



# Skin Surface pH: A Protective Acid Mantle

*An acidic skin-surface pH promotes barrier function and fights infection*

**Gil Yosipovitch, MD, and Howard I. Maibach, MD**

*Department of Dermatology, UCSF Medical Center, San Francisco, CA, USA*

The skin's surface is acidic; its pH ranges between 4 and 6. On the other hand, the body's internal environment maintains near-neutral pH, ranging between 7.35 and 7.46. The pH change of more than 2 units over a short distance in the skin is a dramatic event in biology.<sup>1</sup>

## Factors Affecting pH

Skin pH varies between different body areas. Researchers believe skin pH depends on the production of amino acids and lactic acid, the ammonium and hydrogen content of sweat secretion, and sebum and protein substances of the stratum corneum. Skin pH also depends on skin moisture; areas with higher moisture have a higher pH. Thus, intertriginous areas (the axilla, inguinal regions and fin-

## A Dermatologic View

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ger webs) have a slightly higher pH.<sup>2</sup>

However, we do not know the exact factors regulating skin surface pH. For instance, no obvious relationship exists between skin pH and internal body pH. A study in hemodialysis patients with end-stage renal disease found that their skin was significantly less acidic than that of healthy controls in most areas of the

body. This was despite the fact that these patients have decreased blood pH. Hemodialysis had no effect on skin pH, nor did skin pH correlate with blood bicarbonate or serum electrolyte levels.<sup>11</sup>

Skin pH seems to be related to race and genetic background; the skin of non-Caucasians is more alkaline than Caucasians' skin. Sex-related differences seem not to exist. The skin's surface pH remains

**Table 1-1. Factors affecting skin pH**

<b>Endogenous factors</b>	Irritant dermatitis
Skin moisture	Diaper dermatitis
Sweat	Diabetes
Sebum	Uremia
Anatomic site (higher pH in intertriginous areas)	<b>Exogenous factors</b>
Genetic predisposition	Soaps, detergents, cosmetic products
Race	Occlusive dressings
Age ?	Skin irritants
Atopic skin disease	Topical antibiotics

*Les auteurs passent en revue les études montrant qu'un pH cutané acide stimule la fonction barrière de la peau et aide la peau à se protéger contre les infections microbiennes et fongiques.*

*Die Autoren berichten über Studien, die belegt haben, daß ein saurer pH-Wert die Barrierefunktion der Haut verstärkt und sie gegen Mikroben- und Pilzinfektionen schützt.*

*Los autores pasan revista a estudios que demuestran que una superficie cutánea de pH ácido favorece la función barrera y ayuda a proteger la piel de las infecciones microbianas y micóticas.*