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12 | Proposal for an in vivo histopathologic scoring system for skin aging by means of confocal microscopy

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ABSTRACT

BACKGROUND: Many instrumental devices have been testing in analysing and quantifying the skin aging signs.However, histopathology still remains the only methods that allow a microscopic assessment of the skin.However, a skin biopsy is not feasible in aesthetically critical areas such as the face.Recently, confocal microscopy has been discovered as a noninvasive tool with a nearly histologic resolution.Distinct morphologic confocal aspects on facial skin have been described and correlated with the histopathologic counterparts.

OBJECTIVES: In our study we aim to develop an easy to use confocal aging score to quantify the skin aging related signs.

METHODS: A sample of facial skin of fifty volunteers has been subjected to confocal imaging.Combining the previously identified confocal features, three different semi-quantitative scores were calculated: ? epidermal disarrayscore (irregular honeycombed pattern + epidermal thickness + furrow pattern); ? epidermal hyperplasia score (mottled pigmentation+ extent of polycyclic papillary + epidermal thickness; ? collagen score (curled fibers, 2 for huddles of collagen, 1 for coarse collagenstructures, and 0 for thin reticulated collagen).

RESULTS: The epidermal disarray score showed a stable trend up to 65 years and a dramatic increase in the elderly subjectsepidermal. Hyperplasia score was characterized by an ascending trend from younger subjects to middle age.The total collagen score showed a progressive trend with age with a different proportion of distinct collagen type.

CONCLUSIONS: RCM is a powerful, noninvasive technique that could permit to microscopically quantify the aging signs and to testcosmetic efficacy.