

臺北市立體育學院 95 學年度研究所碩士班招生考試

運動自然科學概論科試題卷

准考證號碼

說明：

1、總分 100 分，共七題，請將答案依題號順序寫於答案紙內。

2、請將准考證號碼填入本試題卷右上角 內，並於繳交答案卷時同時繳交。

題目：

一、請就下列某一研究論文的摘要回答以下幾個問題：

1. 這個研究的研究目的 (5%)

2. 這個研究的主要研究發現 (5%)

3. 這個研究的結論 (5%)

Associations Between Dementia/Mild Cognitive Impairment and Cognitive Performance and Activity Levels in Youth

OBJECTIVES: To study the associations between dementia/mild cognitive impairment (MCI) and cognitive performance and activity levels in youth.

DESIGN: Retrospective cohort study.

SETTING: Research volunteers living throughout the United States.

PARTICIPANTS: A total of 396 persons (mean age 75) who were graduates of the same high school in the mid-1940s.

MEASUREMENTS: Adolescent intelligence quotient (IQ) scores were gathered from archived student records, and activity levels were determined from yearbooks. A two-stage telephone screening procedure (Modified Telephone Interview for Cognitive Status or Informant Questionnaire on Cognitive Decline in the Elderly followed by Dementia Questionnaire) was used to determine adult cognitive status. Data were analyzed using logistic regression to model the risk of cognitive impairment (dementia/MCI) versus no cognitive impairment

as a function of IQ and activity level, adjusting for sex and education.

RESULTS: High adolescent IQ and greater activity level were each independently associated with a lower risk for dementia/MCI (odds ratio (OR) for a 1-standard deviation increase in IQ=0.51, 95% confidence interval (CI)=0.32 - 0.79; OR for a unit increase in activity = 0.32, 95% CI=0.12 - 0.84). No association was found between sex or education and adult cognitive status in this model.

CONCLUSION: High IQ and greater activity levels in youth reduce the risk for cognitive impairments in aging. The mechanism(s) underlying these associations are unknown, but intelligence may be a marker for cognitive/neurological ‘reserve,’ and involvement in activities may contribute to ‘reserve.’ Early neuropathology and ascertainment bias are also possible explanations for the observed associations.

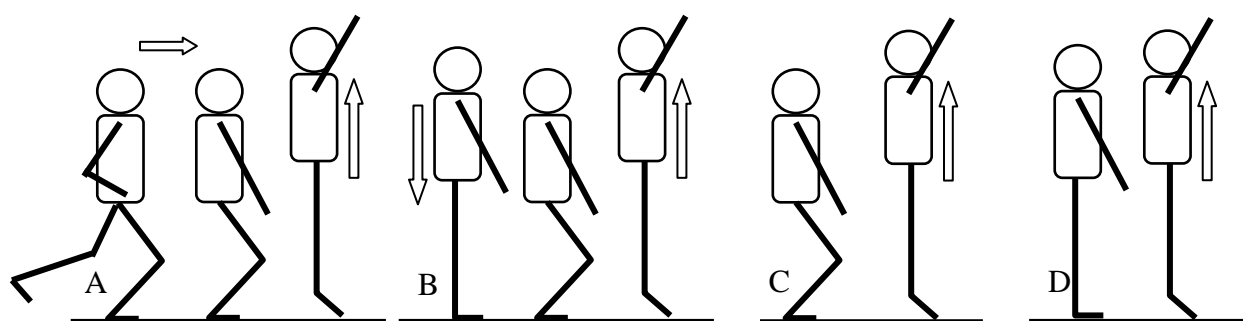
二、請說明 Preperformance routine 在促進運動表現的作用 (10%)

三、請解釋以下名詞：

1. Coefficient of Restitution (5%)
2. Inertia (5%)

四、試比較下列四種垂直跳法，(A)跨步跳，(B)先直膝再屈膝後起跳，(C)直接由屈膝起跳，

(D)直膝直接起跳，何種跳法可跳較高？請詳細解釋說明其原因。(15%)



五、安靜時每分鐘的耗氧量約為 0.3 公升，而最大運動時每分鐘的最大耗氧量約為 3~4 公升，

為安靜時耗氧量的十幾倍。請問促進最大運動時耗氧量增加的機轉如何？(15%)

六、何謂無氧閾值？如何測量？與運動能力關係如何？(10%)

七、請參考下頁起之附件文章 (Willett 等人在 New England Journal of Medicine 期刊所發表的文章，共 8 頁)，並分別解釋圖一 (Figure 1)、圖二 (Figure 2)、圖三 (Figure 3) 所呈現的結果與意義。(25%)