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## Nerves: Your link to the outside world

## 神经系统： 您与外界的连接

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your brain!

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30 走路要当心!



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**Correction:** Issue 16 incorrectly stated Ms Fu Liqing's designation as "Nurse Clinician – Advanced Practice Nurse". It should have been "Nurse Clinician".

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# News and Updates

## Thank you Tower Transit!

Taking buses can be daunting for people with disabilities but public bus operator Tower Transit is on a mission to change that! To mark World Multiple Sclerosis (MS) Day, Tower Transit gave a talk at NNI to members of the MS Care support group, sharing practical tips to boost their confidence when travelling by bus. Tower Transit also held a practical session at Sembawang Bus Interchange to give some of the MS Care members practice in boarding and alighting buses.



Source: Tower Transit Singapore



## "May I have a seat please?"

Does your medical condition stop you from taking public transport? The 'May I Have a Seat Please?' card aims to help passengers with invisible medical conditions alert fellow commuters they would like a seat on the bus or train and helps transport staff know they may need help. Show the card to the driver when the bus arrives at your stop and he or she will ensure you are seated before driving off and check you have enough time to alight at your stop. The pass is free and available from Passenger Service Centres at MRT stations, bus interchanges and TransitLink Ticket Offices. If you need additional assistance, do approach the transport staff – they are there to help!



## Kids can be stroke heroes too

A stroke happens in an instant but the effects are often long-lasting. It can be hard for children to see their once active parent or grandparent having difficulty with everyday tasks such as eating, walking and talking. So the NNI Stroke Team has created an animation to help children understand what happens during a stroke to ease their anxiety, and to give them some tips on what they can do to help their loved one cope and recover. Scan the QR code to view.



*Prof Sven Pettersson, Director, AMNC and Senior Principal Investigator, Research, NNI, sharing about AMNC at the Bookends of Life symposium on 7 Jun 2022.*



## Bugs in your gut can affect your brain!

The 1.5kg of bacteria living in your gut can either help or harm your brain and other organs in your body. The ASEAN Microbiome Nutrition Centre (AMNC) has been set up to study how these microbes affect health and ageing, including conditions such as dementia. This will help open up novel ways to diagnose, monitor and treat such diseases. AMNC is a partnership between NNI and Sunway University, Malaysia, supported by UK Dementia Research Institute. It was set up with funding from the Jeffrey Cheah Foundation.

## Blooming marvellous!

Flowers have been popping up at NNI's specialist outpatient clinic to highlight public forums and awareness days. The cheerful blooms are all hand made by Corporate Communications Senior Associate Executive Low Wei Ling. Scan the video to see how she made tulips for World Parkinson Day!



# What's that **TINGLING** in my feet?



**Dr Koh Yeow Hoay**

**That 'pins-and-needles' feeling you get in your feet is a familiar sensation to most and usually not something to worry about. But, it might be time to see a doctor if this uncomfortable tingling happens frequently and is accompanied by other symptoms. Dr Koh Yeow Hoay, Head of Neurology, Changi General Hospital and Consultant, Department of Neurology, NNI explains more.**

Your fingertips are some of the most sensitive parts of your body, because they contain many more nerve endings as compared to other areas such as your elbows. They send information to your brain about whether something is hot or cold, sharp or smooth, soft or hard. These nerve endings are part of your nervous system and they help you understand the world around you.

The body's nervous system is split into two parts:

- The central nervous system, which consists of our brain and spinal cord.
- The peripheral nervous system, which consists of the rest of the nerves throughout the body.

The peripheral nervous system relays information between the central nervous system, and the rest of the body. In some people, nerves in the peripheral nervous system become damaged, leading to various odd sensations in the body. This is known as peripheral neuropathy, a common neurological condition that affects roughly one in three people above the age of 80 worldwide.

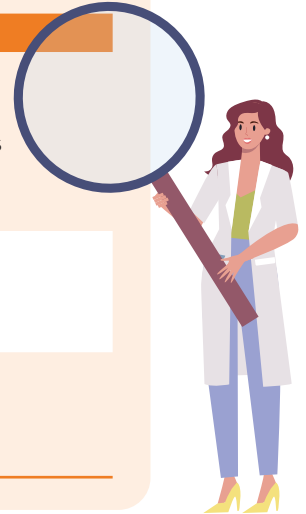
To read more about peripheral neuropathy, scan the QR code:



Symptoms vary depending on the type of peripheral nerves affected.




Types of nerves	Symptoms when damaged
<p><b>Sensory nerves</b> in our skin and fingertips detect touch and temperature sensations.</p>	<ul style="list-style-type: none"> <li>• Numbness or tingling</li> <li>• Decrease in the feeling of pinprick, light touch or vibrations</li> <li>• Spontaneous burning pain and hypersensitivity to pain</li> </ul>
<p><b>Motor nerves</b> control movement, and are found around our muscles.</p>	<ul style="list-style-type: none"> <li>• Weakness</li> <li>• Painful cramps</li> <li>• Muscle twitching</li> </ul>
<p><b>Autonomic nerves</b> control voluntary or involuntary functions, and are found in our organs like our heart and stomach.</p>	<ul style="list-style-type: none"> <li>• Abnormal sweating</li> <li>• Giddiness</li> <li>• Irregular heart rate</li> </ul>



The condition usually starts in the feet and legs, reaching the hands and fingers only in advanced stages. Tingling, burning pain and numbness in the feet and lower limbs can have significant impact on the activities of daily living, including walking, climbing stairs and sleeping. Peripheral neuropathy in particular is often underdiagnosed because of a lack of awareness among both patients and doctors.


There are many causes of peripheral neuropathy. These include:

4




**Chronic kidney disease** – peripheral neuropathy is the most common neurological condition in patients with chronic kidney disease.

5




**Toxins and drugs**, e.g. cancer chemotherapy, anti-tuberculous medication, some antibiotics, some anti-seizure medication, industrial toxic substances like lead.

6




**Hereditary conditions**, e.g. Charcot-Marie-Tooth disease.

1




**Diabetes mellitus** – this is the most common cause of peripheral neuropathy.

2




**Vitamin deficiency** – Vitamins B1, B6 and B12 help to maintain a healthy nervous system.

3



**Alcohol abuse** – alcohol can be toxic to nerve tissue and alcohol abuse can also result in poor nutrition.

7



**Other illnesses**, e.g. Human Immunodeficiency Virus (HIV) and connective tissue diseases such as Systemic Lupus Erythematosus (SLE).



# Ways to care for your nerves



**Fam Su Rong, Nurse Clinician - Advanced Practice Nurse, Department of Nursing, NNI, shares tips on how to keep your nervous system healthy.**

The key to treating peripheral neuropathy is usually to target the underlying cause, for example, good control of diabetes and dialysis for kidney failure patients. But as the saying goes, prevention is better than cure. Here are some steps you can take to lower the risk of developing peripheral neuropathy.



## Did you know

Sensory neurons can send messages to the brain at more than 240 kilometres per hour\*. That's like running across the Sentosa Causeway in 10 seconds!

*\*Source: National Geographic Kids*



## 1. Eat a healthy diet



A well-balanced diet helps support a healthy nervous system. A good option is the Mediterranean diet, which consists of:

- Whole grains
- Fruits
- Vegetables
- Fish
- Nuts
- Seeds

Adequate Vitamin B12 is needed for nerves to function properly. Examples of foods rich in Vitamin B12:

- Eggs
- Dairy products (e.g. milk, cheese, yogurt)
- Red meat
- Fish and shellfish (e.g. salmon, tuna, clams)
- Fortified breakfast cereals



## 2. Control alcohol intake and stop smoking

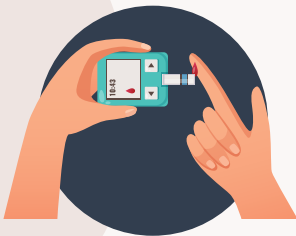
Excess alcohol and smoking can damage nerves and harm many other parts of the body.



## 3. Exercise regularly

Exercise encourages nerve regeneration. If you are able to, aim to have 150 minutes of physical activity a week.

If this is not possible, passive forms of exercise where a caregiver helps to move your limbs can improve muscle strength and prevent muscle wasting in paralysed limbs.



## 4. Keep diabetes under control

Diabetes is the leading cause of peripheral neuropathy in Singapore, affecting around one in three people with diabetes. It is important to manage blood glucose levels through exercise, diet and medication. Uncontrolled high blood sugar damages nerves, and can lead to foot ulcers. If not caught and treated early, foot ulcers may become infected and require toe or foot amputation in severe cases.

People with diabetes should take special care of their feet – look out for any blisters, sores or cuts and get them treated immediately.

A podiatrist is also important in the prevention and management of peripheral neuropathy as they can advise on appropriate footwear and foot care, remove calluses and manage foot problems such as ulcers.



## 5. Get your medication checked

Some medications can also cause neuropathy, such as certain seizure medication and chemotherapy drugs. Review your medications with your doctor to see if there is a need to change out those that can cause or worsen neuropathy.



# Sleepless in Singapore



**Did you know that you spend about a third of your life sleeping? Although you may seem to be doing nothing, it is an important time for your brain as it works hard to maintain various functions in your body. Associate Professor Pavanni Ratnagopal, Senior Consultant, Department of Neurology, NNI, explains more.**

Sometimes, a good night's rest is all you need to feel ready to seize the day. It is no wonder – sleep is essential. During deep sleep, your brain and body are repairing, improving your mental and physical health, and ultimately, quality of life.

In contrast, lack of sleep affects your thinking, memory, concentration, alertness and mood. If left untreated, long term sleep disturbances can decrease your quality of life, lead to various diseases and as a result, even death.

## Stages of sleep

There are four stages in the sleep cycle. The first three stages are non-rapid eye movement (NREM) sleep and the last is REM sleep. You go through about four to six cycles of sleep each night.

SLEEP STAGE  
**1**

**NREM (N1)**

- Light sleep
- Easily woken up during this stage
- May sometimes feel like you are falling and become startled (hypnic jerk)

SLEEP STAGE  
**2**

**NREM (N2)**

- Body relaxes, breathing, heart rate and brain activity slow down
- Body prepares to enter deep sleep
- A person usually spends about half their time in this stage

SLEEP STAGE  
**3**

**NREM (N3)**

- Deep sleep
- Body relaxes even further
- If woken up at this stage, you may feel disoriented for a few minutes

SLEEP STAGE  
**4**

**REM**

- Brain activity increases
- Breathing, heart rate and blood pressure increase
- Rapid eye movement
- Muscles become temporarily paralysed (atonia) except for those controlling the eyes and breathing
- Vivid dreams (dreaming can occur at any stage, but is less common and vivid in the NREM stages)

## Three common sleep disorders causing sleepiness

Sleep disorders are any type of condition that disrupts sleep. This in turn causes daytime sleepiness and affects quality of life. A person may have a sleep disorder

if they tend to yawn frequently, have difficulty waking, nap frequently and/or experience headaches or giddiness that are not due to another condition.

If you suspect you have a sleep disorder, do see a doctor for an evaluation and appropriate treatment.

### 1 · Sleep deprivation



Singaporeans are some of the most sleep-deprived people in the world. In a 2014 survey, Singapore ranked third, getting an average of six and a half hours of sleep a night, falling short of the recommended seven to nine hours for adults.

**Sleep deprivation is usually caused by lifestyle factors, for example:**

- Choosing not to sleep to watch a midnight show.
- Heavy work commitments and stress that hinder sleep.
- Sleeping and staying awake at odd hours due to shift work.

**Certain medical conditions can also lead to sleeplessness:**

- Chronic pains and aches that disturb sleep.
- Other sleep disorders that disrupt the normal sleeping pattern like obstructive sleep apnoea and restless leg syndrome.
- Nasal obstruction (blocked nose) can result in difficulty falling asleep.

For more on sleep deprivation, scan the QR code here.



### 2 · Obstructive sleep apnoea

Obstructive Sleep Apnoea (OSA) is a condition where breathing repeatedly stops and starts when the person is sleeping due to throat muscles relaxing. Common signs of OSA include:

- Loud, frequent snoring
- Stop in breathing or gasping for air during sleep
- Excessive daytime sleepiness
- Frequent urination at night

If OSA is left untreated, it can increase the risks of serious health complications such as memory loss, stroke, high blood pressure, diabetes, depression, heart failure and heart attacks. However, there are effective ways to manage this condition such as the use of a continuous positive airway pressure (CPAP) machine when sleeping, an oral appliance or surgery.



For more on sleep apnoea, scan the QR code here.



### 3 · Sleep movements

Sleep-related movement disorders are conditions where repetitive movements affect a person's sleep. The most common type of sleep-related movement disorder is Periodic Limb Movements in Sleep (PLMS), where involuntary twitching or jerking of the legs occurs during sleep.

As the person does not feel a conscious urge to move their limbs and may not be woken up in mild cases, they may be unaware of their symptoms. However, the person's bed partner may complain of being kicked.

PLMS can be triggered by certain conditions like iron deficiency, hyperthyroidism, osteoporosis and certain drugs. Try simple measures like drinking a cup of hot Milo or milk, eating dark chocolate or honey to help you relax before sleep. If these fail, then medication can be prescribed.

Other sleep movement disorders include bruxism (clenching or grinding of teeth during sleep), neck myoclonus (sudden jerks of the neck when drowsy or trying to fall asleep), leg cramps and hypnic jerks.



For more on PLMS, scan the QR code here.



# It's time to your brain!



**Dr Carol Tham**



**Taking good care of your heart can also protect you from stroke. Dr Carol Tham, Senior Consultant, Department of Neurology, NNI explains why.**

Your brain and heart health go hand-in-hand because they both rely on a good blood supply and healthy arteries to function well.

“Strokes are a known complication of heart attacks and it’s not uncommon for heart attacks to happen after a stroke. The main reason is because stroke survivors usually have one or more health conditions or habits that put them at high risk of having both heart attacks and strokes, but sometimes other factors can also be at play,” says Dr Tham.

High blood pressure, high cholesterol levels, diabetes mellitus and smoking all damage the blood vessels throughout the body, including those in the heart and brain. This makes it easier for the blood vessels to get blocked, which can lead to heart attacks and ischaemic strokes. The damage caused by high

blood pressure can cause the blood vessels to burst in the brain resulting in haemorrhagic strokes.

That is why it is so important for both stroke and heart attack survivors to quit smoking and to take the medications prescribed by their doctor to control their risk factors.

In Singapore, eight in 10 stroke patients and more than seven in 10 heart attack patients have high blood pressure and/or high cholesterol.

Medication for these conditions often has to be taken long-term to keep blood pressure and cholesterol at normal levels. If you have experienced any side-effects from your pills, tell your doctor. They can adjust the dose and/or prescribe you a different medication to find a combination that works well for you.





**Fu Liqing**

**Nurse Clinician Fu Liqing explains the link between your heart rhythm and stroke.**

# Is your heart beat steady pom beep beep?

Atrial fibrillation (AF), is a form of irregular heart rhythm that can cause blood clots to form in the heart. These can travel through the blood vessels to the brain resulting in an ischaemic stroke (blocked artery in the brain) – AF causes around one in five ischaemic strokes in Singapore.

AF can either come and go (paroxysmal AF) or be present all the time (persistent AF), however both types increase the risk of stroke.

Some people with AF have no symptoms, while others may experience one or more of the following:



**Palpitations**  
(Fast, fluttering or pounding heartbeat feeling)



**Breathlessness**



**Chest pain**



**Lightheadedness**



**Dizziness**



Early detection of AF and paroxysmal AF after stroke are crucial because blood-thinning medication (anticoagulants) can prevent another ischaemic stroke from occurring.

To improve the chance of detecting paroxysmal AF, NNI started using a remote holter monitoring service for stroke patients in February 2022. This palm-sized portable device is placed on the chest and can be worn continuously for one to seven days. It can be easily removed and put on again after activities such as showering. This allows patients to have their heart beat monitored at home while doing their normal activities, instead of having to be hospitalised for this.



# A 'Pacemaker' for the brain



Dr Wan Kai Rui

As Parkinson's disease (PD) advances, deep brain stimulation may be an additional treatment option for some people with PD. Dr Wan Kai Rui, Associate Consultant, Neurosurgery, NNI, explains more.

Medication and rehabilitation are the initial 'go to' treatments for Parkinson's disease (PD). They help in managing patient symptoms such as tremors, stiffness and slowness of movement. However, as the condition worsens over time, the number and type of medications will need to be increased.

It is common for people in the moderate to advanced stage of PD to take up to 15 to 20 pills a day. This may still not be enough to provide relief from the symptoms. In addition,

high doses of PD medications may cause distressing side-effects such as uncontrollable jerky body movements and cognitive changes including hallucinations.

Deep brain stimulation (DBS) surgery may be an additional treatment for a selected group of patients with PD.

DBS is a surgical procedure to insert electrodes (small wires) into specific deep structures within the brain. This is usually done while the patient is awake.

The electrodes are connected to a battery (similar to a heart pacemaker) that is placed under the skin just beneath the collarbone. The battery provides a continuous electrical current that stimulates the selected brain structures and alter the abnormal messages of the brain.

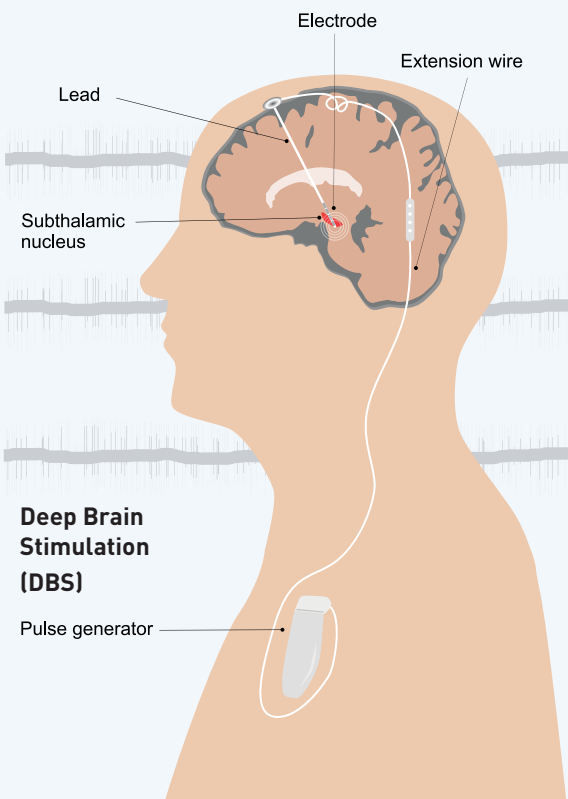
This electrical stimulation helps to reduce movement-related symptoms such as tremors, stiffness, slowness and jerky body movements, thereby improving the patient's quality of life.

# 6

## Common questions about DBS



**Li Wei,**  
Senior Nurse Clinician  
– Advanced Practice  
Nurse, NNI



### 1 Does DBS cure PD?

DBS is not a cure for PD but it can help manage symptoms of PD and improve patients' quality of life. The effectiveness of DBS varies between persons with PD and the benefits may be less noticeable as the disease progresses.

### 2 Does the patient still need to take medication for Parkinson symptoms?

Yes. Patients with PD will still need to continue their medications even after DBS surgery. However, their medical team may reduce and optimise their medications with the DBS stimulation.

### 3 Does DBS work immediately?

The DBS system is usually turned "on" one month after DBS surgery to allow the post-operative swelling to subside. The initial programming may take about four to five hours to identify the most suitable setting for the patient. Subsequent adjustment of the DBS setting may be required. In general, most patients require about three to six months to adapt to the optimisation of their medications and DBS stimulation.

### 4 Can people with DBS travel overseas?

Yes. People with DBS can travel on planes, however airport metal detection scanners have a magnetic effect that may affect the DBS battery. Therefore, they should always bring their DBS implant card with them, show it to the security staff and request for a manual body check. That way people with DBS may avoid both walking through the metal detector and being checked by handheld metal detectors.

### 5 Is DBS suitable for all persons with PD?

DBS is usually considered when medications alone are not able to control the symptoms well. A full evaluation is needed to check if patients are suitable for DBS. This includes a test to see how well their movement symptoms such as tremors, slowness and stiffness respond to the drug Levodopa – a good response to Levodopa is a sign that they will respond well to DBS. The patient also needs to undergo assessments by the physiotherapist, speech therapist, occupational therapist, neuropsychologist and neurosurgeon before a collective decision to proceed is made.

### 6 Is it safe for someone with DBS to have other operations or MRI scans?

People with DBS may be required to undergo other operations or perform magnetic resonance imaging (MRI) scans. Some of these medical equipment may interfere with the DBS system. Therefore, people with DBS must always inform their doctor that they have an implanted DBS system before undergoing any procedure or scans. The DBS battery would also need to be switched off prior to certain procedures or scans and patients should consult their DBS specialists before any procedures or scan.

# ≡ KNOCK KNOCK ≡ it's your healthcare team!



Attending medical appointments can be very challenging for people living with brain and nerve conditions, due to difficulties moving around, finding their way or needing to rely on others for assistance. Mr Stanley Koh, caregiver to his wife with dementia, and Parkinson warrior Mdm Loke Yuet Moey share how home visits under NNI's community programmes have helped them.

## Changed by dementia

Mrs Beatrice Koh\*, 69, was known among friends and family to be a demure, pleasant and generous woman. So it was shocking when she started to be aggressive and abusive.

After seeing many different doctors, Beatrice was finally diagnosed with frontotemporal dementia (FTD) – a type of dementia that causes language and behavioural problems.

Now some 11 years later, Beatrice no longer experiences behavioural

issues, but her condition has progressed such that she is unable to speak and is mostly bedridden.

## A loving husband

As her main caregiver for over a decade, Beatrice's husband Mr Stanley Koh\*, 69, can now anticipate her needs through the sounds she makes.

"Sometimes when she groans, it means she wants physical touch so I will stroke her forehead which she likes. Or, I might rub medicated oil on her nose, massage her or give her something to drink," shared Stanley.

## System of support

Beatrice used to go for annual check-ups at NNI, but has not been recently due to mobility issues and COVID-19. These days, her health issues are not directly related to her dementia. Instead, they are common problems such as migraine, constipation and arthritis.

In 2021, Beatrice and Stanley joined the NNI Community Health programme, and community nurses from Changi General Hospital trained by NNI specialists make regular home visits, helping to address these ailments.

For instance, they brought medicated patches to help with Beatrice's arthritis. They also switched Beatrice from anti-constipation oral medications, which did not work well, to suppositories which have been more effective.

Stanley said, "I am very thankful for the community nurses who are empathetic, comforting, and just a text message away. They have been much needed help for my wife and me."

*\*Names have been changed to protect the family's privacy*

*The NNI-Community Health programme is available for NNI @ Tan Tock Seng Hospital (TTSH) patients with neurodegenerative conditions like Parkinson's disease, dementia, multiple sclerosis and neuromuscular diseases who have difficulty coming for clinic appointments. If you or your next-of-kin is interested in joining the programme, speak to your attending doctor or nurse during your visit.*

For more information, scan the QR code here:





## Losing independence

After a bad fall in 2018 that landed Mdm Loke Yuet Moey, 86, in the hospital, Mdm Loke was identified as a 'high risk' Parkinson's patient due to poor balance and freezing (being unable to move temporarily). She had been diagnosed with Parkinson's disease (PD) in 2016.

PD is a neurodegenerative disorder that causes symptoms such as stiffness, slow movements and shaking of hands and legs at rest. The condition gets worse over time and there is currently no cure.

Mdm Loke now struggles to even walk short distances, having to use a wheelchair or a walking frame at home. This loss of independence has made it difficult for Mdm Loke to adjust to life with PD.

To help Mdm Loke and her family manage her PD, she was enrolled in the Temasek Foundation Parkinson's Disease Community Care Programme (TFPDCCP) in February 2021. Now a trained Community Nurse from Singapore General Hospital (SGH) visits Mdm Loke regularly at home and her case is discussed by the multi-disciplinary team

at SGH. This allows them to monitor her condition closely so they can identify problems and provide timely advice and support in between her hospital appointments.

## Gaining hope

When Mdm Loke's Community Nurse noticed that she suffered from leg pain, he informed the neurologist who then prescribed her pain relief medication. This helped her walk better without Mdm Loke having to visit the specialist outpatient clinic. During a home visit, her physiotherapist taught Mdm Loke exercises to help with the pain and the team installed grab bars in her toilets to prevent falls.

The programme, supported by the Temasek Foundation, has not only benefited Mdm Loke but also her daughter Mdm Tang as her main caregiver. Mdm Tang received training on how to manage her mother's condition and appreciates the team checking on her mother's physical and mental well-being. "I'm very thankful for the support to help my mother maintain her quality of life, and for me to be a better and more confident caregiver."



▲ Senior Staff Nurse (Community Nurse), Goh Rui Hao, SGH assessing Mdm Loke for stiffness.

*The TFPDCCP is available to SGH patients with PD living in Tiong Bahru, Telok Blangah, Katong, Chinatown and Bukit Merah. SGH patients with moderate to advanced stages of PD and their caregivers may indicate their interest for this service through their doctors.*

**For more information, scan the QR code here:**



▼ Mdm Tang (left) with Mdm Loke



# Watch your step!

One in three people over 65 years has at least one fall a year, and the risk is even higher for people living with brain or nerve conditions. Lim Si Qi, Senior Physiotherapist, Singapore General Hospital explains why and what you can do to lower your risk.

Brain and nerve conditions can occur at any age, from young adults to the very elderly. Most are at risk of falls because of symptoms caused by their conditions and treatment.

These include poor balance, difficulties walking, muscle weakness, poor vision, confusion and side-effects of medication such as dizziness and drowsiness, making it easier to slip or stumble and harder to steady yourself to prevent a fall.

The majority of falls happen at home, and the consequences can be devastating.

"Falls can cause serious injuries such as bone fractures and bleeding in the brain, plus they affect mental well-being. The loss of independence caused by such injuries often causes frustration, and the fear of falling can prevent people from leaving their homes, resulting in social isolation and reduced quality of life," said Si Qi.

For more  
information on  
preventing falls  
in the home,  
scan the  
QR code:



# 6 Tips for a safer home

A few small actions can reduce your risk of falls.

## 1 Keep walkways clear

A cluttered walkway is a fall hazard. To keep walkways clear:

- Place shoes on racks and hang or store bags on shelves.
- Allocate a designated space within the home for young children to play with toys and remind them to put their toys away after playing.
- Secure loose electrical cables and keep them taped down or away from walkways.
- Allow wide enough walking space between furniture and relocate furniture placed in the walkway.



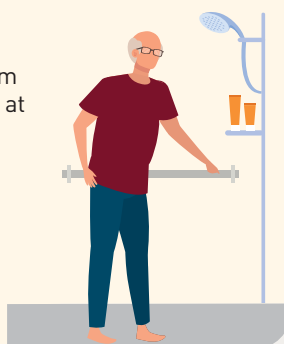
## 2 Use non-slip mats

Unsecured floor mats are a common cause of slips and trips. Ensure floor mats have non-slipping backing that prevents movement when stepped on.



## 3 Install grab bars and ramps

Home modifications can reduce the risk of falls in hazardous areas such as bathrooms. Grab bars, ramps (when needed), and slip-resistant treatment to bathroom floor tiles can reduce fall risk, and they can be installed at a subsidised rate through the Housing Development Board's (HDB) Enhancement for Active Seniors (EASE) programme. For more information about EASE, including cost and eligibility, scan the QR code.



## 6 Look after your eyes

Vision assessment can help prevent falls and also improve your quality of life!

Protect your sight by going for an eye check-up every year or earlier if you notice your vision is getting worse. Many conditions can be treated or halted if picked up in the early stages. Remember to take your spectacles (if any) with you to check if the lens prescription is still correct.



## 4 Clean up spills

It is hard to stay upright on slippery surfaces! Clean up spills as soon as they happen and ask someone for help if you are unable to clean up promptly.



## 5 Light up the way

Fall risk increases in places where lighting is poor. To make it easier to see where you are going:

- Turn on a bedside light before getting out of bed.
- Install night lights between the bedroom and bathroom or motion-sensor lighting that turns on and off automatically when entering or exiting the room.





# The *game* changers of NNI

Congratulations to NNI's SingHealth Excellence Awards and GCEO Excellence Awards winners! These awards recognise their contributions to healthcare leadership and administration, patient care, education and research.

## SingHealth Excellence Award 2022

### Distinguished Educator Award



**Assoc Prof Kevin Tan**  
Education Director and  
Senior Consultant,  
Neurology

Inspiring and passionate, Assoc Prof Tan drives many education initiatives at the national and international level, continuing the professional development of neurologists and neuroimmunologists regionally. As a firm advocate of team-based care, he also co-leads NNI's interprofessional education and training programmes to improve patient outcomes.

## GCEO Excellence Awards 2022

### Outstanding Clinician Award



**Assoc Prof Sitoh Yih Yian**  
Head and Senior Consultant,  
Neuroradiology

As one of the founders of Neuroradiology in NNI, Assoc Prof Sitoh played a crucial role in developing Neuroradiology as a subspecialty. Under Assoc Prof Sitoh's astute leadership, he has transformed clinical governance and neuroimaging processes in Singapore to improve patient care.



**Dr Vincent Ng**  
Head, Ambulatory Services;  
Co-Director, Neurovascular Service;  
Senior Consultant, Neurosurgery

Dr Ng is a key figure in the neurovascular subspecialty, which focuses on conditions affecting blood vessels in the brain. He has spearheaded the establishment of various protocols and guidelines, raising the standards of care. Dr Ng's amiable nature also won him the Singapore Health Quality Service Awards (Star Award) in 2019.

### Outstanding Educator Award



**Dr Yu Wai-Yung**  
Senior Consultant, Neuroradiology

A committed and creative educator, Dr Yu continually develops and refines the neuroradiology teaching programme, finding new ways to effectively deliver her lessons. Dr Yu has inspired many of her juniors with her personal stories and words of wisdom, encouraging them to become master clinicians and not just "reporters" of scans.

### Outstanding Administrative & Ancillary Staff



**Ms Angela Chen**  
Deputy Director, Corporate Development

Angela has dedicated more than 17 years of her career to philanthropy in SingHealth, raising much needed funds in the areas of patient care, education and research that ultimately benefit patients. She strongly believes that every contribution can create a positive impact on patients' lives. With her creativity and passion, Angela has contributed in helping to raise over \$160 million at SingHealth and NNI.

### Outstanding Researcher Award



**Dr Nicole Keong**  
Senior Consultant, Neurosurgery

Dr Keong is a clinician-scientist on a mission. She aims to advance clinical care by understanding the characteristics of reversible and irreversible subtypes of brain injury to better predict how such patients might respond to various therapies. Her hope is that her discoveries will help address the needs of the elderly who are at the highest risk of falls leading to traumatic brain injury and contribute towards the evolving field of geriatric neurosurgery.





# Appreciating the ones who go *above and beyond*

The NNI Quality Service Award recognises staff who have excelled in their roles in patient care, serving with professionalism, compassion, integrity and a strong commitment to teamwork.

## STAR



**Lim Jia Yuen,**  
Neuro Technologist,  
Neurodiagnostic  
Laboratory



**Tay Lian Bee,**  
Senior Neuro  
Electrophysiologist,  
Neurodiagnostic  
Laboratory



## GOLD

- **Ainon Binte Jantan,** Senior Patient Service Associate, Neuroradiology
- **Dr Christopher Seet,** Consultant, Neurology
- **Dr Kamal Kumar Verma,** Senior Consultant, Neurology



## SILVER

- **Chang Chao Li,** Senior Neuro Electrophysiologist, Neurodiagnostic Laboratory
- **Dr Kong Yongyao,** Associate Consultant, Neurology
- **Margaret D/O Katharavelo,** Patient Service Associate, Neuroscience Clinic
- **Nurul Ain Binte Nordin,** Associate Executive, Nursing
- **Dr Shen Jiayi,** Associate Consultant, Neurology
- **Yu Chen,** Senior Staff Nurse, Nursing



## *Celebrating* milestones

The NNI Long Service Awards 2022 recognise the valuable contributions and dedicated service of staff.

### 40-Year Award



★ **Assoc Prof Pavanni Ratnagopal,**  
Senior Consultant, Neurology

“Assoc Prof Pavanni is a respected colleague who has advanced neurology by spearheading clinical care, particularly in sleep neurology and demyelinating diseases such as multiple sclerosis. Having mentored many of today’s senior neurologists, Assoc Prof Pavanni continues to inspire and invest in the next generation of academic clinicians in her special and caring manner.”

– **Assoc Prof Deidre De Silva, Head and Senior Consultant, Neurology (SGH Campus)**

★ **Jamilah Bte Ibrahim,**  
Senior Patient Service Associate Executive, Neuroradiology

“Jamilah oversees a team of patient service associates at the Neuroradiology department. She plays an important role in the patients’ experience, ensuring that they have a smooth process for registration and billing. Beyond the impact she has on patients, Jamilah is also a source of guidance and support for her colleagues.”

– **Tan Jau Tsair, Assistant Director, Neuroradiology**

### 30-Year Award



★ **Prof Tchoyoson Lim,** Senior Consultant, Neuroradiology

★ **Assoc Prof Umapathi N Thirugnanam,** Senior Consultant, Neurology

### 20-Year Award



★ **Cass Chay,** Chief Operating Officer

★ **Cycilia Kan,** Principal Radiographer, Neuroradiology

★ **Assoc Prof David Low,** Deputy Chief Executive Officer (Clinical), Head and Senior Consultant, Neurosurgery (TTSH campus)

★ **Heriaty Binte Ab Samad,** Senior Associate Executive, Neurosurgery

★ **Irfan Nawaz Janjua,** Senior Registrar, Neurosurgery

★ **Jason Lau,** Principal Radiographer, Neuroradiology

**And congratulations to the 56 staff who received the 10 and 5 Year Awards!**

# In memory of Singapore's father of Neurology



**Dr Kong Yongyao, Associate Consultant, Department of Neurology, NNI, reflects on Prof Loong Si Chin's legacy.**

Prof Loong Si Chin passed away peacefully on 15 May 2022 at the age of 87. A true giant of the field, he leaves behind a legacy of immeasurable magnitude.

Prof Loong rendered a pioneering contribution to the first combined Department of Neurosurgery and Neurology in Singapore, which was set up in 1973 at Tan Tock Seng Hospital. He then served as the first Head of Neurology when the department was established distinctly in 1977.

Decades of clinical practice, academic leadership, and inspirational teaching were to follow. Were we simply to attempt a list of his achievements, this publication would burst at its seams.

Yet so much of his impact is impossible to quantify.

The scientific art of Neurology cannot merely be read off a textbook. Prof Loong mastered its nuances, enriched its paradigms, and tirelessly taught its skills to his innumerable disciples. He innovated novel techniques to neurological examination that have been codified and practised internationally. His acumen was legendary.

Prof Loong stood as a bastion of intellectual discipline, rigour, and dedication. He was known to read twenty-seven neurological journals from cover to cover every month. His indomitable spirit and inextinguishable passion meant he never truly retired.

Despite ceasing private practice in 2016, he continued to run teaching clinics at the National Neuroscience Institute and contribute invaluable to clinical diagnostic and management discussions.

Most of all, Prof Loong was kind. Students, colleagues, and patients who have passed through the doors of his consultation room will remember his genial "hello!" and his gentle touch as much as his virtuoso practice.

While we will dearly miss him, we know that the enduring spark of Prof Loong's expert and sympathetic mentorship will continue to illuminate generations of doctors, and by extension their patients, in Singapore and beyond.

▼ Prof Loong (first row, sixth from left in a red tie) with colleagues from the Neurology department in 2016.







# Chiong-ing

## for a good cause

### 为慈善义跑冲线

Over 250 participants dashed across the island in NNI's inaugural 'One Heart, One Mind' CHIONG AH! Charity Race 2022: Discover Singapore. The event raised \$115,000 for the NNI Fund which supports patients in financial need, enhancing care treatments, research, medical education and other unmet needs.

About 10 years ago, Janet Leaw's father had his first seizure. Since then, he has been receiving treatment at NNI and his seizures are now well controlled. Grateful for the care her father has received, Janet, General Manager (Finance and Human Resources) at civil engineering company Scan - Bilt, has been looking for a way to pay it forward.

When she learned about NNI's Charity Race, she knew that this was her chance to show her support for NNI patients and their loved ones. Janet rallied her colleagues to sign up as part of their company's Corporate Social Responsibility programme. Close to 40 staff members from Scan - Bilt took part in the race, with some even bringing their families along.

The Charity Race ran from 1 March to 30 April 2022, giving participants an opportunity to explore 10 different locations around Singapore at their own time, including Sembawang Hot Spring Park and Asian Civilisations Museum. The fastest team completed the race in three days.

超过250人参与了国立脑神经医学院首届“一心一意”冲啊！慈善赛2022：发现新加坡。这项活动为国立脑神经医学院保健基金筹集了11万5000元，用于资助面对经济困难的病患支付医药费，以及加强护理治疗、研究、医学教育和其他需求。

廖婉美的父亲大约10年前第一次癫痫发作。自那时起，他便一直在国立脑神经医学院接受治疗，如今他的癫痫病已获得良好的控制。在土木工程公司Scan - Bilt担任总经理（财务与人事部管理）的婉美十分感谢国立脑神经医学院对她父亲的照顾，也一直在寻找一个把善意传递下去的方式。

当她获知国立脑神经医学院即将举办慈善赛，她知道这将是她以行动支持其他国立脑神经医学院病患和其至亲的最佳机会。她号召了她的同事报名参赛，把这项活动列入公司企业社会责任计划的一部分。近40名来自Scan - Bilt的员工响应她的号召前来参赛，有些人甚至还带着他们的家人一起来参加。

慈善赛从2022年3月1日持续到4月30日，让参与者有机会安排时间根据自己的步伐探索新加坡国内10个不同的地点，其中包括三巴旺温泉公园和亚洲文明博物馆。最快的团队在三天内完成了比赛。

Janet (extreme right) and her colleagues.  
婉美（最右边）与她的同事一起报名参赛。

It was an enjoyable journey with the whole family. The kids got tired especially on the hot days. But they had fun and are already looking forward to the next outing.

我们全家人都十分享受这次愉快的旅程。天气炎热的时候，孩子们都很累但也玩得很开心，而且他们都在期待下一次一起出游。

- Azmi Atan 阿兹米阿坦

Assistant General Manager (Operations)  
助理总经理（运营）

I had a good time exploring Singapore together with my family! What a meaningful event to help patients in need and to rediscover Singapore in a new way!

我与家人一起探索新加坡的不同角落，度过了一段美好的时光！这是一项非常有意义的活动，不仅可以帮助有需要的病人，还能够以全新的方式重新发现新加坡！

- Sharon Lee 李丽香

Finance Manager 财务经理

Every step we took to complete the race was rewarding - both physically and mentally. I enjoyed it very much!

我们为完成这项比赛所踏出的每一步都很有意义，也让我们无论肢体或精神上获得满足。我非常享受参赛的过程！

- Chan Wah Soon 陈华顺

Project Services Manager 项目服务经理

Wah Soon and his partner came in third for the race under the Corporate Category, completing the race in eight days and three hours.

华顺和他的参赛伙伴用了8天又3个小时完成了比赛，在企业组的比赛中获得第三名。



# 为何我的脚底会有针刺的感觉？



許有暉医生

相信许多人都曾经历过脚底好像被针刺那样的感觉，这样的感觉很平常，通常无需为此感到担心。不过，如果这种不舒服的刺痛感经常发生，而且伴有其他症状，那么您可能需要去看医生了。樟宜综合医院脑神经内科主任兼国立脑神经医学院脑神经内科顾问医生許有暉为大家进一步说明。

您的指尖是我们身上最敏感的部分，因为比起其他身体部位如手肘，指尖中包含更多的神经末梢。这些神经末梢会向您的大脑发送信息，告诉您所触摸到的东西是热还是冷、尖锐还是顺滑，软还是硬。这些神经末梢是您神经系统的一部分，可以帮助您摸清您周围的世界。

人体的神经系统分为两部分：

- 中枢神经系统，由大脑和脊髓组成。
- 周围神经系统，由整个身体的其他神经组成。

周围神经系统在中枢神经系统和身体其他部位之间传递信息。一些人可能因周围神经系统中的神经受损，而导致身体出现各种奇怪的感觉。这被称为周围神经病变 (peripheral neuropathy) 的病况，是一种常见的神经系统疾病。全球80岁以上的人口当中，大约有一分之三受周围神经病变影响。

想进一步了解  
周围神经病变的  
病况，请扫描  
此QR码：



病患的症状会因受影响的周围神经类型而有所差异。



### 神经类型

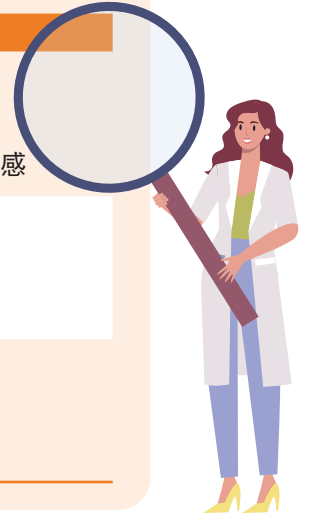
我们的皮肤和指尖上的**感觉神经**让我们产生触觉和感觉到温度。

**运动神经**控制肢体运动，并存在于我们的肌肉周围。

**自主神经**控制自发或非自发的功能，存在于我们的器官，如心脏和胃。

### 神经受损后出现的症状

- 麻痹或刺痛
- 针刺、轻触或振动的感觉减少
- 自发感觉灼痛和对疼痛过度敏感
- 感觉无力
- 疼痛的痉挛
- 肌肉抽搐
- 异常出汗
- 晕眩
- 心律不齐



这种病况通常从双脚和腿部开始，到了晚期才逐渐影响手和手指。脚底和下肢的刺痛、灼痛和麻木感会对走路、爬楼梯和睡觉等日常生活活动产生重大影响。不过由于病人和医生都对周围神经病变的意识不高，所以这种病况时常没有被诊断出来。

有很多原因可能引发周围神经病变，其中包括：



**糖尿病**：这是引发周围神经病变的最常见原因。



**缺乏维生素缺乏**：维生素B1、B6和B12有助于维持一个健康的神经系统。神经病变的最常见原因。



**酗酒**：酒精会对神经组织产生毒性，酗酒也会导致营养不良。



**慢性肾脏病**：周围神经病变是慢性肾脏病患者最常见的神经系统疾病。



**毒素和药物**：如癌症化疗药物、抗结核药物、一些抗生素、一些抗癫痫药物、工业有毒物质如铅。



**遗传因素**：如夏科-马里-图斯病 (Charcot-Marie-Tooth disease)。



**其他疾病**：如人类免疫缺陷病毒 (HIV) 和结缔组织疾病，如系统性红斑狼疮 (SLE)。





# 大方法助 您照顾好 神经系统



国立脑神经医学院护理部高级临床专科护士范素榕与您分享维护神经系统健康的好方法。

要治疗周围神经病变，关键在于找出并且治疗病因，就好比糖尿病患者必须控制好血糖水平，而肾衰竭患者则要定期洗肾。俗话说得好，预防胜于治疗。您不妨采取以下这些步骤，降低周围神经病变的风险。



## 您是否知道吗

感觉神经元可以每小时超过240公里的速度，向大脑发送信息\*。这如同在10秒内跑过圣淘沙堤道！

\*资料来源：National Geographic Kids

## 1. 维持健康饮食习惯



均衡的饮食有助您维持健康的神经系统。

采用地中海饮食是一个不错的选择，尽量确保饮食包含：

- 全谷物
- 水果
- 蔬菜
- 鱼类
- 坚果
- 瓜子类

摄取足够的维生素B12有助确保神经正常运作。富含维生素B12的食物就包括：

- 鸡蛋
- 乳制品（如牛奶、奶酪、酸奶）
- 红肉
- 鱼和贝类（如鲑鱼、金枪鱼、蛤蜊）
- 强化早餐谷类食品



## 2. 节制饮酒和戒烟

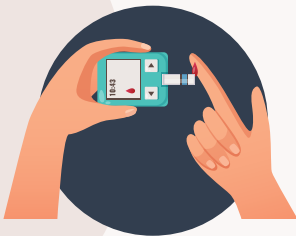
摄入过量的酒精和吸烟会损害神经并伤害身体的许多其他部位。



## 3. 定期运动

运动有助促进神经再生。在能力许可的情况下，不妨争取每周进行150分钟的体育活动。

若无法自行运动，可以让护理人员帮您运动肢体以加强肌肉力量，防止瘫痪肢体的肌肉萎缩。



## 4. 糖尿病患者应控制好血糖水平

在本地，糖尿病是引发周围神经病变的主要原因，大约有一分之一的糖尿病患者面对周围神经病变的问题。重点是，患者必须通过运动、饮食和药物来控制血糖水平。长期控制不良的高血糖会损害神经，并可能导致足部溃疡。如果不及早发现和治疗，脚部溃疡可能会受到感染，要是情况严重甚至可能需要截去脚趾或腿部。

糖尿病患者应特别注意双脚，要是脚上出现水泡、溃疡或伤口，就要立即治疗。足科护理人员在预防和管理周围神经病变方面扮演重要角色，因为他们可以建议患者如何选择适当的鞋履以及照顾好足部，而且还可指导患者如何去除脚上的老茧以及处理溃疡等足部问题。



## 5. 检查您服用的药物

一些药物也可以引起神经病变，如某些癫痫药物和化疗药物。建议您与医生一起检查您所服用的药物，看看是否有必要换掉那些可能引起或加重神经病变的药物。

# 是时候



# 您的大脑了!



谭慧莲医生

照顾好您的心脏可让您避免中风。国立脑神经医学院脑神经内科高级顾问医生谭慧莲给大家细说原因。

您的大脑和心脏的健康是相辅相成的，因为我们体内的这两大器官都依赖良好的血液供应和健康的动脉正常运作。

谭医生指出：“中风是心脏病发作后可能出现的一种并发症，另一方面，病患在中风后心脏病发作的情况也相当常见，主要原因是中风幸存者通常有一种或多种健康问题或不良生活习惯，以致他们心脏病发作和中风的风险很高，但有时也可能是其他因素所导致。”

高血压、高胆固醇水平、糖尿病和抽烟会损害全身上下的血管，包括心脏和大脑的血管。血管因此容易阻塞，这可能引发心脏病和缺血性中风。高血压造成的损害也会导致脑部血管破裂，引起出血性中风。

这就是为何戒烟和定时服用医生开的药物对中风和心脏病幸存者来说很重要，因为这有助他们降低再度病发的风险因素。

在新加坡，每10名中风患者当中有8人患有高血压和/或高胆固醇的病况；另一方面，每10名心脏病患者当中则有超过7人患有高血压和/或高胆固醇的病况。

高血压和高胆固醇药物一般需要长期服用，以便把血压和胆固醇控制在正常水平。如果您在服药后出现任何副作用，请通知您的医生。他们可以为您调整药物的剂量和/或给您开不同的药物，以找出对您有效的组合。



傅丽卿

## 您的心律是否稳定？

心房颤动 (atrial fibrillation, 简称房颤) 指的是心律不规则的状况, 这可能会导致心脏内形成血栓。这些血栓可以通过血管进入大脑, 引发缺血性中风, 也就是大脑动脉阻塞的病况。在本地, 每五名缺血性中风病患当中就有一人是因为心房颤动引发中风。心房颤动可以来去匆匆 (称为阵发性

心房颤动, paroxysmal AF) 或持续存在 (持续性心房颤动, persistent AF), 不过无论是阵发性或持续性, 这两种类型的心房颤动都会增加中风的风险。

有些房颤患者没有任何症状, 而其他人则可能会出现以下一种或多种症状:

临床专科护士傅丽卿说明心律与中风之间的关系。



心悸  
(心跳加速或胸中翻滚的感觉)



呼吸急促



胸部疼痛



头昏眼花



头晕

中风后及早发现房颤/阵发性心房颤动至关重要, 因为要是及时服用血液稀释药物 (抗凝血剂), 这有助防止另一次缺血性中风发生。

为了提高检测到阵发性心房颤动的几率, 国立脑神经医学院于2022年2月开始为中风患者提供远程动态心电图监测服务。这种手掌大小的便携式设备需放置在胸前, 可以连续佩戴一天至七天。要将设备取下也很容易, 患者可以在淋浴后再次戴上。有了这个设备, 病人便可以在家里进行日常活动时同时监测他们的心跳, 不必为此住院。



# 走路 要当心！



每三名65岁以上的人当中就有一人每年跌倒至少一次，而患有脑部或神经相关疾病的人跌倒的风险更高。新加坡中央医院高级物理治疗师林思琪给大家讲解年长者容易跌倒的原因，以及您可以采取哪些措施来降低跌倒的风险。

脑部和神经疾病可以在任何年龄发病，无论年轻成年人以至老年人都可能受影响。大多患者主要因病情症状和治疗引起的副作用，导致他们容易跌倒。

这些症状包括平衡能力差、行走困难、肌肉无力、视力变差、思绪混乱以及服药后的副作用，如头晕和昏昏欲睡。这些症状和副作用使得患者更容易滑倒或跌倒，同时也导致他们更难稳住自己以防止跌倒。

大多患者都是在家中跌倒，而后果往往不堪设想。

思琪指出：“跌倒会造成如骨折和脑出血等重伤，另外还会影响精神健康。要是跌倒受伤后无法独立行走，患者必然会感到无奈沮丧，另外，一些患者也可能因为担心再次跌倒而不敢踏出家门，这会导致他们与社会隔绝，生活素质下降。”

其实，大家只要采取一些简单的步骤就能降低跌倒的风险。以下就给大家提供6大贴士，助您打造更安全的家居环境。

欲了解更多有关如何预防在家中跌倒的信息，请扫描二维码：





# 打造更安全家居的6大贴士

只要采取一些简单小步骤，就可以大大降低您跌倒的风险。

## 1 确保家中走道无障碍

摆满杂物的走道大大提高被绊倒的风险。尽可能清除走道上的杂物：

- 把鞋子摆放在鞋架上，并将手提袋或包包挂在或放置在架子上；
- 在家中划出指定的空间存放幼儿玩具，并提醒他们在玩够了之后要把玩具放回原位；
- 绑好零散松动的电线，或用胶带将电线固定在走道以外的角落。
- 在家具之间留出足够宽敞的行走空间，并把原本放置在走道上的家具移到别处。



## 2 使用防滑垫

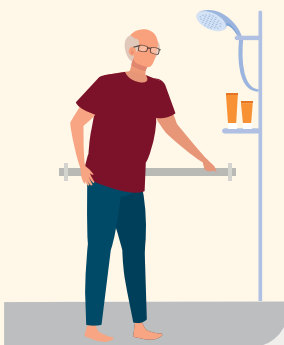
没有固定好的地毯最容易导致人们滑倒或绊倒。一定要确保地毯下方有防滑衬垫，有助防止地毯在被踩踏时轻易移动。



## 3 安装扶手杆和坡道

家居改造有助减少在浴室等危险地区跌倒的风险。在厕所或浴室安装扶杆、坡道（若适用）以及对浴室地砖进行防滑处理可以降低跌倒的风险。组屋屋主可以向建屋发展局（HDB）申请加入

“乐龄易计划”（Enhancement for Active Seniors, 简称EASE），以便以津贴价安装这些装置。请扫描QR码以获得更多有关乐龄易计划的详情，包括所需支付的费用和加入计划的条件。



## 6 照顾好您的双眼

定期进行视力评估有助您预防跌倒，也可以提高您的生活素质！

要保护好您的视力，建议您每年去做一次眼科检查，或是在发现视力越来越差时提前去做检查。及早发现疾病有助提高治疗效果或遏制病情恶化。前去做检查时，记得携带您的眼镜（若有），以检查镜片的度数是否仍然适用。



## 4 立即清理弄湿的地板

要在湿滑的地板站稳脚步非常不易！要是不小心打翻液体弄湿地板，就应立即清理，如果您无法及时自行清理，也应该尽快请人帮忙。



## 5 照亮走道

在照明不佳的地方容易跌倒。为了让您更容易看到您要去的地方：

- 下床前先打开床头灯；
- 在卧室和浴室之间安装夜灯，或者那种会在您进入或离开房间时自动打开或关闭的运动传感器照明。



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