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關鍵字(英)	deep frying oil oxidative stress blood pressure spontaneously hypertensive rat
摘要(中)	高血壓為國人十大死因之一，亦是造成心血管、腦血管疾病及其併發症之主要原因。許多文獻證實，炸油的攝取會引起動物生理及組織上的病變，導致氧化壓力增加，甚至造成死亡。本研究欲探討油炸油的攝取對原發性高血壓大鼠(SHR)及正常血壓 Wistar Kyoto (WKY)大鼠體內氧化壓力及血壓的影響。新鮮黃豆油每日以 180±5℃油炸八小時，連續四天，製成油炸油。分別餵食雄性 SHR 及 WKY 大鼠含 15%新鮮黃豆油(F)或油炸油(D)之飼料十週。結果顯示，油炸油的攝取會降低大鼠飼料效率，造成大鼠肝腎腫大，但對 WKY 大鼠或 SHR 的血壓均無顯著影響。油炸油會顯著增加 WKY 大鼠尿液中 Thromboxane B2 及 8-iso PGF2α 的排出量，但不影響 6-keto PGF1α 排出量。此外，油炸油的攝取會增加 SHR 紅血球上硫氫基的消耗率；增加 SHR 及 WKY 大鼠血漿 TBARS 值和 NO 含量；增加 WKY 大鼠肝臟 TBARS 值；降低 SHR 及 WKY 大鼠血漿總抗氧化力，但對血漿腎素活性及醛固酮含量無顯著影響，亦不影響組織中血管收縮素轉化?的活性。在脂肪酸組成部分，攝取油炸油會增加 SHR 及 WKY 大鼠血漿及肝臟中飽和脂肪酸含量及 20:4 n-6/18:2 n-6 比值，尤其會提高 20:4 n-6 的含量，降低肝臟中 18:1 n-9、18:2 n-6 及 18:3 n-3 含量。綜合上述，油炸油的攝取似乎不影響血壓及血壓相關物質，但會改變 WKY 大鼠類二十酸的代謝過程，且不論高血壓狀況與否，油炸油的攝取均會促使 SHR 及 WKY 大鼠體內氧化壓力上升。
摘要(英)	Hypertension is the top ten lethal diseases in Taiwan and is also considered as the main cause of cardiovascular and cerebrovascular complications. Ingestion of deep frying oil has been reported to cause physiological and histological changes in experimental animals' tissue, increased the oxidative stress and might lead to death. The purpose of this study was to investigate the effect of deep frying oil on oxidative stress and blood pressure in spontaneously hypertensive rat (SHR) and Wistar Kyoto (WKY) rats. Deep frying oil was prepared by frying fresh soybean oil at 180±5℃ for 8 hrs each day, at four consecutive days. Male SHR and WKY rats were fed diets containing 15% fresh soybean oil (F) or deep frying oil (D) for 10 weeks. Results showed that rats ingested D diet had lower feed efficiency and higher relative liver and kidney weight but had no significant influence on the blood pressure whether in WKY rats or SHR. WKY rats fed D diet significantly increased the urinary TXB2 and 8-iso PGF2α excretion, but not in the urinary 6-keto PGF1α excretion. Diets containing deep frying oil increased SH-group depletion of red blood cells from SHR; increased plasma TBARS and nitric oxide content in both SHR and WKY rats; increased hepatic TBARS of WKY rats; decreased SHR and WKY rats plasma trolox equivalent antioxidant capacity (TEAC). The D diet had no effect on plasma renin activity and aldosterone content and also on tissue angiotension-Ⅰ-converting enzyme activity. In fatty acid composition, SHR and

	WKY rats fed D diet increased saturated fatty acid and the ratio of 20:4 n-6 to 18:2 n-6 in plasma and liver, especially elevated 20:4 n-6 fatty acid; reduced 18:1 n-9, 18:2 n-6 and 18:3 n-3 fatty acids in liver. In conclusion, the ingestion of deep frying oil seemed not to influence blood pressure and its correlated parameters, but altered the eicosanoids metabolism in WKY rats and elevated oxidative stress in both SHR and WKY rats whether hypertension or not.
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附註	

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