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• 計畫中文名稱	紅甘藷葉介入對經中強度運動後體內氧化壓力、細胞激素及熱休克蛋白表現之影響(I)
• 計畫英文名稱	The Modulation of Dietary Intervention on Antixodiative Status, Cytokines Secretion and Heat Shock Protein Expression after Moderate, High-Intensity Exercise (I)
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• 中文關鍵字	多酚類飲食; 中強度運動; 氧化壓力; 細胞激素; 熱休克蛋白
• 英文關鍵字	Polyphenol diet; Moderateintensity exercise; Oxidative stress; Cytokine; Heat shock protein
• 中文摘要	本研究的主要目的爲探討給予含高多酚類的紅甘藷葉飲食介入，是否可調節進行中強度運動時所造成的氧化壓力、促發炎細胞激素及熱休克蛋白質之表現。本研究共招募 12 位一般健康男性爲受試者。實驗採交叉試驗，於實驗期間全程均維持低多酚類飲食。實驗之初，受試者先攝取 7 天低多酚類飲食作爲適應期，之後進行兩階段分別爲期 7 天之飲食介入試驗期：高多酚類飲食--紅甘藷葉飲食(purple sweet potatoleaves, PSL）與低多酚類飲食-紅蘿蔔飲食（β-carotene, BC），兩次飲食介入期間隔 14 天的排空期。於每個實驗階段結束後，受試者需進行 70％V.O2max 的運動 1 小時，並且收集運動前、後的血液樣本及 24 小時尿液。實驗結果發現，給予 PSL 飲食介入 7 天後，血漿多酚類含量及維生素 E、FRAP (ferricreducing ability of plasma)與 BC 飲食組相比較有顯著性增加。此外，經中強度運動後， PSL 組的血漿 TBARS(thiobarbituric acid reactive substances)及 TNF-α (tumor necrosis factor-α) 值顯著低於 BC 組，而 HSP70 (heat shockprotein70) 的蛋白質表現量則在兩種飲食介入組間則無顯著差異。本實驗結果顯示，給予 7 天的高多酚類飲食介入後，可以增加體內的抗氧化狀態及有效降低因中強度運動所造成的氧化壓力及促發炎細胞激素的分泌，但是對於 HSP70 的蛋白質表現量則無顯著影響。
• 英文摘要	The aim of the study was to investigate the effect of high polyphenol diet intervention on the exercise-induced oxidative stress, cytokine excretion and the expression of heat shock protein 70 (HSP70). Twelve non-trained male subjects participated in two-step dietary intervention. The study was cross-over design, each subject was given high (purple sweet potato leaves, PSL) or low

(beta-carotene, BC) polyphenol diets for 7 days, respectively. After 14 days of wash-out period, the diet was cross-over. After each dietary intervention period, the subjects ran on a treadmill for 60 minutes at 70% of their peak oxygen consumption. Blood and 24-hr urine were collected for the measurement of muscle damage, oxidative stress, antioxidant status and repair system parameters. The results indicated that plasma polyphenol content, FRAP (ferric reducing ability of plasma) and vitamin E were significant increased after 7 days of PSL diet intervention. In addtion, plasma TBARS (thiobarbituric acid reactive substances) and TNF-alpha (tumor necrosis factor-alpha) had decreased after one bout of moderate-intensity exercise with PSL diet intervention. However, there was no significant difference in HSP70 level between PSL diet and BC diet group. The results suggested that PSL diet intervention could increase total antioxidant potency in body and decrease the oxidative stress and cytokine secretion after moderate-intensity exercise, however there was no significant effect on HSP70 protein expression.