

Collagen hydrolysate intake increases skin collagen expression and suppresses matrix metalloproteinase 2 activity.

Zague V, de Freitas V, da Costa Rosa M, de Castro GÁ, Jaeger RG, Machado-Santelli GM.

Source

Department of Cell and Developmental Biology, Institute of Biomedical Sciences, University of São Paulo, São Paulo, Brazil. vizague@hotmail.com

Abstract

The effect of daily ingestion of collagen hydrolysate (CH) on skin extracellular matrix proteins was investigated. Four-week-old male Wistar rats were fed a modified AIN-93 diet containing 12% casein as the reference group or CH as the treatment group. A control group was established in which animals were fed a non-protein-modified AIN-93 diet. The diets were administered continuously for 4 weeks when six fresh skin samples from each group were assembled and subjected to extraction of protein. Type I and IV collagens were studied by immunoblot, and activities of matrix metalloproteinase (MMP) 2 and 9 were assessed by zymography. The relative amount of type I and IV collagens was significantly ($P < .05$) increased after CH intake compared with the reference diet group (casein). Moreover, CH uptake significantly decreased both proenzyme and active forms of MMP2 compared with casein and control groups ($P < .05$). In contrast, CH ingestion did not influence on MMP9 activity. These results suggest that CH may reduce aging-related changes of the extracellular matrix by stimulating anabolic processes in skin tissue.