

## Skin hydration measurement: Comparison between devices and clinical evaluations

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### A published study comparing the Cortex Technology DermaLab Hydration probe and the C&K Corneometer 820

#### Aim of study

To investigate the reproducibility and correlation between clinical evaluations and two commonly used skin hydration measurement devices – the DermaLab Hydration Pin probe (HP) and the C&K Corneometer (CM280).

#### Methods

The study enrolled 184 participants of varying ages and sexes. Skin hydration was assessed repeatedly at three sites: the ventral forearm, dorsal forearm, and shin, using both the DermaLab HP and CM280 devices. Xerosis Severity Scale (XSS) scores (0–6) were assigned by a dermatologist.

Statistical analyses included the intraclass correlation coefficient (ICC), Pearson's correlation coefficient (PCC), and simple linear regression to evaluate reliability and association between measurements.

#### Findings

- Both devices showed excellent test-retest reliability with ICC measurements ranging from 0.980 to 0.986 for the HP and from 0.954 to 0.971 for the CM280. This indicates highly consistent measurements.
- PCC calculations resulted in a strong positive correlation ( $PCC > 0.7$ ), indicating similar measurement patterns between the two devices.
- Both devices displayed negative regression coefficients across all measurement sites, indicating that higher XSS scores are associated with lower hydration values measured by the devices.

Overall, despite differences in measurement principles (conductance and capacitance), the measurement values of the 2 devices were very similar, whether measured on the arm or leg.

#### Conclusion

The DermaLab hydration probe and the Corneometer are both accurate and objective skin hydration measuring devices, regardless of measurement site. Using reliable devices like these can aid in understanding an individual's skin condition and making more informed decisions for skin care.

### PRODUCT DESCRIPTIONS

#### The DermaLab Hydration Pin

The probe features a central circular electrode surrounded by 8 small pins designed to minimize moisture occlusion.

The HP measures skin conductance by emitting a single-frequency charge (300 kHz) and quantifying how easily electrical current passes through the water content in the skin.



#### The C&K Corneometer

The probe consists of an interdigital grid of gold electrodes coated with a low-dielectric vitrified material.

The CM820 measures skin capacitance by sending a small electrical charge through the skin (0.9-1.2 MHz) and determining how much electrical charge the skin can store.

#### The Hydration Pin Probe

is one of 11 parameters available for the customizable DermaLab Combo, where up to 9 parameters can be combined in one single device for advanced measurements.

To learn more about our solutions, visit [cortex.dk](http://cortex.dk).



Niels Jernes Vej 6B  
9220 Aalborg  
Denmark  
+45 9857 4100  
[cortex@cortex.dk](mailto:cortex@cortex.dk)  
[www.cortex.dk](http://www.cortex.dk)