

Shiseido Elucidated Skin Structure Maintains Facial Morphology for the First Time in the World

Loss of “Dermal Anchoring Structures” Causes Facial Skin Sagging

Shiseido Co., Ltd. recently became the world’s first company to elucidate skin structure that maintains facial skin morphology, and named it “dermal anchoring structures.” Joint research with Kyoichi Matsuzaki, Associate Professor, Department of Plastic and Reconstructive Surgery, St. Marianna University School of Medicine (currently Department of Plastic and Reconstructive Surgery, Keio University School of Medicine), and Takahiro Ochiya, Chief, Division of Molecular and Cellular Medicine, National Cancer Center Research Institute, clarified that facial skin shows signs of sagging due to age-related loss of dermal anchoring structures, rendering the face unable to support its morphology. Based on knowledge gained from the recent research, it was found that exercises utilizing muscles of facial expression are effective in improving facial skin sagging, and that licorice extract is expected to produce the same effects as such exercises. Shiseido will use the recent research results to develop skin care products to alleviate facial skin sagging.

Dermal Anchoring Structures That Support Facial Morphology

Facial skin sagging (Figure 1) is the primary reason why people look old. For many women, it is also a source of a great deal of concern about their skin. However, facial skin structure has not been fully understood, nor has the cause of sagging been fully clarified. The facial skin tissues of 89 subjects were investigated and the presence of convex matrix structures characteristic of facial skin was confirmed (Figure 2). Assuming that these structures retain the dermis in subcutaneous tissue, we named them “dermal anchoring structures” and at the same time examined their relationships with facial skin sagging.



Figure 1: Facial Skin Sagging

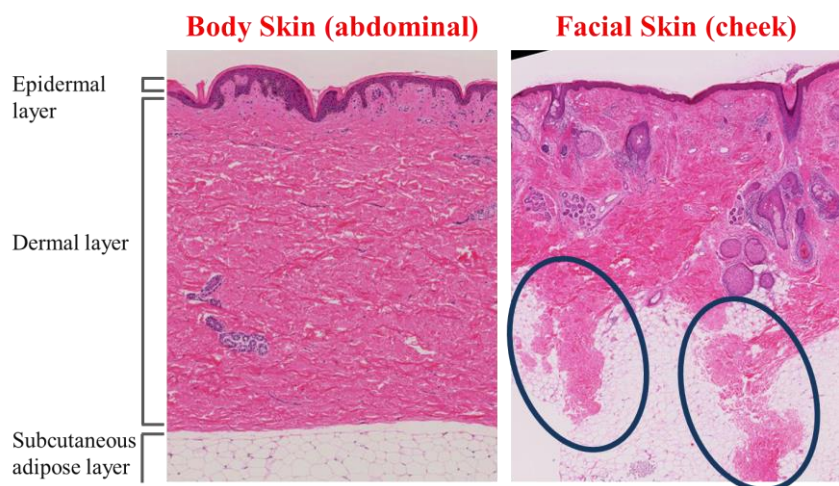


Figure 2: Dermal Anchoring Structures Characteristic of Facial Skin
Left (Body skin): The bottom of dermal layer is flat.
Right (Facial skin): Convex matrix structures of the dermis; “dermal anchoring structures.”

Dermal Anchoring Structures

In-depth investigations of dermal anchoring structures indicated that while collagen fibers and elastic fibers, both of which contribute to skin elasticity and firmness, were arranged horizontally in the lower part of ordinary dermis, both fibers were arranged vertically in dermal anchoring structures (Figure 3). The abundance of dermal anchoring structures varied from one individual to another, and it was confirmed that facial skin showed less sagging and retained its morphology if it had large dermal anchoring structures. Based on these results, it was found that vertically arranged dermal anchoring structures function to prevent facial skin sagging. It was also discovered that dermal anchoring structures are vital to retain the facial skin morphology that are lost with age (Figure 4).

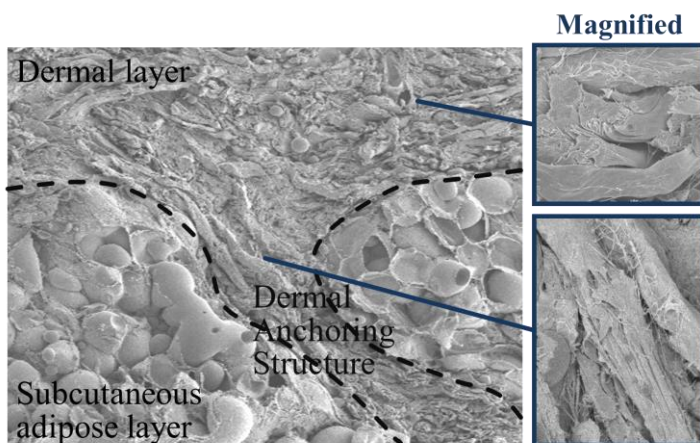


Figure 3: Arrangement of Collagen Fibers in Lower Part of the Facial Dermis

Upper right: Collagen fibers arranged horizontally in the lower part of ordinary dermis.

Lower right: Collagen fibers arranged vertically in dermal anchoring structures.

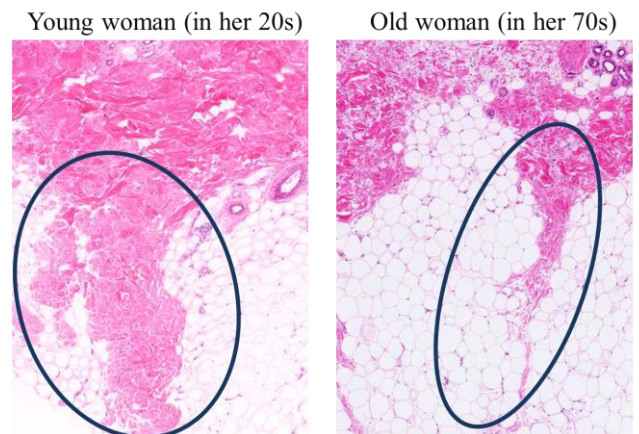


Figure 4: Dermal Anchoring Structures Are Lost with Age

Exercise and Licorice Extract Prevent Loss of Dermal Anchoring Structures

In the course of dermal anchoring structure observations, Shiseido discovered that exercises to contract and relax muscles of facial expressions are expected to stimulate fibroblasts (component cells of anchoring structure) and prevent loss of dermal anchoring structures. Four weeks of Shiseido's unique exercises that utilized muscles of facial expression improved skin-retaining force in women who complained of facial skin sagging, and they actually felt that the exercises improved facial skin sagging. Shiseido presented these research results at the 28th Congress of the International Federation of Societies of Cosmetic Chemists (the 28th IFSCC) and won the best research award.

Furthermore, the researchers searched for the ingredient that was expected to produce the same effects as the exercises and identified licorice extract as one of them.

In the future, these results will be applied to the development of skin care cosmetics.

For enquiries, please contact Minoda of Shiseido, Public Relations Department.

Tel: +81-3-6218-5200