

# 口 頭 發 表 摘 要

口頭報告場次 A (全英文發表場次) / Oral Session A (English session)

## 【場次 A1】

柏格平衡量表應用於嚴重精神病患之信度與效度

### Reliability and validity of the berg balance scale in patients with severe mental illness

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**Objective:** The Berg balance scale (BBS) has become a standard indicator to measure balance and fall risk in older adults. However, few studies explored the association among the BBS, falls and the patients with severe mental illness, especially in schizophrenia. This study aimed to validate the BBS for assessing balance abilities in patients with severe mental illness, focusing on its reliability (internal consistency) and validity (convergent validity and known-group validity).

**Methods:** Sixty-one patients with chronic schizophrenia in psychiatric hospital in Taiwan were recruited. The balance performances were assessed using three measures: the BBS, the Timed Up and Go test, and the Mini-Mental State Examination. The internal consistency and validity of the BBS were examined.

**Results:** The BBS demonstrated satisfactory internal consistency among patients with chronic schizophrenia (Cronbach's  $\alpha = 0.72$ ). The BBS scores exhibited a moderate negative correlation with patient age ( $r = -0.40$ ) and a strong moderate correlation with the Timed Up and Go test results ( $r = -0.66$ ). Furthermore, the BBS scores effectively differentiated patients with a history of falls.

**Conclusion:** The finding of this study support the reliability and validity of the BBS in assessing balance abilities among patients with chronic schizophrenia, endorsing its potential utility in clinical practice.

**關鍵詞：** Berg Balance scale, internal consistency, convergent validity, known-groups validity

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## 【場次 A2】

正念日曆於失智症個案照顧者之使用初探

### Utilization of a "mindfulness calendar" in caregivers of individuals with dementia

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**Introduction:** With the increasing number of dementia patients, the majority of patients' caregivers experienced emotional strain, physical exhaustion, and a lack of personal time. To address these challenges, we proposed the creation and use of a customized calendar for mindfulness-based practice. Mindfulness training, an evidence-based intervention, has been proven to be effective in reducing the issues faced by dementia caregivers. Our product aimed to offer daily mindfulness exercises with professional instructions, providing needed support to caregivers of individuals with dementia. The feasibility of our mindfulness calendar was assessed.

**Methods:** We custom-made a two-week online calendar with mindfulness-based education materials and practice. The practice video or audio clips were demonstrated or guided by certified mindfulness-based stress reduction program instructors, who were also healthcare professionals including an occupational therapist and a nurse. To maximize exposure, our study made use of a variety of platforms, including caregiver-focused Facebook groups and LINE chat groups. By filling out an online Google form, the participants agreed to receive information regarding our calendar via emails or social media groups and to use the calendar daily for at least two weeks. The participants engaged in daily mindfulness exercises by viewing instructional videos on YouTube. Individuals' feedback regarding usage and level of satisfaction was collected through online Google forms. The participants reported daily to our project team members whether they completed the practice materials. They were also invited to fill out a feedback form once a week online.

**Results:** Out of the 96 individuals who participated in our program, all of them showed high satisfaction with our program. The results showed that after engaging in the mindfulness program for 2 weeks, the participants reported that they "feel calmer," "more relaxed," "experienced reduced level of stress" and "increased level of self-awareness," as compared to their status before attending the program.

**Discussion:** In conclusion, it is feasible to provide mindfulness exercise to caregivers of individuals with dementia through our mindfulness calendar. Future work is encouraged to systematically examine the effect of our mindfulness calendar in improving caregivers' emotional wellbeing and stress levels. We also plan to promote the use of the mindfulness calendar among caregivers of clients with chronic diseases through online platforms.

**關鍵詞：** mindfulness calendar, caregivers, dementia

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### 【場次 A3】

#### Exploring the Relationship between Cognition and Frailty Among Individuals with Mental Illness

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**Objective:** Individuals with mental illness often experience physical frailty due to factors such as psychiatric symptoms, aging, and lifestyle. This can lead to an increased incidence of falls, impacting daily life functioning and quality of life. Past research has indicated that individuals with physical frailty tend to have higher rates of cognitive impairments and declining cognition, and vice versa. Therefore, the aim of this study is to explore the relationship between cognition and frailty among individuals with mental illness.

**Methods:** This study employed a cross-sectional research design and recruited participants from a

psychiatric hospital in northern Taiwan. Cognitive function was assessed using the Allen Cognitive Level Test (ACLS), while frailty was evaluated using the Fried Frailty Index. Frailty assessments included grip strength testing, the Time Up and Go test (TUG), administration of the Center for Epidemiologic Studies Depression Scale (CES-D), evaluation of physical activity levels, and assessment of unintentional weight loss over the past year. The relationships between variables were analyzed using chi-square tests and ANOVA.

**Results:** Data were collected in 2023, with a total of 390 cases analyzed. The average age was 48 years, with males comprising 50.3% of the sample. Schizophrenia was the most common diagnosis, accounting for approximately 92.4% of cases. Most participants (44%) scored at level 4 on the ACLS. Among them, 24% met frailty criteria, while 60% were classified as pre-frail. Moderate correlations were found between cognitive level and frailty ( $r = 0.48, p < 0.05$ ), as well as between cognitive level and activity level ( $r = 0.46, p < 0.05$ ), with significant differences. Grip strength and walking speed showed a small significant relationship with cognitive level ( $F = 4.17; 3.07; p < 0.05$ ). However, weight loss and depression levels were not significantly correlated with cognitive function.

**Conclusions:** The results of this study provide valuable insights into the association between cognition and frailty among individuals with mental illness, particularly those diagnosed with schizophrenia. The moderate correlation observed suggests that a decline in cognition may increase the risk of frailty, indicating a potential interrelationship between these two domains. Additionally, cognitive level was significantly associated with grip strength, walking speed, and activity levels. However, weight loss and depression levels did not exhibit significant correlations with cognition. Furthermore, the findings underscore the prevalence of frailty among individuals with mental illness. These results emphasize the importance of comprehensive assessments and interventions targeting both cognitive and frailty domains to enhance outcomes and quality of life for individuals with mental illness. Further research is warranted to explore these relationships in greater depth and develop tailored interventions to address the complex interplay between cognition and frailty in this population.

**關鍵詞：** mental illness, schizophrenia, cognition, frailty

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#### 【場次 A4】

### Impact of Work Training on Walking Speed of Inpatients with Mental Illness: A One-Year Follow-Up Study

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**Objective:** Walking speed is one of the indicators of frailty. Individuals with mental illness often demonstrate reduced walking speed and are prone to early onset of frailty. The aim of this study is to track changes in walking speed among inpatients with mental illness participating in work training or occupational therapy (OT) activities over the course of one year.

**Methods:** Participants were recruited from a psychiatric hospital in northern Taiwan. The Time Up and Go test (TUG) was used to assess walking speed at pre-test (T1) and one year later at post-test (T2). A TUG score exceeding 10 seconds was considered indicative of frailty. Generalized estimating equations (GEE) were employed to analyze the change in walking speed.

**Results:** Fifty-six patients were enrolled in this study. Among them, 44 participants received OT (G1), 9 participants attended assembly and subcontracting (G2), and 3 participants underwent training for cart pushing (G3). According to the TUG score at T1, 2.3% of participants in G1 were classified as frail, while there were no frail participants in G2 and G3. After one year at T2, the percentage of frail participants increased to 9.1% in G1. However, there were still no frail participants in G2 and G3. The changes in frailty prevalence did not reach significant differences among the groups based on participant numbers. Nevertheless, a significant difference was observed at T2 in the TUG score between the G1 and G3 groups ( $p = .003$ ).

**Conclusions:** This study aimed to monitor changes in walking speed among inpatients with mental illness engaging in work training or OT activities over a one-year period. While there was an observed increase in frailty prevalence in the G1 group, statistical analysis did not indicate significant differences compared to the other groups. This suggests that while participation in work training or OT activities may have some impact on walking speed among individuals with mental illness, this effect may be limited or influenced by other unaccounted factors. Further research is warranted to explore these factors and develop more effective interventions to enhance walking speed and function in individuals with mental illness.

**關鍵詞：** mental illness, work training, walking speed, frailty, one-year follow-up

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### 【場次 A5】

#### Mediators in the association between long COVID symptoms and quality of life among Taiwanese people with mental illness

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**Background/objectives:** Although it was announced that COVID-19 is not a pandemic by the World Health Organization in 2023, its impacts on health remain. One of the examples is the long COVID symptoms. Long COVID symptoms are experienced by people infected with COVID-19 and still experiencing its symptom(s) “three months” after infection. These symptoms have impacts on people’s health, including their quality of life (QoL). However, whether any factors could mediate the pathways between long COVID symptoms and QoL are not fully known, especially for vulnerable population (e.g., people with mental illness in the present study). Therefore, we aimed to examine if sleep quality, psychological distress, and self-stigma are potential mediators in the associations between long COVID symptoms and QoL.

**Method:** People with mental illness (PWMI) from one psychiatric center in southern Taiwan were the target participants, and 333 PWMI (204 [61.3%] males; mean age 48 years) agreed to participate by providing written informed consent. All the PWMI completed the following measures: Pittsburgh Sleep Quality Index (assessing sleep quality), Depression, Anxiety, Stress Scale-21 (assessing psychological distress), Self-Stigma Scale-Short (assessing self-stigma), and World Health Organization Quality of Life

Questionnaire-brief version (assessing QoL). PWMI completed these measures under the supervision of a well-trained research assistant in a quiet room without disturbance. Their long COVID symptoms were checked via their medical records with verification by a physician in the psychiatric center who is in charge of COVID-related diagnoses and treatments.

**Results:** PWMI who had long COVID symptoms did not have significantly different scores in self-stigma, social QoL, and environment QoL when comparing to their counterparts without long COVID symptoms. However, PWMI who had long COVID symptoms had significantly higher psychological distress (15.8 vs. 12.2;  $p=0.03$ ), poorer physical QoL (12.9 vs. 13.8;  $p=0.01$ ), and worse psychological QoL (11.8 vs. 12.8;  $p=0.02$ ) than their counterparts without long COVID symptoms. Significant relationships were found between sleep quality, psychological distress, self-stigma, and QoL. Moreover, sleep quality and psychological distress were found to be significant mediators in the association between long COVID symptoms and QoL in this PWMI sample; however, self-stigma was not.

**Conclusion:** Because the present study found that sleep quality and psychological distress mediated the association between long COVID symptoms and QoL, healthcare providers may want to pay attention to sleep quality and psychological distress when a PWMI has long COVID symptoms. In other words, pathways between long COVID symptoms and QoL could be connected via sleep quality and psychological distress for PWMI. These findings suggest potential care programs for healthcare providers when taking care of PWMI with long COVID symptoms. That is, sleep improvement program or psychological distress intervention program could be implemented for PWMI who have long COVID symptoms.

**關鍵詞：** mental illness; long COVID; quality of life

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## 【場次 A6】

### Evaluating Students' Experience in Applying Model of Human Occupation in Acute Care Settings through Actor-Based Case Simulations

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Occupational therapists in hospital settings play a crucial role in supporting patient rehabilitation and ensuring safe discharge. Research shows that occupational therapy in acute care reduces hospital readmissions and the incidence of hospital-acquired injuries like DVT and falls (Rogers et al., 2017 & Edelstein et al., 2022). Despite the benefits of occupation-based interventions (Wall et al., 2023; Clarke et al., 2018), novice therapists often resort to an impairment-based approach due to challenges in implementing occupation-based intervention. Many occupation-centered models, such as the Model of Human Occupation, can assist newly qualified occupational therapists in maintaining an occupation-focused and occupation-based approach (Kielhofner, 2008; Taylor et al., 2023). However, students and novice clinicians frequently struggle to apply theoretical models in clinical settings.

Simulation sessions with case studies have proven effective in enhancing students' learning and boosting their confidence during placements and clinical practice (Bennett et al., 2017; Walls et al., 2018). At London South Bank University, occupational therapy theory is introduced in the first year of the program.

To enhance students' confidence and knowledge, actor-based case simulation of acute care practical sessions was introduced. This study aims to explore occupational therapy students' experiences engaging in actor-based case simulations while applying the Model of Human Occupation in acute care settings. A mixed-method retrospective cohort design was utilized. Thirty students completed both the lecture and practical sessions, with twenty-four consenting to participate in this study by completing an anonymous online survey about their learning experiences. Results indicate that students had overall positive experiences with the actor-based case simulation sessions, reporting that the sessions enhanced their clinical skills for developing occupation-based interventions in acute care settings. The sessions also strengthened students' understanding of each component of the Model of Human Occupation and its application in occupation-based interventions. Additionally, students reported improvements in their confidence in communication and interpersonal skills with future patients during clinical placements and future practice.

The study results suggest that occupational therapy educators should consider incorporating practical-based theory in their program to create advanced learning opportunities. These courses can help students develop occupation-based interventions in acute care settings based on a theoretical foundation, while also enhancing their confidence in future clinical practice.

**關鍵詞：Model of human occupation; acute care; education**

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## **生物力學場次/Biomechanics Session**

### **【場次 B1】**

**有無跌倒經驗老年人在擾動下的姿勢控制差異**

### **Postural Control Differences in the Elderly with and without Fall Experience under a Continuous and Unexpected Perturbation**

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Standing balance is crucial for daily activities, and its maintenance may decline with age, significantly impacting functional performance. Aging is a critical factor influencing daily life functions, and an inadequate motor control response to unexpected perturbations may lead to falls. Falls are increasingly common among the elderly, making it important to study their related issues to enhance quality of life and reduce healthcare costs. Many studies have used perturbation designs to investigate postural stability components, but most have focused on single movements of the support surface. To simulate real-life conditions, perturbations should be continuous and multidirectional. However, there is a lack of studies examining responses to this type of perturbation, especially for elderly individuals with or without a history of falls.

In this study, we designed a novel, continuous, and unexpected perturbation to simulate real-life scenarios, such as standing on a moving bus when it suddenly brakes. The study aimed to compare motor control responses between elderly non-fallers (without fall experience) and fallers (with fall experience) and to identify factors influencing these responses and bilateral symmetry patterns under perturbation. We

recruited 25 healthy community-dwelling volunteers, divided into two groups based on fall history. Pre-perturbation assessments included the Berg Balance Scale, Functional Reach Test, and isokinetic muscle strength testing.

The perturbation protocol involved four sequential intervals: slip forward, pitch downward, pitch upward, and re-stabilization, using a Stewart platform. Participants stood barefoot on the movable platform, with only the first perturbation analyzed to avoid habituation effects. Data collected included muscle activation, kinematic information of the center of mass (COM) trajectory, and joint rotation. Variables measured were EMG onset and offset times, muscle firing and shut-down sequences, EMG root-mean squared values, COM displacement in anteroposterior, mediolateral, and vertical directions, COM deviations at distinct points, and time-to-peak values for anteroposterior movement, joint angles at distinctive COM points, joint mean angular excursion, and peak rotation angles.

Results showed that both groups exhibited similar balance correction patterns, but the elderly fallers had larger sway amplitudes, especially during re-stabilization. Fallers displayed abnormal medial gastrocnemius activity, excessive ankle dorsiflexion, insufficient plantarflexion, increased hip and knee flexion, and excessive pelvic tilts. They also had delayed responses, weaker muscle power, and reduced torque resistance, affecting motor control. Fallers required more rectus femoris activation to generate larger hip flexion in response to perturbations, with asymmetry patterns observed in both groups.

This novel perturbation design could offer a realistic simulation, identifying specific balance correction responses that differentiate motor control among community-dwelling individuals. The findings provided a valuable reference for designing interventions for daily activities, especially for elderly individuals with or without a history of falls.

**關鍵詞：** Postural Control, Elderly, Fall, Perturbation

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## 【場次 B2】

疲勞對於書寫力學以及手指捏力的影響

### The Impact of Fatigue on Handwriting Mechanics and Finger Pinch Strength

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**Purpose:** This study aimed to explore the impact of fatigue on handwriting mechanics and finger strength.

**Method:** Ten participants (average age 26.0, SD = 4.1) were recruited. Fatigue was induced by a 15-minute task of copying traditional Chinese characters. Pre- and post-fatigue tests measured handwriting mechanics and finger strength using the Force Acquisition Pen for continuous writing of Arabic numerals and a B&L pinch gauge for various pinch strengths. The Wilcoxon signed-rank test analyzed differences before and after fatigue.

**Results:** Significant differences were observed in palmar pinch ( $p = .047$ ) and tip pinch (thumb and

middle finger) ( $p = .0017$ ). Tip pinch (thumb and middle finger) strength decreased by 11.2%, which is higher than the decrease in other pinch strengths (7.4%-9.7%). Handwriting tasks showed a general decrease in High Peak Force (HPF), Average Force (AF), and writing time, with an increase in the Force Ratio (pen tip force/total three-finger force). Variability in force and force fluctuation per second showed no significant trends. Force reductions varied across fingers: HPF\_thumb (8.7%-19.0%), HPF\_index (8.5%-19.3%), HPF\_middle (15.7%-33.0%), HPF\_pen tip (0.2%-7.8%), AF\_thumb (10.6%-22.5%), AF\_index (10.0%-23.7%), AF\_middle (13.1%-31.5%), and AF\_pen tip (0.2%-7.0%).

**Conclusion:** Following fatigue, there was a decrease in overall force and writing time, accompanied by an increase in the Force Ratio. Middle finger force reduction was notably higher, indicating a significant impact from prolonged writing on middle finger strength. Further research should focus on the middle finger's role in handwriting.

**關鍵詞：** Fatigue; Writing kinetics; pinch strength

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### 【場次 B3】

#### 學齡孩童書寫困難之風險預測

#### Risk of handwriting difficulties in school-aged children

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**前言:**書寫困難對於學童的在校表現及心理社會功能有長期影響，故本研究開發平板電腦化中文書寫評估系統 (Tablet-based Evaluation of Chinese Handwriting, TECH)，探討書寫表現之歷程 (handwriting process) 及成品 (handwriting product) 作為書寫困難的預測因子。

**方法:**本研究共納入 116 位低年級普通班學童，以市售評估工具兒童寫字表現評量表 (Chinese Handwriting Evaluation Form, CHEF) 篩檢有無書寫困難。此外，受試者使用 TECH 系統進行近端抄寫。TECH 系統考量中文圖像特性，以影像處理技術計算字跡與模板間的差異，量化學童的字體工整度作為書寫成品的量測指標。TECH 系統同時紀錄觸控筆實際接觸平板時之表面動作與筆尖掠過空中時之空中動作，包含筆跡中斷時間、筆跡停滯時間、筆畫速度、空中動作相對表面動作耗時之比例，以及空中動作相對表面動作路徑長度之比例，作為書寫歷程量測指標。本研究以逐步邏輯迴歸 (Stepwise logistic regression) 建立書寫困難預測模式。

**結果與討論:**結果顯示，字體工整度與筆跡停滯時間為書寫困難的關鍵預測因子 ( $p < .05$ )。字體較不工整以及筆跡停滯時間較長可能增加 2~14 倍書寫困難風險。字體工整度反映學童抄寫時的字體結構問題；筆跡停滯時間則代表抄寫的動作流暢度，兩者共同影響書寫困難之風險。TECH 系統可客觀且多元地評估台灣學童的書寫表現，可助於補充臨床評估，篩檢書寫困難的學童。

**關鍵詞：** 書寫、學齡兒童、預測因子

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### 【場次 B4】

#### Characterizing intensity of upper extremity rehabilitation after stroke using a novel wearable wrist sensor

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**Background:** Wrist-worn accelerometers have been used to measure the intensity of upper extremity practice, but their primary focus is on general arm usage, lacking the ability to capture reach and grasping of the hand that are relevant for rehabilitation.

**Purpose:** We aim to explore the potential of a novel wrist-worn sensor as a meaningful measure for characterizing the intensity of reach and grasping during a structured upper extremity exercise session for stroke.

**Study Design:** This was a cross-sectional study.

**Methods:** Fourteen individuals with stroke wore sensor devices (TENZR) on both wrists while performing a structured upper extremity exercise program comprising of 35 tasks. Counts recorded from observation (observed reach and grasp repetitions) and counts from the sensor device (sensor counts) were compared to quantify the intensity of functional hand activities.

**Results:** The participants performed 792 observed reach and grasp repetitions, with corresponding 711 and 465 sensor counts for the paretic hand and non-paretic hand, respectively over the hour practice session. The sensor device and the observational method might measure UE movement differently, as evidenced by a lack of relationship between observed repetitions and sensor counts in the paretic hand. Furthermore, the paretic hand sensor counts were significantly higher than the non-paretic hand sensor counts.

**Conclusions:** This study illustrated the feasibility of using the TENZR device to quantify reaching and grasping practice and characterize individual participation pattern for both paretic and non-paretic hands in stroke rehabilitation. In the future, this sensor device could expand to home-based rehabilitation and telehealth services, enabling objective monitoring and tracking of UE training progress.

**關鍵詞：** Stroke, upper extremity, rehabilitation, wearable sensor, grasp, TENZR

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## 口頭報告場次 C (全英文發表場次) / Oral Session C (English session)

### 【場次 C1】

運用設計思考改善外科病房副木製作時間

**Application of the Design Thinking for Improving the Splinting Fabrication Time of Surgical Ward**

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**目的：**副木為低溫熱塑性材質，職能治療師可依據個案不同的需求以及肢體狀態直接塑形，副木相較於石膏的優點是重量輕、穿脫方便、透氣性高，擁有良好支撐和保護效果。穿著副木目的為(1)保護或支撐關節與軟組織、(2)提供擺位，預防或矯正變形以及(3)協助或代替受損的肌肉的功能以執行活動。本實務分享透過設計思考擬定策略，改善外科病房副木製作所需時間，作為職能治療計畫參考。

**方法：**改善前數據收集時間自 112 年 8 月 1 日至 112 年 9 月 30 日止，收集外科病房轉介復健科副

木製作的所需時間，期間副木製作所需時間平均為 52.76 分鐘。分析副木製作所需時間長的原因為：(1)固定帶現場製作，(2)量測尺寸繪出紙型，(3)躺姿製作擺位不易，(4)修飾邊緣及不平整處，(5)其他。運用設計思考 5 步驟：(1)同理心，(2)定義問題，(3)創意發想，(4)製作原型，(5)測試驗證，擬定出(1)固定帶歸類擺放，(2)製作多種副木版型以及(3)圖像化說明卡策略。

**結果：**改善中自 112 年 10 月 1 日至 113 年 11 月 30 日間，副木製作所需時間平均為 50.42 分鐘；改善後自 112 年 12 月 1 日至 113 年 1 月 31 日間，平均為 46.28 分鐘。

**結論：**利用設計思考擬定的策略對於外科病房轉介副木製作時間具改善之成效，此發現值得未來研究進一步深入探討。

**關鍵詞：**設計思考、副木製作、職能治療

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## 【場次 C2】

### Effects of Impairment- and Task-Based Mirror Therapy in Stroke Rehabilitation: A Comparative (Literature) Review

作者群：

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**Background:** Mirror therapy, as demonstrated by Thieme et al. (2018), is a promising adjunct to routine therapy for stroke, offering potential in stroke rehabilitation. The different protocols, i.e., mirror therapy combined with the impairment- (MT-IOT) or task-oriented approaches (MT-TOT), may yield different effects for recovery (Morkisch et al., 2019).

**Objectives:** Review and summarize the clinical evidence of the two different mirror therapy protocols for recovery after stroke.

**Methods:** We searched Pubmed/MEDLINE, Cochrane, Embase, Physiotherapy Evidence Database (PEDro), and Google Scholar (last searched July 15, 2024). We also conducted hand searches for other relevant resources. This study included randomized controlled trials for people after stroke, comparing the MT-IOT and MT-TOT or the different MT-TOTs comparison.

**Results:** We included four studies (Bai et al., 2019; Corning & Hildebrand, 2022; Hambir & Satralkar; Lee et al., 2020) with 114 stroke participants. Mirror therapy in the three studies was provided for 30-40 min/day, five days/week, for four weeks (1 study did not report the duration and frequency). Compared to the MT-IOT, in quality-of-life recovery, the MT-TOT may have more positive outcomes (Corning & Hildebrand, 2022). However, regarding improving motor impairment, previous research findings have been inconsistent (Bai et al., 2019; Hambir & Satralkar). Lastly, in the comparison of different MT-TOTs, i.e., complex MT-TOT using multi-joint, such as in-hand manipulation with coins, versus simple MT-TOT, such as picking up a coin, the former MT-TOT may be more effective in restoring the upper limb and activity of daily functions (Lee et al., 2020).

**Conclusions:** While mirror therapy is widely used in many clinics, there is still a need for more extensive sample-size studies for optimal therapy protocols for implementing this technique.

**關鍵詞：**stroke, mirror therapy, task-oriented approach, impairment-oriented approach

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### 【場次 C3】

#### **Mirror Therapy Priming of Kinetic Exergaming in Stroke: A Randomized Controlled Trial**

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**Background:** Mirror therapy (MT) and kinetic exergaming (e.g. augmented reality, AR) have been implemented in stroke rehabilitation. MT utilizes mirror visual feedback to promote excitability of the motor areas of the brain. AR offers a virtual context of gamified rehabilitation for sensorimotor, mobility, and cognitive recovery. MT may complement AR to improve intervention outcomes. This research aims to study the effects of AR with and without the priming of MT, relative to control intervention (CI) in patients with stroke.

**Method:** Thirty-nine patients with unilateral stroke were recruited and randomized to receive one of three interventions: MT-primed AR, AR, and CI. Each treatment session was 90 minutes in duration, three times a week for six weeks. The MT-primed AR group received 40 minutes of MT, 40 minutes of AR, and 10 minutes of functional practice. The AR group received AR intervention for 80 minutes and functional practice for 10 minutes. The CI group received 80 minutes of occupational therapy and 10 minutes of functional practice. Home-based program involved functional practice of personally relevant tasks for 30 minutes. Pre-test, post-test, and 3-month follow-up assessment were administered. Primary treatment endpoint included the Fugl-Meyer Assessment-Upper Extremity (FMA-UE) and Berg Balance Scale (BBS). Additional outcome measures included revised Nottingham Sensory Assessment (rNSA), Chedoke Arm and Hand Activity Inventory (CAHAI), Motor Activity Log (MAL), and Stroke Impact Scale Version 3 (SIS). Adverse response was monitored using the visual analogue scale for pain and fatigue.

**Results:** The MT-primed AR group improved the FMA-UE and the tactile scale of the rNSA, relative to the AR and controlled interventions. The AR group improved in the BBS significantly. AR with and without MT priming improved quality of life better than the CI group. There was no serious adverse event during the study.

**Conclusion:** AR with and without MT priming increased upper-extremity motor, mobility, and stroke-specific quality of life. Of note, MT-primed AR improved upper motor and tactile impairments. AR was advantageous for improving postural balance. Future research is needed to validate the findings and identify the factors predictive of treatment success.

**關鍵詞：**Stroke rehabilitation, Mirror therapy, Augmented reality, Gamified rehabilitation,

**Randomized clinical trial**

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### 【場次 C4】

## **Development and Application of a novel, environmental friendly material (Biodegradable Clay) in Rehabilitation: an alternative to traditional polycaprolactone**

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**Background:** Splinting is a custom-made treatment for musculoskeletal injuries, providing support to immobilize injured body parts. The commonly used splinting material in Hong Kong, polycaprolactone (PCL), has high production cost, limited recycling potential, and some undesirable physical properties. To address these concerns, we have developed a new thermoplastic splinting material, Biodegradable Clay (BDC). BDC is newly developed as a safe, customizable, and recyclable splinting option. It possesses essential properties to be a splinting material while offering an economical and environmentally friendly option. BDC has improved recyclability, which allows on-site recycling. However, human application of splintage made from BDC has yet to be studied.

**Objectives:** The study aims to examine and compare the general applicability of BDC as a splinting material to the conventional PCL. We aim to evaluate users experience of individuals wearing splints made of PCL or BDC materials respectively, and explore the potential advantages and disadvantages of BDC over PCL in splinting applications.

**Methods:** In this single-blinded, crossover pilot trial, 31 healthy adults without orthopedic conditions (11 males, 20 females; aged 18-55) were randomly assigned to receive a 1-week finger splint program of either BDC or PCL, and switched to the alternative material for another 1-week splinting. User experience was collected through questionnaires upon termination of each splinting program, with preference indicated at the trial end. Additionally, changes in physical properties, i.e. pre-post splint weight and thickness, were measured to evaluate durability. Stress stability of splints, including any observed breakage or deformations, was documented. DermaLab® Combo was used to detect potential adverse skin conditions arising from splinting.

**Results:** The user experience evaluation showed no significant difference between BDC and PCL splints. Both BDC (mean = 4.19) and PCL (mean = 4.25) shared high mean ratings in QUEST 2.0, implying BDC is capable of delivering a comparable level of satisfaction as PCL. 42% of subjects indicated a preference for using BDC as their splinting material, which was comparable to that of PCL(45%). This preference was primarily driven by major reasons: 1) attractive appearance, 2) comfortable material texture, 3) excellent conformity to body parts 4) improved breathability.

Regarding the physical properties, no significant differences were found in both weight changes ( $p = .751$ ) and thickness changes ( $p = .613$ ) between PCL and BDC splints, showing that BDC exhibits similar durability to PCL as a splinting material.

Furthermore, BDC demonstrated similar changes in skin conditions compared to PCL in terms of hydration( $p = .513$ ), elasticity( $p = .102$ ), pigmentation( $p = .508$ ), and vascularity of skin color( $p = .657$ ), implying BDC is as adaptable to human skin as PCL.

**Conclusion:** BDC is applicable in human splintage, which possesses common desirable features of PCL in durability, stress stability, and skin adaptability, with comparable participant satisfaction and preference with PCL, showing its potential to meet the requirements and expectations as a new splinting material. While this study was conducted with healthy adults, further investigation on BDC's clinical applicability and therapists feedback involved in splint fabrication, are necessary for future improvements

on BDC material.

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**關鍵詞：Biodegradable Clay, Polycaprolactone, Splinting application, Rehabilitation, Environmental friendly, Recyclability**

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口頭報告場次 D/Oral Session D

**【場次 D1】**

**精神病人日常生活功能評量表第四版之研究**

**A Study of the Activities of Daily Living Rating Scale-IV for Psychiatric Patients**

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**目的：**本研究建構「日常生活功能評量表」第四版(以下簡稱「ADLRS-IV」)，旨在更新第三版評量內容，以符合現代生活功能需求。為確認評量表具有信度與效度進行本研究。

**方法：**研究對象取自某精神科專科醫院及精神復健機構共計 182 名，一般正常人 60 名。效度分析：(1)專家內容效度：在實施收案之前，於 2022 年 7 月至 9 月先邀請精神科資深專家 16 人進行「ADLRS-IV」評量內容效度，包括五類專業人員，臨床年資 15 年以上，專家分別評量內容及建議。再重新修改內容至少達 90% 以上專家認同為止。(2)內容效度分析：內容須符合一般正常人的日常生活功能，其平均得分至少達 80% 通過難度考驗，才能達內容效度。(3)區別效度分析：

「ADLRS-IV」可以分辨精神病人的日常生活功能有減退狀況，以具有區別效度。(4)關聯效度分析：採用「ADLRS-III」做關聯效度。2. 信度分析：採用 Cronbach's Alpha 來測量工具穩定度，並分析再測信度達統計顯著意義。3. 分析人口學基本資料：各組基本資料之差異性。最後以常態分布推估量表的評量等級，作為評定日常生活功能狀況。

**結果：**量表再測信度( $\gamma = .924$  至  $.965$ ,  $p < .001$ )。量表內容經由 16 位資深專家評定符合內容效度，題目難度分析：正常人通過 70 分以上的難度考驗達 95%，顯示量表內容符合一般基本生活功能。精神病人通過 70 分以上的難度考驗僅有 43.4%，未通過 56.6%，顯示病人的生活功能有不同程度障礙。評量得分正常人比病人為好，顯示量表具有區別效度，可區辨病人生活功能呈現不同程度障礙。「ADLRS-IV」與第三版的相關係數達關聯效度 ( $\gamma = .818$ ,  $p < .001$ )。日常生活功能表現受到教育、年齡、住院與社會隔離等因素之影響。本量表為了臨床使用鑑別力，將得分結果分為七個評量等級，正常範圍以 70 分及以上分為優、良及可 3 個等級，障礙範圍以 70 分以下分為輕、中、重及極度障礙 4 個等級，以評定受測者之障礙程度，用於擬定精神病人之治療計畫之依據。

**結論：**「ADLRS」已廣泛被精神醫療領域所使用，從實務的職場觀察，職業輔導評量單位也將「ADLRS」納入評量工具之一，適用其他障礙類別。「ADLRS-IV」的內容設計是符合一般正常人的生活功能範圍，故此量表也適用於各類身心障礙者，以評量其生活功能是否有障礙程度。未來研究可擴展其他障礙類別，探討其日常生活功能與其就業成功之關聯性等。

**關鍵詞：**日常生活功能，評量表，精神病人

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### 【場次 D2】

某精神專科醫院慢性住院病人下肢肌力肌耐力與動靜態平衡改變情形之 5 年世代研究

#### A cohort study on morbidity rate of lower-extremity muscular endurance and balance in chronic psychiatric patients of a psychiatric hospital

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**目的：**了解慢性住院病人 2017 年起 1 年及 5 年內之下肢肌力肌耐力與動靜態平衡之維持差率(差/很差)、維持好率(中等/好/很好)、改善率、變差率之差異情形，以研擬病房職能活動調整建議和院內防跌策略。

**方法：**本研究採回溯前瞻描述世代研究設計；回溯期間為 2017 年和 2018 年，前瞻期間為 2022 年，樣本醫院慢性精神病人，包含慢性病房、日間病房、護理之家及養護之家，研究對象排除無法理解體適能口語指導者及無法完成體適能檢測者。以 Excel 建檔、整理與進行描述性統計：類別變項採人數及百分率，連續性變項採平均值、標準差、最小值及最大值，先以 McNemar Test 分析下肢肌力與平衡之時段內比較如 2017 年與 2018 年(1 年)及 2017 年與 2022 年(5 年)之等級改善與變差人數差異檢定，再以分析性統計之 Proportional Test 分析下肢肌力與動靜態平衡之時段間比較，如 2017 年與 2018 年及 2017 年與 2022 年，兩個時段間之維持差比率、維持好比率、改善比率及變差比率之差異檢定。

**結果：**2017-2018 年樣本數為 509 至 520 人，由於 5 年期間(2017-2022 年)異動變數多，樣本數減少為 361 至 458 人。1 年和 5 年世代平均年齡範圍為 51.0±9.5 到 52.2±9.8，發病年齡範圍為 23.7±7.7(6~58)到 23.8±7.9(6~58)，罹病年齡範圍為 29.2±9.8(1~52)到 29.3±9.9(1~52)，性別以男性居多，比例占 56.9%至 61.8%，診斷以思覺失調症最高，占 89.8%至 92.0%。下肢肌力肌耐力在 1 年和 5 年之「改善」比率皆顯著高於「變差」比率(p<0.05)，為正向結果；靜態平衡則為 5 年之「改善」比率顯著高於「變差」比率(p<0.05)，也是正向結果；動態平衡則出現負向結果，5 年「變差」的比率顯著高於「改善」的比率(p<0.05)。

**結論：**樣本醫院自 2017 年起至 2022 年，持續推動每日 30 分鐘，每週 5 天之同儕互助自主運動，確實能有效改善精神病人下肢肌力肌耐力及靜態平衡。但對於需姿位轉換之動態平衡，病人會因年齡增加而出現變差之狀況，建議醫療團隊須精準設計能符合病人需求之實證動態平衡運動。

**關鍵詞：**下肢肌力肌耐力，動靜態平衡，慢性住院病人

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### 【場次 D3】

探討聲光療介入憂鬱症患者憂鬱情緒、心率變異與生活品質之成效

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**背景:** 過去研究指出透過聲光療，如雙耳節拍音樂（聲療）和節律光刺激（光療），被認為可能對改善憂鬱症狀與提升生活品質有所幫助，但對其應用在有憂鬱症患者身上的效果仍不明。

**目的:** 本研究目的在探討結合聲療與光療介入有憂鬱症的長照機構住民，對其改善憂鬱情緒、心率變異與生活品質之成效。

**方法:** 本研究採隨機控制實驗研究設計，在台灣某一長照機構招募 48 位有憂鬱症的長照機構住民，分成聲光療組與對照組，並接受週一至週五每天 20 分鐘，連續 12 週的介入。介入期間，聲光療組參與者聆聽 10Hz 的聲療（嵌入放鬆音樂）與配戴提供 10Hz 的光療眼鏡；而對照組參與者則聆聽放鬆音樂，配戴光療眼鏡但並不會有 10Hz 閃光刺激。

**結果:** 在介入後，聲光療組參與者在憂鬱情緒有顯著改善，且副交感神經活性顯著上升。聲光療組參與者比起對照組參與者，在自律神經系統平衡有顯著進步。此外，在介入結束後一個月後的追蹤，聲光療組參與者比起對照組參與者，有較佳的副交感神經活性、自律神經系統平衡與生活品質。

**結論:** 在為期 12 週的介入，結果顯示結合聲療與光療作為一種非侵入性的介入方式，有機會改善有憂鬱症的長照機構住民的憂鬱情緒與生活品質。

**關鍵詞:** 雙耳節拍音樂、節律光刺激、憂鬱

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#### 【場次 D4】

探討居家復能中專業人員與照顧者有效合作策略：質性研究

**The HOWs and WHATs of effective collaborative strategies between professionals and caregivers in home-based reablement: A qualitative study**

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**背景及目的:** 台灣近四成長期照護個案由家庭照顧者照護，專業人員與照顧者的合作對於居家復能至關重要。本研究探討專業人員與照顧者具體的合作策略。

**方法:** 質性研究。邀請「長照個案同住並協助進行復能訓練的照顧者」，以及「與照顧者一起協助個案執行復能訓練的專業人員」進行半結構式問卷訪談。全程錄音並轉成逐字稿，使用 ATLAS.ti 9.0 軟體進行紮根理論譯碼程序之分析。

**結果:** 五縣市照顧者和專業人員各五位參與訪談，結果呈現五個合作策略：(1)現場講解實作讓照顧者易於學習。(2)透過小小成功讓照顧者有信心。(3)照顧者透過圖文影片或檢核表記住訓練內容。(4)專業人員透過現場或通訊軟體追蹤學習狀況。(5)專業人員引導照顧者使用相關資源以改善照護困難。另照顧者多自認為是監督者而非專業人員認為的助教角色。

**討論與結論:** 建議將外籍看護工和居家服務員視為合作對象，可減輕照顧者負擔並提高訓練效果。推薦專業人員善用如錄製影片或通訊軟體等行動健康（mobile health）設備作為溝通管道，以更有效率的方式調整和追蹤個案訓練。另外，過多的資源連結可能會使照顧者難以有效使用，建議專業人員需考量提供建議的時機，以改善實務中與照顧者的合作困境。研究結果將有助於新手專業人員快速掌握指導的技巧。

**關鍵詞:** 復能經驗，合作策略，講解實作，錄影，通訊軟體

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### 【場次 D5】

工具使用對健康成人上肢本體覺表現的影響

**The impact of using tools on the upper limb proprioception performance in healthy adults**

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**前言：**本體覺提供人運動時肢體位置的感覺資訊，使個體能透過回饋精確控制動作。研究顯示本體覺與書寫表現相關。研究亦發現用手指和使用工具（握筆）兩種情境下，進行書寫或繪畫活動的表現可能存在差異，過去常以手指進行的上肢本體覺測驗結果，可能無法概化至使用工具時的表現。因此，本研究目的旨在探討使用工具與否對本體覺表現的影響。

**方法：**本研究共招募 13 位大學生，運用平板化上肢本體覺測驗探討兩種情境（用手指、握觸控筆）和兩個方向（右至右上、右至左上）下的本體覺表現。受試者的反應時間、動作時間分別表示動作準備效率和速度；絕對誤差和相對誤差代表準確度；變異誤差代表穩定度，統計以二因子重複量測變異數分析進行檢定。

**結果：**握筆時動作速度顯著低於手指情境。兩情境中受試者皆會低估目標距離，而握筆會比用手指顯著更低估目標距離。未跨中線方向之準確度和穩定度顯著優於跨中線方向。

**討論：**握筆可能增加認知負荷，使得受試者傾向降低移動速度，也可能因此影響本體覺準確度，使受試者更易低估目標距離。跨中線動作具挑戰性且移動距離較長導致準確度和穩定度皆影響。本研究發現使用工具會對本體覺表現有影響。

**關鍵詞：**本體感覺、工具使用、成人

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口頭報告場次 E/ Oral Session E

### 【場次 E1】

弦樂團國小學生之工作記憶表現探討

**Exploring Working Memory Performance in Elementary School Students Participating in String Orchestra**

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**背景：**音樂在人類生活扮演重要角色。研究顯示，參與音樂活動越多，工作記憶表現可能越佳，特別是對於演奏音樂有經驗者。過去研究主要是探討音樂對語音工作記憶的影響，較少探討音樂對視覺工作記憶的影響。因此，本研究旨在比較接受弦樂演奏訓練的國小學生與未接受訓練國小學生在視覺與語音工作記憶表現上的差異。

**方法：**研究採用橫斷性設計，對象為國小四到六年級學生，分為弦樂團組及一般班級組，每組各 20 人，共 40 位受試者。評估包括語音和視覺空間兩種工作記憶，記錄正確率、反應時間及作答時間。研究使用二因子混合設計變異數分析探討兩組在工作記憶表現上的差異。

**結果及結論：**結果顯示，兩組在測驗的正確率並無差異，然而接受弦樂訓練的學生，在語音工作記憶測驗其作答時間顯著優於控制組，表示弦樂組在處理語音工作記憶時更有效率。本研究證實



了弦樂演奏訓練對工作記憶表現的正面影響，特別是在語音工作記憶方面。未來研究可進一步探討不同音樂訓練形式對工作記憶的具體影響，以增加音樂訓練對認知能力影響的理解，並提供實證基礎支持教育和音樂訓練的應用。

**關鍵詞：**音樂、工作記憶力、兒童

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## 【場次 E2】

### **Cognitive and Motor Profiles of Young Children with Autism Spectrum Disorder and Other Developmental Disabilities**

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**Background:** The debate on whether different cognitive and motor profiles of children with autism spectrum disorder (ASD) indicate distinct subgroups with significant implications continues in autism research. This study aimed to determine the cognitive and motor profiles of children with ASD compared to children with other developmental disabilities. Additionally, we assessed if the cognitive abilities were linked to the motor performance of children with ASD.

**Method:** The Wechsler Preschool and Primary Scale of Intelligence-Fourth Edition (WPPSI-IV) and Movement Assessment Battery for Children-Second Edition (MABC-2) were used to examine cognitive and motor profiles and their relationship in 1150 young children with ASD and other developmental disabilities.

**Results:** Children with ASD, attention deficit hyperactivity disorder (ADHD), ASD+ADHD, and unspecified developmental delay (DD) performed significantly better than those with intellectual disability (ID), ID co-occurring ADHD, and ASD co-occurring ID on the WPPSI-IV test for cognitive abilities. Children with ASD co-occurring ID had significantly lower scores on all MABC-2 subtests compared to other groups, with 89.6% experiencing motor difficulties. There were significant links between cognitive abilities and motor skills in young children with ASD, ASD co-occurring ID, and ASD co-occurring ADHD. Working memory was an indicator of motor performance for children with ASD and ASD co-occurring ADHD, while verbal comprehension and visual spatial abilities together could explain approximately 29.2% of the variations in motor performance for children with ASD co-occurring ID.

**Conclusions:** These findings demonstrate different cognitive and motor profiles of young children with ASD and other developmental disabilities. The association of specific cognitive abilities with increased motor performance suggests that these abilities may index etiologically significant types of ASD and comorbidity.

**關鍵詞：**Autism Spectrum Disorder; Intellectual Disability; Attention Deficit/Hyperactivity Disorder; Developmental Disabilities; young children; preschool children; developmental profile; cognitive profiles; motor profiles

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## 【場次 E3】

### 遠距早療經驗及線上家長教練模式可行性研究

#### Research of remote early childhood intervention experience and feasibility of online parent coaching model

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**研究背景和目的:**教練模式是以家庭為中心的實證導向模式，促進家長問題解決能力，並且提供發展遲緩兒童療育服務的參考。本研究為調查遠距早療家長之經驗並探討家長對於實施線上教練模式的可行性。

**研究方法:**研究者透過自編問卷，發放電子問卷給 2 至 6 歲的發展遲緩兒童家長。問卷評量面向分別包括家長對遠距早療滿意度和家長感知線上家長教練模式可行性，以李特克氏五點量表評分，達到 4 分以上代表家長認為「滿意」和「可行」的分數，此外也有開放性問題請家長填答。本研究分析上述問卷的量性和質性資料。

**研究結果:**結果顯示家長對遠距早療滿意度總平均分數為 3.82 分，分數最高為：「線上課程能夠有隱私空間或是環境背景不易受干擾」、「專業人員透過視訊進行示範容易明白」、「專業人員線上進行談話順暢」。此外，線上家長教練模式之可行性總平均為 4.05 分。其中家長認為可行性最高為：「家長和專業人員線上討論(提供策略、視訊、影片示範)」，「家長可運用在生活中幫助兒童學習」；和「專業人員提供家長課後線上教材(居家練習活動、額外資源或網站)輔助學習」。

**結論:**整體而言，家長對遠距早療具有中等滿意度，約 6 到 8 成家長認為線上家長教練模式是可行的。

**關鍵詞：**家長教練模式、遠距、可行性

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## 【場次 E4】

### 早期社交溝通量表之評分者間信度與效度驗證

#### Inter-scorer Reliability and Validity of the Early Social Communication Scales

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**前言：**早期社交溝通量表(early social communication scales, ESCS)以結構化方式評估非語言溝通技巧，適用 8-30 個月的正常發展兒童，或語言年齡符合此區間的發展遲緩兒童，由專業人員施測、錄影評估過程和觀看影片進行編碼評分。ESCS 所需時間與費用成本較低，可於臨床進行簡易評估，然此量表的信效度證據仍不完整。

**目的：**驗證早期社交溝通量表的評分者間信度、同時效度與區辨效度。

**方法：**評分者間信度由兩位相同資歷的兒童職能治療師進行編碼評分，比較兩者評分之相關性。效度部分是以兩位評分者之平均值，與零至三歲華語嬰幼兒溝通級語言篩檢、文蘭適應性行為量

表第三版（中文版）、台灣版自閉症行為檢核表及自閉症類群障礙檢核表（華文版）之得分進行相關性分析。

**結果：**初步結果為 12 位自閉症兒童之資料分析。各項目之評分者間信度在 0.395-0.982，各項目間具有區辨效度，與零至三歲華語嬰幼兒溝通級語言篩檢、文蘭適應性行為量表第三版（中文版）、台灣版自閉症行為檢核表及自閉症類群障礙檢核表（華文版）之相關性皆不顯著。

**結論：**初步結果顯示早期社交溝通量表具有良好的評分者間信度與區辨效度，而同時效度尚不明朗，應蒐集更多樣本進行分析。未來可以蒐集更多樣本資料建構常模與切截分數，做為臨床篩檢或簡易評估使用。

**關鍵詞：**自閉症、兒童、社交溝通、量表、信度、效度

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口頭報告場次 F/Oral Session F

### 【場次 F1】

認知儲備與不同類型認知活動對健康長者認知成效的影響

## Effects of Cognitive Reserve and Different types of Cognitive Interventions on Cognitive Outcomes in Healthy Elderly Populations

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**Background:** As Taiwan enters a super-aged society, cognitive reserve in healthy elderly has become an important research topic. Higher cognitive reserve enables individuals to resist cognitive decline due to pathologies, delaying disability. Understanding the effects of different types of cognitive interventions on cognitive outcomes in elderly with varying levels of cognitive reserve can assist clinicians in considering different types of cognitive interventions for individuals with different cognitive reserves.

**Objective:** This study aims to compare the cognitive flexibility and transfer outcomes between healthy elderly with different levels of cognitive reserve using MoCA scores when participating in cognitive engagement (Active Inference-based Tinkering) and cognitive activities (Control-Tinkering).

**Methods:** Participants were divided into an Active Inference-based Tinkering group (n=19, belonging to the Cognitive Engagement group) and a Control-Tinkering group (n=18, belonging to the Cognitive Activities group), further categorized into high and low cognitive reserve groups based on MoCA scores within each intervention (Kang et al., 2018). Effectiveness was evaluated using ERP and behavioral assessment tools. ERP assessments included Task-Set Activation (P2), Working Memory Allocation (P3b), and Frontal reliance on working memory allocation (P3b Fz: Pz Asymmetry). Transfer outcomes included Divergent Thinking, Convergent Thinking, Executive Function, and Attention. Data were analyzed using the Kruskal-Wallis test and the Wilcoxon signed ranked test.

**Findings:** Participants with low cognitive reserve in the cognitive engagement group showed significant improvements in divergent thinking, executive functions, and task-set activation. High cognitive reserve participants in the Cognitive Engagement group exhibited significant improvements in convergent thinking, divergent thinking, and working memory allocation, as well as reducing reliance on frontal lobe resources for working memory allocation. Low cognitive reserve participants in the Cognitive Activities

group demonstrated significant improvements in executive function, while high cognitive reserve participants in the Cognitive Activities group showed significant improvements in divergent thinking and sustained attention. Between-group comparisons revealed that high cognitive reserve participants in the Cognitive Engagement group showed significantly greater improvements in RAT (Convergent Thinking) scores compared to low cognitive reserve participants in the Cognitive Engagement group. Low cognitive reserve participants in the Cognitive Engagement group showed significant improvements in task-set activation compared to high cognitive reserve participants in the Cognitive Activities group.

**Conclusion:** This study found that both low and high-cognitive reserve individuals exhibited broader transfer effects after participating in the Cognitive Engagement group compared to the Cognitive Activities group. Additionally, among healthy elderly participating in Cognitive Engagement activities, those with high cognitive reserve demonstrated significant transfer effects in convergent thinking. However, the study's limitations, including a relatively small sample size and higher education level, make it challenging to generalize the findings to populations with early cognitive impairment. Future research should expand the sample size and include participants with diverse cognitive reserves and educational backgrounds to develop more effective intervention strategies.

**關鍵詞：** Cognitive Reserve, Cognitive Engagement, Cognitive Activities, Healthy Older Adults, Cognitive Flexibility, Transfer Effects

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## 【場次 F2】

### 在失智症光譜疾患中腦電圖振盪與工具性日常生活功能缺失之相關性研究

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**背景：**失智症光譜疾患的生物標誌研究指出，在認知測驗出現退化的前 10 到 20 年，就可觀察到生物標誌變化。因此找到早期認知衰退的生物標誌，是失智症研究的新興領域。其中，腦電圖 (EEG) 被認為可區分不同階段失智症進程；同時證據指出工具性日常生活功能 (IADL) 可預測輕度認知障礙 (MCI) 是否會進一步惡化成失智症。因此本研究欲了解，在不同失智症進程中，EEG 與 IADL 的關聯性，並期了解 IADL 表現是否可反映 EEG 的振盪型態。

**方法：**我們招募了 76 名參與者，包括正常認知 (n=25)、主觀認知障礙 (SCD, n=21)、輕度認知障礙 (MCI, n=17) 和失智症 (n=13)。所有參與者均接受了 MoCA 和閉眼 EEG 記錄。此外，參與者的照顧者填寫阿姆斯特丹工具性日常生活量表 (A-IADL-Q-SV-TC)。

**結果：**相較於正常認知與 SCD 個案，MCI 和失智個案在低頻段 ( $\delta$  和  $\theta$  波) 中有較大的相對功率，在高頻段 ( $\alpha$  和  $\beta$  波) 則表現出較小的相對功率。此外，我們發現全腦與各腦區之  $\theta$  波相對功率，與 A-IADL-Q-SV-TC 分數、及 MoCA 呈負相關 (分別為  $r = -0.55 \sim -0.622$ ，及  $r = -0.622 \sim -0.69$ )，與全腦  $\beta$  波相對功率呈正相關 ( $r = 0.35 \sim 0.46$ ，及  $r = 0.32 \sim 0.49$ )。

**結論：**EEG 振盪在失智症不同階段表現出不同的模式。此外，EEG 振盪的頻譜強度同時與 IADL 表現、以及 MoCA 有中高程度的相關，這表示 IADL 可反映失智症光譜疾患之 EEG 振盪變化指標。

**關鍵詞：**工具性日常生活功能、失智症、EEG、輕度認知障礙、主觀認知衰退

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### 【場次 F3】

探討阿茲海默症、輕度認知障礙與健康長者執行中文抄寫之運動學表現

#### **Kinematic analysis of Chinese handwriting tasks among patients with mild cognitive impairment, Alzheimer's disease, and healthy controls**

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**背景：**輕度認知障礙 (Mild Cognitive Impairment, MCI) 是指「正常老化」和阿茲海默症 (Alzheimer's Disease, AD) 之間的過渡狀態。阿茲海默症是一種認知退化的疾病，而 AD 和 MCI 患者中，除了認知退化外，同時也會有動作退化的狀況。書寫是一項需要結合認知與動作綜合能力的複雜活動，而書寫困難與疾病的嚴重程度以及伴隨的認知障礙密切相關。因此，本研究旨在探討 MCI 及 AD 患者和健康控制組 (Healthy Control, HC) 執行抄寫單一字及句子的運動學表現。

**方法：**本研究招募了 23 名 AD、24 名 MCI 和 25 名 HC，使用平板電腦和手寫筆執行兩種抄寫任務，分別為抄寫單一「的」字以及抄寫兩次連續五個「的」字（句子）。並以書寫軌跡分析以下運動學表現，包括：(1) 長度軌跡比 (Length Ratio) (2) 時間比 Time Ratio，此兩參數可以推估書寫時的動作計畫能力，(3) 停筆時間 Still Time，表示動作的流暢程度，(4) 速度 Velocity，表示書寫效率，以及(5) 峰值速度的數量 NPV (Number of Peak Velocity)，代表書寫軌跡的平順度。統計部分，使用重複量數二因子變異數分析，比較不同組別與不同情境下的表現。

**結果：**在兩個抄寫任務中，停筆時間有顯著組別主效應 ( $p < 0.001$ )，MCI 與 AD 的停筆時間均顯著比 HC 長。峰值速度的數量有顯著交互作用 ( $p = 0.006$ )，在抄寫句子任務時，MCI 與 AD 的峰值速度數量顯著較 HC 較多，且在 MCI 組及 AD 組內，抄寫句子任務的峰值速度數量顯著較抄寫單字任務多。

**討論：**AD、MCI 相較 HC 在抄寫任務上動作流暢度較不佳，AD 以及 MCI 抄寫過程中會有較長的停頓時間。而在抄寫句子任務中，AD 及 MCI 相較 HC 產生較不平順的書寫軌跡，推估動作控制品質較不佳。相較抄寫單一字，連續地抄寫文字在 MCI 以及 AD 組峰值速度的數量明顯增加，顯示抄寫句子相較抄寫單一字對於 MCI 以及 AD 動作平順度更下降，推估可能抄寫句子對於 MCI 以及 AD 患者而言更具挑戰性。未來或許可以利用書寫任務，作為認知退化的篩檢工具。

**關鍵詞：**失智症、輕度認知障礙、書寫

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### 【場次 F4】

發展失智友善居家環境策略檢核表：前導研究

#### **Developing a strategy checklist for a dementia-friendly home: A pilot study**

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**研究背景：**台灣超過9成以上的失智症者在家中生活。隨著失智症病況的進展，居家環境調整能支持失智者的功能並減輕照顧者負擔。目前居家無障礙環境改造多聚焦於「提升安全性」及「預防跌倒」，且環境評估人員缺乏用於評估失智症家庭的簡易評估架構。

**研究目標：**本研究目標為發展「失智友善居家環境策略檢核表」。

**研究方法：**研究設計有三階段：第一階段進行文獻搜尋與評讀，形成初步的檢核表(題庫版)；第二階段進行專家效度檢驗，根據專家建議調整檢核表題項；第三階段由環境評估人員至輕度認知損傷(Mild Cognitive Impairment)與輕中度失智症家中實際使用檢核表，並收集環境評估人員及家屬的經驗。依照三階段的結果完成檢核表最終版。

**研究結果：**檢核表(最終版)包含5大面向、20題檢核要點，包含空間格局及動線、生理支持、認知支持、適度的感官刺激、空間與科技應用之彈性。專家效度之結果顯示，整體檢核表之S-CVI為0.99。五個面向的I-CVI向度在0.83-1之間。關於質性資料，評估人員表示檢核表能在失智症居家環境評估過程中提供有效的協助但希望能更精簡；家屬表示期望能獲得更多關於失智症照護的簡單環境措施。

**討論：**先前的環境評估僅專注於生理支持，而此檢核表提供更全面的考量，包含日常任務、感官、安全、照顧者負擔、定向協助，以擴展環境評估人員為失智家庭提供的建議。但使用檢核表需要評估人員投入更多時間學習使用，未來可增加範例圖說以提升使用的方便性。

**關鍵詞：**照顧者負擔、檢核表、失智症、居家環境改造、定向尋路、活動參與、安全、安適感

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## 【場次 F5】

以遠距醫療提供乳癌術後運動介入對上肢功能與復工之成效探討

### Investigating the Effectiveness of Telehealth-Delivered Postoperative Exercise Interventions on Upper Limb Function and Return to Work in Clients with Breast Cancer

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**背景：**乳癌個案術後常有上肢關節活動度受限與體能下降等問題。然而新型肺炎的流行、長期復健的時間與金錢花費皆可能降低乳癌個案術後復健運動的意願，不利於其上肢功能與復工。

**目的：**本研究欲探討以遠距醫療提供乳癌個案運動介入，對於提升乳癌個案上肢功能與復工之成效。

**方法：**研究者邀請已完成乳癌手術的個案參與，並將之隨機分至實驗組與對照組二組。實驗組接受遠距術後運動介入（每日二次看影片運動、每日至少步行5000步），對照組則獲得術後復健運動的衛教手冊與運動記錄日誌。二組每週皆須定期回報運動狀況，並持續追蹤三個月。

**結果：**共95位乳癌個案參與研究，其中實驗組45人。流失率為50%。介入後，對照組回歸職場的比例高於實驗組（75% vs. 46%），若考量有意願返回職場的人數，則兩組無顯著差異。雖實驗組各項指標的分數略高於對照組，二組的上肢功能、工作特質（工作控制、工作負荷、主管社會支持等）、癌症相關生活品質無顯著差異。

**結論：**遠距醫療運動介入在提升乳癌術後個案上肢功能與回歸職場具有潛力。然而，本研究的量性成效指標並未顯示實驗組相較於對照組有顯著優勢。未來的研究應考慮個案能力的差異，設計更個別化的活動以提高介入成效和個案參與度。

**關鍵詞：**遠距醫療、乳癌術後、運動介入、上肢功能、復工

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## 口頭報告場次 G/ Oral Session G

### 【場次 G1】

職能導向的遠距大學課程可提升職能平衡

#### Occupation-based online college course improves occupational balance

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**Background and Objectives:** College students are inclined to give up health-promoting routines and occupational balance during stressful times, e.g. exam periods. This study examined the effectiveness of lifestyle interventions focusing on maintaining occupational balance during the semester.

**Methods:** Non-randomized, two-group controlled quasi-experimental design was used. The experimental group were recruited from college students who registered for an 8-week online, synchronous course, with 1 booster reflection at the ninth week in Spring, 2024. The course focuses on increasing students' awareness of health and occupational patterns, and skills for modification of occupations, habits, and routines. Control group was recruited from another online course and from social media. Pre-test was administered at the first week of the course, post-test at mid semester, and two-month follow-up at the beginning of summer break. Data was collected via online questionnaires. The primary outcomes were occupational balance. Secondary outcomes were competence in managing health-promoting occupations, motivation in health-promoting routines, perceived-health status, and psychological well-being. Data were analyzed using two-way repeated measures ANOVA (rANOVA), and the Time\*Group interactions were tested with linear and quadratic models respectively.

**Results:** Forty-four and 92 participants were recruited for the pretest in the experimental and control groups, respectively. Twenty students (45.5%) in the experimental group and 41 students (44.6%) in the control group completed all three tests. At follow-up, compared to the pretest, both groups had a higher proportion of females within the group (65%). Academic colleges differed between the 2 groups ( $p = .031$ ), and thus academic colleges were controlled as covariate during the test of rANOVA. From pre-test, post-test, to the follow-up, the experimental group showed significant improvement in occupational balance with medium to large effect size ( $p = .004 \sim .030$ ,  $\eta^2 = .086 \sim .146$ ) compared to the control group. Competence in managing a health-promoting occupations ( $p < .001 \sim p = .049$ ), motivation for a routine that "helps stress management", "improves sleep", and "includes a regular routine" ( $p = .023 \sim .048$ ), as well as perceived-health status ( $p = .035$ ), and the well-being of a daily life filled with interesting things ( $p = .016$ ) also significantly improved.

**Discussion:** The experimental group improved in overall occupational balance, and especially the balance among "different types of occupations", "different characteristics of occupations", and "occupations that bring or consume energy". The effect is inferred to come from the facilitation of the occupation-based lifestyle tele-course, in which college students selected and implemented the meaningful and health-promoting occupations in their daily routines and made adjustments continuously. It is hypothesized that through the guidance of the course, students improved their competence in managing health-promoting occupations, which enabled them to translate their motivation into action, and in turn enhanced

occupational balance and the perceived-health status. The application and generalization of this study's results should consider the limitation of a higher proportion of female participants.

**Conclusion:** Compared to the control group, college students improved their occupational balance, perceived health, as well as competence and motivation for managing health-promoting routines during the stressful mid semester.

**關鍵詞：** College students, occupational balance, health promotion, lifestyle, effectiveness

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## 【場次 G2】

職能治療臨床教師與實習學生對臨床實習表現的期待比較

### The Expectations of Clinical Performance in Internships: A Comparison Between Occupational Therapy Clinical Educators and Intern Students

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**背景：**實習生常因專業知識與技能不足，以及心態未從學生調整為臨床工作者，與臨床教師的期待存在落差。

**研究目的：**本研究旨在建立臨床職能治療教師對於「良好臨床實習表現」的共識，並比較臨床職能治療教師與實習生對於「良好臨床實習表現」的看法差異。

**研究方法：**研究者邀請 150 名即將開始大四臨床實習的職能治療系學生和實習後的學生，以及 40 位各領域職能治療臨床教師參與研究。研究以德菲法 (Delphi method) 進行三回合問卷調查，建立臨床職能治療教師對於「良好臨床實習表現」的共識。隨後，研究者請職能治療系大四學生於實習前後填寫「良好臨床實習表現調查表」。研究者以 percent agreement 和 weighted kappa 分析教師與學生實習前後的一致性。

**結果：**第一、二回合問卷皆有 35 人 (70%) 回覆。第三回合問卷結果顯示 100 個項目達到重要程度的共識。學生方面，實習前有 124 名大三學生及 52 名大四學生填寫問卷。教師與學生在知識和理解、專業形象、交流與互動、個人特質及工作能力等方面存在差異。大四學生的看法更接近臨床教師，尤其在知識和理解方面。

**結論：**臨床職能治療教師對「良好實習表現」達成高度共識。教師與大三學生看法差異較大。建議治療師向實習生進行行前說明，以提升實習生之表現。

**關鍵詞：** 臨床實習、德菲法、職能治療、實習生、臨床教師

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## 【場次 G3】

深呼吸、好好眠：比較正念冥想與心跳變異生理回饋對降低醫學院學生焦慮之影響

### Deep Breathing and Better Sleep: Comparing the Effects of Mindfulness Meditation and Heart Rate Variability Biofeedback on Reducing Anxiety in Medical Students

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**目的：**醫學院學生在求學期間常面臨壓力，導致焦慮和睡眠品質低落。過去研究顯示，通過呼吸調節壓力如正念冥想和心跳變異生理回饋 (HRV-BF) 能有效減少焦慮。本研究比較這兩種方法



在醫學院學生期末考壓力下的效果。

**方法：**招募 20 名有顯著失眠困擾的大學生，隨機分配至正念組和 HRV-BF 組。所有受試者在學期初及期末考前一週進行前、後測評估，使用匹茲堡睡眠品質量表（PSQI）、失眠嚴重度量表（ISI）、Epworth 嗜睡量表、貝克憂鬱量表（BDI）及狀態與特質焦慮量表（STAI）進行評估。同時，使用睡眠日誌和智慧手錶記錄主觀與客觀睡眠參數。兩組學生在期中考後到實驗室接受每週一次共四次的正念冥想引導或 HRV-BF 介入，並給予平日練習指引。使用 ANOVA 比較各測量變項之組別與前後測之差異。

**結果：**在睡眠相關測量中，介入後的主觀 PSQI 與 ISI 分數顯著下降，但沒有組別差異；客觀的入睡後覺醒有組別與介入之交互作用；其他指標則沒有主要效果與交互作用。另外，STAI 與 BDI 分數顯示，組別與前後測呈現顯著交互作用，這些交互作用來自於 HRV-BF 組在介入後，STAI 和 BDI 分數顯著下降，而在正念組沒有此現象。

**討論：**初步結果顯示，正念冥想和 HRV-BF 對主觀睡眠改善都有幫助，但唯有 HRV-BF 對醫學院學生的焦慮與憂鬱症狀具有顯著調節效果。

**關鍵詞：**失眠、焦慮、正念、心跳變異生理回饋

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