

LE Magazine January 2000

## PRODUCTS

The Life Extension Foundation regularly profiles and evaluates important new products on the market, often making them available directly to you, as well as to Foundation members at a discount via the Life Extension Buyers Club.

### Skin Aging Update

It is well known that skin aging is largely due to free radical activity that takes place in the epidermis (upper layer) of the skin. In a study published in *Biochemistry and Molecular Biology International*, scientists topically applied alpha-glycolic acid, vitamin E and/or melatonin to monitor the anti-aging effects in the different skin layers. Each of these natural substances showed some benefit when applied separately, but when applied together, the melatonin, vitamin E and alpha-glycolic acid become dynamic boosters of each other. Indeed, the antioxidant activity of vitamin E enhanced the epidermal turnover effect of glycolic acid, while glycolic intensified the effect of melatonin. Previous studies have shown that melatonin and vitamin E are potent free radical scavengers and highly protective agents against UV skin damage and skin aging. The results of this study showed a synergistic benefit when melatonin, vitamin E and alpha-glycolic acid were topically applied to the skin.

A drawback to using Retin-A and alpha hydroxy acids is skin irritation and inflammation that sometimes manifest as red blotches. A study in the *Journal of Pharmacology and Biophysical Research* showed that ginkgo biloba extract signals fibroblast activity in the skin to increase the synthesis of collagen, while serving as an anti-inflammatory agent. Professor Carmen Fusco has found that the topical application of ginkgo extract dramatically reduces the irritation that some people experience when using products like Renova, Retin-A and fruit acid compounds.

In the journal *Skin and Allergy News*, a study was published on women who applied a cream that contained antioxidants and a sunscreen to their skin for 18-months. These women were compared to a placebo group who applied a sunscreen that did not contain antioxidants. The results showed that compared to placebo, the women using the sunscreen plus antioxidant cream:

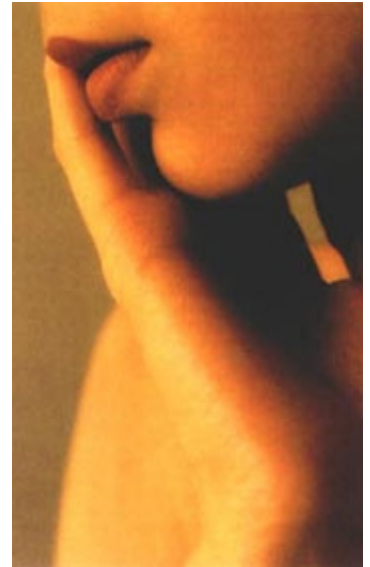
- Manifested fewer lines and wrinkles
- Showed reduced lipid peroxidation to the skin
- Had greater skin thickness and elasticity

The study showed how solar radiation and environmental pollutants produce adverse effects to the skin by causing oxidation, and how topically applied antioxidants confer protection when used with a sunscreen. This study also showed that topically applied antioxidants protected the skin better than orally ingested antioxidant supplements.

Keeping skin young: a new approach

In response to the published research, and over twenty years of clinical experience in using topical nutrients to protect against skin aging, a body lotion has been formulated to provide alpha-glycolic acid, vitamin E, melatonin, ginkgo and other ingredients that are substantiated by scientific studies to protect and restore the skin. These nutrients work together to suppress free radical damage and inhibit additional mechanisms involved in skin aging including photo-damage from the sun.

Rejuvenating aged skin



The pioneering work of Benjamin S. Frank, M.D. showed that RNA improved cellular energy and the ability of the skin cells to use oxygen. This improved metabolism enhances the movement of young cells to the surface of the skin where they replace old cells. Another benefit from topically applied RNA is to repair early skin cell damage. Clinical trials by Dr. S.J. Jellinek in the 1970's demonstrated how creams containing RNA/DNA caused a visible lifting/ tightening of the skin, and the wrinkles appeared to be less visible in a three week period. Although the study was a small-scale study, it was nonetheless a double blind test. The new Rejuvenex Body Lotion provides RNA and DNA for revitalization of skin cells over the entire body.



Alpha glycolic acid is the most potent of the alpha-hydroxy acids that have been shown to erase fine wrinkles in aging human skin. The mechanism of action of alpha-glycolic acid is to break down old cells at the skin's surface so they can be replaced with more youthful cells underneath. A 22-week, double-blind, randomized clinical trial at Massachusetts General Hospital in 74 women over age 40 showed that topically applied alpha-glycolic acid significantly reduced wrinkling and other types of damage caused by chronic sun exposure. The Rejuvenex Body Lotion contains a highly purified alpha-glycolic acid, but more important, it provides anti-inflammatory nutrients such as ginkgo extract and vitamin E that protect against the skin irritation that high concentrations of glycolic acid may produce.

### Molecular moisturizers

Replacing moisture lost to aging is the primary reason women use body lotions. The new Rejuvenex Body Lotion contains a glycerid acid moisturizer called Ceraphyl GA-D, that reduces the excessive drying in the upper-layers of the skin. Drs. Stig Friberg and David W. Osborne showed that this glycerid acid inhibits trans epidermal water loss by preventing the lipids (fats) from crystallizing. This mechanism is central to preventing dry, thin, leathery, dull, wrinkled skin. This particular glycerid acid also seems to increase the effectiveness of sunscreens and enhance the receptiveness of skin cells to antioxidants such as vitamins A, C and E, all of which are found in the Rejuvenex Body Lotion.

Hyaluronic acid helps the skin retain its youthful moisture via a different mechanism than glycerid acid. Hyaluronic acid maintains the integrity of the connective tissue because it is a source of manganese and glucosamine. Injectable hyaluronic may one day replace injectable collagen, but the new Rejuvenex Body Lotion provides abundant quantities of this important skin preserving nutrient today.

### Protecting against damaging free radicals

Vitamins A, C and E serve as antioxidants and enhance epidermal turnover and collagen synthesis. Numerous studies substantiate that when topically applied, these vitamins provide broad-spectrum protection against pre-mature skin aging. Augmenting the reservoir of antioxidants in your skin on a daily basis is the best assurance of continuous protection against the damaging effects of oxygen, UV light and environmental pollutants.

Vitamin C does more than quench skin-damaging free radicals. It is also required for collagen synthesis, which declines markedly in aging skin. As we grow older, we suffer diminished microcapillary circulation within our skin, which deprives our skin cells of the supply of vitamin C it needs for youthful collagen synthesis. The topical application of vitamin C in a skin-penetrating medium can dramatically enhance the availability of vitamin C for collagen production.

Furthermore, vitamin C regenerates vitamin E in the skin. An antioxidant such as vitamin E can only suppress a limited number of free radicals before it runs out of electrons to donate. Vitamin C regenerates vitamin E and enables vitamin E to provide sustained antioxidant protection in the skin's elastin fibers.

A study in the *Journal of Investigative Dermatology* showed that the direct application of vitamin C, a vitamin E analog, or selenium significantly protected mouse skin cells in tissue culture from damage caused by exposure to UVB light. A study in the journal *Revista Espanola de Fisiologia* demonstrated how the direct application of vitamin C provided significant protection against the senescence of human skin cells in tissue culture. In a study in the *British Journal of Dermatology* revealed that UV irradiation "severely depleted" skin levels of vitamin C in pigs, and that the topical application of vitamin C significantly elevated vitamin C levels in the skin of these animals.

Vitamin C plays a vital role in skin repair. When skin is injured, its vitamin C content is used up rapidly in the scavenging of free radicals, and in synthesizing collagen to speed healing.

The new Rejuvenex Body Lotion provides a vehicle for the trans-epidermal transport of vitamins A, C and E into the deepest possible layers. In addition to getting the vitamins into the skin, the new Rejuvenex Body Lotion contains the proper balance of antioxidants to protect against lipid peroxidation and anti-inflammatory agents to repair and heal injured and damaged skin.

## The antioxidant hormone

Melatonin is a hormonal antioxidant that protects the skin against oxidative damage. A research group at the University of Zurich has shown that topical melatonin gives excellent protection against sunburn if applied before sun exposure. Melatonin also appears to have a role in repairing burned skin. In a study published in *Brain Research Bulletin*, melatonin levels rose six hours after burn injury, then fell to normal. In small amounts, melatonin causes skin cells to proliferate. Applied topically, it appears to have greater anti-aging properties to the skin than does DHEA. Melatonin protects against the most damaging oxidizing agent known as the hydroxyl radical. Studies show that topical melatonin, when used in a cream, protects the skin from UV-induced skin damage and skin aging. Research from the Department of Dermatology at the University of Zurich, in Switzerland, not only demonstrated the role of free radicals as a cause of acute and chronic skin damage, but also the efficacy of melatonin as a potent free radical scavenger. The new Rejuvenex Body Lotion contains melatonin, which has been shown to work synergistically with vitamin E and alpha-glycolic acid to protect against oxidative damage and maintain more youthful looking skin.

Protecting the skin against free radical injury is a crucial step in preventing skin aging. The skin, by its very location and nature, is most vulnerable to free radical damage from environmental chemicals, mechanical injury and UV radiation. Skin free radicals are also influenced by internal oxidative mechanisms. Melatonin, in combination with vitamin E and alpha-glycolic acid, may be the most effective way to protect the against oxidative damage and restore more youthful cells to the skin's surface.

## A track record of success

When it comes to scientific methods of slowing skin aging, The Life Extension Foundation has been light-years ahead of the cosmetics industry.



In January 1983, Life Extension introduced a multi-ingredient, anti-aging face cream called Rejuvenex, designed and formulated by Professor Carmen Fusco based on the work of Benjamin S. Frank, M.D. Numerous published studies have since shown that the ingredients in Rejuvenex produce a marked reduction in the skin damage associated with aging.

Over the years, many of the individual ingredients found in Rejuvenex have been copied by commercial companies. These companies spend enormous amounts of money advertising expensive products that contain only a fraction of the active ingredients packed into every jar of Rejuvenex, and now the new Rejuvenex Body Lotion.

The Rejuvenex Body Lotion is formulated with the amount of alpha-glycolic acid, vitamins and melatonin that, according to recent studies, protect against photo-aging of the epidermis of the skin.

Ginkgo extract has been added to protect against inflammation and irritation associated from the alpha-glycolic acid and retinyl palmitate contained in the formula. The active ingredients in the new Rejuvenex Body Lotion are vitamin C, melatonin, vitamin E, RNA/DNA, vitamin A (retinyl palmitate), ginkgo biloba extract, alpha-glycolic acid, ceraphyl GA-D, glycerin, citrus oil, lavender oil, hyaluronic acid, urea sandalwood oil.

Unlike many high-priced products sold in department stores, Rejuvenex Body Lotion is loaded with potent doses of nutrients that provide maximum protection against damaging free radicals and other causative factors involved with skin aging.

## References

- Biochemistry and Molecular Biology International (1997, Vol. 42, Iss 6, pp1093-1102)
- Brain Res Bull, (17:367-8; 1986)
- British Journal of Dermatology (Sep 1992)
- Journal of Pharmacology and Biophysical Research (10:4:1997, 200-205,).
- Journal of Investigative Dermatology (May 1996)
- Revista Espanola de Fisiologia (Dec 1994)
- Skin and Allergy News (30(9):18,1999)

[Back to the Magazine Forum](#)

All Contents Copyright © 1995-2009 Life Extension Foundation All rights reserved.

**LifeExtension®**

These statements have not been evaluated by the FDA. These products are not intended to diagnose, treat, cure or prevent any disease. The information provided on this site is for informational purposes only and is not intended as a substitute for advice from your physician or other health care professional or any information contained on or in any product label or packaging. You should not use the information on this site for diagnosis or treatment of any health problem or for prescription of any medication or other treatment. You should consult with a healthcare professional before starting any diet, exercise or supplementation program, before taking any medication, or if you have or suspect you might have a health problem. You should not stop taking any medication without first consulting your physician.