

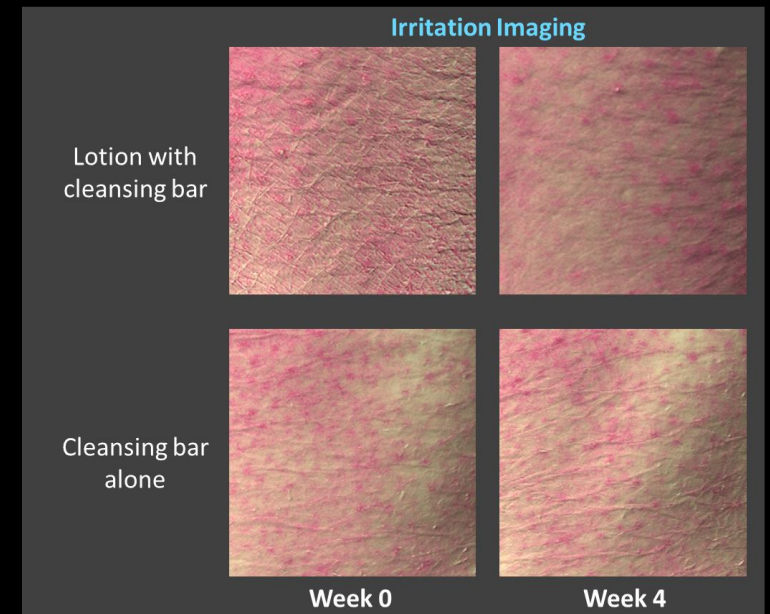
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A cosmetic lotion that improves skin barrier quality also alleviates dry skin-related itch

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Introduction and Objectives

- Skin discomfort due to itch can lead to sleep disturbances, lowered self-confidence, avoidance of social interactions and an overall poorer quality of life.
- Dry, barrier-compromised skin can result from environmental factors and habits such as exposure to extreme weather conditions, UV, low relative humidity as well as cleansing with harsh surfactants.
- These same factors can also lead to pruritis and itch, suggesting a causal link between the perception of itch and the quality of the stratum corneum skin barrier.
- Scratching can further compromise skin, leaving it even more vulnerable to penetration by everyday irritants and allergens.
- The objective of this research was to confirm that a high-emollient lotion with glycerin, stearic acid, and petrolatum could improve the quality of the skin barrier, and therefore reduce irritation and the perception of subjective itch.

Materials and Methods

- n=59 healthy Caucasian females, aged 19 to 64 years, provided informed consent to participate in a randomized, double-blind, institutional review board-approved, four-week, uncontrolled-application leg study executed during the winter season in Trumbull, CT, USA.
- Subjects had both moderate dryness and self-perceived itchiness on their lower legs. Moderate dryness on their lower legs was scored as a 2.0-2.5 on a 0-4 visual dryness scale.
- Treatment groups included one receiving mild cleansing bar with no moisturizing product (n=28) and a second group receiving the same cleansing bar with an advanced healing lotion (n= 31) to be used at least once a day. The lotion was a high glycerin formulation containing stearic acid and petrolatum.
- Weekly assessment of skin barrier condition included expert visual assessment of dryness, transepidermal water loss (TEWL, CyberDERM Inc.), hydration by Corneometer (Courage + Khazaka), skin surface pH (pH 905 by Courage + Khazaka), and irritation skin roughness (Antera 3D[®] by Miravex). Perception of skin condition and itch were evaluated with subjective surveys.
- Statistical analysis was completed by calculating differences in mean change from baseline (CFB), with treatment as a fixed effect. * denotes $p < 0.05$ between treatment groups.

Results – Visual dryness and TEWL improved with lotion treatment

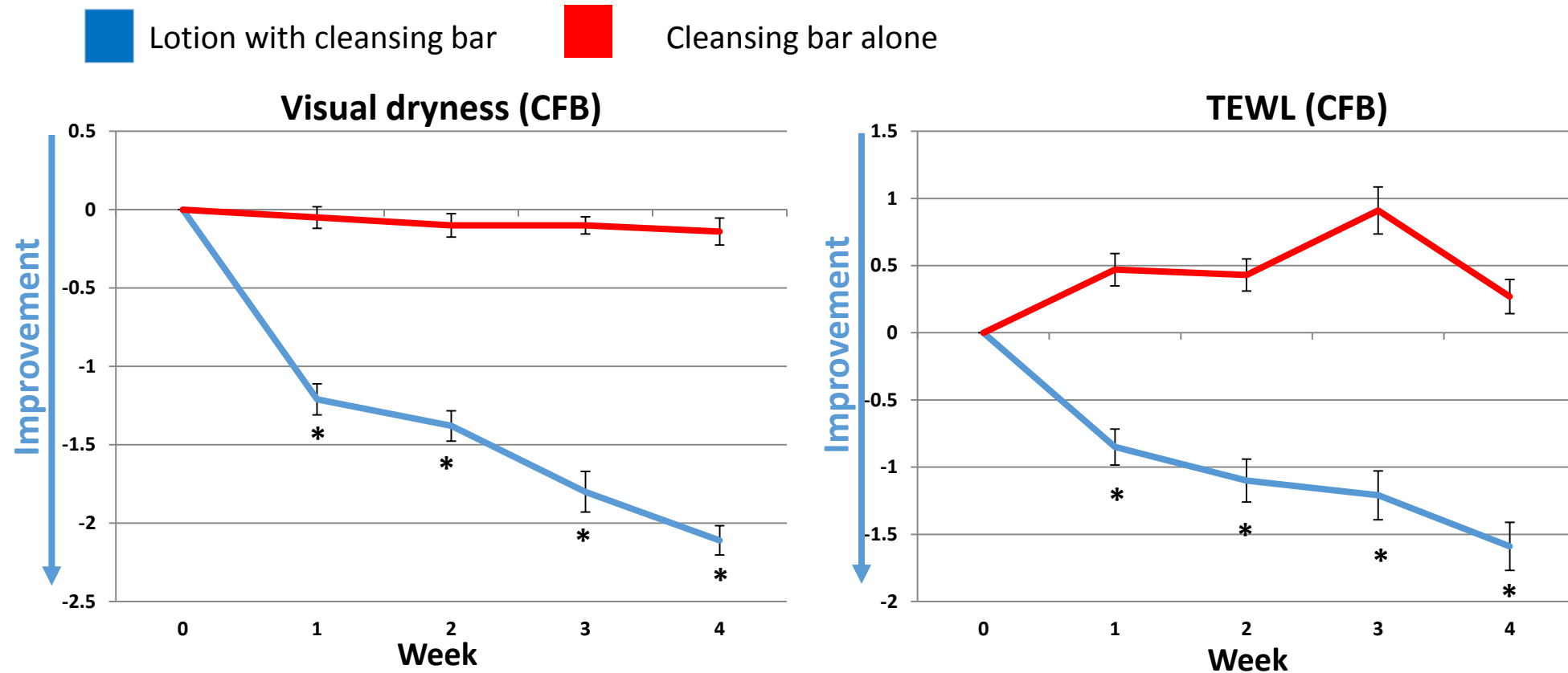


Figure 1: Visual dryness and transepidermal water loss (TEWL) mean change from baseline (CFB). Beginning at week one, significant improvements in visual dryness and transepidermal water loss (TEWL) were observed in the group receiving lotion (blue) compared to the no lotion group (red).

Results – Hydration and pH improved with the lotion treatment

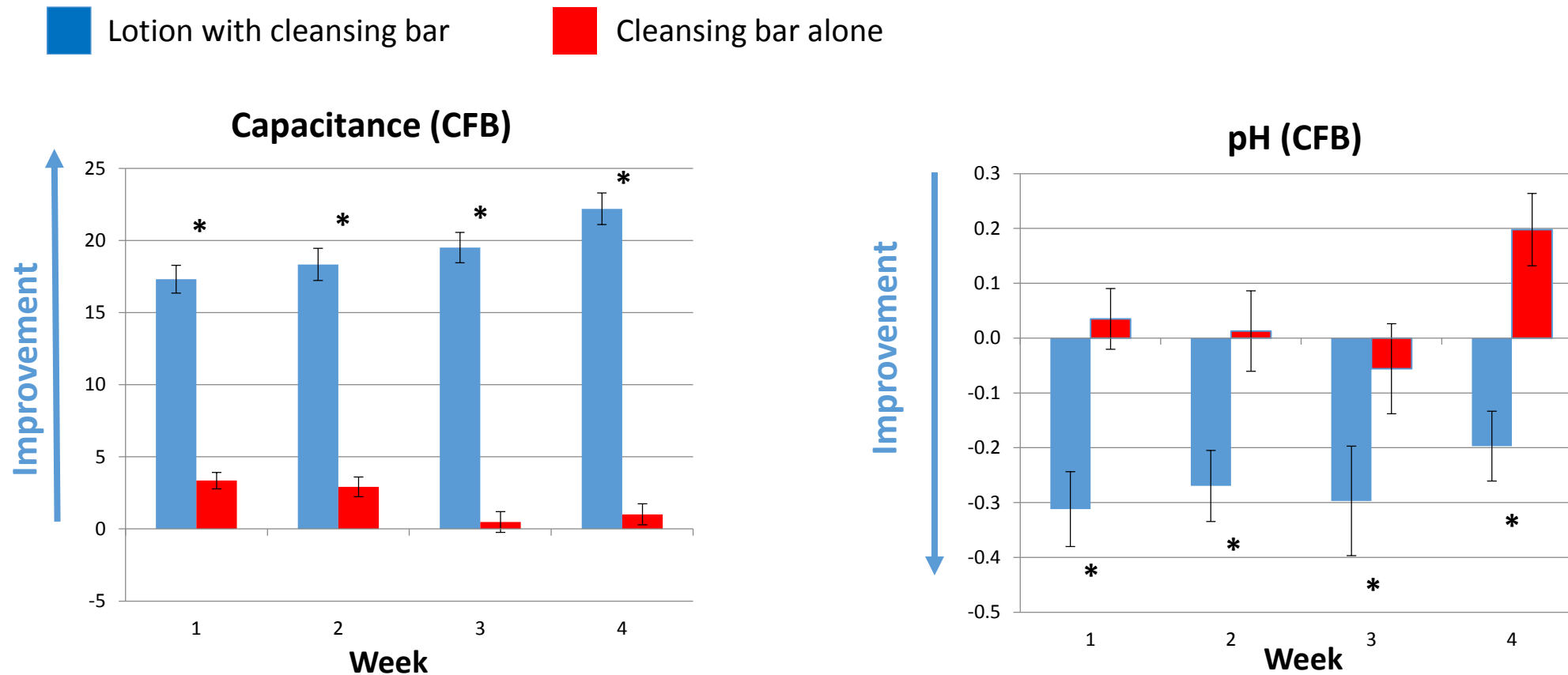


Figure 2: Capacitance and pH mean change from baseline (CFB). Beginning at week one, significant improvements in hydration (assessed by corneometer) and skin surface pH were observed in the group receiving lotion (blue) compared to the no lotion group (red).

Results – The lotion improved skin texture and reduced irritation

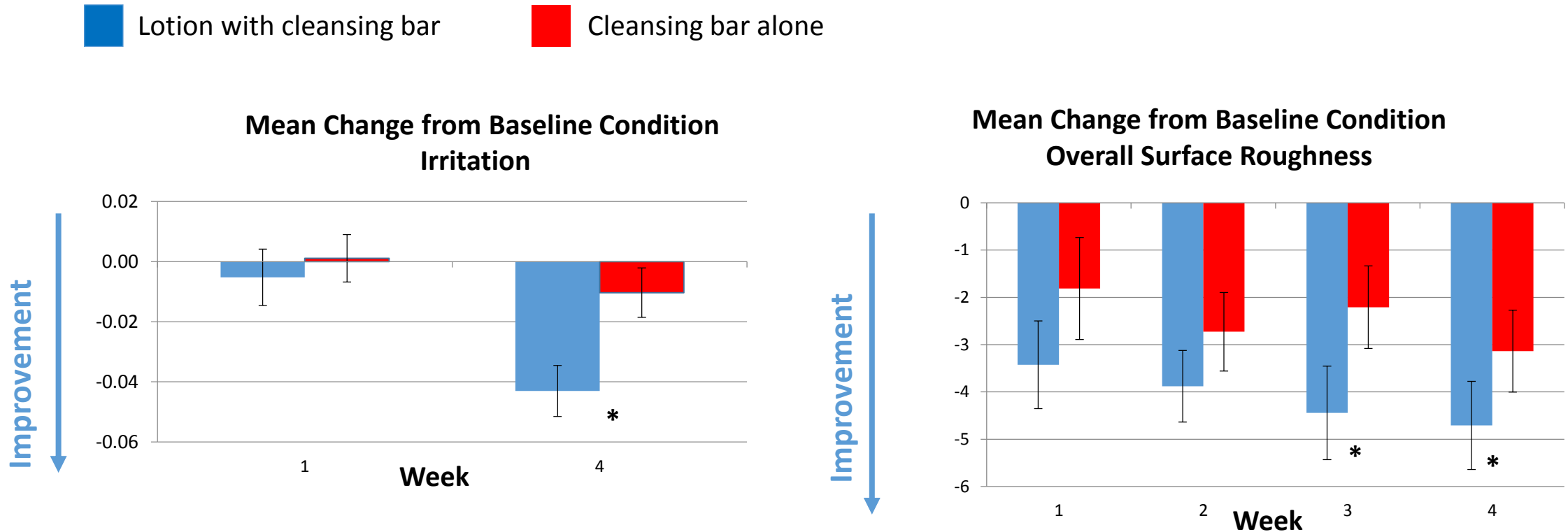
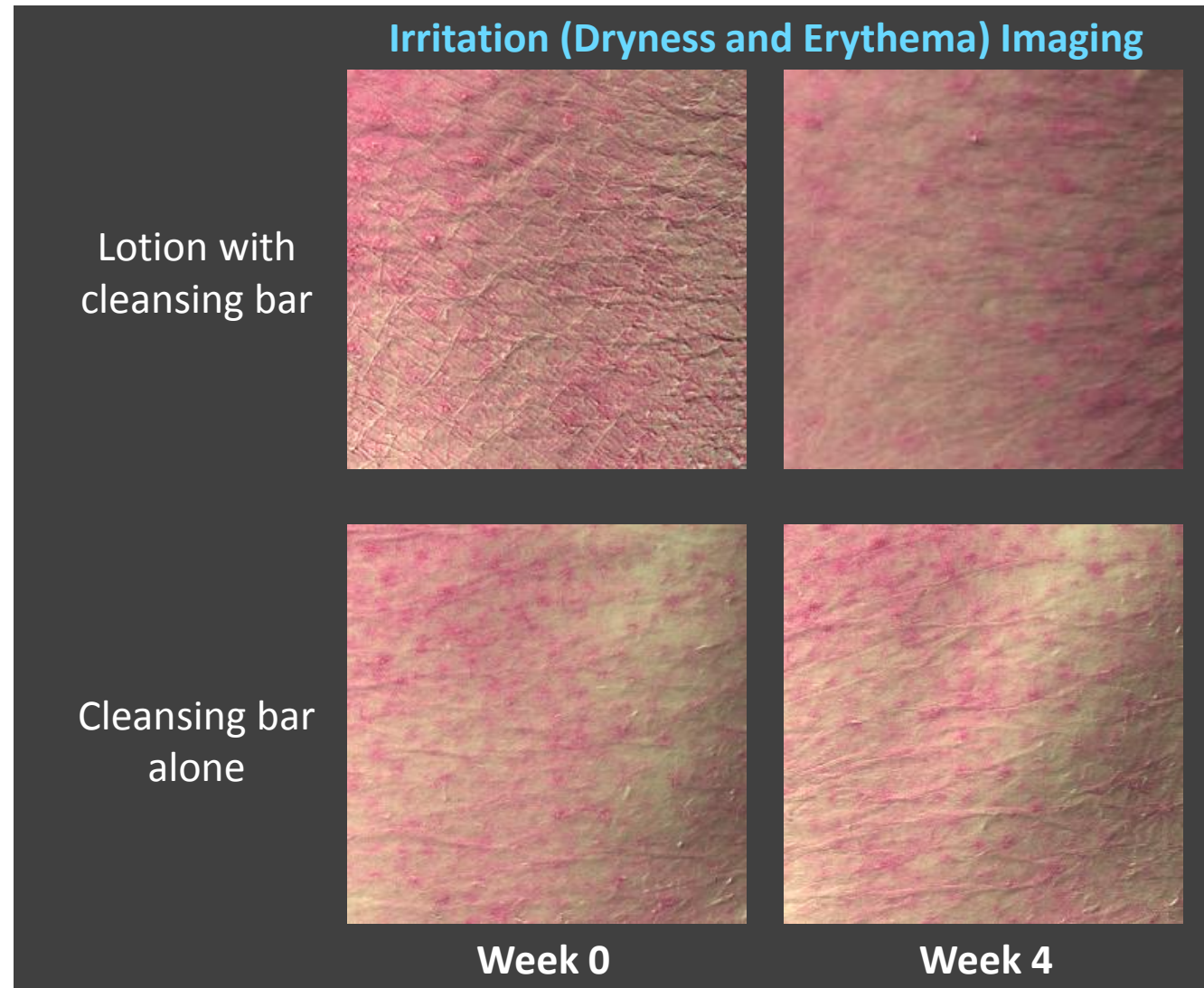


Figure 4: Antera 3D® Skin Irritation (hemoglobin/redness) and Surface Roughness. Itchy skin may be associated with redness or changes in surface texture as a consequence of scratching behavior and/or underlying inflammation. Compared to the no lotion group, by 4 weeks, significant improvements in both skin redness and surface texture were observed in the lotion group.

Results – The lotion showed reduced irritation

Figure 4: Antera 3D® representative irritation sample images.

- Using multispectral imaging, hemoglobin values are calculated across the test site and displayed as an image.
- Areas with more/intense redness indicates higher hemoglobin, or irritation.
- In this example, the lotion site shows improvement to dryness/scaling as well as irritation, where the control site shows no change to irritation and increased scaling.



Results – The lotion reduced itch intensity

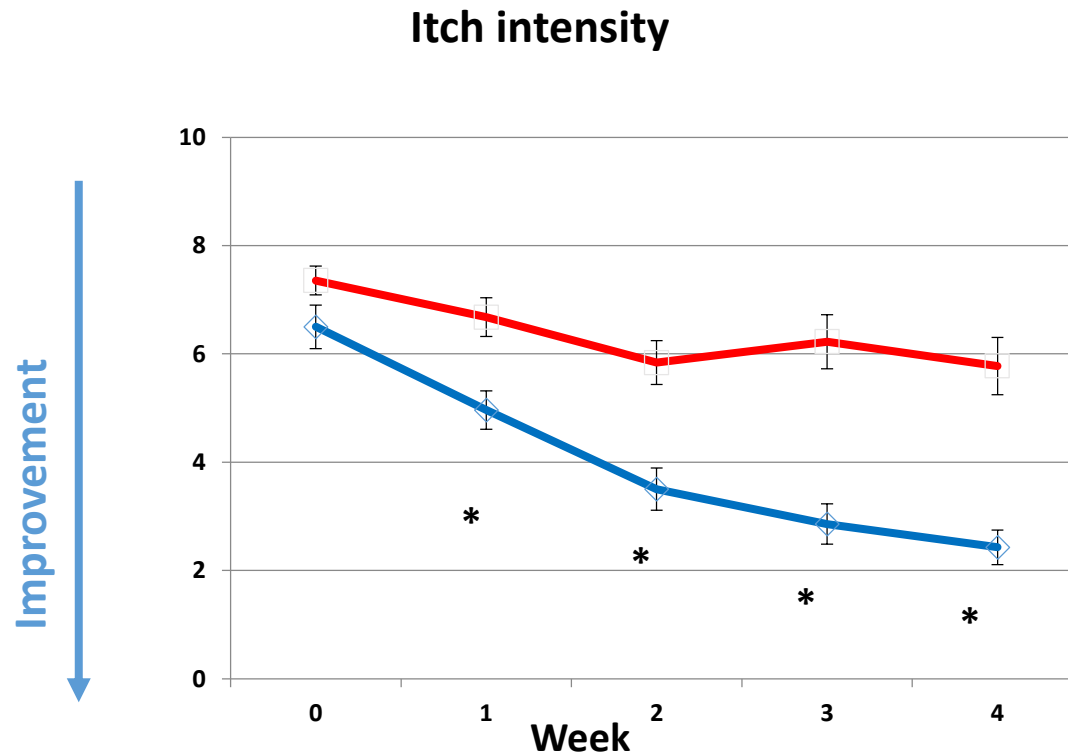


Figure 5: Subjective perception of itch over time. The perception of itch intensity (on a scale of 1-10 with 1 indicating no itch and 10 indicating extreme itch) was reduced in the group receiving the lotion (blue) compared to the no lotion group (red).

Summary and Conclusions

- The results here show a causal relationship between skin condition and the perception of itch in a healthy subject population with moderately dry leg skin.
- As expected, use of a high-emollient lotion with glycerin, stearic acid, and petrolatum led to improved skin barrier.
- As hypothesized, the perception of itch improved in tandem.
- Taken together, these data demonstrate that skin healing with a high-emollient lotion can alleviate dry skin-related itch. Further studies are warranted to prove that skin healing leads to improved quality of life.