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## The investigation of the skin biophysical measurements focusing on daily activities, skin care habits, and gender differences

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### Abstract

BackgroundSkin, as a protective barrier to exogenous substances, can be modulated by various internal and external factors that can affect its functional state. In order to prevent the early symptoms and signs of diseases of the skin, frequent skin health assessment should be performed. The aims of the study were to evaluate four skin properties of transepidermal water loss (TEWL), hydration, elasticity, and pigmentation using a non-invasive skin assessment tool, DermaLab Combo((R)), and also to determine possible factors that may influence skin condition.

MethodsDermaLab((R)) Combo was used to measure TEWL, hydration, pigmentation, and elasticity on the forearm of volunteers by using different probes. In this study, four parameters were observed to reflect the health of the skin in 100 volunteers.

ResultsThere were significant differences ( $P < 0.05$ ) between TEWL, hydration, pigmentation, and elasticity in different genders on the same anatomical site of the forearm. Female subjects have a higher average value of TEWL, hydration, and elasticity compared to male subjects. The differences may be due to an individual's daily activity and use of skin care products as well as environmental factors. The use of moisturiser and drinking lots of water may keep the skin hydrated and delay the process of skin ageing as shown by the better hydration and elasticity observed ( $P < 0.05$ ).

ConclusionIn this study, it can be concluded that DermaLab((R)) Combo is a reliable skin analysis instrument that offers high precision, accuracy, and reproducibility for all the measuring parameters. It has also been found that daily activities and habits influence skin condition as reflected by the measurement of these biophysical skin parameters.

### Keywords

**Author Keywords:** skin barrier; skin structures; DermaLab Combo; transepidermal water loss; hydration; statistics

**KeyWords Plus:** STRATUM-CORNEUM HYDRATION; TRANSEPIDERMAL WATER-LOSS; SURFACE PH; BARRIER FUNCTION; SCAR ASSESSMENT; SEBUM CONTENT; IN-VIVO; VISCOELASTICITY; MOISTURIZERS; SCALES

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