11-3 Biophysical skin effects of extemporaneous peloids from “Hervideros De Cofrentes Spa” natural mineral water according to their maturity time

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The main objective of the present study was to determine the in situ biomechanical behaviour of skin in response to the use of three muds manufactured with a hyperosmotic Spring “Hervederos de Cofrentes” water, Valencia, Spain. The impact of the osmotic muds on the biomechanical behaviour of human skin, its pH, blood flow, barrier function and dermal density was quantified in healthy volunteers using several non-invasive approaches.

Materials and Method: This study was designed to assess the skin response to daily use for 10 and 20 days on volar forearms of 33 healthy volunteers aged between 18 and 40 years (23.3 ± 4.4) when applied 3 extemporaneous peloides with 0 (P0), 30 (P3) and 60 (P6) days of maturation.

Peloids daily placed on volar forearm on panellist and variables were determined at baseline before starting treatment (day 0), and 10 and 20 days after the start of treatment. Day zero values are considered normal skin pattern.

After a descriptive statistical analysis (mean and standard deviation), a paired Student’s t-test was used to compare data. The level of significance was set at p<0.05.

Results and Conclusions: Our results also suggest a direct relationship between the actions of the muds used and the following changes in the in vivo characteristics of human skin.

P3 peloid gradually decreases blood flow (p<0.05) without affection TEWL and there is a general increase in pH with the implementation of treatment. Increases skin firmness (p<0.05) and elasticity (p<0.05).

All peloids P0, P3 and P6 had an increase in dermal density (p<0.05), and was recorded reaching significance after 10 days of treatment and increased resistance towards repeated suction (reduced fatigue) after 10 days of treatment too, rising gradually up to 20 days was observed (p<0.05).

As an overall conclusion, our findings indicate that the skin treatment proposed, P3 peloid mainly, decrease blood flow without modifying the barrier function of the skin, does not change
TEWL, and clearly improves its biomechanical properties, improving skin density, skin firmness, increasing the elasticity and decreasing the fatigue of the skin, up minimally modifying the pH.

All these circumstances make it very compatible with scaly process type psoriasis, atopic dermatitis, ichthyosis or cutaneous process that curse with an increase in skin cell turn-over.

**Keywords:** Mud therapy, Osmotic pressure, Skin care, Desquamation, Non-invasive method