

COSMETIC CLINICAL STUDY

The Journal of Geriatric Dermatology

A Mechanically Aided Resistance Exercise Program for Sagging Facial Muscles

By Gary L. Grove, Ph.D., Stan W. Rimdzius, B.S., Charles R. Zerweck, Ph.D.

ABSTRACT

Facial appearance is particularly influenced by underlying muscles of facial expression because they are directly attached to the skin. Consequently, age-associated changes in facial wrinkles and sags are not only due to loss of dermal elasticity, but also might reflect weakened facial muscles. In the present study, 8 healthy, older females with some signs of facial laxity followed a mechanically aided facial exercise program based on progressive resistance for 8 weeks. Muscle strength and skin tone were measured at baseline and during the treatment period. We found that biomechanical extensibility had decreased, which was quite consistent with the primary perception of the panelists that their facial skin had become firmer and more elastic. The overall pattern of change also corresponded nicely to changes in the condition of their facial muscles, as measured by the time they could hold a high resistance load or the number of repetitions within a fixed time frame.

The Journal of Geriatric Dermatology 1994;2(5):152-158

Copyright © 1994 by Health Management Publications, Inc.

Society for Investigative Dermatology

Changes in Facial Skin Biomechanics Due to a Mechanically Aided Resistance Exercise Program

By G. L. Grove, S. W. Rimdzius, M. J. Grove

ABSTRACT

Facial appearance is particularly influenced by the underlying muscles of facial expression since they are directly attached to the skin. Consequently, age-associated changes in facial wrinkles and sags are not only due to loss of dermal elasticity, but also might reflect weakened facial muscles. In the present study, 15 healthy older females with some signs of facial laxity followed a mechanically aided facial exercise program based on progressive resistance for 3 months. Baseline, mid-point and end-point measurements of the biomechanical properties of the lower cheek were obtained with a Dia-Stron Dermal Torque Meter. This type of rotational extensimeter measures both extensibility and recoil by electronically sensing the twisting movement of a motorized disc as it is turned on and off. Although the mid-



CLINICAL STUDY

point session values were not significantly different from the corresponding baseline values, by the end of the 3-month treatment period, highly significant differences were achieved. We found that extensibility had decreased primarily due to a reduction in "creep" while at the same time recoil was enhanced. Both of these biomechanical changes were quite consistent with the primary perception of the panelists that their facial skin had become firmer and more elastic. The overall pattern of change also corresponded nicely to changes in the condition of their facial muscles as measured by the time they could hold a high resistance load.

Clinical Research, American Federation for Clinical Research, Volume 40 Number 2, pg. 442A, 1992
