

Gym Tonic

by Gabriel Lim, Programme Director, Lien Foundation

Elderly need exercise, especially strength training, to tackle age-related loss of muscle mass, quality and strength, a condition known as “sarcopenia”. Unknown to many, sarcopenia may lead to physical frailty. **Physical frailty should be an important priority area with regard to public health**, since it is clearly linked to ill health, poor social well-being and escalating costs of care.

Multiple studies have also linked frailty to higher chances of falls, fractures, disability, death and care needs. Yet, frailty remains a largely overlooked problem. This is the primary motivation for Lien Foundation to invest, study and roll out strength training intervention.

Launched in April 2015, Gym Tonic (www.gymtonic.sg) is the first of its kind cross-border partnership between research institutions, business enterprises and service providers from Singapore and Finland. What sets Gym Tonic apart from other exercise programmes is its **singular focus on strength training**. Gym Tonic is **more than just gym equipment**. It is a well-researched solution anchored by four key components:

- A set of six air-powered (pneumatic) elderly friendly exercise equipment for strengthening core muscle groups;
- An assessment laboratory with equipment and well-designed protocols for assessing and measuring physical functions;
- Training and research support; and
- Software and data analytics.

Gym Tonic has now expanded to 29 sites in Singapore, across nursing homes, senior care centres and in the community (senior activity centres and community club). 62 therapists, fitness instructors and managers have been trained in Finland by the University of Jyväskylä, and 26 have attended the new “101 training”. The latter was introduced in 2018 as a pre-requisite

before the Finland training. To date, there are over 3,300 active elderly users on the Gym Tonic programme.

Based on our data mapping procedures, there is **promising evidence that Gym Tonic reverses frailty over course of a 12-week, twice-weekly programme**, as measured by the Fried frailty phenotype¹. **41% to 55% of seniors** who were frail in nursing homes & senior care centres have improved their frailty status to pre-frail after 12 weeks. In the community sites, a **quarter (27%)** improved from pre-frail to robust.

More information

Press Release: http://www.lienfoundation.org/sites/default/files/GT_Presser_12Dec2017_Combined.pdf

Video Testimonies

1 (Mdm Chin): <https://www.youtube.com/watch?v=cwGwCqzJbM8>

2 (Clients from Care Corner, including 97-year-old Mdm Lau): https://www.youtube.com/watch?time_continue=1&v=9Ot1r0WwmM0

Jack Liew (Bishan CC): <https://www.channelnewsasia.com/news/cnainsider/defying-frailty-ageing-elderly-gym-tonic-strength-training-10545386>

ST story: [http://www.lienfoundation.org/sites/default/files/2017_12_13_ST_Exercise just the tonic to perk up seniors Three categories of frailty.pdf](http://www.lienfoundation.org/sites/default/files/2017_12_13_ST_Exercise%20just%20the%20tonic%20to%20perk%20up%20seniors%20Three%20categories%20of%20frailty.pdf)

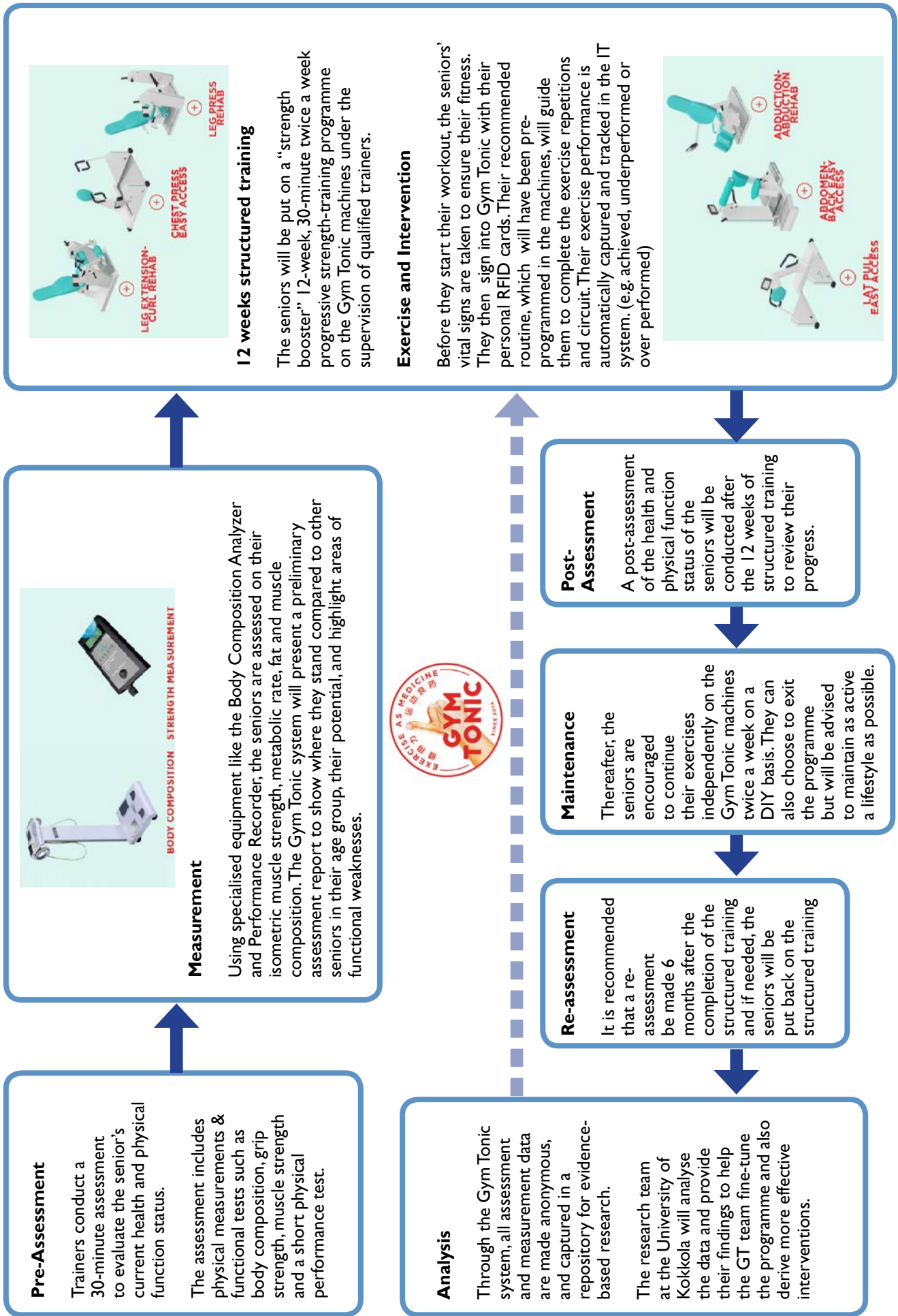
The Annex (see next page) presents an overview of the Gym Tonic process.

¹ Based on the five Fried frailty criteria (weight loss, exhaustion, low physical activity, slowness, weakness), the participants were divided into three categories: healthy/robust (score 0), pre-frail (score 1–2), and frail (score 3–5).

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Annex C: The Gym Tonic Process - Community-dwelling Seniors



Annex C: My Gym Tonic Stories

Elderly users of Gym Tonic at Care Corner-Toa Payoh Blk 62B



Mdm Lau Soon Siang
97 years old
Occupation: Homemaker
Spoken Language: Teochew, Mandarin

Mdm Lau has an active lifestyle and is a regular participant of the activities at the Senior Activity Centre. She had a fall that hurt her back and weakened her physically. Her balance and muscle strength became poorer. After completing the Gym Tonic programme, Mdm Lau improved significantly. She has achieved an average 20% improvement in her lower limbs muscle strength and has better balance. She is able to resume walking to the coffee shop to meet her friends. At 97 years old, Mdm Lau is independent and still going strong. She is currently on the Gym Tonic maintenance programme.

Mr Huang Kee Sang
67 years old
Previous occupation: Carpenter
Spoken language: Mandarin, Malay, Hokkien



Called 'The Rock' by the trainers at Care Corner's Gym Tonic, Mr Huang wishes to get his muscles 'firm'. He is currently on the Gym Tonic maintenance programme, having completed his first few months of training with impressive progress in his leg muscle strength. He now has better balance and is steadier when performing the "sit-to-stand" test. He is now able to put on long pants without support, and also finds it easier to clean his feet while he bathes. Mr Huang often jokes about joining a male beauty pageant after his Gym Tonic training.

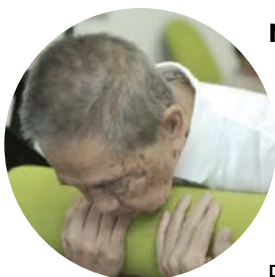


Mdm Choa Choi Huei
74 years old
Previous occupation: Food hawker
Spoken language: Mandarin, Hokkien

Mdm Choa was initially apprehensive of the gym equipment. She was not used to the machines and thought she might get electric shocks. She was finally

persuaded to try Gym Tonic by the trainer who told her all about the benefits of strength training. After the programme, Mdm Choa no longer experiences pain in her knees, and she is now able to walk longer distances. She is currently on the Gym Tonic maintenance programme. Convinced of the Gym Tonic's benefits, she has now become its 'ambassador' and eagerly invites her friends and neighbours to join in. She also helps the trainers by volunteering to teach the elderly who are getting started on Gym Tonic.

Elderly Gym Tonic users - PulseSync's Ageility Lab small study



Mr Lock Meng Swee
80 years old

80-year-old Lock Meng Swee is an active volunteer of more than 5 years at Tzu Chi Rehabilitation Centre. He helps dispense medicine as well as assists the physiotherapists on visits to patients' homes. When he joined the Gym Tonic programme, he had high blood pressure, muscle loss, and poor balance. After 12 weeks of Gym Tonic, his stamina, strength and balance have increased greatly. His blood pressure also dropped from a high of 179/80 to 138/88. This reduces his risk of chronic diseases. His sleep has also improved and he is more energetic. He is able to contribute more as an assistant to the physiotherapist at Tzu Chi due to the training from Gym Tonic.

Mr Lee Soo Jin 70 years old
Mdm Patricia Chan, 69 years old



Lee Soo Jin and Patricia Chan were training to do the Milford track in New Zealand, which is a 54km hike over 4 days. Soo Jin wanted to improve muscle endurance and Pat hoped to increase her stamina. After 12 weeks of Gym Tonic, they went to New Zealand and successfully completed the 54km Milford track. Their leg strength and endurance have doubled; Pat's walking speed has increased and Soo Jin's balance and stability have also improved greatly.

Go to <http://www.gymtonic.sg> for more video testimonies