

PRACTICAL AND CLINICAL INSIGHT INTO TODAY'S GENERAL DERMATOLOGY ISSUES

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Life After KATRINA

How fellow dermatologists are putting back together the pieces of their professional lives months after the country's worst natural disaster.

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HMP COMMUNICATIONS

Intense Pulsed Light Systems

This article focuses on how laser and light sources have led the revolution in the medical aesthetics field. The senior authors, Dr. Emil Bisaccia and Dr. Dwight A. Scarborough, are authors of the textbook *The Columbia Manual of Dermatologic Cosmetic Surgery*.

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The last 10 years have brought unprecedented changes to the medical aesthetics field, as many new innovations have been released. Laser and light sources have led the revolution. Recently, a number of new devices have been developed specifically to improve the visible signs of aging in a non-invasive way.

Non-ablative skin rejuvenation is not a precise term but has been arbitrarily classified into two types.

- **Type 1 photorejuvenation** relates to the treatment of ectatic vessels, irregular pigmentation and pilosebaceous changes.

- **Type 2 photorejuvenation** refers to the improvement of the dermal components resulting in wrinkle reduction and/or skin tightening.¹



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In our experience, laser skin resurfacing remains the gold standard for the treatment of rhytids and photodamaged skin, offering unsurpassable results. However, non-ablative techniques were developed in order to cope with the post-treatment care, prolonged healing time and the possible side effects of resurfacing methods.

Intense pulsed light (IPL) systems are high-intensity light sources that emit polychromatic, non-coherent light over a broad wavelength spectrum of 550 nm to 1200 nm. Cut-off filters limit the range of wavelengths, making these devices extremely effective in treating vascular and pigmented lesions,

including hair removal,²⁻⁴ and offer benefits for rhytid improvement.⁵⁻⁶

The newest device that we have added to our armamentarium is the StarLux system (Palomar, Burlington, MA), which features three spot-size hand pieces and an active cooling sapphire treatment tip. In addition, an Nd:YAG 1064 nm handpiece is available and a LuxIR Fractional infrared handpiece is undergoing clinical research, showing promising results. Handpieces for permanent hair reduction, photofacials for vascular and pigmented lesions, acne and leg veins are available with FDA clearance. All these handpieces can be easily changed, allowing for the treatment of different indications on a regular basis.

This article describes the different and most common indications for this device. While we acknowledge that there are many other devices available on the market, we have much experience with this device, and therefore chose to highlight it. For examples of other companies' devices, please refer to the chart on page 56.



PHOTOS 1A AND 1B: Photo 1A Facial telangiectasia in a patient with rosacea. Photo 1B After treatment with LuxG handpiece. *Photos courtesy of David Vasily, M.D.*

TELANGIECTASIA AND DYSCHROMIA

Facial telangiectasia and dyschromia are primary components of photoaging and can be a relevant cosmetic problems. In most patients, these conditions are accompanied by other manifestations of photoaging such as mild rhytids. In these instances, IPL photorejuvenation is our treatment of choice. (See photos 1A and 1B.)

Our parameters varied depending on the patient's skin type, vessel diameter and degree of pigmentation. Our workhorse for these patients is the LuxG handpiece at 20 ms pulse duration with fluences ranging from 36 J/cm² to 40 J/cm². Our experience with these settings has been very positive, with great endpoint results with little to no downtime. (See photos 2A and 2B.) Optimal results can be seen after three or four sessions at 3- to 5-week intervals.

MILD TO MODERATE RHYTIDS

We are advocates of CO₂ laser resurfacing for the treatment of rhytids and photodamaged skin. However, due to some downtime associated with this

ablative procedure, many of our patients are opting for less invasive, non-ablative approaches, as is the case in many dermatology practices.

The LuxIR Fractional handpiece of the StarLux system is powered by a non-coherent light source that produces light pulses in the 825-nm to 1350-nm range. This infrared handpiece has received FDA clearance for deep heating. This technology heats water molecules around collagen, leading to dermal remodeling of the collagen and elastic fibers.

The LuxIR uses fractional technology to deliver light as a regular array of small beams into the dermis, creating a lattice of affected areas surrounded by unaffected areas, allowing for faster healing time and safer treatments. This new handpiece has shown significant results in skin tightening through wrinkle reduction with a short healing phase.

HAIR REMOVAL

Laser hair removal is accomplished through follicular unit destruction. The



PHOTOS 2A AND 2B: Photo 2A Facial dyschromia. Photo 2B After treatment with LuxG handpiece. *Photos courtesy of Haneef Alibhai, M.D.*



3A



3B

PHOTOS 3A AND 3B: Photo 3A Unwanted hair. Photo 3B After treatment with LuxY handpiece.
Photos courtesy of Khalil Khatri, M.D.

ability to remove hair without damaging the surrounding skin is based on selective photothermolysis and wavelengths of about 600 nm to 1100 nm are absorbed by melanin and are well suited for hair removal.

IPL systems emit light at a range of wavelengths from 550 nm to 1200 nm and are extremely effective at achieving permanent hair reduction.

Gold et al. reported a 60% hair reduction after a single treatment at 3 months follow-up,⁷ and Sadick et al. showed a 54% reduction at the 6-month follow-up after one treatment.⁸ Several studies confirm this finding, showing 75% hair reduction after several treatments.⁹⁻¹⁰

We prefer the LuxY handpiece of the system when performing laser hair removal in patients with Fitzpatrick skin types I to III. (See photos 3A and 3B.)

However, when treating a patient with a darker skin type, we prefer the LuxRS because this handpiece avoids the 650-nm to 870-nm band of the electromagnetic spectrum.

The LuxRS increases safety and efficacy because photons can be delivered

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to the follicular melanin without overheating the epidermis.

LEG VEINS

IPL technology was first launched and promoted as a radical improvement over existing methods for elimination of leg telangiectasia. Although elimination of superficial leg veins was possible, this

new technology produced better and more consistent results for other indications than for eradication of leg veins.

In order to overcome this disadvantage, the system recently introduced the Lux1064 Nd:YAG handpiece for leg vein treatment. The Lux1064 delivers fluences of up to 700 J/cm² and uses active cooling before, during and after leg vein treatment. (See photos 4A and 4B.) This cooling device increases the safety and tolerability of the treatment sessions. In addition the handpiece is ergonomically designed providing excellent visualization of the vessel undergoing treatment.

THE BENEFITS OF IPL SYSTEMS

The past 10 years have brought unprecedented changes to cosmetic dermatology, as many new and promising technologies have hit the market.

The flashlamp IPL technology has gained respect in this market, currently being considered the gold standard for photofacial treatments.

In our experience the StarLux system is a powerful all-in-one platform. With



4A



4B

PHOTOS 4A AND 4B: Photo 4A Leg veins. Photo 4B After treatment with Nd:YAG 1064 handpiece.
Photos courtesy of Khalil Khatri, M.D.

this device we can successfully treat vascular and pigmented lesions, as well as permanent hair reduction, even in darker skin tone patients.

While this system is by no means the only IPL technology available, we report on it because we have much experience with this system.

We have found it to be a user-friendly and lightweight system that can easily be moved around or transported from one office to another.

Due to its efficacy, safety and reliability this IPL system has become an integral part of our armamentarium. ■

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References:

1. Dierickx C, Anderson R. Visible light treatment of photoaging. *Dermatol Ther* 2005; 18: 191-208.
2. Sadick NS, Weiss R, Kilmer S, Bitter P. Photorejuvenation with intense pulsed light: results of a multicenter study. *J Drugs Dermatol* 2004; 3:41-49.
3. Bitter PH. Noninvasive rejuvenation of photodamaged skin using serial, full-face intense pulsed light treatments. *Dermatol Surg* 2000; 26:835-842.

4. Raulin C, Greve B, Grema H. IPL technology: a review. *Lasers Surg Med* 2003; 32: 78-87.

5. Goldberg DJ. Nonablative treatment of superficial rhytids with intense pulsed light. *Lasers Surg Med* 2000; 26: 196-200.

6. Weiss R, Weiss M, et al. Our approach to non-ablative treatment of photoaging. *Lasers Surg Med* 2005; 37: 2-8.

7. Sadick NS, Weiss R, Shea CR, et al. Long-term photorejuvenation using a broad band intense pulsed light source. *Arch Dermatol* 2000; 136: 1336-1340.

8. Gold MH, et al. Long-term epilation using the Epilight broadband, intense pulsed light hair removal system. *Dermatol Surg* 1997; 23: 909-913.

9. Gold MH, Bell MW, Foster TD, Street S. One-year follow-up using an intense pulsed light source for long-term hair removal. *J Cutan Laser Ther* 1999; 1: 167-171.

10. Troilius A, Troilius C. Hair removal with a second generation broad spectrum intense pulsed light source — a long term follow-up. *J Cutan Laser Ther* 1999; 1:173-178.

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