

Effect of Collagen Ingestion on Connective Tissues (Bone and Skin)

¹Shouhei Kasugai, ²Yoichi Koyama

¹*Tokyo Medical and Dental University*

²*Nippi Research Institute of Biomatrix*

Gelatin or gelatin peptide are called “collagen” and “collagen” is a nutritional supplement, which is believed to exert cosmetic effect and to promote health. However, these effects of collagen intake have not been clarified. In the present study, effects of collagen intake on connective tissues were examined. In the first experiment, forty female students in their twenties were divided into two groups. One group was given a drink containing 10g collagen (porcine gelatin peptide) per day whereas another group was given a drink without collagen. At eight weeks, in the collagen intake group, water sorption-desorption test with Skicon-200EX on the skin of the upper arm revealed that the ability to keep water in the skin increased slightly but significantly, compared to the one of the same group at the beginning of the experiment. However, bone mineral density of the heel and bone metabolic markers (bone-type alkaline phosphatase, osteocalcin, Ca, pyridinolin and deoxypyridionolin) were not affected. In the second experiment, the lower incisors of male Wistar rats (13 weeks) were extracted and divided into 5 groups. Each group was given one of the four different powder foods (14% casein; 6% casein + 8% collagen; 10% casein; 6% casein + 4% collagen) or solid food (14% casein). At 4 weeks measurement of bone mineral density of the extracted region of the mandible with a dual- energy X-ray absorptiometry demonstrated no significant difference between the groups. In the third experiment, 5 mm incisions were made on the back skins of Hairless male mice (6 weeks). The animals were divided into 3 groups and each group was given one of the three different foods: 8% casein; 4% casein + 4% collagen; 14% casein. At 7 days and 13 days, tensile strength test of the incised skin did not show any difference between the groups. Conclusively, collagen intake increased skin moisture slightly; however, it did not affect bone metabolism and healing process of bone and skin lesions.