

Non-Ablative Skin Rejuvenation

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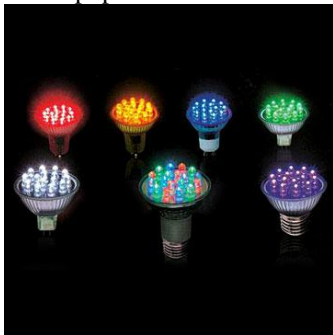
Abstract—This documents seeks to explore the different healing effects of LED lights on the skin. Different colors emit different frequencies that can uniquely cure blemishes of the skin.

I. INTRODUCTION

FOR years, many people have rushed to the doctor's office complaining about their skin. Whether it is a wrinkle, a blemish, and defect, or a scar, people have always cared deeply about the appearance of their skin. Over the past decade, because the high demand for anti-aging treatments, an increase of laser and light-based systems were developed.¹ These devices were developed to minimize the effects of facial impurities at a reasonable cost with minimal complications.

II. METHODS

Non-ablative skin rejuvenation is a relatively new technique that has become more popular over the last several years.

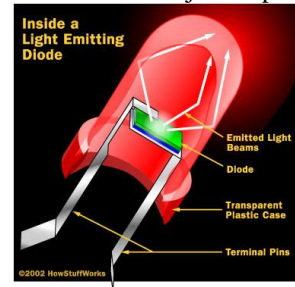


Before LED lights were discovered and biomedical engineers realized that light could be used to heal the skin, ablative methods were used but required much healing from the patients³. An example of an ablative method would be a face lift. Researchers are now experimenting with other color LED lights other than red and the different effects they have on the skin.



III. RESULTS

Currently, LED lights of all colors can be used in different ways to help heal and clean the face. Red LED lights are most useful in wound treatment as it has been shown to accelerate wound healing, improve recovery from injury, such as a burn, and to calm degeneration in the injured optic nerve.²



Acne has also seen to diminish from LED lights as red, blue, green, violet, and ultraviolet segments have all been reported to be effective in diminishing the amount seen.⁴ Reducing the effects of aging has also been seen by using LED lights, and blue and plasma light has been shown best do this.⁵ Biomedical engineers are now mixing frequencies and colors and are seeing that this also improves skin complexion. LED light therapy can be used as an anti-inflammatory which can help with arthritis relief.

IV. DISCUSSION

Although acne LED light treatments are consumer friendly on price (ranging from \$80 to \$300), non-ablative photo rejuvenation of the face has yet to see that success as these systems are still quite expensive and therapist-intensive.⁶ However, in a recent study, biomedical engineers noticed that a non-ablative radiofrequency device for in-office rejuvenation of the forehead provided a considerable improvement in the majority of patients treated.³ Towards the future, I see a huge increase in the amount of LED lights used as medical devices. The broad range of healing that they can do make them a unique factor in the field of biomedical engineering. I also see that these non-ablative techniques will also take over the traditional ablative techniques with minimal pain and very similar if not more amounts of healing.

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