

# Adjunctive Use of Topical GHK-Cu Peptide to Support Early Recovery Following Ablative and Non-ablative Laser Resurfacing

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## ABSTRACT

Laser resurfacing triggers inflammation and early wound-healing responses. In a prospective split-face series (n=8), a topical GHK-Cu mask applied immediately post-procedure was compared to standard care. At ~15 minutes and 24 hours, the GHK-Cu side showed improved comfort (75%), reduced erythema, and better early healing (↓ dryness, improved texture), with no adverse events. Effects were more pronounced in ablative treatments. GHK-Cu was well tolerated and associated with improved early recovery, suggesting potential to reduce post-laser downtime; larger studies are needed.

## BACKGROUND

GHK-Cu (glycyl-L-histidyl-L-cysteine copper) is a naturally occurring tripeptide released in response to tissue injury that plays a key role in wound healing and cutaneous regeneration. Although peptide penetration is typically limited, copper complexation enhances transdermal delivery, supporting its use in topical therapies. Preclinical studies demonstrate that GHK-Cu promotes angiogenesis and fibroblast activity via upregulation of VEGF and FGF, enhances collagen and elastin synthesis, and modulates MMP-2 and MMP-9 to support balanced extracellular matrix remodeling. It also exhibits antioxidant and anti-inflammatory effects through suppression of NF-κB and p38 MAPK pathways, reducing oxidative stress and inflammatory signaling. These mechanisms are highly relevant to laser-induced skin injury, where inflammation and oxidative damage drive early downtime. Notably, GHK is generated early in the wound-healing cascade (via SPARC cleavage), supporting its potential benefit as an adjunctive therapy during the acute post-laser resurfacing period.

## METHODS & MATERIALS

A prospective split-face case series of 8 patients undergoing fractional ablative or non-ablative laser resurfacing was conducted at Precision Skin and Body Institute (Davie, FL) between December 2025 and January 2026. The cohort included 8 patients (mean age 44 ± 13.5 years; range 28–60). Immediately following laser treatment, a topical GHK-Cu peptide-containing mask was applied to one side of the face, while a standard post-procedure emollient was applied to the other side. Standardized clinical photographs were obtained at approximately 15 minutes and 24 hours post-procedure under consistent lighting conditions. Outcomes assessed included patient-reported comfort, visible erythema, early healing characteristics (dryness, edema, skin surface quality), and adverse events. All patients provided informed consent for treatment and photography.

## RESULTS

Immediately post-procedure, erythema scores ranged from 1 to 3, reflecting mild to moderate cutaneous inflammation across all subjects.

At 15 minutes following treatment, the intervention side demonstrated a **consistent reduction in erythema**, with final scores clustering between 1 and 2. This early improvement was observed in approximately 75% of patients, with the majority demonstrating 26–75% perceived improvement in erythema severity.

In contrast, the comparator side exhibited less consistent change, with several cases showing persistent or relatively higher erythema scores at the same time point.

## ACKNOWLEDGEMENTS

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## CONCLUSION

Topical application of a GHK-Cu mask was associated with a rapid and clinically meaningful reduction in immediate post-procedural erythema within 15 minutes, suggesting an accelerated early inflammatory recovery compared to standard care.

These findings support its role as a valuable adjunct in the immediate post-procedural period, with potential to reduce visible redness following laser resurfacing.

As early recovery in patient satisfaction and healing is an important component, rapid attenuation of erythema may translate to improved overall treatment and experience. Early reduction in inflammation may also promote more favorable downstream healing outcomes, supporting its potential beyond the immediate post-treatment window.

The observed early effects are consistent with proposed mechanisms of anti-inflammatory modulation and enhanced tissue repair signaling, supporting biologic plausibility.

Early Recovery Scores at 15 Minutes (n = 8)

