

VINIFERAMINE®

P R E S E N T S

LESSONS FROM VINI

WITH HELP FROM NANCY RAY, PhD



Vitamins for Skin Health



Many vitamins are important for skin health because they have antioxidant activity that protects the skin from free radicals and oxidative stress. Oxidative stress occurs when free radicals such as reactive oxygen species (ROS) overwhelm the antioxidant defense mechanisms in the skin that includes certain antioxidants as well as protective enzymes like superoxide dismutase (SOD). Oxidative stress in the skin can be caused by environmental factors including UV radiation (UVR) and pollution, as well as intrinsic factors such as aging, high glucose and disease.

Viniferamine® skin and wound

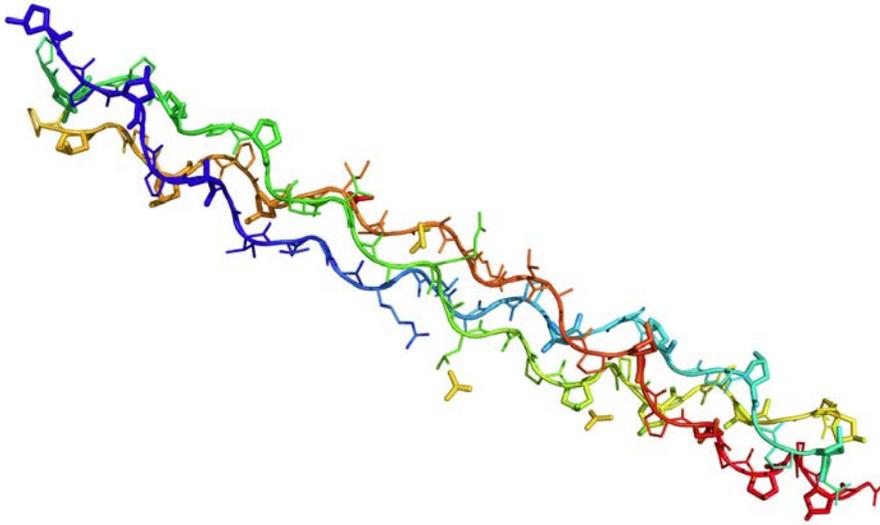
care products, including Renewal Moisturizer, contain many beneficial vitamins that have antioxidant activity including, vitamin C (ascorbic acid), vitamin B6 (pyridoxine), vitamin B9 (folic acid), vitamin D (from oat extract) and E (from oat and aloe vera extract), and beta-carotene (from aloe vera extract). Some of these vitamins are also photoprotective for skin cells. In fact, in one study preincubation of keratinocytes with vitamin C resulted in a significant decrease in UVR-induced oxidative damage. Vitamin E has also been found to be photoprotective for skin when combined with other antioxidants. In addition,

studies have shown that carotenoids prevent oxidative stress in skin caused by UVR. Moreover, vitamin B3 (niacinamide or nicotinamide) found in Viniferamine® products, protects against UV-induced immunosuppression.

In addition, Viniferamine® skin and wound care products include other antioxidants that counteract oxidative stress including the beneficial polyphenols oleuropein, resveratrol, and epigallocatechin-3-gallate (EGCG) from olives, grapes and green tea respectively, as well as the important small molecules, melatonin and L-glutathione. Some of these ingredients activate SOD including oleuropein, resveratrol and EGCG. Moreover, certain antioxidants included in Viniferamine® skin and wound care products are photoprotective including EGCG, resveratrol, oleuropein and melatonin. In fact photoprotection has been found with increased levels of the enzyme heme oxygenase that is induced by oleuropein.

Collagen, Skin Cells and the Skin Barrier

Another critical role that vitamins play in skin health is in the production of collagen, an important



structural protein in skin that is synthesized by fibroblasts. Collagen is also the most abundant protein found in mammalian tissues that is vital for wound healing. Vitamin C, B1, B5 (panthenol) and B6 included in Viniferamine[®] skin and wound products all have important roles in collagen synthesis. In addition, asiaticoside (from *Centella asiatica*) and aloe vera (both found in Viniferamine[®] skin and wound care products including Antiseptic Cleanser) stimulate collagen synthesis.

Certain vitamins found in Viniferamine[®] products also play an important role in keratinocyte proliferation and/or maturation including vitamin A (found in aloe vera and oat extracts), vitamin C, vitamin B3 and vitamin B5. Furthermore, as keratinocytes mature into corneocytes, lipids are secreted that enhance the barrier function of skin. These lipids include ceramides, cholesterol and fatty acids. Scientific studies have shown that vitamin B3 (also known as nicotinamide or niacinamide) can increase the biosynthesis of ceramides as well as

other stratum corneum lipids to improve the epidermal barrier.

Reducing Inflammation and Promoting Wound Healing

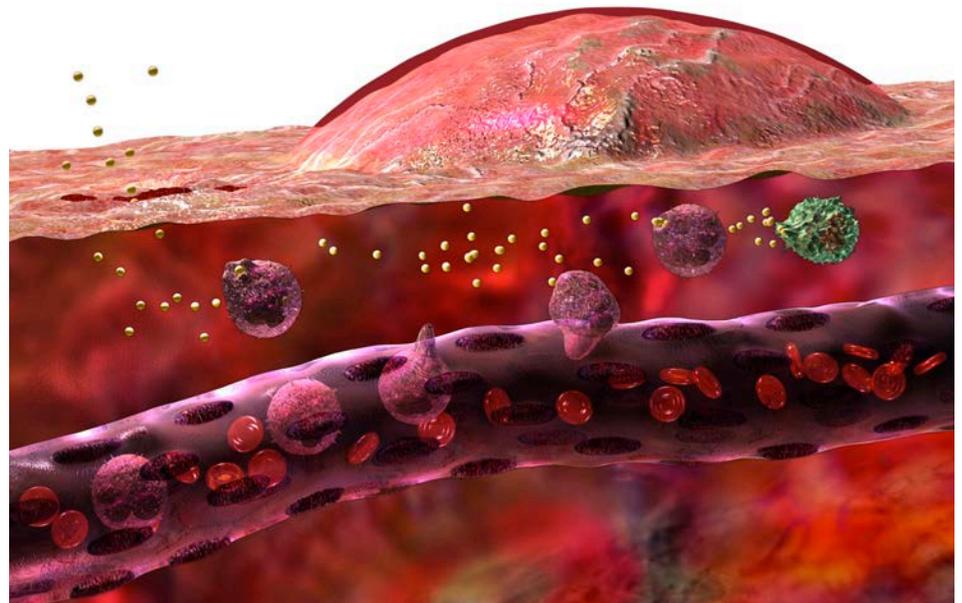
Several of the vitamins found in Viniferamine[®] skin and wound care products have anti-inflammatory and/or wound healing activities including vitamin C, vitamin B1, folic acid (B9) and vitamin D. Vitamin D also improves skin immunity by stimulating the important antimicrobial peptide, cathelicidin (CAMP). Interest-

ingly, the antioxidant resveratrol from grapes also stimulates CAMP production.

Various other important ingredients in Viniferamine[®] skin and wound care products have anti-inflammatory and/or wound healing activities including oleuropein, resveratrol, and EGCG, as well as melatonin and L-glutathione. Moreover, dipotassium glycyrrhizate, aloe vera and avenathramides from oats have been shown to possess anti-inflammatory activities.

Some of these ingredients have been found to enhance wound healing including oleuropein, which was shown to improve wound healing in an aging model. Resveratrol has been shown to reduce the size of foot ulcers in individuals with type 2 diabetes. EGCG was found to accelerate keratinocyte differentiation and wound healing, and melatonin was shown to accelerate the process of wound repair in full-thickness incisional wounds.

In addition, L-carnosine was



found to stimulate wound healing in an incision wound model and L-glutathione was shown to be beneficial for ischemic wound healing. Furthermore, *Centella asiatica* and one of its main components, asiaticoside have important wound healing activities, and dipotassium glycyrrhizate is known to inhibit hyaluronidase and protect hyaluronic acid, which plays an important role in wound healing.

Protecting Cell Membranes and Promoting Skin Cell Repair

Finally, several of the vitamins found in Viniferamine® skin and wound care products protect cell membranes, or help with skin cell repair, protein synthesis (such as keratin), or DNA repair including vitamin D, E, B1, B3 and folic acid (B9).

It's good to know that Viniferamine® skin and wound care products include important vitamins with so many beneficial activities including protecting skin from oxidative stress and/or inflammation, stimulating collagen synthesis and wound repair, and promoting skin cell maturation and repair processes to help enhance the overall health of skin.

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