

國立臺中教育大學 113 學年度研究所碩士班招生考試

運動科學概論

(含運動生物力學及運動生理學) 試題

適用系所：體育學系碩士班 (運動科學組)

一、解釋名詞 (每題 4%，共 20%)

1. RER (respiratory exchange ratio)
2. VO₂max (maximal oxygen consumption)
3. 糖解作用 (glycolysis)
4. EPOC (excess postexercise oxygen consumption)
5. 延遲性肌肉痠痛

二、細胞可以儲存能量 ATP 及產出新的 ATP，提供細胞代謝活動所需，例如肌肉收縮。請寫出人體能量產生 ATP 之三大代謝途徑 (ATP 產生三大系統) 為何？(15%)

三、寫出 stroke volume, cardiac output, heart rate 三個專有名詞之中文名稱，同時寫出這三個專有名詞的互為關係？(15%)

四、人體部分關節與槓桿運動方式相當類似，請畫出三種槓桿形式與詳述其特性 (10%)？請舉出身體上一個關節為例子，並詳細說明與哪一類型槓桿運作方式相類似？(10%)

(背面尚有試題)

五、閱讀後回答下列各問題：

Effect of rectus femoris kinesio taping on female college students during a stop-jump task post-fatigue

體育學報，54(2)，P121-134

Abstract

Introduction: A growing interest in sports has resulted in an increased number of sports participants and a gradual increase in sports-related injuries. Most sports-related injuries occur after the onset of fatigue. Women are at higher injury risk than men due to differences in physiology, training approach, and muscle strength. This study investigated the effect of Kinesio taping, followed by instant fatigue intervention, on a stop-jump task in women. Method: Eleven healthy female college students with an exercise frequency at least three times per week were recruited as participants in this study. Two Kistler force plates and ten Vicon infrared cameras were synchronized to capture the stop-jump task. Differences in the landing period during the stop-jump task before and after 90-s squat jump muscle fatigue were analyzed. Statistical analysis was performed separately through repeated-measures two-way analysis of variance using SPSS 20.0 ($\alpha = .05$). Result: In healthy college students without taping, posterior and vertical ground reaction force (GRF), 50-ms posterior momentum, plantar flexion torque, and joint contribution at touch-down increased after fatigue. We observed lower peak vertical GRF, delayed time of peak posterior GRF, lowered posterior and vertical peak loading rates, reduced hip extension torque, and total hip net negative work after taping. Furthermore, healthy college students with taping had lower peak posterior GRF and 50-ms posterior momentum after fatigue. Conclusion: These results indicated that Kinesio taping reduced the landing load and the pressure on the knee, regardless of the fatigue state, but had no acute effect on enhancing performance. We recommend preventive Kinesio taping for intense exercises that involve repeated jumping.

1. 請寫出本篇期刊論文研究目的。(5%)
2. 請寫出研究方法中所提到的二個儀器的詳細介紹與使用面向。(15%)
3. 請寫出該論文所使用的統計方法，並詳細說明該統計方法應用時機。(5%)
4. 請詳述該論文的研究結果。(5%)

國立臺中教育大學 113 學年度研究所碩士班招生考試

體育概論試題

(含運動社會學及體育行政管理)

適用系所：體育學系碩士班（運動人文社會組）

- 一、職業運動員打假球的醜聞層出不窮，請論述此一現象不斷出現的原因。(25%)

- 二、請論述運動與媒體之間的關係。(25%)

- 三、請說明十二年國民基本教育健康與體育領域「群體健康與運動參與」中的運動參與有哪些次項目(10%)？並說明如何降低運動參與的風險。(15%)

- 四、請說明國中小學生普及運動計畫中的運動項目有哪些(10%)？並從中挑一個運動項目說明如何基於性別平等教育的精神進行推廣。(15%)