

1. 1) Please explain “microanalysis” used for the study as shown below.
(10 %)
- 2) The Author developed a simple interactive model which includes “individual profile” (below). It represents a composite of experiences that are formed as each therapist works, reads, is mentored, observes other therapists, and matures into a professional. Please address three components of the individual profile. (10 %)

Interactional Model

I recognized some basic interactive and contextual information about the therapists in the study that could be organized and analyzed by developing a simple model.

Entry Education in Occupational Therapy

The first commonality is professional education. The four therapists who participated in this project had completed their entry-level education in occupational therapy from four different educational programs via two different entry routes (bachelor’s and master’s).

Individual Profile

Following their graduation, the therapists developed their own unique individual profile. Like a fingerprint, a therapist’s profile is distinctive. It represents a composite of experiences that are formed as each therapists works, reads, is mentored, observes other therapists, and matures into a professional.

Specialty and Advanced Training

The therapists accumulated specialty and advanced training based on their individual interests. They attended different conferences and workshops, continuing education programs, and in-depth specialty training and studied for advanced degrees (two specialized in early childhood).

Professional Belief Systems

Their unique profiles revealed individual professional belief systems. These belief systems guide, focus, and determine what a therapist will do in a given situation and are demonstrated when occupational therapists focus on different concerns during an evaluation or treatment. Professional belief systems are evident in the selection or exclusion of topics addressed during the course of the session and the amount of time devoted to each particular topic. For example, some therapists were more concerned with a line of inquiry about movement; others focused more attention on development,

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play, family time, daily routines, or mealtime. Similarly, some therapists excluded some topics (disease management, sleeping or digestive issues, dietary problems), as they did not see them falling into their domain of concern.

Theoretical Perspectives and Expertise

Finally, individual profiles included preferred theoretical perspectives and expertise. These are based on an individual's education, training, and preferences as well as their professional expertise developed in different work settings. These four therapists (depicted in this model as T1, T2, T3, and T4) brought their professional education and individual profiles to the therapeutic interactive encounters studied.

Microanalysis is a technique that allows each action or movement or sound to be slowed down. Using microanalysis, each interaction is viewed in 1/30-second increments. It is a frame-by-frame analysis of action and sound. To understand this level of specificity, recognize that each 1-hour therapy session yields 108,000 frames. Each of these frames can be individually analyzed. Although I looked at all 108,000 frames for each session, I only chose a set of frames to analyze. Of those selected, I mapped each action and sound change frame by frame so that single actions could be microanalyzed. These sets of frames represent similarities and differences across the recorded therapeutic junctures. I'll turn now to the analysis.

Burke, J. P. (2010). What's going on here? Deconstructing the interactive encounter (Eleanor Clarke Slagle Lecture). *American Journal of Occupational Therapy*, 64, 855-868. doi: 10.5014/ajot.2010.64604

2. 請以中文敘述以下內容之重點。(15%)

Evaluating how a patient experiences a health care intervention has become increasingly important in a wide range of clinical studies, including pharmaceutical, behavioral, device, and procedural trials. Such experiences are typically captured via 'patient reported outcomes' (PROs). Although PROs have played an important role in major clinical trials and in labeling decisions by the Food and Drug Administration (FDA), the assessment of PROs has been problematic. For example, many PRO measurement instruments are long and burdensome for patients and research staff. Even rigorously designed instruments can miss the full range of patient experiences or

be insensitive to change over time because of floor or ceiling effects. Furthermore, there is a lack of standardization in most therapeutic areas, with many similar PRO measures, but no standard metric, making it difficult to compare or combine scores across studies. For these reasons, the National Institutes of Health (NIH), under the NIH Roadmap theme of reengineering the clinical research enterprise (<http://nihroadmap.nih.gov/>), has identified better assessment of PROs as a pressing need. Accordingly, the NIH has funded the Patient-Reported Outcomes Measurement Information System Network (PROMIS, <http://www.nihpromis.org/>) to develop better measures of PROs for chronic diseases. The primary focus of this study is to assess clinical investigators' perceptions of the utility of PRO measures in clinical trials and to anticipate perceived barriers to the adoption of new PRO measures and methods.

3. Please read INTRODUCTION, and answer the following questions in Chinese. (15%)

- 1) What is the rationale for this study?
- 2) What is the gap of the literature in the field?
- 3) What is the significance or contribution of the study?

INTRODUCTION

Cerebral palsy (CP) designates a group of permanent disorders of the development of movement and posture that are attributed to non-progressive disturbances occurring in the developing fetal or infant brain. With a prevalence of 1.5–2.5 per 1000 live births, CP is a major cause of long-term disability in children. It not only permanently impairs motor development, but also restricts children's daily function.

The World Health Organization's International Classification of Functioning, Disability, and Health (ICF) describes human functioning in terms of body functions and structures (physiological functions and anatomical parts), activity (execution of a task or action), and participation (involvement in a life situation). Within this framework two important factors, environmental and personal factors, were added as contextual factors, which may impact a child's health state, or contribute to the dimensions of body functions and structures, activity, and participation. Daily function of children with CP is influenced by the impairments or limitations in one or more of these areas. Moreover, according to the ICF, the concept of activity reflects a child's capacity for doing daily activities, and participation indicates a child's actual performance in his or her daily life. However, a child's capacity is not always equal to

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his or her performance in the real world. Therefore, both capacity and performance should be taken into account when assessing a child's daily function.

The determinants of daily function in children with CP have been examined and some have been identified. Namely, according to the ICF, the determinants related to health condition included subtypes of CP, anatomic distribution, and severity of gross and fine motor impairment. The determinants related to body functions and structures included cognitive impairment, epilepsy, and learning disabilities. The determinants related to personal factors included age and those related to environmental factors included social, physical, and educational environments.

To date, the studies investigating a range of potential determinants of daily function included mainly factors related to one or two specific dimensions without considering possible factors from dimensions of health condition, body functions and structures, and context simultaneously. For example, environmental factors have rarely been examined together with factors from other dimensions in previous studies. Furthermore, both capacity and performance have not been taken into account simultaneously when assessing daily function. Thus, a study considering the factors from the entire scope of the ICF to investigate the determinants of daily function in children with CP was needed. Results of this study can provide evidence to inform clinicians' decision making processes when assessing daily function, setting goals, and planning intervention for children with CP. Thus, the objective of the study was to identify determinants of daily function in a population-based sample of children with CP and to take into consideration the factors from the entire scope of the ICF. Furthermore, the determinants of daily function were examined from the perspectives of capacity and performance respectively.

4. 請將下面的 abstract 簡要翻譯成不超過 150 字的中文摘要。(20%)

(專有名詞關鍵字翻譯：EEG 腦電波圖，ERD 事件相關去同步化現象，ERS 事件相關同步化現象)

Applying a brain-computer interface to support motor imagery practice in people with stroke for upper limb recovery: a feasibility study.

Abstract

BACKGROUND: There is now sufficient evidence that using a rehabilitation

protocol involving motor imagery (MI) practice in conjunction with physical practice (PP) of goal-directed rehabilitation tasks leads to enhanced functional recovery of paralyzed limbs among stroke sufferers. It is however difficult to confirm patient engagement during an MI in the absence of any on-line measure. Fortunately an EEG-based brain-computer interface (BCI) can provide an on-line measure of MI activity as a neurofeedback for the BCI user to help him/her focus better on the MI task. However initial performance of novice BCI users may be quite moderate and may cause frustration. This paper reports a pilot study in which a BCI system is used to provide a computer game-based neurofeedback to stroke participants during the MI part of a protocol.

METHODS: The participants included five chronic hemiplegic stroke sufferers. Participants received up to twelve 30-minute MI practice sessions (in conjunction with PP sessions of the same duration) on 2 days a week for 6 weeks. The BCI neurofeedback performance was evaluated based on the MI task classification accuracy (CA) rate. A set of outcome measures including action research arm test (ARAT) and grip strength (GS), was made use of in assessing the upper limb functional recovery. In addition, since stroke sufferers often experience physical tiredness, which may influence the protocol effectiveness, their fatigue and mood levels were assessed regularly.

RESULTS: Positive improvement in at least one of the outcome measures was observed in all the participants, while improvements approached a minimal clinically important difference (MCID) for the ARAT. The on-line CA of MI induced sensorimotor rhythm (SMR) modulation patterns in the form of lateralized event-related desynchronization (ERD) and event-related synchronization (ERS) effects, for novice participants was in a moderate range of 60-75% within the limited 12 training sessions. The ERD/ERS change from the first to the last session was statistically significant for only two participants.

CONCLUSIONS: Overall the crucial observation is that the moderate BCI classification performance did not impede the positive rehabilitation trends as quantified with the rehabilitation outcome measures adopted in this study. Therefore it can be concluded that the BCI supported MI is a feasible intervention as part of a post-stroke rehabilitation protocol combining both PP and MI practice of rehabilitation tasks. Although these findings are promising, the scope of the final conclusions is limited by the small sample size and the lack of a control group.

J Neuroeng Rehabil. 2010 Dec 14;7(1):60. Prasad G, Herman P, Coyle D, McDonough S, Crosbie J. Intelligent Systems Research Centre (ISRC), University of Ulster, Magee Campus, Derry, N, Ireland, UK. g.prasad@ulster.ac.uk

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5. Please read the following ABSTRACT, and answer the following questions **in Chinese**.

- 1) What were the conclusions of the literature review? (10%)
- 2) What was the suggestion of the literature review for future researches? (5%)

Physical activity, disability, and quality of life in older adults.

Abstract

This article provides an overview of physical activity and its association with function, disability, and quality of life (QOL) outcomes among older adults. The rationale and the associated onset of chronic disease conditions that influence function, disability, and QOL is embedded in the "Graying of America". The literature reviewed in this article yielded 3 general conclusions: (1) there is an alarming rate of physical inactivity among older adults, particularly those aging with a disability; (2) there is strong evidence for the beneficial effects of physical activity on impairment, function, and health-related aspects of QOL among older adults, but there is less conclusive evidence for positive effects of physical activity on disability and global QOL; and (3) there is emerging support for self-efficacy as a mediator of the association between physical activity and disability, and QOL outcomes in older adults. Researchers should consider designing and testing programs that incorporate strategies for enhancing self-efficacy along with the promotion of physical activity as a means of preventing disablement and improving QOL among older adults. Such work will go a long way in identifying practical approaches that can be applied for improving the later years of life and is critical because many Americans will soon be affected by the aging of adults in the United States

Motl RW, McAuley E. Phys Med Rehabil Clin N Am. 2010 May;21(2):299-308.

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6. 1) 請用中文簡述本研究之目的。(5%)
- 2) 請用中文敘述本研究的結果。(10%)

PURPOSE: To investigate the sustainability of effect and the changes in basic and instrumental activities of daily living (ADL and IADL) after long-term prism intervention, we carried out a follow-up assessment on five subjects with hemispatial neglect in the chronic stage.

METHOD: At 2-3.5 years after the end of prism intervention, we measured six parameters: 1) eye movement of the neglect side when watching three different video clips, 2) center of gravity as an index of subjective internal midline bias, 3) star and letter cancellation tests, 4) the line bisection test, and ADL scales: 5) Barthel Index and 6) Lawton's IADL scale. In addition, we interviewed and observed the subjects' present ADL performance at home.

RESULTS: The eye movement on the neglect side significantly increased compared with that before intervention. The center of gravity was shifted significantly to the left side and forward. The improvement in cancellation and line bisection tests was also observed. All subjects showed improvement in ADL performance. Two of the subjects could return to work after intervention.

CONCLUSION: The results suggested that long-term prism intervention might effectively exert long-lasting effects and bring benefits to ADL performance for subjects with hemispatial neglect.

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