



Accelerated Facial Recovery after Er:YAG Resurfacing Using Immediate PBM with 1064 nm Nd:YAG

Wesma Stephany Morales, Dermocosmiatrician

Introduction:

Ablative Er:YAG procedures remain the gold standard for resurfacing and correction of photoaging, scars, texture, and pore refinement. However, in indications requiring higher fluences/depths, adoption may be limited by post-procedure erythema, inflammation, and downtime that many patients are unwilling to accept. Immediate photobiomodulation (PBM) with 1064 nm Nd:YAG in PLLT mode (MarcCo L handpiece, 43 mm) helps modulate the early inflammatory phase.

The objective of this study was to assess whether a single session of immediate PBM after ablative Er:YAG resurfacing can significantly reduce erythema and inflammation during the first 90 hours. This was demonstrated using a split-face (hemifacial) design, where the left hemiface was treated with PBM, while the right hemiface served as a control for direct clinical comparison. The study also aimed to propose a simple, reproducible protocol that optimizes downtime without the use of medications.

Laser	Fotona SP Dynamis				
	Step 1	Step 2	Step 3	Step 4	Step 5
	Light Peeling Full Beam	Light Peeling	Deep Resurfacing	Resurfacing	PBM (left hemiface only)
Wavelength	2940 nm	2940 nm	2940 nm	2940 nm	1064 nm
Handpiece	R11	PS03X	FS01	FS01	MarcCo L
Spot size	7 mm	7 mm	9x9 mm	9x9 mm	43 mm
Fluence	1 J/cm ²	1.4 J/cm ²	60 -100 J/cm ²	15-22 J/cm ²	0.3 W/cm ²
Pulse duration	0.1 ms	0.1 ms	0.6 ms	0.6 ms	0.3 ms
Pulse modality	MSP	MSP	LP Turbo 5	LP Basic	PLLT
Frequency	10 Hz	10 Hz	1.6 Hz	10 Hz	10 Hz
Pulses per Area (4) Forehead, Zygomas, Central triangle	300	300	1 Pass	1 Pass	1150 Pulses
Technique	Fast Brushing	Fast Brushing	Stamping	Fast Brushing	Fast Brushing
Overlapping	70%	70%	0%	50%	70%
Sessions	1 Session				
Cooling	None				



Wesma Stephany Morales is a Colombian-born, Puerto Rico-based Dermocosmiatrician (Faculty of Medical Sciences, Argentina) and microbiologist (Universidad Libre de Colombia) with 15+ years in skin health. Founder & CEO of Sole y Luna Spa (Arecibo, Puerto Rico), known for an evidence-based, personalized approach. With 5+ years working with energy-based technologies and 12 official Fotona trainings, she designs needle-free, non-injectable protocols prioritizing science, safety, and patient well-being.

CLINICAL CASE:

CASE DESIGN

A Female patient, Fitzpatrick II; full-face Er:YAG resurfacing (4 modes).

Intervention:

- Left hemiface: Er:YAG + immediate PBM + standard topical post-care.
- Right hemiface (control): Er:YAG + standard topical post-care.

Follow-up: 40 h & 90 h, VISIA® Red Areas analysis to quantify vascularity/inflammation.

CASE DESCRIPTION

To prepare the skin, we performed a double cleanse to ensure the surface was ready for anesthesia and to provide maximum comfort during the treatment; for this purpose, we applied a compounded ointment of 23% Lidocaine and 7% Tetracaine. The anesthesia was left to act for 10 minutes, after which a new cleanse was performed, and the skin was dried to proceed with the first step. Steps 1 and 2 were performed with fast brushing to soften the stratum corneum and enhance overall luminosity. Step 3 (fractional) was delivered only over wrinkle-bearing areas. Step 4 covered the entire face. Before applying Step 5 (PBM), we previously removed all debris after completing the resurfacing. The technique was uniform fast brushing, delivering 500 J per area (approx. 1150 pulses/area: forehead, zygomatic regions, and the central triangle). Total application for this last step was 8 minutes for the complete face. These parameters, standard across all phototypes, effectively modulate inflammation and accelerate recovery.

For topical closure, hypochlorous acid spray was applied for its bactericidal properties, followed by Panthenol Ceutic as a re-epithelializing agent. The patient was instructed to remove any potentially irritating elements such as exfoliants, AHA/BHAs, hydroquinone, and retinoids from their skincare regimen for 5 days, simplifying their routine to a cleanser, antioxidants, moisturizer according to their needs, re-epithelializing cream, and SPF. For the first day post-treatment, the patient was requested not to wash their face and to only apply Panthenol Ceutic to avoid irritation. Reminders were given to strictly avoid sun exposure, anticipate micro-exfoliation starting on the 4th day, avoid makeup for the first 72 hours, and avoid intense exercise as well as contact with pets or pet hair during the first 48 hours. Initial improvements in skin quality were expected to be visible 21 days post-treatment.

CLINICAL INFORMATION / RESULTS

Immediate PBM controlled the early inflammatory phase triggered by Er:YAG without hindering later remodeling. The PBM-treated side showed less visible vascular congestion and more uniform appearance at 40–90 h in the vascular evolution (see Figs. 1, 2 & 3 below).

PBM PROTOCOL BENEFITS

- Meaningful downtime reduction, even when using high Er:YAG fluences, to safely shorten recovery while preserving outcomes.
- Visible erythema improvement within ≤ 90 h
- Higher acceptance of ablative procedures for patients avoiding injectables/surgery
- No consumables
- Scalable to post-laser inflammatory acne, post-procedure rosacea, dermatitis, post-surgical and post-resurfacing recovery
- Compatible with dermal actives (panthenol, exosomes, PDRN) at the clinician's discretion
- No unwanted side effects
- No major contraindications
- Ultra-fast application time
- Applicable to all skin phototypes

VISIA RED AREAS ANALYSIS

The VISIA® Red Areas Analysis uses specialized RBX® Technology (Red/Brown Subsurface Analysis) to detect and map concentrated areas of redness on and just below the surface of the skin. The results are presented as a percentile score, comparing the patient's skin health to others of the same age and skin type from a large database. The higher the value, the better the redness and inflammation condition. For example, A 59% score in a VISIA Red Areas analysis means that the skin's level of visible redness and inflammation is better than 59% of people in the same age group and skin type database.

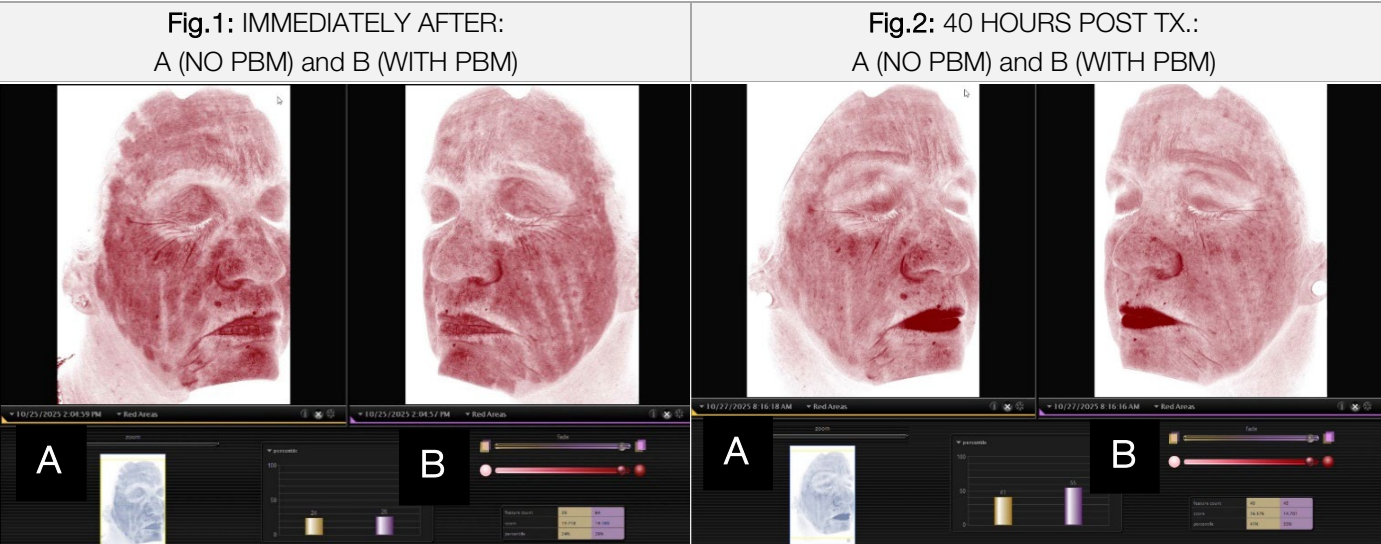


Fig. 1. Immediate post-procedure baseline and PBM Application. Image captures taken immediately after the Er:YAG resurfacing on both hemifaces and the subsequent PBM application on the left side only. VISIA Red Areas analysis shows a baseline inflammatory response: the right hemiface (control) registers 24% and the left hemiface (PBM treated) registers 26%, reflecting a slight acceleration of recovery and containment of the inflammatory process in the left hemiface.

Fig. 2. Comparison at 40 hours post-procedure. The left hemiface (PBM treated) demonstrates lower vascularity and reports a 55% score in the RBX scale. Conversely, the right hemiface (control) shows persistent inflammation, achieving only a 41% score at the same 40-hour observation point. This highlights the acceleration of recovery achieved by PBM application.

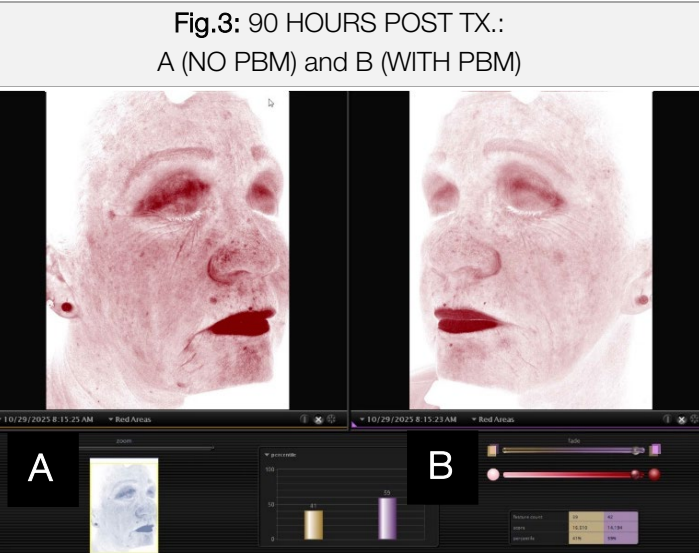


Fig. 3. Comparison at 90 hours: At 90 hours post-resurfacing, RBX measurement of the left hemiface (PBM treated) showed a significant reduction in vascularity and inflammation, reaching a 59% score. Conversely, the right hemiface (control) demonstrated minimal progress after 90 hours, remaining stalled at a 41% score, indicating that standard topical care alone was insufficient to accelerate the resolution of erythema.

Table: VISIA RED ANALYSIS		
VISIA Analysis Moment	Right side (only resurfacing)	Left side (Resurfacing + PBM)
Immediately after	24%	26%
40 hours post Tx	41%	55%
90 hours post Tx	41%	59%