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Body contouring using 635-nm low level laser therapy

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Abstract

Noninvasive body contouring has become one of the fastest-growing areas of esthetic medicine. Many patients appear to prefer nonsurgical less-invasive procedures owing to the benefits of fewer side effects and shorter recovery times. Increasingly, 635-nm low-level laser therapy (LLLT) has been used in the treatment of a variety of medical conditions and has been shown to improve wound healing, reduce edema, and relieve acute pain. Within the past decade, LLLT has also emerged as a new modality for noninvasive body contouring. Research has shown that LLLT is effective in reducing overall body circumference measurements of specifically treated regions, including the hips, waist, thighs, and upper arms, with recent studies demonstrating the long-term effectiveness of results. The treatment is painless, and there appears to be no adverse events associated with LLLT. The mechanism of action of LLLT in body contouring is believed to stem from photoactivation of cytochrome c oxidase within hypertrophic adipocytes, which, in turn, affects intracellular secondary cascades, resulting in the formation of transitory pores within the adipocytes' membrane. The secondary cascades involved may include, but are not limited to, activation of cytosolic lipase and nitric oxide. Newly formed pores release intracellular lipids, which are further metabolized. Future studies need to fully outline the cellular and systemic effects of LLLT as well as determine optimal treatment protocols.

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