

國立臺中教育大學 108 學年度研究所碩士班招生考試

運動科學概論試題

(含運動生物力學及運動生理學)

適用系所：體育學系碩士班（運動科學組）

一、解釋下列英文專有名詞（每題 5%，共 25%）

1. Lactate threshold
2. Cori cycle
3. VO₂max
4. DOMS (delayed onset muscle soreness)
5. Ergogenic aids

二、閱讀下列英文摘要後回答問題(25%)

Abstract

This study aimed to investigate the effect of 8-wk oral green tea extract (GTE) supplementation on fat oxidation during a subsequent high-intensity exercise challenge. Eight healthy volunteers with regular exercise habit were participated in a single blind cross-over designed study with GTE and placebo trials, separated by a 8-week washout period. Participants were randomly assigned into GTE (500 mg) or placebo trails, and consumed respective capsules every day after breakfast, for 8 weeks. Gaseous exchange samples were collected during a 60-min cycling exercise at 75% VO₂max after an overnight fasting. Blood samples were collected before exercise, every 10-min during exercise and immediately after exercise. The results of this study showed that respiratory exchange rate of GTE trial was significantly lower, whereas the fat oxidation rate was significantly higher compared with placebo trial. However, plasma insulin, blood glucose, non-esterified fatty acid, glycerol levels, carbohydrate oxidation and total energy expenditure were unchanged between the trials. We conclude that 8 weeks oral GTE supplementation enhanced energy resource reliance on fat oxidation following an exercise challenge.

Keywords: 75% VO₂max, respiratory exchange rate, energy expenditure

1. 這篇研究論文的研究目的？(4%)
2. 研究方法中提到的增補劑為何？(2%) 以何種形式補充？(2%) 補充劑量？(2%) 何時補充？(2%) 補充多久？(2%)

3.受試者接受運動挑戰描述，何種運動挑戰？(2%)運動強度？(2%)運動多久？(2%)

4.這篇研究論文的結論？(5%)

三、如果你有一套高速攝影機和測力板同步系統，你可以做甚麼運動生物力學相關的研究？試寫出一個 200 字以內的研究計畫摘要。(25%)

四、騎乘自行車運動在臺灣非常盛行，而車架有愈來愈輕量化之趨勢，試從力學理論角度簡要評析車架變輕之優缺點。(25%)

國立臺中教育大學 108 學年度研究所碩士班招生考試 體育概論（含體育學原理及體育行政管理）試題

適用系所：體育學系碩士班（運動人文社會組）

- 一、為了讓體育經費能夠有效使用，在編列經費預算時應注意哪些原則？(25%)
- 二、請論述分析影響個人運動參與差異的原因。(25%)
- 三、何謂運動產業？並請闡述運動管理的四大基本核心功能。(25%)
- 四、近年來政府積極推動體育團體改革，請闡述國民體育法有關特定體育團體應加強推動業務之規定。(25%)

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