



Developed by NTU Singapore and TTSH, MRBA is a wearable assistive robot that can detect and prevent a fall before it happens, reducing the user's risk of sustaining injuries | Photo source [NTU Singapore](#)

Innovation Health & Wellbeing An assistive robot cares for the elderly and prevents falls

AN ASSISTIVE ROBOT CARES FOR THE ELDERLY AND PREVENTS FALLS

 HEALTH & WELLBEING

The device consists of a wearable harness with sensors that detect when a person is about to fall

Spotted: According to the [World Health Organization](#), falls are the second leading cause of death from unintentional injuries worldwide. In Singapore, [40 per cent](#) of injury-related deaths are due to falls. And with an ageing population, the risk of falls and related injuries is only going to increase. To address this problem, researchers at Nanyang Technological University, Singapore (NTU Singapore) and Tan Tock Seng Hospital (TTSH) have developed an assistive robot that can help to prevent falls.

Called the Mobile Robotic Balance Assistant or MRBA, the device consists of a wearable harness with sensors that detect when a person is about to fall. The harness then triggers the system to extend and provide support. The system is further informed by a depth-sensing camera that observes the user's movement and a machine-learning algorithm that predicts future imbalances.

In trials, the device was shown to be effective in preventing falls, even in older adults with poor balance control and patients recovering from stroke and spinal cord injuries. It was also found to help with sitting, standing, and walking. The researcher's aim is for the robot to also support physiotherapy by helping recovering patients carry out key rehabilitation exercises.

Next up, the team hopes to further test the device with a group of 71 more participants from day rehabilitation centres. The Rehabilitation Research Institute of Singapore is aiming to commercialise the MRBA within the next year. With further development, this technology has the potential to reduce the number of fall-related injuries and deaths in Singapore as well as other countries with ageing populations.

Medical robots have an important role in providing greater support and transforming the healing process for patients and caretakers. Springwise has spotted a number of innovations in healthcare robotics, including an AI-powered glove designed for wearers with a range of physical conditions and nano-robots fighting bacterial infections.