

Laser Surgery for Traumatic Scars

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Traumatic Scars in Children

Functional impairments

Disfiguring, don't look "normal"

A reminder of the unfortunate event that caused the scar

Source of potential psychosocial distress, affecting self esteem and quality of life

Facial scars particularly problematic



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Laser For Traumatic Scars

Addresses functional, aesthetic outcome

Improves texture, pliability, pigmentary abnormalities, erythema, and hypertrophy

Improves symptoms, including pruritus

Reports improved range of motion

Best implemented in conjunction with current modalities



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Lasers For Burn Scars



Fractionated Lasers: An Innovation in Laser Technology

- Pixilated pattern of injury
- Microscopic treatment zones
- Zones of normal tissue between MTZ promotes faster wound healing
- Ablative fractionated lasers help scars by removing portion of scar tissue, and stimulating dermal collagen remodeling



Laser for Hypertrophic Burn Scars

Prospective study 147
burn patients

Lasers implemented
primarily pulsed dye laser,
fractionated CO₂ laser

Vancouver Scar Scale
decreased 10.43 to 5.16



Fractionated CO₂ and “Laser Assisted Corticosteroid Delivery”

Series 15 patients with hypertrophic scars from burns, trauma, or surgery

Same session fractionated CO₂ followed by **immediate application of triamcinolone** 10mg/ml or 20mg/ml

Enhanced drug delivery via ablative channels

Average overall improvement 2.73/3, based on photos baseline and 6 months



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Fractionated CO₂ and "Laser Assisted Corticosteroid Delivery"



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Source: Waibel JS, Wulkan AJ, Shumaker PR. Lasers Surg Med 2013;45:135-140.

Improved Mobility and Grip 10 Days Post Ablative Fractional Laser

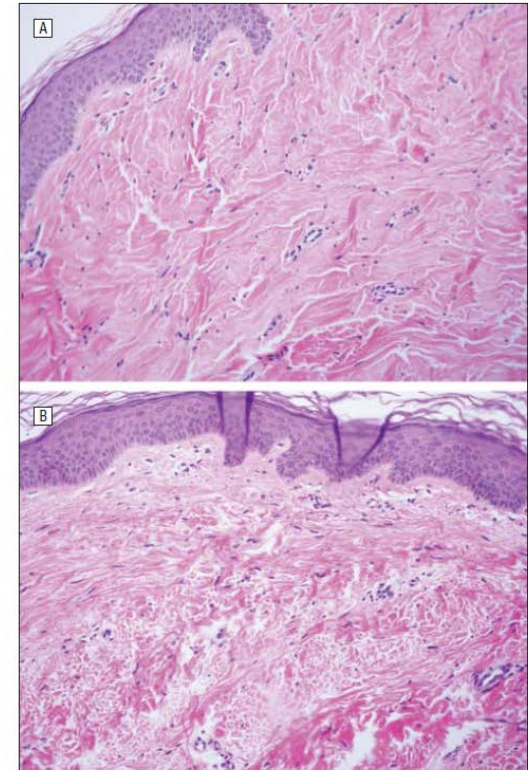
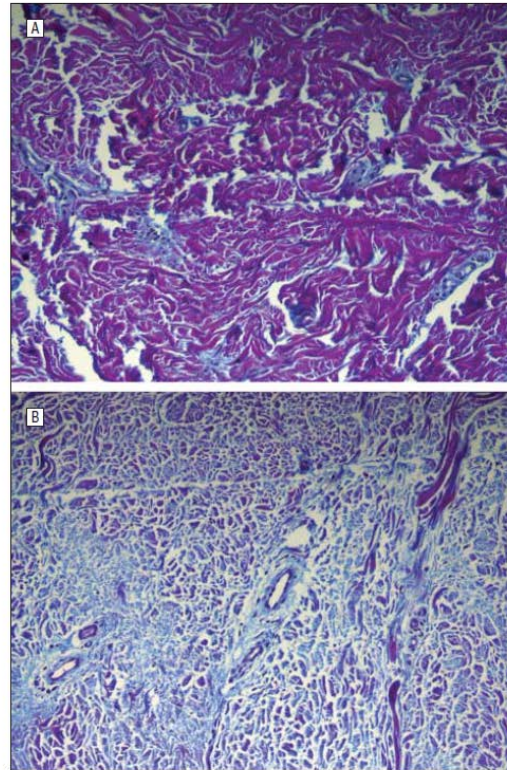


Increased Range of Motion, Healing of Erosion Overlying Contracture



Collagen Remodeling Post Fractional CO₂ Laser in Mature Burn Scars

- Biopsy before and 2 months after 3 treatments
- **Collagen type I/III profile resembling nonwounded skin**
- Improved collagen architecture



Laser Treatment of Traumatic Scars: Consensus Report

“Laser scar therapy, **particularly fractional ablative laser resurfacing**, represents a promising and vastly underused tool in the multidisciplinary treatment of traumatic scars”

“Changes to existing scar treatment paradigms should include **extensive integration of fractional resurfacing** and other combination therapies guided by future research”

Pulsed Dye Laser for Burn Scars



Fig. 1 – (A) This photo shows a 15-year-old boy 16 months after deep second degree flash burns to the face after a gasoline explosion. Notice the diffuse erythematous and raised hypertrophic facial scars. At this point he began laser treatment. **(B)** The patient is shown 4 years later after 13 pulsed dye laser treatments; the hypertrophy and erythema have almost completely resolved.

Who Can Be Treated

Any site

Any skin type

Stable epithelialized wound desirable

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Thank you for your attention!