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INTRODUCTION

Xerosis is characterized by a diminished capacity of the skin to retain moisture that clinically presents as rough, tight, flaky, and pruritic skin dependent on condition severity.¹ Xerosis is often attributed to a decrease in key stratum corneum lipids, namely ceramides, leading to a decline in skin barrier function in addition to a reduction in natural moisturizing factors (NMFs) resulting in reduced water binding capacity.^{1,2,3} Effectively addressing symptoms, restoring skin barrier function, and preventing the progression of xerosis is important to manage impact to quality of life. This study assesses the efficacy of a moisturizer containing 3 skin identical ceramides and NMFs for clinical reduction of xerosis symptoms and improvement in skin barrier function, hydration, and NMF composition.

METHODS

A 4-week, single-center clinical study (USA) was conducted on 90 men and women aged 19-75 with Fitzpatrick skin type I-VI. Subjects presented aggravated, uncomfortable skin with moderate to severe dryness, flakiness/scaling, itching, rough skin texture, and erythema on the global arms, legs, knees, and/or elbows. Subjects who met clinical criteria for leg dryness also required baseline transepidermal water loss (TEWL) >10 g·m⁻²·h⁻¹ (RG, Cyberderm) and corneometer < 80 units (Dermalab, Cortex Technologies). All subjects applied the ceramide- and NMF-containing cream at least twice daily for four weeks followed by a 3-day regression period when no test product was applied. Clinical scoring for extra dry skin symptoms were conducted immediately, at Day 1, Day 3, Week 1, Week 4, and Regression (+3 days) through dermatologist grading on a 5-point ordinal scale with clinical images. Instrumental TEWL and hydration assessments were performed on the legs of subjects throughout the duration of the study. Tape strips were collected on the legs of subjects at baseline, W1, and W4 for NMF composition analysis via LC-MS. Participant self-perception was assessed at all timepoints.

RESULTS

There was a statistically significant (p< 0.001) improvement in dryness, flakiness/scaling, itching, rough skin texture, and erythema on the global arms, legs, knees, or elbow at all time points. Percentage reduction of xerosis symptoms shown in Figure 1 with sustained improvements after three days without product usage.

Figure 1. Clinical Evaluation of Product Efficacy by Body Zone

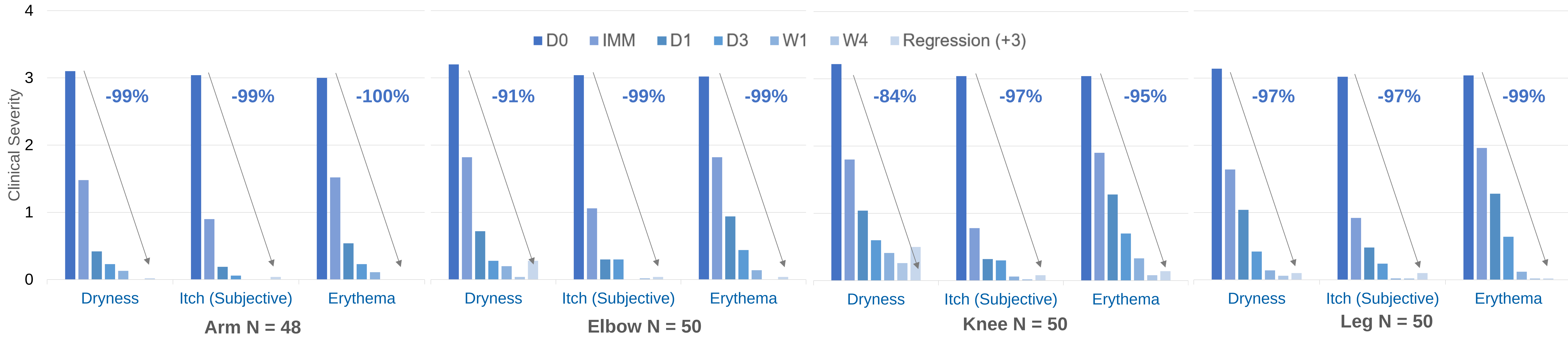
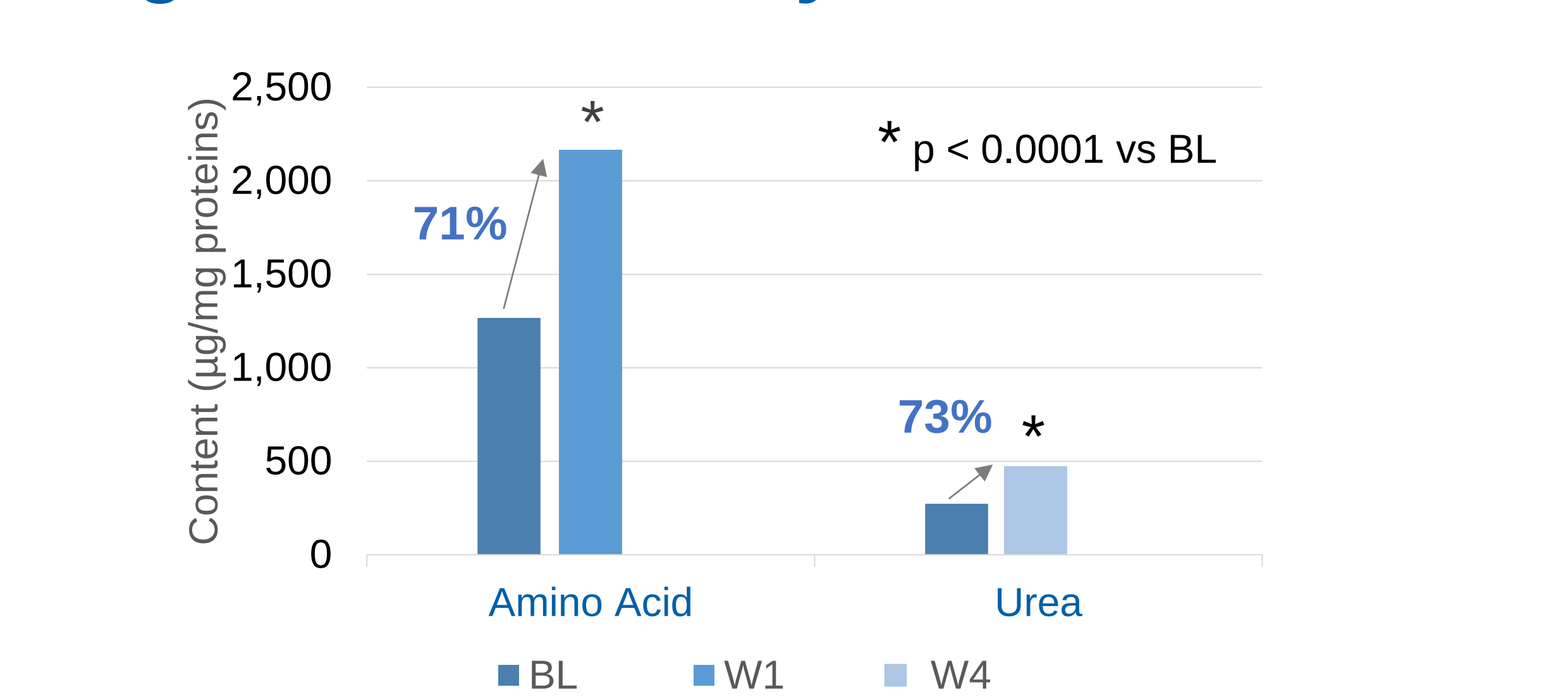


Figure 2. Xerosis Visual Improvement



Prominent stratum corneum amino acids (glycine, alanine, and serine) increased by 71% after one week driven by glycine in the top layer of the stratum corneum. After 4 weeks, urea was increased by 73% when measured 10 layers deep in skin (Figure 5).

Figure 5. NMF Analysis



Skin hydration improved over 100% immediately upon application and TEWL was reduced by 45% with continued use when compared to baseline (Figures 3 & 4). Three days after last product application, hydration remained elevated by 17% and TEWL reduced by 13% compared to baseline.

Figure 3. Hydration

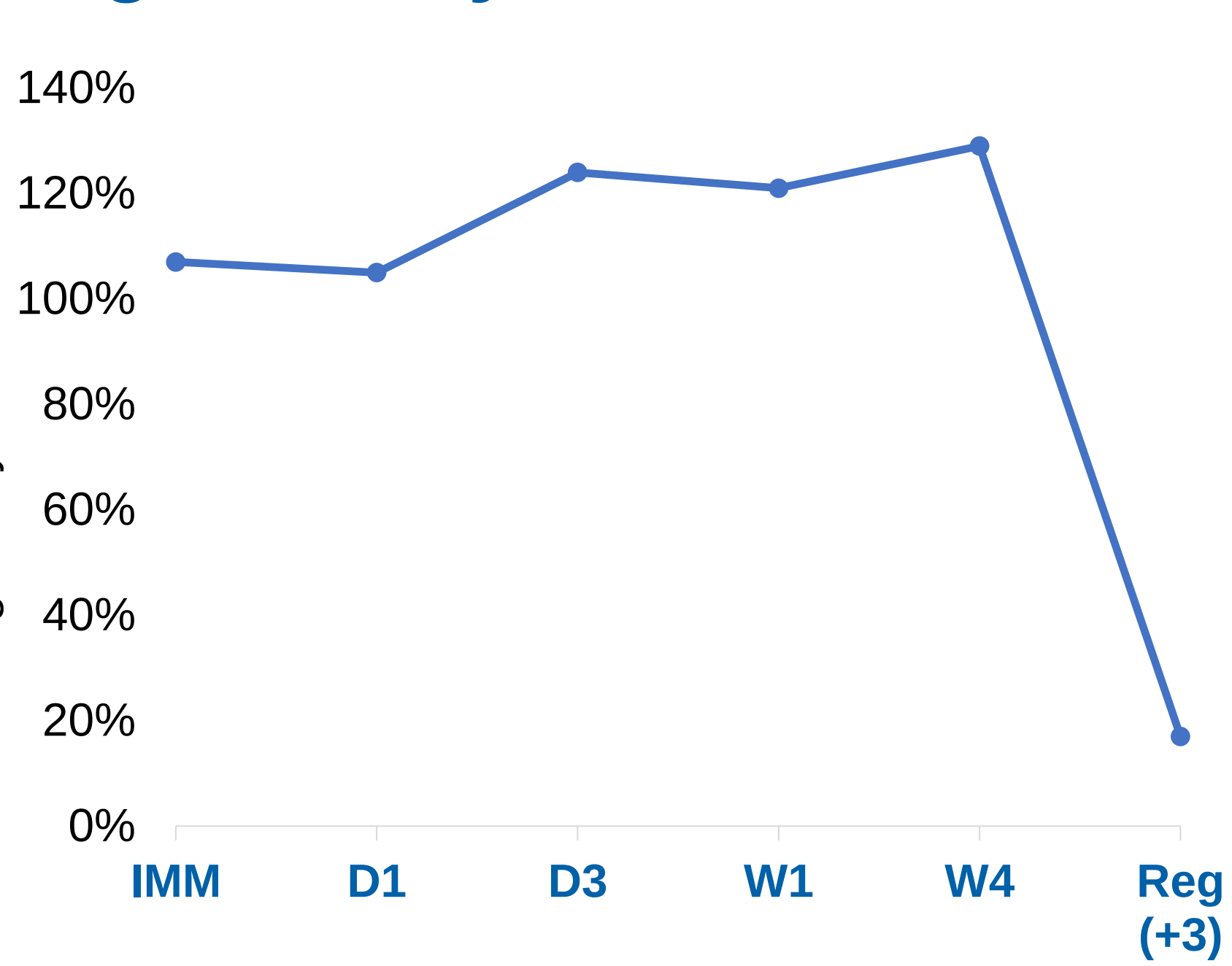
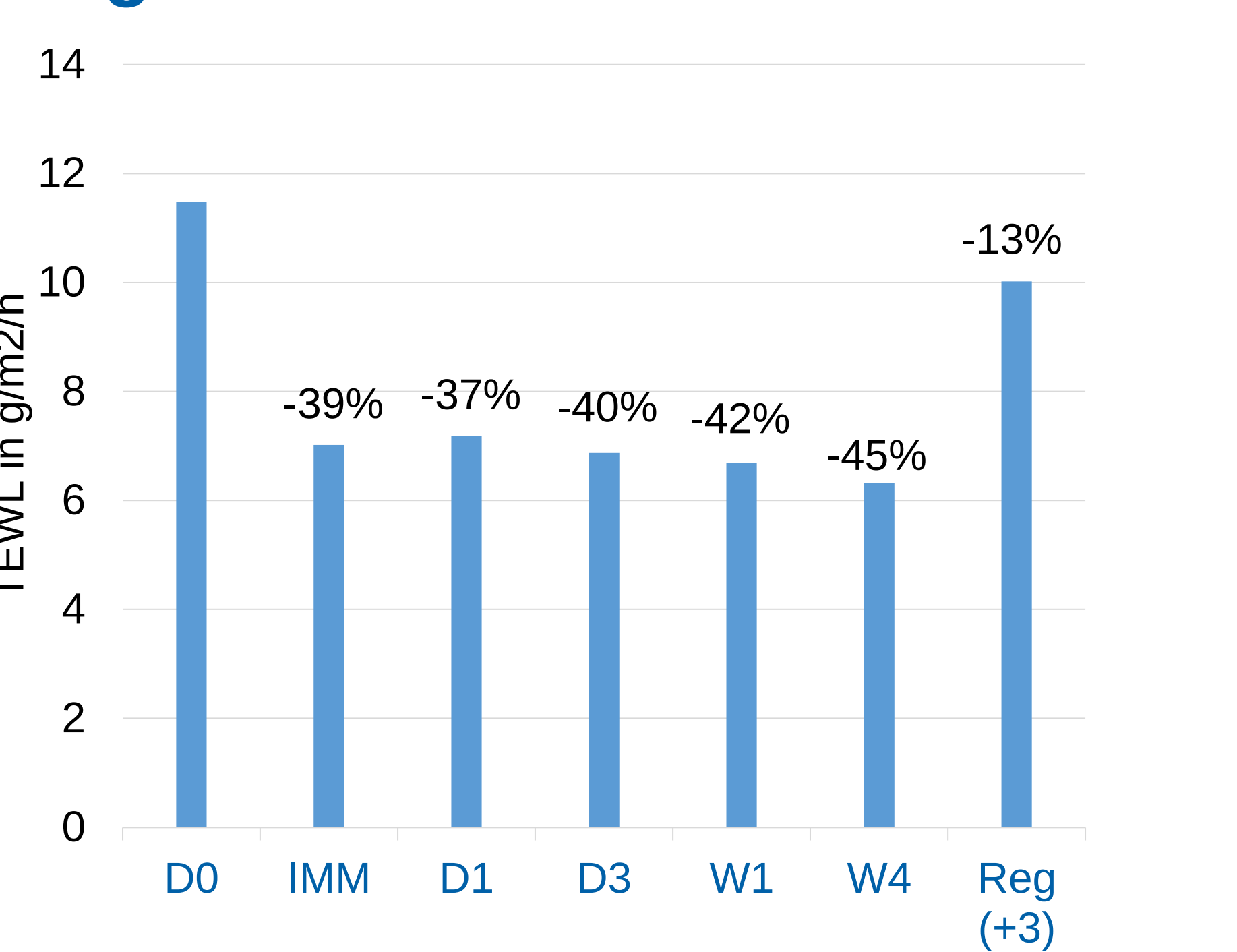


Figure 4. TEWL



CONCLUSIONS

The ceramide- and NMF-containing moisturizer provided significant clinical and subject-perceived instant and long-lasting relief (Regression +3 days) of xerosis symptoms for all body zones studied. The moisturizer fully repaired skin barrier, provided hydration, and effectively treated xerosis while improving skin's capacity to retain moisture.

REFERENCES

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