

1. 名詞解釋 (每題 5 分，共 40 分)

- (1) Affordance
- (2) Bradykinesia
- (3) Coping
- (4) Topographia
- (5) Plasticity
- (6) Repetition maximum
- (7) Stigma
- (8) Constructional apraxia

2. 問答題

- (1) 請說明並比較 spasticity, hypertonic stretch reflex, 及 rigidity 三者的不同之處。(15 分)
- (2) 請說明組織癒合(tissue healing)的三個階段及每一階段適用的副木類型。(15 分)

3. 請閱讀下列文章摘要，並回答問題。(每題 15 分，共 30 分)

(1) Article 1:

Michaelsen, S. M., & Levin, M. F. (2004). Short-term effects of practice with trunk restraint on reaching movements in patients with chronic stroke: A controlled trial. *Stroke*, 35, 1914-1919.

Background and Purpose—In prehension tasks with objects placed within arm's reach, patients with hemiparesis caused by stroke use excessive trunk movement to compensate for arm motor impairments. Compensatory trunk movements may improve motor function in the short term but may limit arm recovery in the long term. Previous studies showed that restriction of trunk movements during reach-to-grasp movements results in immediate increases in active arm joint ranges and improvement in interjoint coordination. To evaluate the potential of this technique as a therapeutic intervention, we compared the effects of short-term reach-to-grasp training (60-trial training session) with and without physical trunk restraint on arm movement patterns in patients with chronic hemiparesis.

Methods—A total of 28 patients with hemiparesis were assigned to 2 groups: 1 group practiced reach-to-grasp movements during which compensatory movement of the trunk was prevented by a harness (trunk restraint), and the second group practiced the same task while verbally instructed not to move the trunk (control). Kinematics of reaching and grasping an object placed within arm's length were recorded before, immediately after, and 24 hours after training.

Results—The trunk restraint group used more elbow extension, less anterior trunk displacement, and had better interjoint coordination than the control group after training, and range of motion was maintained 24 hours later in only the trunk restraint group.

Conclusions—Restriction of compensatory trunk movements during practice may lead to greater improvements in reach-to-grasp movements in patients with chronic stroke than practice alone, and longer-term effects of this intervention should be evaluated. (*Stroke*, 2004;35:1914-1919.)

請問此研究中的自變項(independent variable)及依變項(dependent variables)為何。(15 分)

(背面仍有題目,請繼續作答)

(2) Article 2:

Mercier, C., & Bourbonnais, D. (2004). Relative shoulder flexor and handgrip strength is related to upper limb function after stroke. *Clinical Rehabilitation*, 18, 215-221.

Objective: To compare the relative strength of different muscle groups of the paretic upper limb and assess the relationship with motor performance.

Design: Descriptive study.

Setting: Secondary care rehabilitation centre.

Subjects: A convenience sample of 13 chronic hemiparetic stroke subjects.

Main outcome measures: The maximal active torques of five muscle groups were measured in both upper limbs (UL) and converted into relative strength (paretic/nonparetic). The UL function was assessed using the Box and Block Test, the Finger-to-Nose Test, the Fugl-Meyer Test and the TEMPA (Test Evaluant les Membres supérieurs des Personnes Agées).

Results: The Friedman two-way analysis of variance shows a significant difference across the relative strength of the different muscle groups ($p = 0.017$), but subsequent multiple comparisons indicate a significant difference between handgrip and elbow extension only (relative strength of 0.52 ± 0.27 and 0.73 ± 0.23 respectively). However, data show the presence of large intra-subject imbalances between muscle groups. The relative forces for shoulder flexion and handgrip are the best predictors of the UL function, the higher Spearman's rho correlation coefficients for each clinical test ranging from 0.70 to 0.81.

Conclusions: These results do not confirm classical clinical teaching regarding the distribution of weakness following stroke (e.g., proximal to distal gradient; extensors more affected than flexors) but support the hypothesis that strength is related to the function of the paretic upper limb.

請問此研究結果較支持 Brunnstrom therapy, Bobath therapy, 及 motor relearning program 中的哪一個派別的基本假設? 並說明理由。(15分)