



AESTHETIC AND COSMETIC DERMATOLOGY (LASERS SEPARATE CATEGORY)

## RESTORATION OF SKIN REFLECTANCE PROPERTIES WITH A SKIN CARE COMPOSITION CONTAINING RETINYL PROPIONATE.

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**Introduction:** Structural changes that occur in skin as a consequence of aging alter how light is absorbed and scattered by skin. We hypothesized optical reflectance measurements of skin will provide mechanistic insights into how the skin changes with age.

**Objectives:** 1) Build fundamental knowledge of optical reflectance properties of young vs. old skin. 2) Determine ability of a topical anti-aging moisturizer formulation containing retinyl propionate to affect the light reflectance properties of skin. Leverage additional biological, biophysical, and appearance measures to build understanding of underlying root causes of optical changes with aging.

**Materials and Methods:** Hyperspectral measurements and additional biological, biophysical and appearance measures were made on facial skin of young (20-29 years) and aged (55-74 years) women. We also evaluated reflectance properties before and after 12 weeks of treatment with a daily-use facial moisturizer formulation containing retinyl propionate to evaluate the formulation's ability to change the spectral signature.

**Results:** Spectral differences were measured between young and old skin, with largest differences occurring in the red (600 nm & higher) and blue-green (450-520 nm) regions. 12 weeks of daily-use facial moisturizer treatment containing retinyl propionate increased reflectance in both spectral regions, consistent with the direction of the difference between the young & old cohorts. Correlations identified strong optical links to appearance of wrinkles.

**Conclusions:** We have demonstrated young skin reflects more light across many wavelengths than older skin and optical reflectance properties of aging skin can be positively affected through the use of a topical anti-aging moisturizer formulation containing retinyl propionate. Relationships of skin optics to other technical measurements provide insight to how skin optics could be impacted by the changes of aging.

