

New scheme studies how exoskeletons help

Mobility improvement seen in 4 out of 6 patients who have finished programme

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A spinal cord injury 15 years ago left Ms Teresa Tan in a wheelchair, but wearing a bionic exoskeleton has helped her to walk again.

Ms Tan, 67, is one of 36 patients unable to walk independently due to neurological diseases. They are part of a study looking at the effectiveness of exoskeletons – external skeletons that support and protect the body – in the rehabilitation process.

The Temasek Foundation – Improving Mobility via Exoskeletons programme will study patient outcomes and assess the viability and potential of scaling up the use of robotic exoskeletons in rehabilitation care, from the hospital to the community.

It will seek to improve the mobility and independence of patients suffering from condi-

tions like strokes and spinal cord injuries, said Professor John Wong Eu Li, chief executive of the National University Health System (NUHS) at the programme's launch event at Alexandra Hospital yesterday.

Robot-assisted devices are increasingly helping therapists to provide high-intensity, repetitive and task-specific treatment, which is hard for patients to achieve when discharged from hospital, he added.

Stroke is the leading cause of long-term disability and loss of mobility here. The number of new cases every year has risen from 5,500 to 7,400 over the last decade.

Three exoskeletons will be shared by the NUHS' five partner sites: Alexandra Hospital, NTUC Health, St Luke's Elder-Care, St Luke's Hospital and the Stroke Support Station.

NUHS is the first national health system in Asia to study how advanced exoskeleton technology can improve mobility and rehabilitation outcomes across the care system.

Philanthropic organisation Temasek Foundation, with the non-profit Trailblazer Foundation, will provide \$1.34 million in funding over two years to buy the exoskeletons and train 12 physiotherapists to use them. The exoskeletons are supplied by US company Ekso Bionics.

The plan is to recruit a total of 400 patients, with at least 80 per cent of them aged 66 and above, said Dr Effie Chew, chief of rehabilitation services at Alexandra Hospital.

Initial results have shown four of the six patients who completed the programme have improved in at least one category of functional mobility since using



Ms Teresa Tan walking in the exoskeleton. PHOTO: GAVIN FOO

the exoskeleton, she added.

Ms Tan, who has inflammation of the spinal cord, has had 10 sessions and now needs only 30 per cent assistance from the exoskeleton, less than the 70 per

cent required initially.

"I've improved a lot and I feel excited," she said. "I wish I could continue using it."

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