

Optimal Skin pH and Why It Matters

The importance of “healthy” skin can’t be overestimated. In fact, our skin health is fundamental to our overall health. As the largest organ of the body, and the natural protective layer guarding against bacteria and other microorganisms, the human skin is the most important factor in fighting off infection and maintaining health. An often underappreciated fact, however, is that in order to serve this function, it is critical that the skin’s pH be at an optimal level.

The pH Science of Healthy Skin

The pH scale goes from 1 (acidic) to 14 (alkaline). While the body’s internal environment operates most efficiently at a near-neutral pH, our skin’s pH should actually be on the slightly acidic side, in the range of about 4.7-5.0.¹⁻³ When pH levels approach this number, the stratum corneum (outer layer of the skin) is optimized, creating a thriving skin microbiome—the ecological community of commensal, symbiotic, and pathogenic microorganisms that exist within the stratum corneum.^{2,4-5}

And when the skin’s microbiome thrives in this acidic, low-pH environment, it allows the stratum corneum to serve its critical, protective functions. An acidic pH not only limits growth of “bad bugs,” but it also fosters the growth of normal bacterial flora, which leads to a healthy balance of skin microorganisms.²⁻⁶

The Importance of Optimal Skin pH

Hear what Peter Elias, M.D., has to say about optimal skin pH and what it means for overall wellness.

<https://vimeo.com/353602564>

Why Skin pH Matters in a Clinical Setting

In addition to supporting healthy intact skin, research shows that an acidic pH level can enhance wound healing. The surface pH of wounds can have a significant impact on how the healing process unfolds. As described by Nagoba et al, an acidic pH can help prevent infection and promote healing by “increasing antimicrobial activity, altering protease activity, releasing oxygen, reducing toxicity of bacterial end products, and enhancing epithelialization and angiogenesis.”⁷

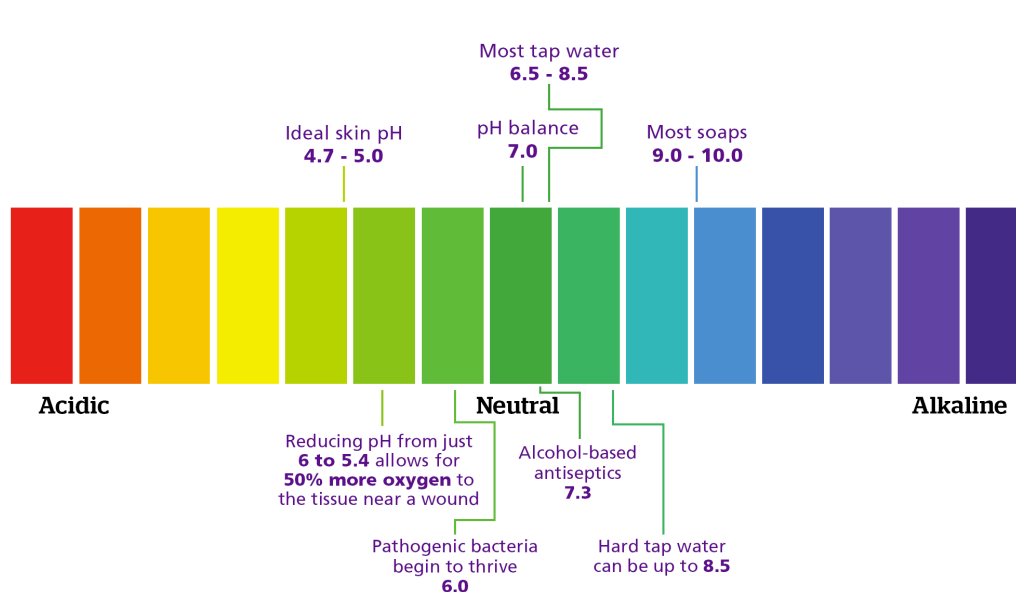
Here are some of the ways a slightly-acidic pH level can play a role in wound healing:⁷

- **Infection Control:** Lower pH values inhibit the growth of most pathogenic bacteria related to infected wounds, as they typically need a pH of over 6 to grow.
- **Natural Antimicrobial Activity:** An acidic pH enhances the potency of natural antimicrobial peptides found in skin and skin secretions, as well as improves the performance of antimicrobials like iodine and silver that are incorporated into wound dressings. In fact, the activity of silver

dressings against gram-positive and gram-negative bacteria is enhanced when pH decreases to 5.5.

- **Protease Activity:** Wounds naturally create proteases that aid in the tissue repair process during the inflammatory phase. However, in many chronic wounds, the proteases go unregulated and result in devastating tissue damage. Since proteases are more active in alkaline conditions, lowering of pH to a more acidic level can reduce enzyme activity, resulting in a reduction of the formation and toxicity of the end products.
- **Tissue Oxygen Availability:** Just a small change in wound pH can significantly alter the availability of oxygen to tissues—a critical component in wound healing. When pH is lowered by 0.6 units, it releases 50% more oxygen. Furthermore, a pH change of 0.9 units can create a 5-fold increase in oxygen release.

Spanning the pH Spectrum^{2,7-11}



Meant to Protect, But Actually Harmful

One unseen gap in protection for many hospitals involves the use of traditional soap and water in areas where harsh antiseptics are contraindicated. While water already has a pH of 6.5-8.5 (with hard or mineralized water on the high end), soap often has a range between 9 and 10 on the pH scale.^{8-9,11} Research has shown that hand washing with soap raises the pH on the palms by an average of 3 units—a change that is sustained for at least 90 minutes after washing.¹ Furthermore, studies have demonstrated that small, sustained increases in pH—such as those associated with daily, repeated use of soap-based cleaners—can harm the skin's barrier repair mechanism.¹

Antiseptics with a high pH can potentially elicit the same effect as soap by drying out the stratum corneum, damaging its defensive abilities and leaving it more vulnerable to both

cracking and infection.¹²⁻¹⁴ This problem can be addressed as healthcare facilities become more informed on alternative products and avoid the ones that cause the harsh effects described above.

Combating Nosocomial Infections in Healthcare Settings

In the ongoing battle against hospital-acquired infections (HAIs), the first and largest barrier between a patient and the external environment—the skin—is a natural place to start. Helping patients achieve and maintain an optimal pH level is the first line of defense in guarding against nosocomial infections. Avoiding harsh soaps and antiseptics will help patients achieve the slightly acidic skin pH level needed to optimize their microbiome function and guard against harmful bacteria.

More and more hospitals and healthcare facilities are moving away from long-held habits of using antimicrobial soaps and antiseptics with high pH values that damage the skin, and turning instead to rinse-free bathing cleansers with lower pH values.¹⁵ Protecting the skin's natural immune functions with products that support an optimal skin pH level is a key step in advancing the fight against HAIs and enhancing patient care.

Want to Learn More About Optimal pH?

If you have questions about pH levels and how supporting the skin's microbiome can improve the body's best immune defense, [contact us at Theraworx Protect](#).

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