Isoflavone Regulates Lipid Metabolism *via* Expression of Related Genes in OVX Rats Fed on a High-fat Diet[1]

XIAO-LIN NA[*], JUNKO EZAKI [#], FUMIE SUGIYAMA[#], HONG-BIN CUI [*], AND YOSHIKO ISHIMI[#]

[*] *Department of Food Nutrition and Hygiene, Public Health College, Harbin Medical University, Harbin 150086, Heilongjiang, China;* [#] *Nutritional Epidemiology Program, National Institute of Health and Nutrition, Tokyo 162-8636, Japan*

Objective To investigate the effects of isoflavone on body weight, fat mass, and gene expression in relation to lipid metabolism. **Methods** Thirty-six female SD rats were ovariectomized or sham-operated and fed on a high-fat diet. Two months later, abdominal incision was made, blood was collected to separate serum, and the liver and adipose tissue were immediately collected and weighed. Some portions of these tissues were frozen in liquid nitrogen and stored at -80℃. **Results** Ovariectomy (OVX) with a high-fat diet could induce obesity in rats, while treatment with isoflavone significantly inhibited the increase in body weight and fat mass in abdomen. Serum total cholesterol and leptin were significantly decreased in isoflavone group, compared with the OVX group. The mRNA expression of liver fatty acid synthase (FAS) in the OVX group was significantly higher than that in sham-operated group, while this difference was not observed in the isoflavone group. The mRNA expression of liver hormone-sensitive lipase (HSL) in the OVX rats tended to be lower than that in the sham-operated rats. Furthermore, a large amount of isoflavone maintained the mRNA expression at a sham level. **Conclusion** Isoflavone may prevent obesity induced by ovariectomy with a high-fat diet, in part by modulating gene expression related to lipid metabolism.

Key words: Isoflavone; Lipid metabolism; Ovariectomy; Obesity; Gene expression

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Correspondence should be addressed to: Yoshiko ISHIMI, Ph. D., Nutritional Epidemiology Program, National Institute of Health and Nutrition, 1-23-1 Toyama, Shinjyuku-ku, Tokyo 162-8636, Japan. Tel: +81-3-3203-5389; Fax: +81-3-3203-7350; E-mail: ishimi@nih.go.jp

Biographical note of the first author: Xiao-Lin NA, female, professor, majoring in food nutrition and environmental hygiene, and bioactivities of phytoestrogen isoflavone.

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