【第一題，本題佔 50%】

1. 學術論文閱讀與解析- 請針對以下一篇刊載於物理治療期刊的文章，回答下列問題:

(1) 請將本摘要翻譯為中文，限 250 個字以內。(20%)

(2) 請寫出本實驗所依據的兒童發展理論為何?並請敘明理由。(10%)

(3) 請問本實驗所實施的療效評估為何? (10%)

(4) 請問本實驗所提及可能的長期療效，可以用那些客觀量化的工具來評估?(10%)

Barbara Sargent, Kathryn L. Havens, Jessica L. Wisnowski, Tai-Wei Wu, Masayoshi Kubo, Linda Fetters. In-Home Kicking-Activated Mobile Task to Motivate Selective Motor Control of Infants at High Risk of Cerebral Palsy: A Feasibility Study. *Physical Therapy.* 2020;100: 2217–2226.

Abstract

Objective. Children with spastic cerebral palsy (CP) have gait impairments resulting from decreased selective motor control, an inability to move the leg joints independently of one another, relying on excessive flexion or extension coupling across the 3 joints. Infants with white matter injury are at high risk of CP and have decreased selective motor control as early as 1 month corrected age. An in-home kicking-activated mobile task was developed to motivate more selective hip-knee control of infants at high risk of CP. The purposes of this study were to determine the feasibility of the in-home mobile task and to determine whether infants at high risk of CP and infants with typical development (TD) learn the association between their leg movements and mobile activation. *Methods.* Ten infants at high risk of CP based on neuroimaging and 11 infants with TD participated in this cohort study at 3.5 to 4.5 months corrected age. Each infant participated in the in-home kicking-activated mobile task for 8 to 10 min/d, 5 d/wk, for 6 weeks. Learning was assessed weekly based on an increase in the time that the infant demonstrated the reinforced leg actions when interacting with the kicking-activated mobile compared with spontaneous kicking. *Results.* With regard to feasibility, participation averaged 92% for infants at high risk of CP and 99% for infants with TD. With regard to learning, the group at high risk of CP demonstrated learning of the task for 2 of 6 weeks, whereas the group with TD demonstrated learning for all 6 weeks. *Conclusions.* Infants at high risk of CP demonstrated learning of the kicking-activated mobile task but at a reduced amount compared with infants with TD. Further research is necessary to determine whether the kicking-activated mobile task has potential as an intervention to motivate more selective hip-knee control and improve walking outcomes of infants at high risk of CP. *Impact.* This study investigated the feasibility of an in-home kicking-activated mobile task, a discovery learning task designed to motivate infants at high risk of CP to engage in the intensive task practice necessary to promote their learning abilities and selective motor control. *Lay Summary.* CP is a lifelong disorder of movement caused by abnormal development or early damage to the brain. If an in-home infant kicking-activated mobile task could be used to motivate certain types of age-appropriate leg movements of infants who are at high risk of CP, the task could help improve walking outcomes, which eventually could contribute to improving children's ability to participate in daily life. This study showed that infants at high risk of CP did learn the infant kicking-activated mobile task but at a much reduced amount compared with infants who are developing typically; so, this is a first step in determining whether the task has potential to motivate more age-appropriate leg movements in infants at high risk of cerebral palsy.

【第二題，本題佔 50%】

2. 美美是一名 3 歲之腦性麻痺女童，粗大動作功能分類系統(Gross Motor Function Classification System; GMFCS) Level 3，媽媽表示美美目前常以 sitting 的姿勢玩玩具，並且會想要扶著小傢俱或是地板站起，但是過程中常常跌倒，希望能夠在物理治療師的協助下，讓美美的轉位能力及姿勢控制與平衡能獲得改善。另外，在治療時發現美美都會有軀幹伸直性的不正常張力出現，經常性的身體向後頂的狀況，媽媽表示平常在抱美美時也會有類似情況，她不知道該如何抱美美才是正確的姿勢。

(1) 根據美美的狀況，物理治療師如何訓練個案轉位技巧，訓練從美美能夠從趴姿轉位至站姿，並增強在跪姿下的姿勢平衡能力？(15%)

(2) 請問美美的行走功能預後為何？(5%)應用以家庭為中心的治療模式，物理治療師該如何設計治療計畫幫助美美做行走練習？(15%)

(3) 針對美美經常身體向後頂的狀況，物理治療師該如何衛教家長攜抱方式，及該注意什麼樣的細節？(15%)

試題隨卷繳回