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**題目 (Title):**

在相同體適能狀態下，體重是否影響青少年的代謝健康？

Does Weight Status Impact Metabolic Health in Adolescents When Controlling for Physical Fitness?

**摘要中文翻譯**

**目的：**

確定有健康體適能且超重/肥胖的青少年的代謝情況是否與健康體適能且正常體重的青少年相似。

**方法：**

青少年參加了3項測試：(1)休息時生命徵象量測和人體測量；(2)跑步機上最大攝氧量試驗( $VO_{2Max}$ )來判定體適能；(3)雙能X射線吸收測定法和禁食實驗，用於分析胰島素、葡萄糖、高密度脂蛋白、三酸甘油酯和C反應蛋白。

**結果：**

在30名健康體適能且正常體重的青少年和16名有健康體適能和超重/肥胖(簡稱OW / OB)的青少年中，有1名正常體重的青少年和4名OW / OB的青少年出現代謝症候群。代謝症候群嚴重程度與BMI指數、腰圍、總體脂肪、胰島素抗性和C反應蛋白呈正相關，與相對最大 $VO_{2Max}$ 呈負相關，但與淨 $VO_{2Max}$ 無關。

**結論：**

儘管有良好的體適能狀態，但超重/肥胖的青少年比正常體重的青少年中有代謝症候群較多。未來探索體適能與代謝症候群之間的關係之介入研究是有必要的。

## Original Abstract

### **PURPOSE:**

To determine whether adolescents who are fit with overweight/obesity are similar in their metabolic profile to adolescents who are fit and normal weight.

### **METHODS:**

Adolescents participated in 3 sessions: (1) resting vitals and anthropometrics; (2) maximal aerobic treadmill test ( $VO_{2max}$ ) to determine physical fitness; and (3) dual-energy x-ray absorptiometry and fasting laboratory draw for analysis of insulin, glucose, high-density lipoprotein, triglycerides, and C-reactive protein.

### **RESULTS:**

Of the 30 fit adolescents who are normal weight and 16 adolescents who are fit and overweight/obese (OW/OB), metabolic syndrome was apparent in 1 adolescent who are normal weight and 4 adolescents who are OW/OB. Metabolic syndrome severity was positively associated with body mass index, waist circumference, total body fat, insulin resistance, and C-reactive protein but inversely associated with peak relative, but not lean  $VO_{2max}$ .

### **CONCLUSIONS:**

Despite good physical fitness, adolescents who are OW/OB demonstrated greater metabolic syndrome than adolescents who are normal weight. Future intervention research is necessary to explore the relation between physical fitness and metabolic syndrome.

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