

Cosmetic & Pharmaceutical Research > Cosmetic & Pharmaceutical Research > Sunburn

3

Skin Surface Topography and Texture Analysis of Sun-Exposed Body Sites in View of Sunscreen Application

Korn V, Surber C, Imanidis G. *Skin Pharmacol Physiol.* 2016;29(6):291-299. doi: 10.1159/000450760

ABSTRACT

BACKGROUND/AIMS:To determine the roughness of the surface of human skin at highly sun-exposed anatomical sites in a wide age range in order to derive consequences for sunscreen application.

METHODS:The forehead, cheek, nose, shoulder, and dorsal hand of 4 age groups (0-9, 20-39, 40-59, and >60 years) were investigated by replica formation, and areal topography was determined

by confocal chromatic imaging. The arithmetic mean height as a roughness parameter and the void volume of the surface profile were calculated. **RESULTS:**Age and site had a significant effect on roughness. Both the dorsal hand and nose exhibited the greatest roughness over the age of 40, and the forehead of the youngest age group exhibited the smallest roughness. Differentiation between sites progressed with age, whereas roughness increased significantly with age for the dorsal hand and nose but not for the other sites. The void volume was smaller than the volume corresponding to the typically recommended amount of sunscreen application except for the cases of largest roughness.

CONCLUSIONS:Different site-age combinations show significant variation of skin surface roughness. The application of sunscreen may in some instances need to be adjusted to take into account the increased roughness of highly sun-exposed anatomical sites. © 2017 S. Karger AG, Basel. PMID: 28052293

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