VITAMIN B5: The Healing Secret in Viniferamine® Products

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INTRODUCTION

Vitamin B5 (pantothenic acid) is a normal constituent of skin and hair. It is a component of coenzyme A (CoA) and fatty acid synthase, both of which are involved in lipid metabolism and are essential for normal epithelial function\(^1,2\). In addition, CoA is involved in the early steps of the synthesis of sphingolipids, which along with fatty acids are crucial for stratum corneum lipid bilayers and skin cell membrane integrity\(^3,4\). CoA is also involved in modifying proteins such as the acetylation of amino acids and it influences the localization, stability, or activity of proteins.

In contrast to CoA, vitamin B5 is transported across cell membranes\(^5\). Together with other important health issues, vitamin B5 deficiency is known to cause dyslipidemia (abnormal levels of lipids in blood) and dermatitis. Vitamin B5 depletion also decreases the synthesis of keratinocyte growth factor and procollagen in fibroblasts, which suggests that vitamin B5 is essential for maintaining keratinocyte proliferation and differentiation. Ca D-vitamin B5 has also been shown to promote fibroblast proliferation and migration\(^6\).

TOPICAL PANTHENOL AND SKIN BENEFITS

Panthenol (also known as dexpantenol) is the biologically active stable alcohol analogue of vitamin B5. When applied to skin topically, panthenol is readily absorbed through the skin and converted to vitamin B5. Panthenol has been used in the treatment of wounds and in skin care for decades, particularly in Europe\(^1,5\). The mildness of topical panthenol has led to its widespread utilization in skin care with many reported beneficial skin effects such as moisturization or hydration of the stratum corneum, and improvements in epidermal elasticity and skin softness\(^7\).
VINIFERAMINE® ADVANCED WOUND AND SKIN CARE PRODUCT FORMULATION

All of the Viniferamine® skin and wound care products contain 5% panthenol including Renewal Moisturizer and the gentle cleanser Clean N Moist. Renewal Moisturizer is the foundation of the product system. All of the ingredients including panthenol, as well as other important nutrients in this scientifically advanced product are perfectly balanced to achieve maximum skin restoration. Clean N Moist is perfectly pH balanced to ensure the most fragile skin is gently cleansed without causing irritation. The chemistry of Clean N Moist corresponds to the chemistry of the skin. The use of phospholipids and beneficial nutrients including panthenol in Clean N Moist, provide nourishment and revitalize skin.

Topical panthenol is well tolerated by the skin and does not induce sensitization or skin irritation responses such as redness, dryness, burning, stinging or itching\(^2,5,7\). In fact, in a multicenter study, 483 patients with atopic dermatitis, ichthyosis, psoriasis, or contact dermatitis received panthenol in topical formulations, and it was determined that all symptoms (skin dryness, roughness, scaling, itching, redness, and erosion/fissures) improved considerably (>80%). In fact in the case of skin dryness and desquamation, improvement was greater than 90\(^\circ\). Panthenol has also been shown to protect against skin irritation and provide a stabilizing effect on skin barrier function\(^2\). In fact, panthenol may improve skin barrier function by increasing stratum corneum lipids\(^7\).

REDUCING TRANSEPIDERMAL WATER LOSS AND INFLAMMATION

Quantitating transepidermal water loss (TEWL) is a way to assess the quality of the skin barrier and how well it functions. In one study, panthenol-containing formulations produced significant decreases in TEWL in untreated skin and in skin treated with sodium laureth sulphate (SLS), a known skin irritant. It was concluded that skin integrity was maintained by the improved protective effect of panthenol that was added to the formulation\(^2\). In a similar study, panthenol-containing cream was used following skin treatment with SLS, to examine the effects of the cream
on recovery from skin irritation. It was determined that skin treated with panthenol showed significantly enhanced skin barrier repair and stratum corneum hydration, as well as reduced skin roughness and inflammation\(^4\).

Anti-inflammatory soothing effects of panthenol have been observed in many studies\(^1,4,7\) and beneficial effects have been found with patients who have had skin transplantation, or have undergone treatment for scars or burn injuries. In various *in vitro* as well as *in vivo* studies, panthenol has demonstrated wound healing activities including the stimulation of collagen production\(^2,5,6,8,9\). *In vitro*, panthenol has induced increased fibroblast proliferation as well as accelerated re-epithelialization in wound healing\(^1,5\). In addition, several *in vivo* studies have demonstrated accelerated wound healing with formulations that include panthenol\(^1\). Further, accelerated epithelialization and stimulation of granulation has been associated with panthenol therapy in wound healing\(^5,9\).

In another study, wounds treated with panthenol showed reduced erythema (redness) and had more elastic and solid tissue regeneration. Moreover, panthenol was used for healing leg ulcers and skin fissures, and has been used in the treatment of sports injuries\(^5\).

**CONCLUSION**

In summary, all of the Viniferamine\(^\text{®}\) skin and wound care products contain 5% panthenol including Renewal Moisturizer and Clean N Moist due to its beneficial skin health and wound healing properties. Vitamin B5 is a normal constituent of skin and is essential for normal epithelial function as well as skin cell membrane integrity. Panthenol, an analogue of vitamin B5 is readily absorbed into skin and converted to vitamin B5, and panthenol has been used for decades in skin care due to its anti-inflammatory and wound healing effects. Panthenol has been found to improve skin barrier function that is likely due to its lipid synthesis stimulating activity and moisturizing effects. In addition, panthenol has been shown in several
studies to protect against skin irritation. Its many wound healing activities include stimulation of fibroblasts, epithelialization, granulation and tissue regeneration. Moreover, its beneficial effects have been demonstrated in patients undergoing skin transplantation, as well as therapy for scars, burn injuries or various dermatoses.

REFERENCES


