

Efficacy and safety of a topical skincare regimen with TriHex Technology® following fractional CO₂ laser: A randomized, split-face trial in Asian subjects

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Introduction & Objective

- Fractional CO₂ laser is a global aesthetic procedure that rejuvenates skin by creating microscopic thermal injuries in a grid pattern through the epidermis and dermis, stimulating regeneration, promoting collagen production, reducing redness, and improving texture and tone.¹
- The products containing TriHex Technology® demonstrated effectiveness in improving visual facial photoaging.² This technology stimulates neocollagenesis and elastogenesis, enhances collagen and elastin production, reduces erythema, and accelerates epidermal healing, leading to better overall aesthetic outcomes.³
- The objective of this study was to evaluate the skin recovery effects of a facial serum containing TriHex Technology® (hereafter referred to as the serum) in comparison with a basic lotion (hereafter referred to as the lotion) in Asian subjects undergoing fractional CO₂ laser procedure.

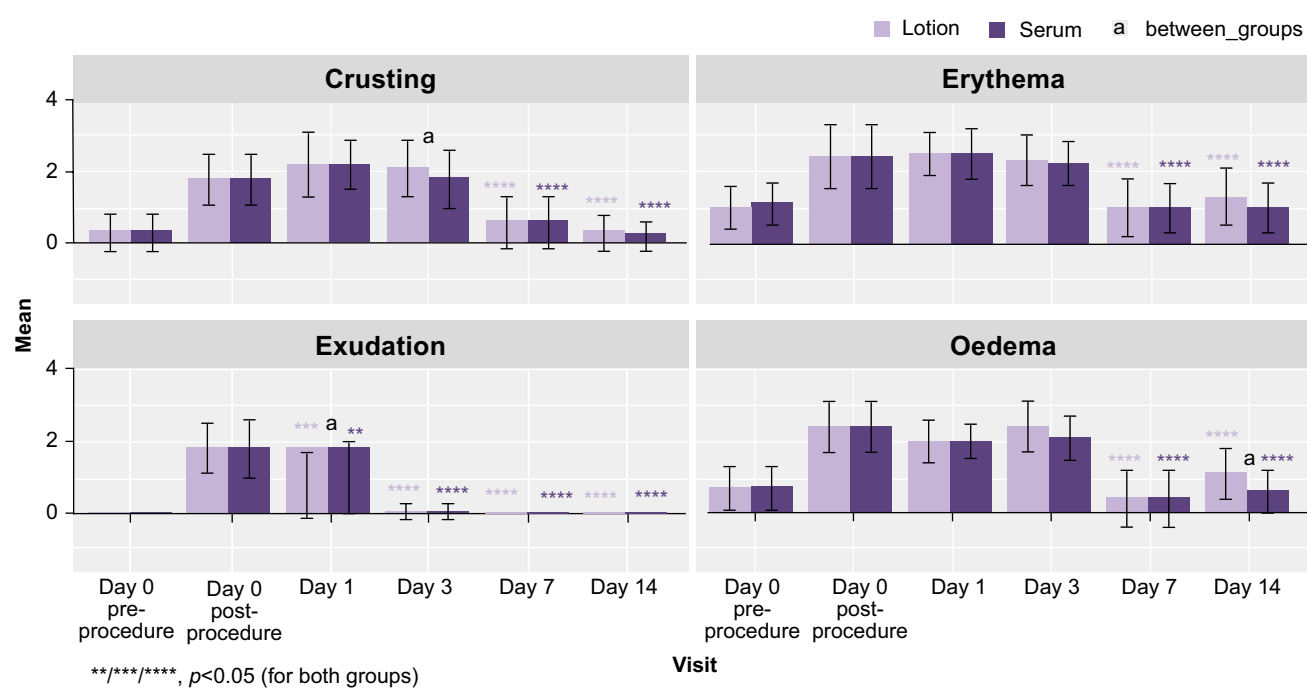
Methods

- Prospective, randomized, evaluator-blinded, split-face, comparative study with a single study site.
- Subjects enrolled in this study 14 days prior to the fractional CO₂ laser procedure for skin preparation.
- Pre-procedure (14 days prior to procedure) and post-procedure day 4 to day 14: Applied the serum on the assigned hemi-face and the lotion on the whole face twice daily (morning and evening).
- Post-procedure day 1 to day 3: Applied the serum on the assigned hemi-face and the lotion on the other hemi-face up to six times daily.
- Twenty-six subjects enrolled in this study and underwent fractional CO₂ laser (Lumenis®). Twenty-two of them had good compliance and were used for efficacy analysis.
- Subjects returned for follow-up visits on post-procedure days 1, 3, 7, and 14.
- Assessments included investigator grading, subject self-grading, instrumental measurements (transepidermal water loss [TEWL] and VISIA-CR redness analysis), and products experience questionnaire.
- The blinded investigator assessed the healing of erythema, oedema, crusting, and exudation for both the serum and lotion sides using a 5-point scale (0=none to 4=severe).
- The blinded investigator assessed the skin aesthetic of post-inflammatory hyperpigmentation (PIH), skin dullness, and tactile roughness for both the serum and lotion sides using a 10-point scale (0=none to 9=severe).
- The subjects assessed the healing of redness, swelling, pain, heat, crusting, and dryness for both the serum and lotion sides using a 5-point scale (0=none to 4=severe).
- Immediate facial cleaning was restricted until 24 hours post-procedure. From day 1 to day 7 post-procedure, subjects were advised to clean their face with water only. On other days during the entire study, a cleanser could be used twice daily before applying the products, and sunscreen could be applied once daily in the morning after the products.

Results

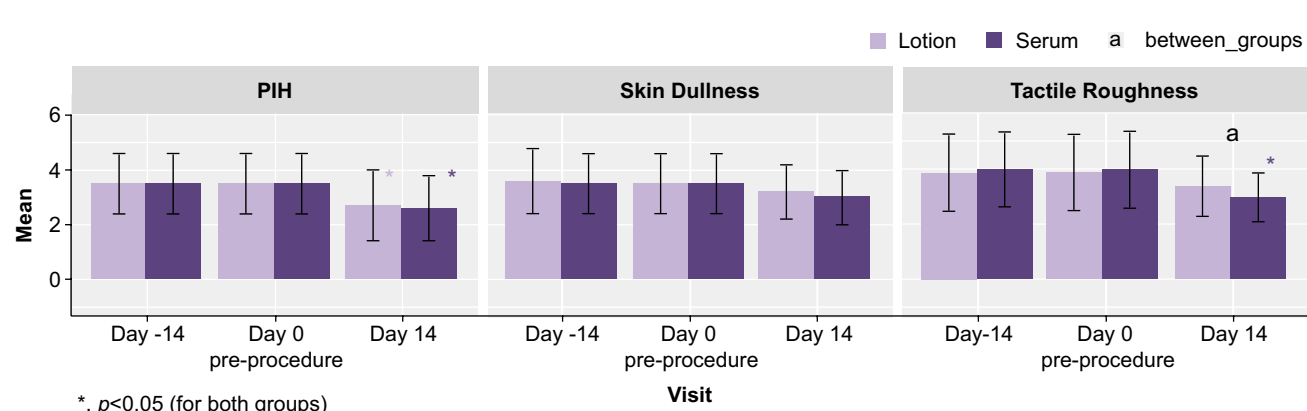
- Based on the blinded investigator healing assessment, crusting on Day 3 post fractional CO₂ laser procedure and oedema on Day 14 were recovered better on the serum side compared to the lotion side ($p<0.05$). In addition, the skin recovered from exudation from Day 1 on both the serum and lotion sides, and erythema, oedema, and crusting recovered from Day 7 on both sides ($p<0.05$; **Figure 1**).

Figure 1. Investigator's healing grading



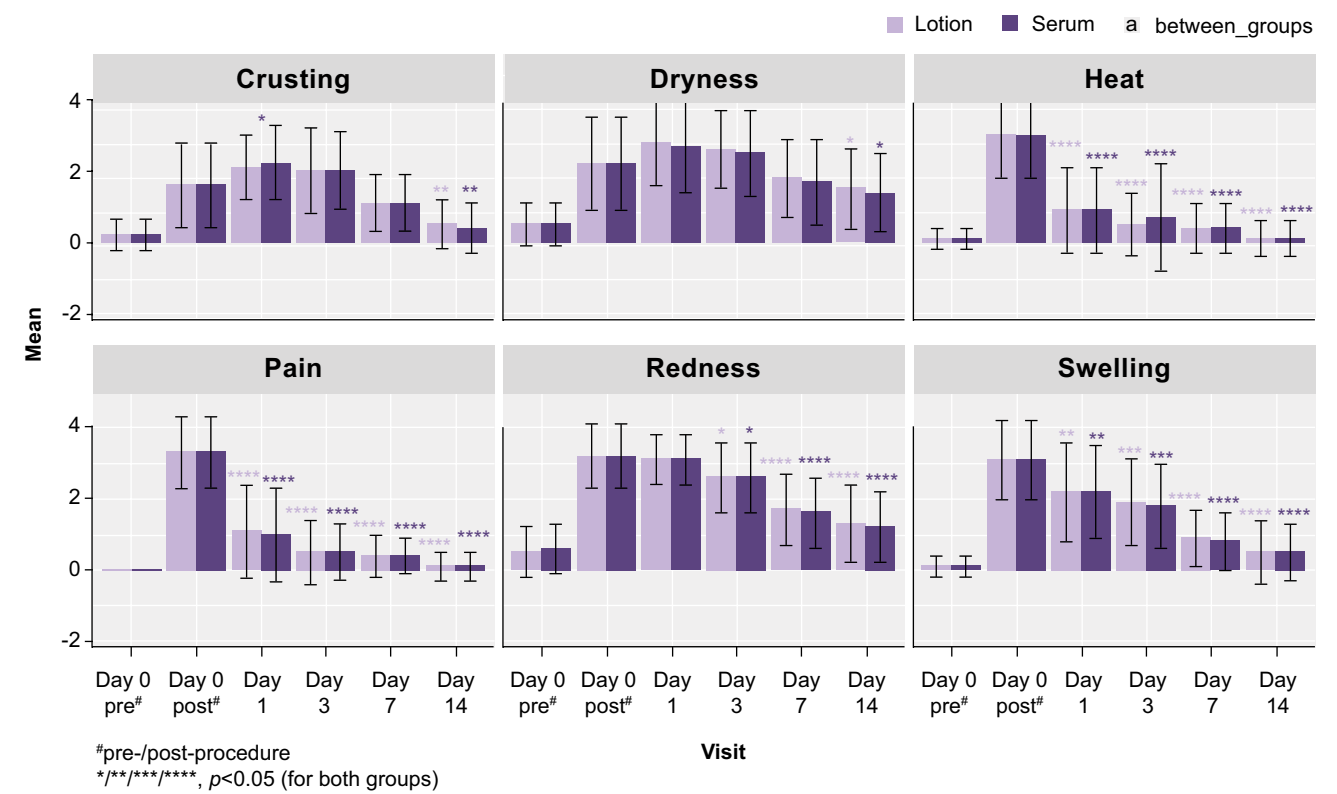
- Based on the blinded investigator aesthetic assessment, notably, on day 14 post-procedure, the serum side exhibited a smoother tactile roughness compared to the lotion side ($p<0.05$), and it was the only side to show improved smoothness compared to pre-procedure levels ($p<0.05$). In addition, the PIH were improved on both the lotion side and serum side by day 14 post-procedure ($p<0.05$; **Figure 2**). No significant effect was reported on improvement in skin dullness.

Figure 2. Investigator's aesthetic grading



- Based on the subject healing assessment, recovery of swelling, pain, and heat began significantly from the first day post-procedure on both the serum and lotion sides ($p<0.05$). Redness showed significant relief starting on day 3 post-procedure ($p<0.05$). Crusting and dryness exhibited significant recovery from day 14 post-procedure (**Figure 3**).

Figure 3. Subject's healing grading



- VISIA-CR analysis indicated that the serum side exhibited superior redness reduction compared to the lotion side ($p<0.05$), and it was the only side to show significant redness recovery compared to pre-procedure levels ($p<0.05$; **Figure 4 and 5**). TEWL measurements demonstrated that skin barrier recovery began significantly from the third day post-procedure on both sides compared to the first day post-procedure. Notably, the serum side showed better recovery compared to the lotion side on day 3 post-procedure (**Figure 6**).

Figure 4. VISIA-CR redness analysis

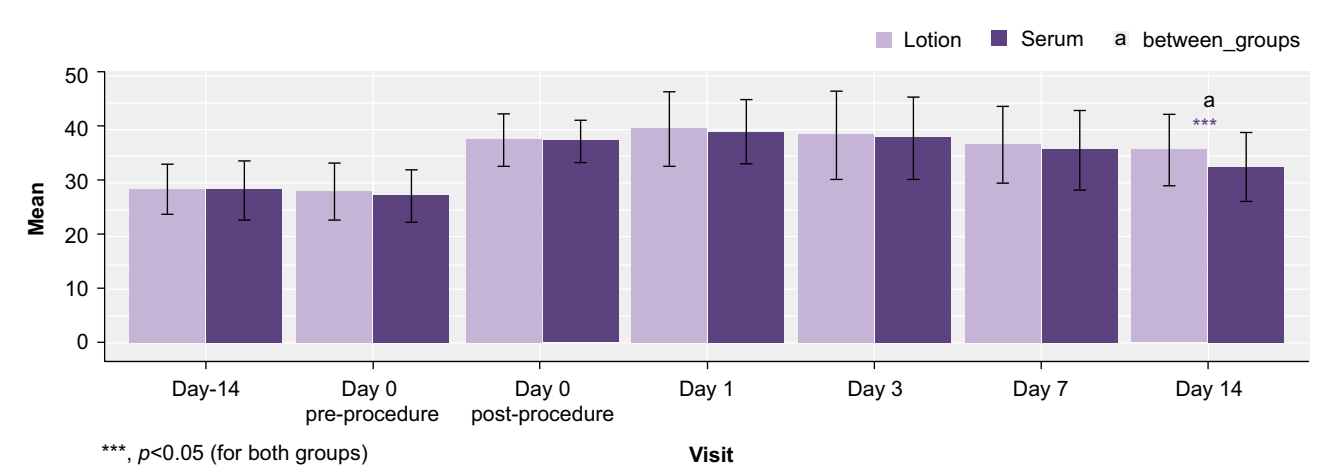


Figure 5. Skin recovery effects of facial serum in Asian subjects

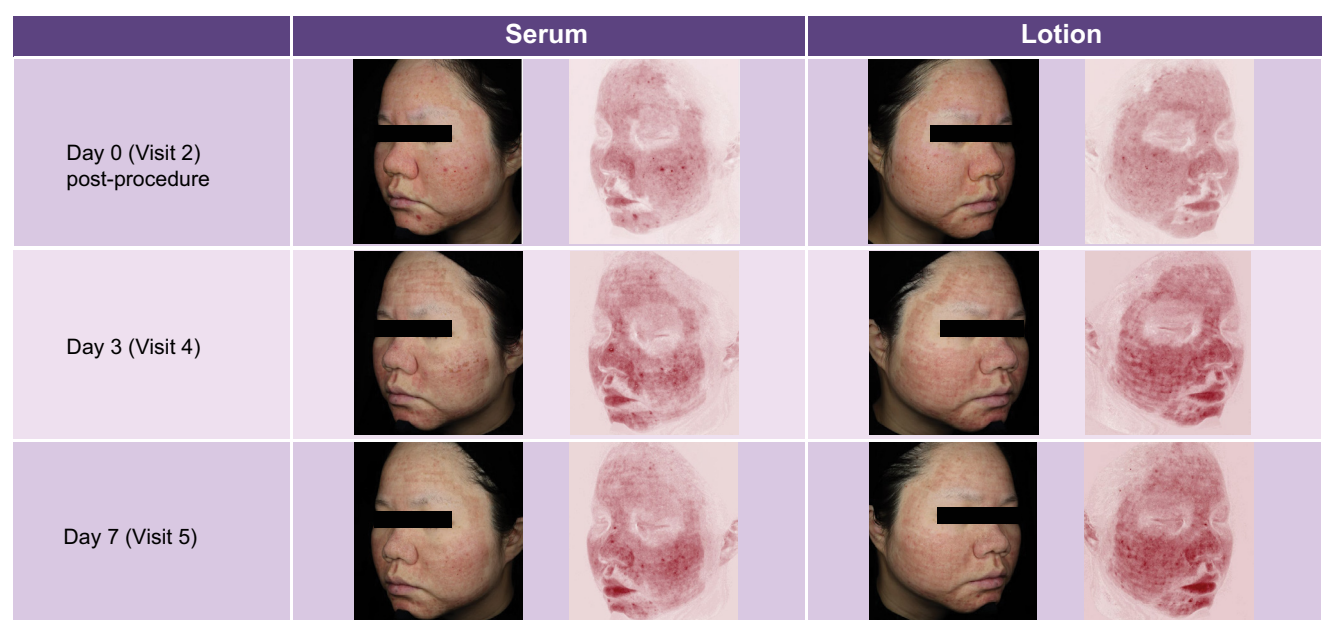
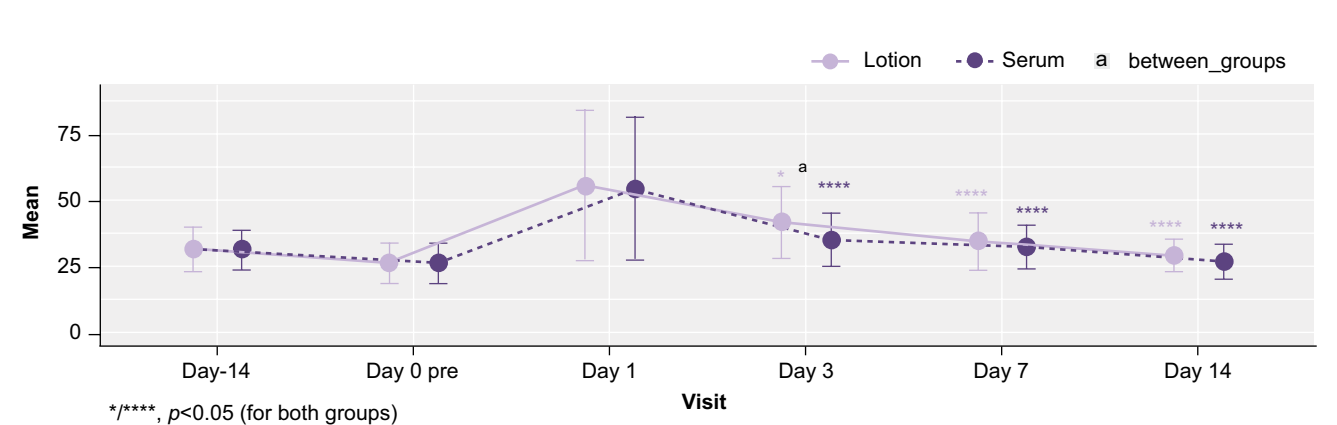


Figure 6. Transepidermal water loss (TEWL)



- Subjects agreed that the serum-treated side of their skin experienced better relief from discomfort and faster healing from procedure damage. Additionally, positive agreement on the performance of both the serum and lotion was observed.
- A total of 4 subjects reported 6 cases adverse events. Among these, 5 were classified as mild, with 4 cases possibly unrelated to either investigational product and 1 case where the relationship could not be evaluated. The remaining adverse event was moderate and was also deemed possibly unrelated to both investigational products. No additional tolerability occurrences were recorded. In general, both products had good tolerability.

Conclusion

- This study demonstrated that using both serum and lotion according to the protocol after the fractional CO₂ laser procedure aids skin repair in the Asian population.
- Notably, the serum containing TriHex Technology® was more effective in repairing crusting and TEWL based on the investigator's healing grading and instrumental measurements.
- Subjects agreed that the serum-treated side of their skin experienced better relief from discomfort and faster healing from procedure damage. Additionally, the serum showed potential benefits in reducing redness, alleviating oedema, and smoothing tactile roughness based on data collected after 3 days post-procedure. Also, both the serum and lotion were found to be well tolerated.

References: 1. Dayan S, Gandhi N, Wilson J, et al. Safety and efficacy of human platelet extract in skin recovery after fractional CO₂ laser resurfacing of the face: A randomized, controlled, evaluator-blinded pilot study. *J Cosmet Dermatol.* 2023;22(9):2464-2470. 2. Widgerow AD, Jiang LI, Calame A. A single-center clinical trial to evaluate the efficacy of a tripeptide/hexapeptide antiaging regimen. *J Cosmet Dermatol.* 2019;18(1):176-182. 3. Gold MH, Sensing W, Biron JA. A topical regimen improves skin healing and aesthetic outcomes when combined with a radiofrequency microneedling procedure. *J Cosmet Dermatol.* 2019;18(5):1280-1289.

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