



CONTACT DERMATITIS AND OCCUPATIONAL DERMATOSES

NON-INVASIVE BIOENGINEERING TECHNIQUES IN ANALYZING SKIN VISCOELASTICITY

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Introduction: Non-invasive bioengineering technologies are constantly being developed in recent decades. They provide a significant input to research field and remarkably contribute to the improvement of medical care and scientific education.

Objective: Assessing skin viscoelasticity by using the suction chamber method in a group of patients with allergic contact dermatitis versus healthy subjects, before and after applying a moisturizing cream.

Materials and Methods: We performed an experimental controlled study over a 3-year period. 88 volunteers were analyzed by dividing them into two equal groups: patients with allergic contact dermatitis and healthy volunteers. The skin viscoelasticity was determined for all subjects with a Cutometer, using the suction method.

Results: The obtained results indicate a decrease in the elasticity parameters in both groups. In the group of patients with contact dermatitis, distensibility and extensibility have decreased with 11,3 % and 15% respectively after applying 28 days the moisturizing cream. In healthy volunteers, there is also a decrease in the parameters. Low values prove the improvement of the elastic cutaneous properties under the treatment. The reports that quantifies the skin capacity to return to its previous form after the deformation indicate overall elevated values in the group of patients with contact dermatitis, demonstrating the efficacy of the emollient cream over this mechanical parameter, after applying it for 28 days (it increases by 11.7% and 4,9% respectively, compared to baseline, when patients had dry, untreated skin). However, in healthy volunteers, these parameters do not achieve spectacular values (6,6% after 28 days).

Conclusions: The Cutometer is easy to use, efficient and wide-spread for measurements in clinical trials conducted on healthy or pathological conditions, in order to perform a quantitative assessment of the effectiveness of different formulas intended for application on the skin, under well-controlled and standardized parameters.

