

※ 考生請注意：本試題不可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

一、名詞解釋（20 分，每題 4 分）：寫出中文名稱並解釋其意義或用途

1. insulin
2. lactic acid threshold
3. aerobic capacity
4. citrate synthase
5. carbohydrate

二、問答題（60 分）

1. 就能量代謝系統而言，長跑與短跑選手在比賽時的差異為何？（7 分）以及，這兩類選手在訓練的內容上應有何異同？（8 分）
2. 如何以運動生理學的工具與概念來為選手評量其運動能力（球類、游泳或自由車選手等三項，任選其一項說明論述）？試列舉可用之工具或儀器，以及說明這些工具或儀器可量測之參數，同時簡要說明量測參數所代表的生理意義（15 分）。
3. 如何有效減重？請建議適合的運動處方。(10%)
4. 運動可促進生理和心理哪些效益？其機制可能為何？(10%)
5. 老化社會中，可能會造成哪些疾病罹患人數有增加趨勢？運動在這些疾病所佔的角色為何？(請提供 1-2 種疾病簡述之) (10%)

(背面仍有題目，請繼續作答)

系所組別：體育健康與休閒研究所甲組

考試科目：運動生理學

考試日期：0223，節次：2

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三、請簡單描述以下英文期刊的摘要內容，並從運動角度提出你的看法。(20%)

### **Interventions to reduce the number of falls among older adults with/without cognitive impairment: An exploratory meta-analysis**

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**OBJECTIVE:** This exploratory meta-analysis aimed to examine and compare the effective interventions to prevent falls among institutionalized/non-institutionalized older adults without cognitive impairment with interventions to prevent falls for older adults with cognitive impairment. **DESIGN:** A database search identified 111 trials published between January 1992 and August 2012 that evaluated fall-prevention interventions among institutionalized/non-institutionalized older adults with and without cognitive impairment as measured by valid cognition scales. **RESULTS:** Exercise alone intervention was similar effective on reducing the numbers of falls among older adults without cognitive impairment regardless of setting (non-institutionalized: OR=0.783, 95% confidence interval (CI)=0.656-0.936; p=.007 institutionalized: OR=0.799, 95% CI=0.646-0.988, p=.038). Vitamin D/calcium supplementation had a positive effect on the reduction of numbers of falls among non-institutionalized older adults without cognitive impairment (OR=0.789, 95% CI=0.631-0.985, p=.036), as did home visits and environment modification (OR=0.751, 95% CI=0.565-0.998, p=.048). Exercise alone, exercise-related multiple interventions, and multifactorial interventions were associated with positive outcomes among both institutionalized and non-institutionalized older adults with cognitive impairment, but studies are limited. **CONCLUSIONS:** Single exercise interventions can significantly reduce numbers of falls among older adults with and without cognitive impairment in institutional or non-institutional settings. Vitamin D and calcium supplementation, home visits, and environment modification can reduce the risk of falls among older adults in non-institutional settings. Exercise-related multiple interventions and multifactorial interventions may only be effective for preventing falls in older adults with cognitive impairment. (此文引用自 Int J Geriatr Psychiatry. doi: 10.1002/gps.4056.; 網址: <http://www.ncbi.nlm.nih.gov/pubmed/24318959>)