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## Collagen hydrolysate derived from skate skin suppressed the development of obesity in mice

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Collagen has been utilized in several industries such as foods, cosmetics, pharmaceuticals. Almost collagen studies have mainly focused on improving skin function, but researches for other functional properties of collagen is lacking. This study investigated the effects of different kinds of collagen hydrolysate (CH) derived from skate skin in obese animal model. Three kinds of CH used in this study were as follow: (1) low molecular weight CH (Low group) and (2) high molecular weight CH (High group) isolated via ultrafiltration of CH, and (3) skate CH (CH group), an un-ultrafiltrated sample. For 8 weeks, three kinds of CH (200 mg/kg bw/day) or water (Control group) was orally administered to db/db mice, which were compared with vehicle (Normal group, m/m mice) (n=10 each group). Compared to the control group, final body weight and adipose tissue weights were significantly lower in CH-fed groups ( $p<0.05$ ) while other organ weights were not significantly different. Plasma lipid concentration (TG, TC, LDL-C, free fatty acid) were elevated in db/db mice, compared with m/m mice. However, those values decreased by CH treatment whereas HDL-C level increased ( $p<0.05$  for all). Compared with the control group, CH treatment significantly increased adiponectin level and decreased leptin levels ( $p<0.05$ ). Additionally, aminotransferase activities and oxidative stress levels (ROS and peroxinitrite) were reduced in all type of CH-fed groups. Our results indicated that CH derived from skate skin effectively suppressed the development of obesity by decreasing of body and adipose tissue weight and regulating lipid and adipokines levels.

### Biography

Jeong Sook Noh has completed her PhD from Pusan National University and Postdoc from University of Massachusetts, University of Toyama, and Pusan National University. She had worked at Center for Anti-Aging Industry as a researcher. She is now the Professor of Dept. Food Science & Nutrition in Tongmyong University. She published a lot of research achievements for health benefits of diverse functional foods and biocompound.

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