-of-Honour, Ms Ng Ling Ling, who serves as Adviser to Ang Mo Kio GRC. A collaboration between IMH and Jalan Kayu constituency, Mindful Meadows brings patients and volunteers together to learn from one another and promote gardening as a way of nurturing mental wellness.

The gardening sessions will start in August. In addition to planting and harvesting vegetables, participants will be able to engage in landscaping art activities such as rock painting and leaf pressing.



Scan the QR code to learn how you can volunteer at IMH’s community garden.

▶ ADDING FLAVOUR TO LIFE

Yishun Health promotes mental wellness among its staff through cooking.

The process of preparing a meal with wholesome ingredients and sharing it with loved ones can help nourish the mind, body, and soul. To highlight the mental and physical benefits of healthy home cooking among its staff, Yishun Health (YH) started the SpiceSmart initiative from March to April 2023.

This year, YH’s LifeWorks! committee and HR Wellness team worked with its Food Services Chefs to concoct two all-in-one spice blends,



Left: Prof Chua Hong Choon, Deputy Group CEO (Strategy & Transformation), NHG and CEO, KTPH & Yishun Health (far left); Chef De Partie Ali Saikh Arsed (second from left); and LifeWorks! committee members at a cooking demonstration using the Curry Spice Mix.

which were then used in recipes taught at cooking demonstrations for staff. “By giving our attention to each step of cooking, we can experience the joy of mindful cooking, and this can be a release from the stresses of our daily lives,” shared Ms Lisa Choo, Principal Clinical Psychologist and Chairperson of the LifeWorks! Committee. “Using the same pair of hands that heal and care for others, we nurture ourselves with healthy delicious food,” she added.



The low-sodium Cajun Spice Rub and Curry Spice Mix blends were created by YH Executive Chef Nge Aik Tee and Chef De Partie Ali Saikh Arsed, respectively.

▶ ROLE MODEL

Yishun Health Senior Nurse Clinician recognised as an exemplary worker at the NTUC May Day Awards 2023.

The annual NTUC May Day Awards honours individuals and organisations for their outstanding contributions towards the Labour Movement, in advancing workers' interests, and being role models at their workplace. This year, Yishun Health (YH) Senior Nurse Clinician, Ms Foo Meow Ling, took home the Model Worker Award.

As the team lead of Infection Control (IC) at YH, Ms Foo's involvement in implementing IC measures during COVID-19 helped YH stay afloat during the peak of the pandemic. Enforcing new and clear workflows, conducting mask-fitting and personal protective equipment



training sessions, and upskilling and reskilling various staff to be confident swabbers are some of the many valuable contributions she made to the campus.

Ms Foo is also a strong advocate for fair work, welfare, and wages beyond the hospital. As an executive council member of the Healthcare Services Employees' Union (HSEU),

she was also the Yishun Health HSEU Branch Secretary in 2018 and Chairperson in 2021. On behalf of NTUC and HSEU, Ms Foo often conducts seminars and workshops, bringing IC education, workplace health and safety awareness, and COVID-19 management talks to the community, including migrant worker dormitories and other agencies.

▶ DOUBLE RECOGNITION

NHG clinched two awards at Singapore OpenGov Leadership Forum.

The National Healthcare Group (NHG) was lauded with two Singapore Recognition of Excellence Awards at the eighth Annual Singapore OpenGov Leadership Forum for its innovative and disruptive use of technology to optimise processes, deliver people-centred services, and push new boundaries.

Facilitated and nominated by NHG's Centre for Medical Technologies and Innovations (CMTI), the winning projects were:

▶ **Population and Rehabilitation Health Platform - Project Lead: Associate Professor Loh Yong Joo, Head of Department, Senior Consultant, Department of Rehabilitation Medicine, Tan Tock Seng Hospital (TTSH)**

Developed by TTSH, this platform aims to create a set of virtual rehabilitation tools and games for population health screening, and rehabilitation of seniors over 60 years old, including detection of frailty, patient education materials, and exercises for intervention and prevention of frailty and falls.



▶ **SMARTVacc Vaccine Management System - Project Lead: Dr Valerie Teo, Family Physician, Consultant and Head of Kallang Polyclinic, National Healthcare Group Polyclinics (NHGP)**

Conceptualised by NHGP, it is Singapore's first fully-automated intelligent vaccine management system, with noteworthy features such as authorised user identification, smart image recognition to verify that correct vaccines are dispensed, real-time digital inventory, and cold chain management. The SMARTVacc helps improve patient safety while preventing vaccine wastage and reduces manual effort. This allows healthcare providers to channel their efforts towards patient care and engagement.

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