Improved effect of combined ingestion of elastin and collagen on quality of human skin

Kouji Okamoto1,2, Kenichi Kakino1, Toshiya Hatakenaka1, Teno Kamada1, Kazunari Arima1, Etsuo Ichikawa1

1Kyushu Inst. of Tech.
2Vital Resources Applied Lab., Inc.
3Grad. Sch. of Med. Sci., Kyushu Univ.
4Thoskin Co., Ltd.
5Grad. Sch. of Sci. & Engi., Kagoshima Univ.
6Furusato Shokko Lab., Inc.

[Introduction] Elastin and collagen are dominant components of connective tissues and widely distributed in various tissues. In normal human skin, elastin represents a relatively small fraction of the total dermal proteins (ca. 1.4%) while collagen is expressed predominantly (ca. 72%). However, elastin is an important macromolecule which exerts elasticity to skin tissue. Elastin and collagen are known to decrease with aging. The reduction of these proteins is believed to be responsible for the increase in wrinkles of the skin and the decline of skin texture. In this report, soluble elastin (average MW: ca. 10,000) prepared from porcine aorta and commercial collagen were mixed at a weight ratio of 1:50, which is similar to the composition of the skin, and the efficacy of this formulated dietary supplement (FDS) on the improvement of the quality of human skin was investigated.

[Methods] The subjects, composed of selected healthy adult Japanese female volunteers aged between 40 and 60 years enrolled in TES Holdings Co were divided into test group (n=8, average age: 47.1±4.5years) and control group (n=8, average age: 48.1±5.7years). The test group orally ingested the FDS composed of 100mg of elastin, 5,000mg of collagen, 500mg of ascorbic acid, and 25.7mg of copper (II) gluconate once daily for 8 weeks while the control group orally ingested a dietary supplement (FDS) on the improvement of the quality of human skin was investigated.

[Results] 3D replica analysis of skin: The test group showed a significant increase in the volume fraction of skin texture (p<0.05) compared with the control group. A tendency for a higher increase in the quantity of skin wrinkles decreased in the test group but did not change in the control group. Skin viscoelasticity: The viscoelasticity index R2 and R7 values increased slightly, but no marked differences between these two groups were observed.

[Conclusions] These results indicate the improvement of the quality of human skin by ingestion of the FDS composed of elastin and collagen, and suggest that the ingestion of combined elastin and collagen is superior to ingestion of collagen alone for the improvement of skin texture and wrinkles.