



Fight muscle loss and resist ageing



Gym Tonic is a strength-training programme aimed at improving the functional abilities of the elderly. It is carried out using air-powered equipment that is gentler on the joints. PHOTO: LIANHE ZAOBAO

People may lose muscle mass as they age, but resistance training can slow the onset of this condition or even reverse it, experts say



Joyce Teo

The number of centres offering an evidence-based strength-training programme which aims to improve the functional abilities of the elderly is on the rise.

Four more of such centres will open this year, taking the total number to 33 by the end of the year.

Thirteen of the centres are now open to the public. The rest are eldercare facilities and nursing homes, which offer the programme to their residents.

There is already a waiting list for the 12-week programme known as Gym Tonic, which is carried out by trained therapists using high-tech, air-powered equipment from Finland that is gentler on the joints.

Around 4,000 seniors have gone on the programme since the Lien Foundation brought it to Singapore in 2015 and opened it to the public in 2017, it said.

The 12-week programme costs \$150 to \$240, depending on the centre.

There are 400 people on the wait list at the Bishan Community Club Gym Tonic centre, which opened to the public in April last year.

Lien Foundation chief executive Lee Poh Wah said it aims to expand Gym Tonic into the heartland in well-located sites such as community clubs, senior activity centres or places of worship.

Rising demand for the pro-

gramme demonstrates growing awareness of the age-related loss of muscle mass and strength, known as sarcopenia.

People may lose muscle mass as they age, but resistance training can slow the onset of this condition or even reverse it.

The Gym Tonic programme has been shown to be effective in improving 41 per cent of frail seniors in nursing homes and 55 per cent of frail seniors in senior care centres to the pre-frail state, said Associate Professor Lim Wee Shiong, a senior consultant at the department of geriatric medicine and the Institute of Geriatrics and Active Ageing, Tan Tock Seng Hospital.

The institute's longitudinal study on sarcopenia, Gerilabs, showed that the local prevalence of the condition among older adults is 15.5 per cent.

But this figure is set to rise.

With the rapidly ageing population in Singapore, it is anticipated that sarcopenia will become an increasingly important health issue due to the significant prevalence, impact on the individual's quality of life and the public health impact, said Prof Lim.

Sarcopenia is a major contributor to frailty and disability, including mobility difficulties, increased risk of falls and fractures, impaired ability to perform activities of daily

living and increased risk of hospitalisation.

Prof Lim said the condition is characterised by aged-related progressive and generalised loss of muscle mass and function, with poor muscle strength being increasingly regarded as the predominant component.

It is estimated that adults lose 3 to 5 per cent of muscle mass a decade of life beginning from age 40. This makes up a consistent rate of decline that increases by 1 to 2 per cent a year after the age of 50.

"Thus, similar to bone health, it is important to adopt a life-course approach towards muscle health in the prevention of sarcopenia," said Prof Lim.

"The adage 'use it or lose it' applies equally to muscle."

Indeed, Dr Nur Farhan Mohammad Alami, a specialist in geriatric medicine and a consultant at Rafles Internal Medicine, said sarcopenia occurs more commonly in the elderly, but not all have it.

"Ageing itself may be the cause of sarcopenia. Other causes of sarcopenia are low physical activity, malnutrition and severe medical illness," she added.

Ms Elisa Marie Crombie, a graduate researcher at the National University of Singapore's Yong Loo Lin School of Medicine, noted: "A lot of people think it's normal for your

muscles to be wasting when you're old, but that's not true.

"There will be some age-related muscle loss, but you can still retain muscle mass as you age."

Ms Crombie was awarded a grant by the Mitsui Sumitomo Insurance Welfare Foundation last month to investigate the role of muscle stem cells in sarcopenia and how to slow down its onset among the elderly.

There have been huge strides made in the understanding of the impact of sarcopenia over the past 10 years, said Prof Lim.

There is increasing recognition of the inter-relationship between sarcopenia and frailty, such that older adults with both may be at increased risk of adverse health outcomes, he added.

Also, in the Gerilabs study, older adults who have both obesity and sarcopenia (the so-called "fat frail") are more likely to have impaired physical performance, gait speed and hand-grip strength compared with normal, obese and non-obese sarcopenic body composition phenotypes, said Prof Lim.

This is due to the abnormal infiltration of fat into muscles as well as the release of body chemicals that promotes muscle inflammation.

STRENGTH TRAIN AND EAT ENOUGH PROTEIN on D2

Strength train and eat enough protein

FROM D1

There is evidence that the following measures can help combat sarcopenia, he said:

- Progressive, individualised physical activity programmes with a focus on resistance or strength training.
- Ensuring adequate protein intake as older adults are likely to need more protein than younger adults. The recommended daily protein intake in older adults varies from 0.8g to 1.2g a kg of bodyweight a day. Prof Lim said supplementing one's diet with leucine essential amino acids and/or beta-hydroxy methylbutyrate has not been clearly established, but would seem a reasonable adjunct in older people with sarcopenia who have low protein intake.
- Screening for reversible causes of muscle weakness, such as vitamin D deficiency, hypothyroidism and medications. For instance, steroids, statins and diuretics can cause muscle weakness. Prof Lim said it is best to discuss with your doctor, if in doubt, whether the dosage of these medications can be reviewed. Vitamin D supplementation may be helpful in cases where there is a deficiency.

In general, nutritional (protein) intervention should be combined with resistance-based training for optimal benefit, said Prof Lim.

"Regular walking, running or swimming is not enough to prevent the loss of muscle mass and strength that takes place over time. Muscles have to be overworked to grow stronger," said Lien Foundation's Mr Lee.

"What we need, nationwide, is to go upstream and provide more opportunities for Gym Tonic-like programmes that can prevent seniors from developing health problems."



Residents doing resistance band workouts outside the Wellness Centre at the upgraded Teck Ghee Community Club in January. Such workouts can help combat sarcopenia. ST PHOTO: LIM YAOHUI

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Work muscles hard to see results

You need to stimulate your muscles with regular exercises and not just your usual activities of daily living to maintain muscle strength and mass and keep off sarcopenia.

"Some people might think that doing household chores and walking to the market are considered exercises," said Ms See YiNa, a senior physiotherapist at the National University Hospital Rehabilitation Centre.

However, they also need to set aside time to exercise on a regular basis, she added.

The American College of Sports Medicine notes that older adults should perform at least 150 minutes of moderate-intensity aerobic exercise, such as walking and swimming, every week.

The college also recommends that seniors perform 30 minutes to one hour of resistance training two to three times a week on alternate days, said Ms Kelly Chan, a senior physiotherapist at Ng Teng Fong General Hospital.

Each time, they can do a maximum of eight to 12 repetitions for each exercise, with one to two minutes of rest between each set.

To achieve this, you can incorporate your daily life activities into your training plan. Make sure these activities involve multi-joint exercises that target major muscle groups, such as the chest, shoulders, arms, back, and upper and lower limbs, said Ms Chan.

She gave two examples of such exercises:

1

Stand up from a chair

This mimics a leg-press exercise.

Start by standing up from a chair with both legs firmly on the ground and your arms across your chest.

Repeat 10 times. As you become more comfortable with this, progress to the next stage by doing one of the following steps:

- reduce the height of the seat;
- perform it at a slower pace, with more controlled movements;
- perform it at a faster pace, with more powerful movements; or
- hold or wear more weights.

2

Lifting household items

This activity targets the upper limbs.

You can lift a bag of groceries or a loaded laundry basket and place it on a shelf.

Do 10 repetitions.

Then you can increase the intensity by:

- placing it on a higher shelf;
- carrying the bag or basket for a longer distance before you place it on a shelf; or
- placing more items in the bag or basket to increase the weight.

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