【第一題，本題佔 50%】

請閱讀該文獻的內容並回答問題 1-4。

(摘錄自 *PTJ.* 2001 Apr 1;81(4):995.)

Background and Purpose. Visual biofeedback/forceplate systems are often used for treatment of balance disorders. In this study, the researchers investigated whether the addition of visual biofeedback/forceplate training could enhance the effects of other physical therapy interventions on balance and mobility following stroke. **Subjects.** The study included a sample of convenience of 13 outpatients with hemiplegia who ranged in age from 30 to 77 years ($\bar{X}$=60.4, SD=15.4) and were 15 to 538 days poststroke. **Methods.** Subjects were assigned randomly to either an experimental group or a control group when the study began, and their cognitive and visual-perceptual skills were tested by a psychologist. Subjects were also assessed using the Berg Balance Scale and the Timed "Up & Go" Test before and after 4 weeks of physical therapy. Both groups received physical therapy interventions designed to improve balance and mobility 2 to 3 times per week. The experimental group trained on the NeuroCom Balance Master for 15 minutes of each 50-minute treatment session. The control group received other physical therapy for 50 minutes. **Results.** Following intervention, both groups scored higher on the Berg Balance Scale and required less time to perform the Timed "Up & Go" Test. These improvements corresponded to increased independence of balance and mobility in the study population. However, a comparison of mean changes revealed no differences between groups. **Discussion and Conclusion.** Although both groups demonstrated improvement following 4 weeks of physical therapy interventions, no additional effects were found in the group that received visual biofeedback/forceplate training combined with other physical therapy.

1. 請簡要描述此篇研究目的? (15%)
2. 請問此篇研究的方法是如何進行? (10%)
3. 請重點整理這篇研究的重要結果? (15%)
4. 請為此研究定義四個英文關鍵字？(10%)

【第二題，本題佔 50%】

請閱讀該文獻的內容並回答問題 5-8。

(摘錄自 American Journal of Physical Medicine & Rehabilitation, May2020 Volume 99, Issue 5, p.381-389)

Abstract

Objective: Knee osteoarthritis and age are associated with high sarcopenia risk, especially in patients who have received total knee replacement. The aim of this study was to identify the effects of elastic resistance exercise training after total knee replacement on muscle mass and physical outcomes in older women with knee osteoarthritis. **Design:** Sixty older women who received unilateral primary total knee replacement surgery were randomized to an experimental group, which received 12 weeks of postoperative elastic resistance exercise training, or a control group, which received standard care. The outcome measures included physical function performance (ie, Timed Up & Go, gait speed, forward reach, single-leg stance, timed chair rise), appendicular lean mass, and the Western Ontario and McMaster Universities Osteoarthritis Index. The assessment time points were 2 weeks before surgery (T0), 1 month after surgery (T1, before resistance exercise training), and 4 months after surgery (T2, upon completion of resistance exercise training). **Results:** After 12 weeks of postoperative elastic resistance exercise training, the experimental group exhibited a significantly greater change in appendicular lean mass (mean difference = 0.81 kg, P = 0.004) than the control group. Elastic resistance exercise training also exerted significant effects on Timed Up & Go and gait speed with mean differences of 0.28 m/sec (P < 0.001) and -2.66 secs (P < 0.001), respectively. **Conclusions:** A 12-week elastic resistance exercise training program after total knee replacement exerted benefits on muscle mass, mobility, and Western Ontario and McMaster Universities Osteoarthritis Index functional outcomes in older women with knee osteoarthritis.

見背面

Study Design

The present study was a randomized controlled trial with a prospective design of two parallel study arms. This study followed the Consolidated Standards of Reporting Trials guidelines to ensure transparency and standardized reporting. The study protocol was conducted at the rehabilitation center of a university-based hospital. All patients were enrolled from August 2017 to March 2019. All patients who volunteered to participate in this study provided written informed consent at the baseline admission 2 weeks before surgery (T_0) after receiving a written and verbal explanation of the purposes and procedures of this study. At admission 1 month postoperatively (before exercise intervention, T_1), enrolled patients were randomized into one of two groups: an experimental group (EG), which received elastic resistance exercise training (RET); or a control group (CG), which received standard care. After inclusion, all the patients' demographic data and prevalent comorbidities were assessed by a standard medical chart review, and a comorbidity score for each patient was calculated using Cumulative Illness Rating Scale. Two research assistants who were trained with standardized examination and blinded to the group assignment collected all the primary and secondary outcome measure data at the following time points: 2 weeks before surgery (T_0), 2 weeks after inpatient discharge (before exercise intervention, T_1), and at the end of a 12-wk elastic RET intervention (T_2). The muscle mass was measured at T_0 and T_2.

Intervention

Elastic Resistance Exercise

The elastic RET began 1 month after surgery and ended 4 months postoperatively. Both operated and nonoperated legs were trained. Each patient in the EG underwent two 60-min training sessions on nonconsecutive days each week for 12 weeks. One senior physical therapist who was not blinded to group allocation conducted a home-based RET program in accordance with our previously reported exercise protocol, which required Theraband products, whose colors denote the degree of elasticity and indicate the corresponding resistance level (yellow, red, green, blue, black, or gray). Each training session comprised a 10-min warm-up, a 40-min period of elastic resistance exercises, and a 10-min cool down period. The major systemic muscle groups of the upper and lower quarters were targeted, and the following exercises were incorporated into the training design: seated chest press, seated row, seated shoulder press, hip circumduction, leg press, and leg curl. A familiarization period was provided in the first 2 weeks of elastic RET sessions to ensure that each exercise was performed using the correct technique at home as well as at the clinic. During the familiarization period, all patients in the EG were trained and supervised by a licensed senior physical therapist; the RET protocol was then continued in the home-based training sessions. Progressive resistance load training was used, in which the difficulty of the exercise was adjusted every 2 weeks according to the color of Therabands. Participants in the EG performed 3 sets of 10–20 repetitions for each movement. Exercise loads in terms of individual yielding elasticity (as indicated by band color) in resistance training were set at a level that the patients perceived as "somewhat hard (13-grade rating)" to "hard (15-grade rating)" according to the 15-point Borg Scale of Perceived Exertion, which represented a moderate-intensity exercise (65%–80% one repetition maximum). All patients in the EG obtained a logbook that contained detailed instructions on the prescribed exercises; in each RET session, the patients were asked to record the number of repetitions completed in the logbook, and if any pain occurred, the pain severity was recorded using a 100-mm visual analog scale with endpoints of 0 (no pain) and 100 mm (worst pain). The physical therapist contacted the patients every 2 weeks by telephone and modified the number of repetitions as necessary.

Standard Care

The CG received standard care, which included knee osteoarthritis education, pharmacologic therapy, and conservative physical therapy without any RET. The conservative physical therapy was started at 1 month postoperatively with 2 sessions per week and ended at 4 months after surgery. At each 60-min exercise session, active and passive range of motion exercise, stretching exercise, and functional reconditioning exercise were performed for both operated and nonoperated legs. Any pain complaint associated with exercise was recorded using a visual analog scale pain score. All patients in the CG were instructed to maintain their existing level of activity.

接次頁

5. 請讀完摘要，簡述此研究對臨床有何重要性?(10%)

6. 請讀完研究設計(Study Design)，重點說明研究的實驗設計(20%)

7. 請讀完此研究的介入方法，請說明 Elastic Resistance Exercise 與 Standard Care 的介入方法有何不同? (15%)

8. 請為這篇研究想一個英文題目(5%)

試題隨卷繳回