Beneficial modulation from a high-purity caviar-derived homogenate on chronological skin aging

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Abstract

Collagen abnormalities have been shown to be a cause of the cutaneous changes taking place during physiological aging with reduction of thickness and alterations in its biomechanical properties. Concomitantly, increased elevated MMP expression with a related reduction in collagen synthesis are common associated mechanisms. Thus, although the exact mechanism of cutaneous aging is unclear, it is known that intrinsic biological skin aging results in a loss of collagen and an increase in MMP-1 expression. Moreover, very recently it has been found that a significant decrease in mitochondrial membrane potential in samples from aged donors, accompanied by a significant increase in ROS levels. His study tested the activity of LD-1227 (containing caviar-derived homogenate added with CoQ₁₀-selenium component, CaviarLieri®, Lab-Dom, Switzerland) in aged human skin and its role on skin mitochondria function. Human dermal fibroblasts were obtained from healthy donors over 70y old and treated with LD-1227 for 72 h. As compared to baseline, LD-1227 caused a robust (>67%) collagen type I synthesis (p<0.001) and decreased fibronectin (p<0.05) with significant fibronectin mRNA downregulation (p<0.05, r=0.78). A significant collagen mRNA overexpression occurred with LD-1227 treatment (p<0.05). Mitochondria cytosolic ATP level decreased in aged skin samples (p<0.05 vs young control) but this phenomenon was reverted by LD-1227 (<p 0.01). These data show that LD-1227 modify the extracellular-matrix milieu in aged skin and beneficially affect mitochondrial function.

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