degussa.
Care Specialties

# Long Term Effect of Ceramide III on the Water Retention Capacity of the Skin

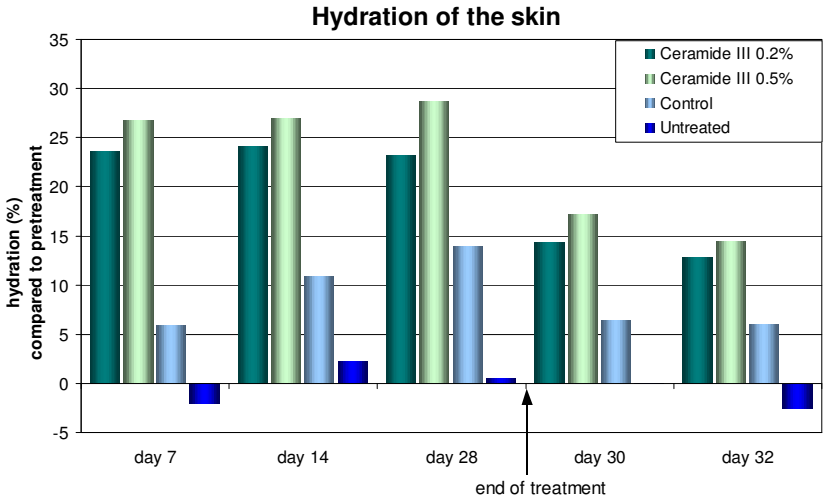
A long-term regression in-vivo study

**Introduction:** The lipid barrier of the skin, localised in the Stratum Corneum, prevents transepidermal water loss. Ceramides are the most important class of lipids in the skin. The aim of this study was to investigate the medium-term effects of application of Ceramide III on the water retention capacity of healthy skin.

**Study:** This study was performed for Cosmoferm by Dermaconsult (Germany).

**Methods:** Two Ceramide III formulations (0.2% and 0.5%), and a control product were applied on the forearms of 15 female volunteers (age: 21-45 years). The dose of application was about 2 mg/cm$^2$ (twice/day for 28 consecutive days). One area remained untreated. The measurements were performed before application, and during the application period at 7, 14 and 28 days. After the application was ceased (day 28), the measurements were continued on day 30 and 32.
The water retention capacity of the skin was determined by measuring skin hydration using a corneometer. The values for hydration (%) of the skin were expressed as percentual differences relative to the pretreatment value. The Wilcoxon signed ranks test with paired samples was used to determine statistical differences between Ceramides and control formulation.

**Results:** The graph shows the hydration (%) of the skin compared to pretreatment.
The effect of the Control was still increasing at 28 days. The maximum effect of Ceramide III was already achieved after around 7 days. The hydration was significantly better with Ceramide III than with the Control formulation.
After the application was ceased, skin treated with Ceramide III-containing formulations showed a much longer lasting hydration effect than skin treated with Control. Even after four days (day 32), the Ceramide III-treated skin showed a significant increase in the water retention capacity compared to Control.




**Conclusion:** Under the condition of this study, the long-term results confirm the role of Ceramides III in regulating water retention capacity. Ceramide III showed significantly more increase in hydration (%) compared to Control product. After discontinuation of the application of Ceramide III, the effect could still be demonstrated. This result indicates the integration of Ceramide III into the lipid lamellar system, thus a contribution to an improved barrier function.