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Advancement through epidermis using tape stripping technique and Reflectance Confocal Microscopy.

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ABSTRACT

The tape stripping technique is increasingly used in research regarding skin barrier function. However, number of tape strips varies between studies, and literature considering advancement into stratum corneum/epidermis in relation to number of tape strips is scarce. The aim of this pilot study was to assess the advancement through epidermis using tape stripping technique in healthy volunteers. A total of ten healthy volunteers were included. From all volunteers 0, 5, 15 and 35 consecutive tape strips (D-squame) were taken from four adjacent skin areas on the middle volar forearm, followed by Reflectance Confocal Microscopy (RCM) of the four areas to assess epidermal thickness. Squame Scan was used to determine amount of protein removed. Stratum corneum was completely removed in all volunteers after 35 tape strips. Advancement into epidermis was predominantly achieved by the first 15 tape strips, removing 25% of the total epidermis, whereas 35 tape strips removed 33% of epidermis. Protein removal per tape decreased with increasing depth. Information on advancement into the epidermis according to number of tape strips taken, is a significant step forward. The possibility to obtain samples from different layers of epidermis may lead to an improved understanding of skin barrier properties. PMID:31434955 PMCID:PMC6704162DOI:10.1038/s41598-019-48698-w Free PMC Article