Data presented at the 2018 AAD Annual Meeting, February 2018, San Diego, USA.

# Skin hydration comparison of five prescribed emollients

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## Introduction

Emollient therapy is the mainstay for treating dry skin conditions such as atopic eczema and psoriasis. Due to a lack of comparative data on emollient effectiveness, healthcare professionals choose between them primarily on cosmetic acceptability and cost. The National Institute for Health and Care Excellence (NICE, based in the UK) has therefore urged more research to be conducted in this area.

For this purpose, *ex vivo* human skin offers an efficient and reliable means of comparing the hydration effects of multiple preparations.

## Materials & Methods

In two studies of identical design, skin hydration was measured over a 24h period following single applications. The first study compared emollients Doublebase Dayleve™ Gel (DDG), Cetomacrogol Cream BP (CMC), Aqueous Cream BP (AQC) and no treatment, and the second study compared Doublebase Dayleve™ Gel (DDG), E45 Cream, Cetraben® Cream (CBC) and no treatment. For both studies, four adjacent test sites (5 cm x 5 cm) were demarcated on full thickness skin samples obtained from 6 human donors.

Measurements of skin hydration were made using an MPA 6 fitted with a Corneometer CM 825 probe (Courage-Khazaka Electronic, Germany). Initial measurements were repeated until the values plateaued indicating the skin samples had equilibrated with the test environment (approximately 20°C and 68% RH). At that timepoint (baseline), 0.05 ml of each emollient was dispensed from syringes (for blinding purposes labelled A,B,C,D and E) and gently spread over randomly assigned treatment sites, leaving the fourth site on each skin sample untreated. Corneometer measurements were then repeated (in 6 places across each site) after 1h, 4h, 8h and 24h.

## Results

Baseline mean skin hydration levels were very similar in both studies and between all sites. Thereafter, hydration levels at untreated sites slowly decreased over 8h by approximately 25%.

In both studies, skin hydration levels following application of emollient DDG were elevated by approximately 75% when measured 1h after application, and after 24h were still approximately 30% higher than at baseline or 50% higher compared to untreated sites. In contrast, emollients AQC, CMC, E45 and CBC showed no or very limited evidence of any improvement in skin hydration at any time, whether compared with baseline or untreated sites.

Figure 1. Comparative hydration levels of DDG, CMC and AQC (n=6)

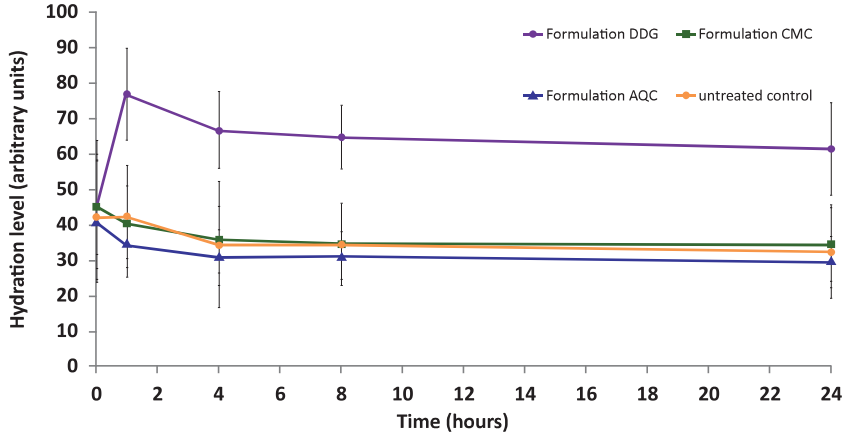
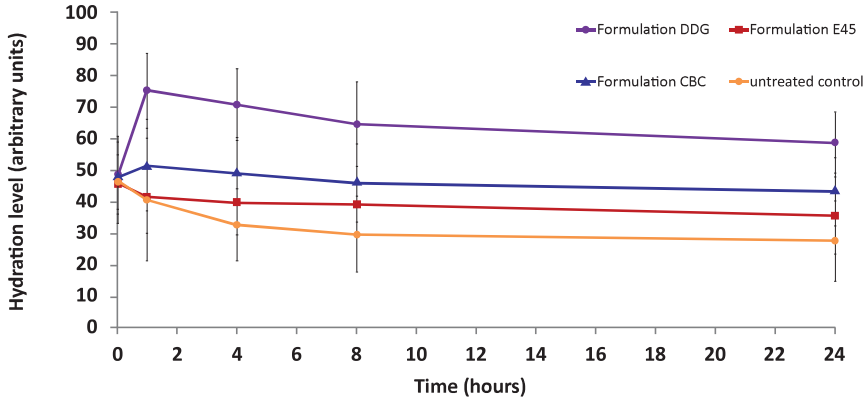



Figure 2. Comparative hydration levels of DDG, E45 and CBC (n=6)




## Conclusion

These results indicate that there are important differences in skin hydration performance between prescribed emollients, which healthcare professionals should be aware of.

*E45 = E45 Cream, a registered trademark of Reckitt Benckiser Healthcare, **CBC= Cetraben® Cream a registered trademark of Thornton & Ross Ltd.

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