

Hong Kong develops multimodal robot for post-stroke ankle, foot tele-rehabilitation

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Helping stroke patients achieve more efficient rehabilitation progress

The Hong Kong Polytechnic University (PolyU) has achieved another breakthrough in rehabilitation device development. The Mobile Ankle-foot Exoneuromusculoskeleton is the first-of-its-kind multimodal robot for ankle-foot rehabilitation specifically designed for stroke patients with hemiplegia, which helps improve the motor function of their lower limb and walking ability.

Powered by Internet of Things (IoT) technology, the device enables telerehabilitation for remote management of patients' rehabilitation progress and allows them to undertake self-help rehabilitation exercises at home. Therapists can remotely monitor the rehabilitation progress of multiple patients.

The device can not only correct foot drop and foot inversion effectively, but also improve the gait of stroke patients. Additionally, it can help improve balance while walking and contribute to rehabilitative neuroplasticity in the long term.

The research team is collaborating with several local and Mainland hospitals and rehabilitation clinics to conduct clinical studies on the Mobile Ankle-foot Exoneuromusculoskeleton. Research studies have confirmed that rehabilitation training for stroke patients using the device is 40% more effective for stroke rehabilitation than applying external mechanical forces alone.