• 系統編號	RB8510-2412
• 計畫中文名稱	米穀中澱粉及膳食纖維對老鼠血、肝中膽固醇 代謝之影響：(II)直鏈澱粉含量不同之米對老鼠 血、肝中膽固醇代謝及膽酸排出之影響
• 計畫英文名稱	Effect of Various Amylose and Dietary Fiber of Rice Grain on Hepatic, Serum Cholesterol and Bile Acid Excretion in Rats.
• 主管機關	行政院國家科學委員會
• 計畫編號	NSC84-2331-B038-001
• 執行機構	私立台北醫學院保健營養學系
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• 研究人員	鄭心嫻 Cheng, Hsing-H
• 中文關鍵字	直鏈澱粉；膽固醇；脂質代謝；膳食纖維；鼠
• 英文關鍵字	Amylose；Cholesterol；Lipid metabolism；Dietary fiber；Rat
• 中文摘要	本研究之目的是探討以不同穀類爲醣類來源對大白鼠體內脂質代謝之影響,共分爲兩個實驗。第一個實驗乃將 Wistar 品系之雄鼠(起始體重約 230 克)隨機分成六組,分別餵予添加 1%膽固醇之玉米澱粉、秈米、粳米、糯米、小麥及燕麥等六種高膽固醇飼料,實驗進行四週後,分析血清三酸甘油酯、總膽固醇、高密度及低密度脂蛋白膽固醇、肝臟三酸甘油酯及總膽固醇,以及糞便中性固醇與總膽酸。第二個實驗乃將 Wistar 品系雄鼠(起紿體重約 190 克),以添加 1%膽固醇之玉米澱粉飼料餵予四週,誘發其體內高脂質現象後,再隨機分成六組,餵予不添加膽固醇之六種不同醣類來源(如上述)的飼料,實驗進行四週後,分析血清、肝臟及糞便。第一個實驗之結果顯示在高膽固醇情況下,與對照組(玉米澱粉組)比較,秈米組與粳米組有較低之血脂質($p<0.05$)。所有實驗組均有較對照組低之肝脂質及糞便中性固醇濃度,但以燕麥組最低,三種米類次之,小麥較高($p<0.05$)。糞便總膽酸則爲秈米、小麥、燕麥組較對照組高($p<0.05$)。第二個實驗之結果顯示,經誘發高脂現象後再餵予低膽固醇飼料,三個米類組有較對照組低之血脂質($p<0.05$)。所有實驗組之肝臟總膽固醇濃度均較對照組低,但僅秈米及粳米組有較低之肝臟三酸甘油酯濃度($p<0.05$)。糞便中性固醇排出量各實驗組均較對照組高($p<0.05$);總膽酸排出量則是糯米、小麥及燕麥組較對照組高($p<0.05$)。由此二實驗之結果可知在降低血清脂質方面以秈米及粳米效果最好。降低肝臟脂質堆積之效果在攝取高膽固醇時以燕麥效果最佳,米類次之,小麥再次之;而由攝取高膽固醇回復爲無膽固醇狀況時,則是以秈米及粳米效果最佳。
• 英文摘要	This study was to investigate these different cereals on lipid metabolism in rats. In experiment I, thirty-six adult male Wistar rats were

randomly divided into six groups which were all fed diets containing 1% cholesterol. The six groups included: Corn starch group (+C), Indica rice group (+IR), Japonica rice group (+JR), Waxy rice group (+WR), Wheat group (+W) and Oat group (+O). Rats were sacrificed after four-week feeding, and artery blood, liver and feces were collected. In experiment II, sixty-four adult male Wistar rats were fed high cholesterol corn starch diet (containing 1% cholesterol) to induce hyperlipidemic status. After four weeks, Wistar rats were randomly divided into six groups, all of which were then fed diets not containing cholesterol. The six groups included: Corn starch group (-C), Indica rice group (-IR), Japonica rice group (-JR), Waxy rice group (-WR), Wheat group (-W) and Oat group (-O). Rats were sacrificed after another four-week feeding, and artery blood, liver and feces were collected. Analytical items included serum, triglyceride, total cholesterol, HDL-cholesterol, LDL-cholesterol, liver triglyceride and cholesterol, fecal neutral steroids and bile acids. The results of experiment I showed that +IR and +JR had lower serum lipids level than +C ($p<0.05$). All experimental groups had lower liver lipids and fecal neutral steroids concentration than +C: +O was lower than others, and +IR, +JR, +WR were lower than +W ($p<0.05$). +IR, +W, and +O had higher fecal bile acids content than +C ($p<0.05$). The results of experiment II showed that -IR, -JR and -WR had lower serum lipid level than -C. All experimental groups had lower liver cholesterol concentration, and -IR and -JP had lower liver triglyceride content than -C ($p<0.05$). All groups had lower fecal neutral steroids content than -C ($p<0.05$). -WR, -W and -O had higher fecal bile acids content than -C ($p<0.05$).