

1. 請閱讀以下摘錄自：Kim WH, Park EY. Causal relation between spasticity, strength, gross motor function, and functional outcome in children with cerebral palsy: a path analysis. *Developmental Medicine & Child Neurology*. 2011; 53(1): 68-73. 的文章摘要，並回答下列問題：(共 30%)
- (a) 請以國際功能分類系統(International Classification of Function, ICF)架構本研究探討之議題 (18%)
- (b) 請分別提出針對 strength, spasticity, gross motor function 與 functional outcome 的替代性評估方法 (12%)

Aim This study examined the causal relation between spasticity, weakness, gross motor function, and functional outcome (expressed as activity limitation) in children with cerebral palsy (CP) and tested models of functional outcome mediated by gross motor function. **Method** Eighty-one children (50 males, 31 females) with CP were recruited for this cross-sectional study. Their mean age was 10 years 4 months (SD 1y 9mo). Strength was assessed using the Manual Muscle Test. Spasticity was assessed by the Modified Ashworth Scale. The Gross Motor Function Measure assessed gross motor function. The Functional Skills domain of the Pediatric Evaluation of Disability Inventory assessed functional outcome. Twenty-eight children (34.6%) had quadriplegia, 44 children (54.3%) had diplegia, and nine children (11.1%) had hemiplegia. Children were classified using the Gross Motor Function Classification System with 14 (17.3%) in level I, 9 (11.1%) in level II, 13 (16.0%) in level III, 5 (6.2%) in level IV, and 40 (49.4%) in level V. **Results** The proposed path model showed good fit indices. The direct effects were significant between spasticity and gross motor function ($\beta=-0.339$), between strength and gross motor function ($\beta=0.447$), and between gross motor function and functional outcome ($\beta=0.708$). Spasticity had a significant negative indirect effect ($\beta=-0.240$) and strength had a significant positive indirect effect ($\beta=0.317$) on functional outcome through effects on gross motor function. **Interpretation** Activity-based rather than impairment-based intervention is more important for reducing activity limitation in children with CP. The study established a base from which researchers can further develop a causal model between motor impairments and functional outcome.

2. 請問一位 5 歲大已會行走之痲痺型雙邊痲痺腦性痲痺兒童，其粗大動作功能之嚴重度為粗大動作功能分類系統第 1 級(GMFCS I)。基本生活自理皆可自己完成。個案有上幼稚園，老師與同學都支持他；可以和同學一起正常活動。主要照顧者為媽媽，媽媽很了解個案情況，且療育態度積極。穿 bilateral floor reaction AFO，行走跌倒的發生率(一天三次)，較常因腳交叉而絆導；可放手獨立行走(速度 60m/min)，步態偶爾出現 entire sole down，大部分仍是屈膝與踮腳步態。若加快行走速度(120m/min)或興奮時，toe drag、屈膝與踮腳步態明顯。靜態站立平衡良，動態站立平衡尚可，無預期外力干擾重心，跌倒比率 80%；muscle strength of L/E 皆有 Fair 以上；AROM: R't/L't ankle dorsiflexion: 0°-10/0-5° with knee extended; hamstrings and calf muscles tightness; 肌肉張力 Moderate Ashworth Scale (0-5) R't/L't ankle plantarflexor: 3/2。請回答下列問題：(共 40%)
- (a) 請用 ICF 架構分別分析其屈膝步態與跌倒問題(20%)。
- (b) 若屈膝步態一直未改善，其長大後最可能行走預後如何?(5%)
- (c) 如何測量屈膝步態之嚴重度?(5%)
- (d) 那些可能是其屈膝步態之主要處置方法?(5%)
- (e) 為了解屈膝步態之有效處置方法以改善其屈膝步態，您想上實證醫學資料庫去查詢，您提出之臨床問題為何?(5%)
3. 以下論文摘要是取自 Aarts PB, Jongerius PH, Geerdink YA, van Limbeek J, Geurts AC. Modified Constraint-Induced Movement Therapy combined with Bimanual Training (mCIMT-BiT) in children with

unilateral spastic cerebral palsy: how are improvements in arm-hand use established? *Research in Developmental Disabilities*, 2011;32:271-9. 請閱讀後回答下列問題。(共 30%)

- (a) 請將本文重新整理，書寫 300 字以內的中文摘要（非直接原文翻譯），並提出你對此研究的評論。（20%）
- (b) 根據此研究，你如何為一位 3 歲的單側型腦性麻痺患童設計適當的治療內容？請說明設計的內容與依據。（10%）

A recent randomized controlled trial indicated that modified Constraint-Induced Movement Therapy followed by Bimanual Training (mCIMT-BiT) is an effective intervention to improve spontaneous use of the affected upper limb in children with unilateral spastic cerebral palsy (CP). The present study aimed to investigate how the above-mentioned improvements as a result of 8 weeks mCIMT-BiT were established. 52 children with unilateral spastic CP with Manual Ability Classification System (MACS) scores I, II or III and aged 2.5-8 years were randomly allocated to either mCIMT-BiT (n = 28) or Usual Care (UC) (n = 24). Developmental disregard ('learned non-use') and upper limb capacity and performance scores were derived from the Video Observations Aarts and Aarts, module Determine Developmental Disregard. Active and passive range of motion at the affected wrist and elbow were assessed using goniometry during isolated movements. Upper limb capacity and performance demonstrated significantly greater improvements after mCIMT-BiT compared to UC, which lasted up to 8 weeks follow-up, whereas developmental disregard and passive and active range of motion did not show differential effects. The results support the notion that improvement of capacity and performance of the upper limb through mCIMT-BiT in children with unilateral spastic CP is based on a better utilization of existing motor functions of the affected arm and hand. However, enhancement of the overall amount of use (or the reduction of learned non-use) may still be suboptimal leaving room for improvement of this treatment.

試題隨卷繳回