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• 計畫中文名稱	不同脂肪攝取對糖尿病併發敗血症老鼠細胞激素分泌及營養素代謝之影響(II)
• 計畫英文名稱	Effects of Different Dietary Fats on Cytokine Secretion and Nutrients Metabolism in Diabetic Rats with Complication of Sepsis (II)
• 主管機關	行政院國家科學委員會
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• 研究人員	葉松鈴 Yeh, Sung-Ling
• 中文關鍵字	膳食脂肪攝取；細胞激素；糖尿病；敗血症；肌肉組織蛋白質分解
• 英文關鍵字	Dietary fat intake；Cytokine；Diabetes mellitus；Sepsis；Muscle protein breakdown
• 中文摘要	故本研究是以糖尿病合併敗血症之動物模式來探討魚油和紅花籽油攝取對糖尿病敗血症老鼠肌肉組織異化情形之影響，並由 cytokine 及 leukotriene 之分泌來探討其對營養素代謝變化之可能機轉。本研究選用 150-180g 之 Wistar 公鼠，以 streptozotocin 尾靜脈注射引致糖尿病。將糖尿病老鼠分成兩組，一組給予魚油，一組給予紅花籽油，四週後以盲腸結紮並穿刺法（CLP）引致膜膜炎並引發敗血症，CLP 後 6， 12， 24， 小時後分別犧牲一批，實驗共分成魚油敗血症組（FOS）及紅花籽油敗血症組(SOS)。結果顯示糖尿病老鼠在餵食魚油和紅花籽油引致敗血症後，血漿 valine，leucine，isoleucine 濃度在兩組間各時間點均無差異，顯示與餵食紅花籽油組相較，糖尿病老鼠餵食魚油在引致敗血症後對防止肌肉組織蛋白質分解並無益處，腹水中 interleukin-1β 濃度在 CLP 後 6 小時，及 tumor necrosis factor-α12 小時時 FOS 組均顯著較 SOS 組爲高，而 prostaglandin E2 則在 FOS 組顯著較 SOS 組爲低，顯示 cytokine 之分泌與肌肉組織蛋白質分解並無相關。由於與發炎反應相關的 cytokine 通常濃度越高表示發炎反應越嚴重，病人的預後也越差，本實驗結果與以往於魚油可減輕發炎反應之認知不同。由此可知魚油攝取對疾病之影響，可能因疾病之種類而有不同，因此呼籲臨床上對魚油之應用要格外小心。
• 英文摘要	This study was designed to investigate the effects of dietary fish oil on plasma amino acid profiles and inflammatory-related mediators in diabetic rats with sepsis. Diabetes mellitus (DM) was induced in rats by streptozotocin. The DM rats were maintained for 4 weeks on medium fat (10%, w/w) diets containing either fish oil or safflower oil. After that, sepsis was induced by cecal ligation and puncture (CLP). There were 2 groups in this study: fish oil sepsis group (FOS) and safflower oil sepsis group (SOS). The rate

were sacrificed at 6, 12, and 24h after CLP, respectively. The results demonstrated that no significant differences were observed in plasma valine, leucine, isoleucine, glutamine, or arginine concentrations between the FOS and SOS groups at different time points. Concentrations of interleukin (IL)-1β in peritoneal lavage fluid (PLF) at 6 h and tumor necrosis factor (TNF)-α at 6 h as well as at 12 h after CLP in the FOS group were significantly higher than those in the SOS group pGE/sub 2/ levels in PLF, by contrast, were lower in the FOS group at 6 and 12h after CLP than in the SOS group. These results suggest that differences in IL-1β, TNF-α, and prostaglandin E/sub 2/ levels in PLF in the early period of sepsis did not influence the plasma amino acid profiles of the FOS and SOS groups. Compared with safflower oil, feeding diabetic rats with fish oil had no beneficial effects on muscle protein breakdown, and the immunologic impact of dietary n-3 polyunsaturated fatty acids on diabetic rats with sepsis requires further investigation.