

1. 請分別簡述測量受試者之(1)身體活動和(2)運動能力的方法，以及測量方法所量測的單位。(15分)
2. 欲研究有關“physical activity by elderly patients undergoing inpatient rehabilitation”，試論其可能的研究目的、假說、重要性及其臨床應用？(8分)
3. 請簡述你對實證醫學(evidence-based medicine)的瞭解。(7分)
4. 若你發現一個物理治療的臨床問題，請簡述你處理或解決問題的步驟和方法。(10分)
5. 請簡述健康體適能(health-related physical fitness)的要項及評估方式。(10分)
6. 試述心肺移植(heart-lung transplantation)術後呼吸系統及循環系統之生理學改變，並分析這類患者術後運動能力受限的原因。(20分)

Please read the following breviaries adapted from a research report entitled “Skeletal Muscle Strength and Endurance in Recipients of Lung Transplants” and answer questions 7-9:

Paragraph 1:

The majority of studies examining exercise capacity and/or skeletal muscle characteristics in people with lung transplant either do not include a control group or compare them to a healthy control group. However, to determine whether the changes observed in skeletal muscle are due to the pre-transplant condition or to factors related to post-transplant care, comparisons need to be made to people who have a chronic respiratory condition. Since COPD is known to be associated with skeletal muscle abnormalities and is also a major indication for lung transplantation, it provides an excellent model for comparison to determine whether skeletal muscle changes observed following lung transplant are merely a reflection of the pretransplant

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condition or whether they are worsened post-transplant. The purpose of this paper was to compare the muscle volume, intramuscular fat infiltration, and strength of individual muscle groups of the thigh, and muscle endurance of the quadriceps in people with COPD and restrictive lung disease who were recipients of lung transplants (lung transplant group) to those who had not undergone lung transplant (COPD group). We hypothesized that lung transplant recipients would have greater impairments in skeletal muscle (ie, lower muscle volume, strength, and endurance) than the COPD group.

Paragraph 2:

The main findings of this study demonstrate that recipients of lung transplant have similar muscle volumes of the thigh, a similar degree of intramuscular fat infiltration, and similar strength of the knee extensors (KEs) and flexors (KFs) compared to people with pre-existing chronic respiratory disease, mainly COPD. However, isometric endurance of the quadriceps muscle tended to be lower in recipients of lung transplant compared to people with COPD. Our study is unique since it compared a group of people with lung transplant to people with COPD who were matched for sex, age, and BMI. This allowed us to draw comparisons between pre-existing muscle dysfunction associated with COPD to that which occurs following lung transplant. Our findings indicate that muscle mass, composition, and strength are likely affected to a similar degree in recipients of lung transplant as compared to people with COPD, whereas muscle endurance may show a tendency to be lower in transplant recipients.

Paragraph 3 :

**Limitations:** Our study reports preliminary findings in a small sample of people

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following lung transplant, compared to people with chronic lung diseases, mainly COPD. Although our study lacked adequate power to determine statistical significance, this comparison provides insight as to whether skeletal muscle dysfunction following lung transplant is merely a reflection of abnormalities observed in people with chronic lung disease or whether changes in skeletal muscle persist or are accentuated following lung transplant. Furthermore, this study included subjects with a large range of time since transplant (14 to 84 months), which likely introduced an additional source of variance to the data. To address these issues further, a larger, longitudinal study design, which follows people with chronic lung diseases both before and after transplant over a long term, needs to be conducted. We also included 1 subject who had a pretransplant diagnosis of sarcoidosis, however, this likely did not affect our results, since skeletal muscle changes have been shown to be similar to people with COPD and this subject was also of a similar age to the other subjects in the COPD group.

7. 試述過去針對肺臟移植患者肌肉功能的相關研究與本研究的差異為何。(10分)
8. 試述研究的目的是及主要結果為何。(10分)
9. 試述研究的主要限制為何。(10分)

試題隨卷繳回