

# EFFECTS OF MECHANICAL STIMULATION ON *SKIN* AGEING

**EDITOR:** Prof. Philippe Humbert  
*Centre for Studies and Research on  
the Tegument CERT, Besançon Univ. Hosp.*

The dermis is made up of cells dispersed in an **extracellular matrix** (ECM) containing fibres (collagen and elastic fibres) and a fundamental substance. The dermis absorbs shocks and gives the skin its essential properties of elasticity, spontaneous tension and strength. Two types of forces are exerted on this connective tissue:

- **Internal forces** transmitted from the dermis to the epidermis are the result of the natural tensions existing within the various fibres and the tensions induced by the movement of the fibroblasts on these fibres.
- **External forces** applied to the skin surface, resulting from compression, tension and friction. These forces are transmitted to the dermis via the epidermis.



**FIBROBLASTS** are cells **capable of perceiving and responding to mechanical stimulations** through various biochemical reactions. These stimulations actually send a message to the fibroblasts and trigger natural biological responses, such as the production of collagen, elastin and other molecules secreted by the fibroblasts and involved in the remodelling of the **ECM**. **MASSAGE** is a therapeutic technique that fights

stress, anxiety, muscle fatigue, insomnia and nervous tension. At the skin level, massage makes the epidermis more supple and elastic, improving the aesthetic qualities of the skin tissue. Applied to the dermis, massage provides mechanical stimulation. The application of this external force can then induce the modification of the behaviour of dermal fibroblasts within their **ECM**.

Based on this information, we evaluated the effects of **endermologie® face** in 30 volunteers who underwent a treatment on hemi=face. The beneficial effects of this treatment were observed by both the volunteers and the doctor based on a clinical rating. The different clinical measures and biopsies analysis examination showed: **stimulation of the production of collagen, elastin and hyaluronic acid (+80%), remodelling of the dermis and improvement in the signs of skin ageing (firmness, brightness and wrinkles).**

**THE MECHANICAL STIMULATION  
TO MANAGING THE SIGNS OF FACIAL  
AGEING SEEMS PROMISING NEW  
THERAPEUTIC APPROACH, BASED  
ON NATURAL MECHANISMS.**



---

#### **SOURCE:**

Mécano-Stimulation™ of the skin improves sagging score and induces beneficial functional modification of the fibroblasts: clinical, biological, and histological evaluations. Humbert et al. Clin Interv Aging. 2015 Feb 2; 10: 387-403.

---



[lpgmedical.com](http://lpgmedical.com)