

# 中山醫學大學 102 學年度碩士班入學招生考試試題

營養學系碩士班

考試科目：食品學、膳療及生命期營養學

時間：80 分鐘

※請注意本試題共( 3 )張，如發現頁數不足，應當場請求補齊，否則缺頁部份概以零分計算。第( 1 )頁

本試題共八大題，總分 100 分。

一、解釋下列名詞並說明與人體健康的關係。(20%)

- (1) probiotics
- (2) carcinogen
- (3) chemoprevention
- (4) trans fatty acid

二、在製備添加了 DHA/EPA 的營養強化配方奶粉時，須特別注意哪些事以保持食品值。(10%)

三、請說明 obesity 對健康可能的影響，並請以其中一種情形說明 obesity 造成此種情況可能的機制。(10%)。

四、就以下文獻資料，請說明該研究團隊主要的研究目的及發現為何。(15%)

Abstract

AIMS: The joint effect of obesity and asthma on hyperlipidemia has never been explored. We aim to examine (1) the association of dyslipidemia and asthma, (2) the interaction effect of asthma and obesity on hyperlipidemia, and (3) whether a gender difference existed in the above relationships.

METHODS: Between 2009 and 2010, 10- to 15-year-old children were recruited from 7 schools and 2 hospitals in Northern Taiwan. The population consisted of 237 asthmatic children and 225 non-asthmatic controls, and was further divided into four groups: non-obese controls, obese controls, non-obese asthmatics, and obese asthmatics.

Measurements included anthropometric measures and blood samples for analysis of metabolic factors. The Cook's criteria were used to define childhood metabolic syndrome. General linear models were used to analyze how lipid profiles were associated with obesity and asthma.

RESULTS: Total cholesterol and low density lipoprotein cholesterol levels increased progressively in the group order obese asthmatics>non-obese asthmatics>obese controls>non-obese controls. In boys, low density lipoprotein cholesterol levels were significantly higher in obese asthmatics compared to obese non-asthmatics, with a mean difference of 6.2mmol/L in the general linear model. We also discovered a significant interactive effect of obesity and asthma on hyperlipidemia in boys (p for interaction=0.03).

CONCLUSIONS: Asthma was associated with higher low density lipoprotein cholesterol

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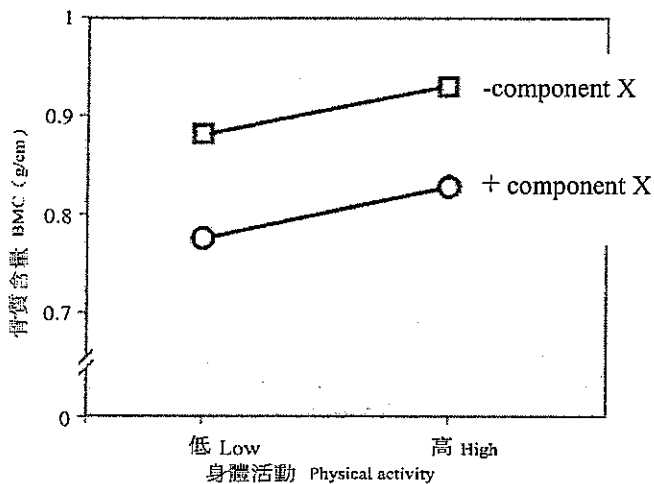
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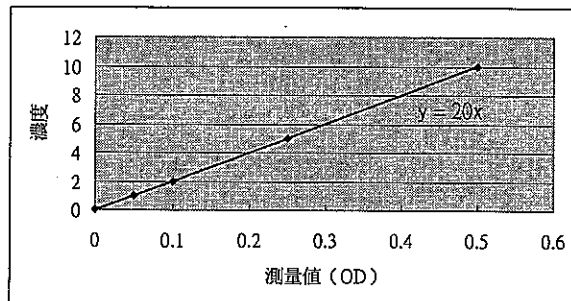
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levels and this association was amplified in overweight and obese subjects. A gender difference was observed in the joint effect of obesity and asthma on hyperlipidemia.

五、請依據下列圖示，說明身體活動量與來自飲食中的 component X (+和-分別表示有使用或沒使用) 對停經後婦女骨質的影響。(10%)



六、以 ELISA 方法測量血漿中促發炎因子 A，先將血漿以等體積 buffer 稀釋後，取 100  $\mu\text{L}$  經各反應步驟後，在測量機器上 (ELISA reader) 讀得測量值為 0.4，另外以促發炎因子 A 標準品配置濃度分別為 0、1、2、5、10  $\mu\text{M}$  的標準溶液，亦取 100  $\mu\text{L}$  經各反應步驟後讀得測量值分別為 0、0.05、0.1、0.25、0.5，計算後得知標準曲線為  $y=20x$ 。請計算該血漿樣品中促發炎因子 A 的濃度。(15%)



七、何謂 cancer cachexia，臨床上會有哪些表現？ $\omega$ -3 fatty acid 被使用在病患的灌食配方上，你認為可能的理由為何？(10%)

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八、何謂 nutritional genomics? 依據下表中的研究數據，你會認為 isoflavone 的攝取與乳癌的復發有何種關係？(10%)

Table. Hazard ratios (HR)(95%CI) of breast cancer recurrence in relation to the intake of isoflavones among breast cancer surgery patients stratified by HER2 status.

Variable	No. at risk/no. of events	Unadjusted HR (95% CI)	Adjusted model 1 HR (95% CI)	Adjusted model 2 HR (95% CI)
Isoflavone (mg/day)				
HER2-				
<7.2	86/8	1	1	1
7.2-14.6	85/5	0.61 (0.20-1.86)	0.63 (0.20-1.95)	0.43 (0.13-1.40)
14.6≤	85/4	0.49 (0.15-1.62)	0.40 (0.12-1.37)	0.23 (0.06-0.89)
P for trend		0.06	0.02	0.01
HER2+				
<7.7	27/2	1	1	1
7.7-16.0	28/2	0.93 (0.13-6.63)	1.12 (0.15-8.46)	1.74 (0.18-16.48)
16.0≤	28/4	1.58 (0.29-8.62)	2.30 (0.36-14.95)	3.85 (0.43-34.67)
P for trend		0.51	0.24	0.17

\*Wald test for heterogeneity on the tertile trend was used as the highest tertile cells have zero events. Tests for trend were estimated using a continuous variable (log-transformed).

Adjusted model 1: adjusted for total energy intake, cancer stage (I, II, III), age at baseline year.

註：HER2 是一種細胞上的生長因子接收器，HER2+ 指其表現陽性者，HER2- 則指其表現陰性者。