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Reverse skin aging signs by red light photobiomodulation

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Abstract

Background: Photobiomodulation is a process by which the absorption of red light energy produces a series of physiological effects at the cellular level such as the enhancement of mitochondrial Adenosine Triphosphate (ATP) production, cell signaling and growth factor synthesis, and the reduction of oxidative stress. Light emitting diodes (LEDs) photobiomodulation is an increasingly popular therapy for treating skin problems, especially for reversing the signs of skin aging.

Objective: The objective of this study is to demonstrate the effectiveness of a photobiomodulation treatment using red LEDs on the facial skin at a rate of two sessions per week for 3 months. The LED

mask used is the Skin Light Dior x Lucibel mask diffusing a cold red light with a wavelength of 630 ± 10 nm and a power of 15.6 J/cm^2 for a duration of 12 min.

Method: In order to demonstrate the effectiveness of the mask in reversing the signs of skin aging, a clinical study was conducted on 20 healthy Caucasian women: the antiwrinkle effect by measuring the depth of the crow's feet wrinkle, the relaxation of the oval of the face by clinical scoring, the firmness and elasticity of the skin by cutometric measurement, the density of the dermis by ultrasound analysis, the smoothness of the skin by measuring the roughness at the cheek, the homogeneity of the complexion by chromametric measurement, the diameter of the pores by macrophotographs and finally the sebo-regulating effect by measurement of the rate of sebum and quantification of the number of pores containing porphyrin in the subjects presenting a mixed to oily skin. The satisfaction of the volunteers was also evaluated at the end of the study via a self-questionnaire.

Results: The efficacy results measured after 1, 2, and 3 months of use are progressive and confirm the interest of LED photobiomodulation to reverse the visible signs of skin aging. All the volunteers observed an overall improvement in skin quality.

Conclusion: All the results observed confirm the interest of using photobiomodulation to reverse the visible signs of aging. These results last for up to 1 month after stopping the use of the mask, which is a sign of lasting structural and functional rejuvenation of the skin.

Keywords: led; low-level laser (light) therapy; photobiomodulation; reverse skin aging.

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Figures

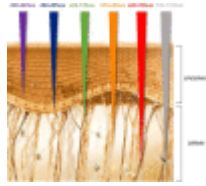


FIGURE 1 Light penetration level according to...

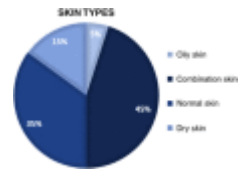


FIGURE 2 Distribution of skin types in...

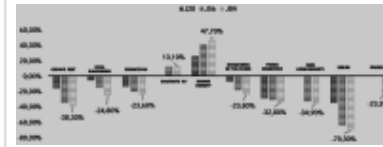


FIGURE 6 Reverse skin aging signs after...

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