

國立彰化師範大學 97 學年度碩士班招生考試試題

系所：運動健康研究所碩士班

科目：健康與體育概論

☆☆請在答案紙上作答☆☆

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一. 根據以下文章之摘要，作答下列選擇題，將正確答案寫於答案卷（不須抄題目，但請列明題號），每小題 4%，共 20%

Objective: To compare the energy expenditure of adolescents when playing sedentary and new generation active computer games. **Design:** Cross sectional comparison of four computer games. **Setting:** Research laboratories. **Participants:** Six boys and five girls aged 13-15 years. **Procedure:** Participants were fitted with a monitoring device validated to predict energy expenditure. They played four computer games for 15 minutes each. One of the games was sedentary (XBOX 360) and the other three were active (Wii Sports). **Main outcome measure:** Predicted energy expenditure, compared using repeated measures analysis of variance. **Results:** Mean (standard deviation) predicted energy expenditure when playing Wii Sports bowling (190.6 (22.2) kJ/kg/min), tennis (202.5 (31.5) kJ/kg/min), and boxing (198.1 (33.9) kJ/kg/min) was significantly greater than when playing sedentary games (125.5 (13.7) kJ/kg/min) ($P < 0.001$). Predicted energy expenditure was at least 65.1 (95% confidence interval 47.3 to 82.9) kJ/kg/min greater when playing active rather than sedentary games. **Conclusions:** Playing new generation active computer games uses

significantly more energy than playing sedentary computer games but not as much energy as playing the sport itself. The energy used when playing active Wii Sports games was not of high enough intensity to contribute towards the recommended daily amount of exercise in children.

Table 2 | Mean energy expenditure for all participants during gaming and various sports and activities

Activity	Mean energy expenditure (kJ)	
	Each minute	Each hour
This study		
Resting energy expenditure	5	300
XBOX 360	7.5	450
Wii Sports bowling	11.7	700
Wii Sports tennis	12.5	750
Wii Sports boxing	12.1	730
Various activities		
Sitting playing board games	6.7	400
Bowling	13.3	800
Tennis (doubles)	22.2	1330
Boxing (punch bag)	26.8	1600
Boxing (sparring)	40.1	2410

We calculated values for the various activities using metabolic equivalents.^{1,2}

(*BMJ 7633:1282-4, 2007*)

- 本篇文章最可能之標題為何？
 - New generation computer games: Watch out for Wii shoulder.
 - Energy expended playing video console games: an opportunity to increase children's physical activity?
 - Energy expenditure of sedentary screen time compared with active screen time for children.
 - Linking obesity and activity level with children's television and video game use.
 - Comparison of energy expenditure in adolescents when playing new generation and sedentary computer games.
- 本研究中，受試者共幾名？ (A)未提及 (B) 5 (C) 6 (D) 11 (E) 360
- energy expenditure 最高之 computer game 較休息狀態每分鐘多耗能多少？
 - 6.7 (B) 7.5 (C) 15.5 (D) 2010 (E) 未提及

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(4) 從事 Wii sports tennis 幾小時之運動量相當於真實打網球 1 小時運動量
(A) 0.8 (B) 1.8 (C) 2.1 (D) 4 (E) 5.4

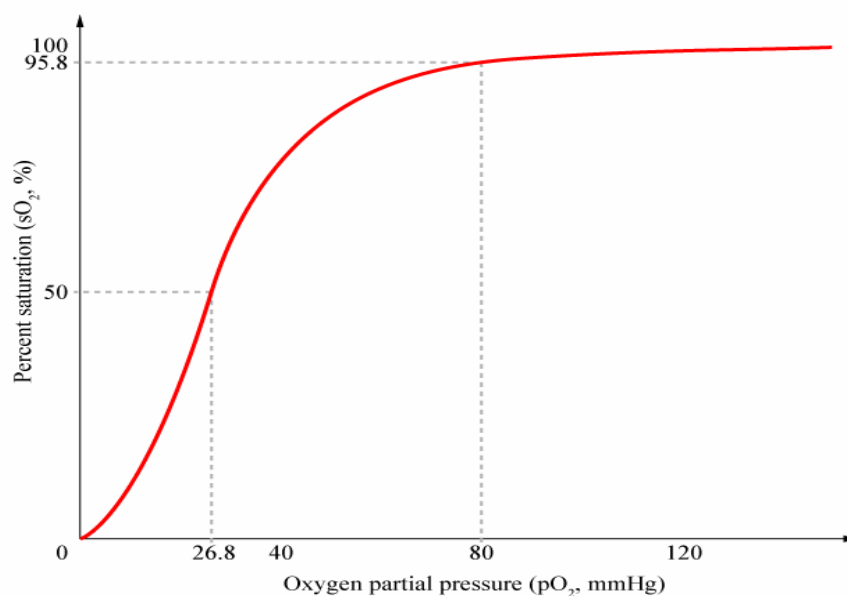
(5) 本研究中，從事哪一種 computer game 耗能最接近該項實際運動？
(A) XBOX 360 (B) Wii sports tennis (C) Wii sports bowling (D) Wii sports boxing (E) 無法確認

二、(1) 何謂休閒治療？ (5%)

(2) 小信為一退休男性 68 歲老人，身高 165 cm，體重 80 kg，安靜心跳率 50 下/min，患有糖尿病、高血壓、高血脂症，兒孫假日才會回家探望他，因此常感寂寞。平日嗜好喝酒與唱歌，偶爾會爬山健走。請以運動介入之方式，為小信設計休閒活動，使其養成規律活動並達治療效果。(15%)

三、(1) 試根據下圖說明「低氧壓如何影響血液帶氧功能」(10%)

(2) 低氧使生理功能有何改變？低氧訓練有何原則？(10%)



四、(1) 何謂全人健康？哪四大因素影響我們的健康？(10%)

(2) 如何推動健康體能與全人健康關聯之重要性？(10%)

五、試說明 Physical education, Sport, Exercise, Physical activity, Fitness 等名詞意義，並說明各有何關聯。(20%)