

## The Preventive and Ameliorative Action of Metabolic Syndrome by Dietary Calcium and Milk Components

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### Summary

Recently, hyperlipidemia or obesity induced by lifestyle habits such as food practice, exercise, drinking is the serious social problem in the developed country such as Japan. The prevention and improvement of hyperlipidemia or obesity by the food is also an important problem. It is reported that body fat or body weight change by the difference between taken source of protein or calcium intake, however, it is not fully understood about the detailed interaction between protein source and calcium intake. Thus, whey protein isolate which has been reported a hypocholesterolemic effect among food protein and peptide is used in this study about the interaction between whey protein isolate and calcium intake in C57BL/6J mice. The experimental group is consisted of 4 groups as follows: Group 1: casein containing a high calcium (1.5%) diet (HC group), Group 2: whey protein isolate containing a high calcium (1.5%) diet (HW group), Group 3: casein containing an ordinary calcium (0.5%) diet (NC group), Group 4: whey protein isolate containing an ordinary calcium (0.5%) diet (NW group). The feeding period was 70 days. After 70 days, serum lipids, serum glucose, liver lipids and adipose tissue (epididymal, mesenteric, retroperitoneal and subcutaneous) weights were determined. The body weight gains, food intake and liver weight were not significantly changed among experimental groups for 70 days. Serum triglyceride and LDL+VLDL-cholesterol were significantly decreased in HW group than that of HC group. Adipose tissue weight tended to decrease in HW group than that of HC group. This study suggested that the simultaneous intake of calcium and whey protein isolate induced a significant effects on lipid metabolism in obesity model mice.