

# 物理治療在腦神經復康之最新發展

## NEW ADVANCES IN NEUROLOGICAL REHABILITATION

腦神經復康科技發展一日千里，為提高治療成效，各種嶄新的治療方法及系統相繼面世，物理治療亦與時並進，積極引進各種嶄新復康科技，致力達到為病人提供優質的臨床治療服務的承諾。

Remarkable technology advances have been made in neurological rehabilitation. In order to provide quality services to our patients, physiotherapy keeps up with these developments through introduction of the novel technologies.

### 綜合評估 COMPREHENSIVE ASSESSMENT:

#### 步態及活動分析中心 GAIT AND MOTION ANALYSIS LABORATORY

中心提供全面的步態和活動評估，包括：

1. 關節的活動範圍和力量評估
2. 三維運動學和三維動力學評估
3. 肌肉活動的定量分析 (動態肌電圖)
4. 步行時能量的消耗 (攝氧量測量)
5. 步行時足部壓力的分析 (動態足部壓力分佈圖)

The Centre provides comprehensive gait and motion assessment including:

1. Joint range of motion and power assessment
2. 3D kinematic and 3D kinetic assessment
3. Quantitative analysis of muscle activity (dynamic EMG)
4. Energy expenditure during walking (O<sub>2</sub> uptake)
5. Quantitative analysis of plantar pressure during walking (dynamic foot pressure distribution)



### 肌張力改善 TONE MANAGEMENT:

#### 注射肉毒桿菌素治療肌肉痙攣 BOTULINUM TOXIN INJECTION IN SPASTICITY MANAGEMENT

物理治療師為肌肉痙攣患者提供全面評估，並參與制定注射肉毒桿菌素的治療方案及肌肉位置。患者於接受注射後會進行密集式物理治療以獲取最大治療效果。



Physiotherapists provide comprehensive assessments for patients with muscle spasticity and participate in the decision-making in the site of botulinum toxin injection. Intensive physiotherapy treatment will be provided after botox injection in order to achieve maximum treatment effect.

### 治療方法 INTERVENTION:

#### 機械輔助步行訓練系統 ROBOT-ASSISTED AMBULATORY TRAINING SYSTEM

利用物理治療中廣泛使用的減重步態訓練概念，配合嶄新的機械人復康科技，把困難及費力的步態訓練變得輕鬆準確。

Robotic System incorporates the key concept of partial weight support treadmill training and the new advances of robotic rehabilitation technology to enable intensive and precise gait training in different neurological patients.



#### 非侵入性腦部刺激法 透顱磁刺激法及經顱直流電刺激法 NON-INVASIVE BRAIN STIMULATION-TRANSCRANIAL MAGNETIC STIMULATION (TMS) & TRANSCRANIAL DIRECT CURRENT STIMULATION (tDCS)

透顱磁刺激法及經顱直流電刺激法為非侵入性腦部刺激法，使用磁場感生的電流或直接的電流，以刺激或抑制腦部局部神經活動。TMS and tDCS are non-invasive brain stimulation. They use magnetic fields or low-level direct electrical currents to stimulate or suppress nerve activity in specific areas of the brain.



#### 功能性電刺激法 FUNCTIONAL ELECTRICAL STIMULATION (FES)

功能性電刺激法利用電流刺激因脊髓神經受損、腦創傷、中風或腦神經科疾病而失去控制的肌肉。此療法能配合各種步姿、運動及功能性訓練以獲取最大治療效果。

FES is a technique that uses electrical current to activate paralyzed muscles resulting from spinal cord injury, brain injury, stroke or other neurological disorders. It can combine with gait, exercise and functional training to maximize treatment effect.



#### 動態懸吊步行訓練系統 DYNAMIC BODY WEIGHT SUPPORT TRAINING SYSTEM

此系統是一種步態訓練裝置，提供動態可調節的體重支撐。此裝置有助於不同神經系統疾病患者進行體重轉移訓練，並重新學習自然的步行模式。This training system is a gait training modality which provides dynamic adjustable body weight support. It facilitates weightshifting exercise and relearning a natural walking pattern for different neurological patients.



#### 虛擬反饋步態訓練系統 VIRTUAL FEEDBACK GAIT TRAINING SYSTEM

此系統採用虛擬現實技術，使患者能夠進行虛擬現實訓練以挑戰身體能力和認知能力。This system utilizes virtual reality technology, allowing the patient to experience virtual reality training that challenges both physical and cognitive abilities.

