

Sequential Variability in Localized Thigh Skin Dermal Tissue Water
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Objectives: To learn to use tissue dielectric constant (TDC) measurement devices and apply them as part of research training to study variability of biophysical values. **Background:** Skin TDC-values have been used as indices of local skin tissue water and its change in a variety of clinically-related applications but the temporal variability in lower extremity TDC-values in young adults has not been previously reported. Because TDC-values vary by anatomical site such information is valuable directly as a reference and also to help set criteria for sequential studies in which measurements are made in patients over days or weeks. **Methods:** Six male student research-trainees performed self-TDC measurements on their anterior thigh while in a seated position at five sessions; day0, day1, day7, day21 and day 28. At each session TDC was measured in triplicate to a skin depth of about 1.5 mm which is a depth that includes the epidermis and dermis but not the underlying hypodermis or subcutaneous fat. For reference, the TDC value of 100% pure water measured at 300 MHz is about 78. Data was analyzed by a person not involved with the measurements. **Results:** TDC-values for the five sequential sessions (mean±SD) were respectively 33.3±2.1, 33.9±3.6, 34.1±2.8, 34.5±2.0 and 34.9±4.0. Although an ANOVA for repeated measures showed no overall time effect (p=0.629) an increasing trend appears present. As compared to day0, subsequent TDC-values increased sequentially by 1.7%, 2.6%, 3.6% and 4.5%. **Conclusions:** Interpretation of sequential changes in thigh dermal tissue water must take into account the normal time-dependent variations.

A POSTER PRESENTATION IS REQUESTED