

*Bag
Bath*®

Ingredients in BagBath:

Rayon, Polyester, Aqua, Poloxamer 188, Poloxamer 338, Tocopherol, Dexpanthenol, Polyaminopropyl Biguanide,

Non perfumed or perfumed (perfume in ref number 021240).

<u>Ingredients</u>	<u>Benefits</u>
Rayon	Comfort
Polyester	Strength
Vand	Mildness
Vitamin B5 (Dexpanthenol)	Moisturizer / Humectant Healing properties to the skin
Vitamin E (Tocopherol)	Antioxidant and skin protection
Polyaminopropyl Biguanide	Preservative also used in contactlense solutions
F 68 (Non-Ionic Surfactants)	Non-ionic surface active agent FDA approved wound and skin cleanser

Dexpanthenol (vitamin B5):

: Klin Monatsbl Augenheilkd. 1996 Aug-Sep;209(2-3):84-8.

[Clinical study of the effectiveness of a dexpanthenol containing artificial tears solution (Siccaprotect) in treatment of dry eyes]

Gobbels M, Gross D.

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PURPOSE: In this controlled, randomized, double-masked study the effect of dexpanthenol-containing artificial tears (Siccaprotect) on patients with dry eyes was examined. **PATIENTS AND METHODS:** 50 patients applied either dexpanthenol-containing artificial tears (Siccaprotect) or the identical, but free of dexpanthenol, eye drops five times daily into the conjunctival sac. No other ophthalmics were administered. The corneal epithelial permeability was measured by fluorophotometry and Schirmer-Test, Rose Bengal staining, tear film break-up time and the patients' subjective complaints were determined before and after 6 weeks of treatment. **RESULTS:** The dexpanthenol-containing artificial tears (Siccaprotect) improved disturbances of the corneal epithelial permeability significantly in comparison to the dexpanthenol-free eyes drops. The other parameters didn't show relevant differences.

CONCLUSION: These data suggest that, in dry eyes, treatment with dexpanthenol-containing eye drops leads to a favorable and comparing with dexpanthenol-free eye drops superior improvement in disturbances of corneal epithelium permeability.

Publication Types:

- Clinical Trial
- Randomized Controlled Trial

: Klin Oczna. 2003;105(3-4):175-8.

[In Process Citation]

Raczynska K, Iwaszkiewicz-Bilikiewicz B, Stozkowska W, Sadlak-Nowicka J.

Katedry i Kliniki Chorob Oczu Akademii Medycznej w Gdansku.

PURPOSE: Vitamins B group are important ingredients of coenzymes. Provitamin B5 dexpanthenol is necessary in the processes of reconstruction of epithelium, has regenerative and anti-inflammatory properties. Objective of the study was to determine how the wounds of cornea and/or conjunctiva heal upon the application of D-panthenol/the medicine has been developed in the Faculty of Pharmacy of the Medical University of Gdansk/. **MATERIAL AND METHODS:** The activity of the medicine was tested in 40 eyes in the test group, a 40 eyes in the control group did not receive D-panthenol. The degree of the objective and subjective symptoms was assessed. **RESULTS:** The differences between the two groups commenced on the second day following the operation. **Better effects were observed in patients receiving D-panthenol.** Congestion and oedema of conjunctiva withdrew, the edges of wounds demonstrated smoothness and better adherence. Subjective feelings improved.

CONCLUSIONS: 1. Provitamin B5 contained in 5% drops and 5% gel of D-panthenol effectively accelerates the processes of healing the wounds of conjunctiva and cornea.

□ : Am J Clin Dermatol. 2002;3(6):427-33.

Topical use of dexpanthenol in skin disorders.

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Pantothenic acid is essential to normal epithelial function. It is a component of coenzyme A, which serves as a cofactor for a variety of enzyme-catalyzed reactions that are important in the metabolism of carbohydrates, fatty acids, proteins, gluconeogenesis, sterols, steroid hormones, and porphyrins. The topical use of dexpanthenol, the stable alcoholic analog of pantothenic acid, is based on **good skin penetration** and high local concentrations of dexpanthenol when administered in an adequate vehicle, such as water-in-oil emulsions.

Topical dexpanthenol acts like a moisturizer, improving stratum corneum hydration, reducing transepidermal water loss and maintaining skin softness and elasticity.

Activation of fibroblast proliferation, which is of relevance in wound healing, has been observed both in vitro and in vivo with dexpanthenol.

Accelerated re-epithelization in wound healing, monitored by means of the transepidermal water loss as an indicator of the intact epidermal barrier function, has also been seen.

Dexpanthenol has been shown to have an anti-inflammatory effect on experimental ultraviolet-induced erythema.

Beneficial effects of dexpanthenol have been observed in patients who have undergone skin transplantation or scar treatment, or therapy for burn injuries and different dermatoses.

The stimulation of epithelization, granulation and mitigation of itching were the most prominent effects of formulations containing dexpanthenol.

In double-blind placebo-controlled clinical trials, dexpanthenol was evaluated for its efficacy in improving wound healing.

Epidermal wounds treated with dexpanthenol emulsion showed a reduction in erythema, and more elastic and solid tissue regeneration.

Monitoring of transepidermal water loss showed a significant acceleration of epidermal regeneration as a result of dexpanthenol therapy, as compared with the vehicle.

In an irritation model, pretreatment with dexpanthenol cream resulted in significantly less damage to the stratum corneum barrier, compared with no pretreatment.

Adjuvant skin care with dexpanthenol considerably improved the symptoms of skin irritation, such as dryness of the skin, roughness, scaling, pruritus, erythema, erosion/fissures, over 3 to 4 weeks.

Usually, the topical administration of dexpanthenol preparations is well tolerated, with minimal risk of skin irritancy or sensitization.

Publication Types:

- Review
- Review Literature

□ : Arzneimittelforschung. 2000 Jul;50(7):659-63.

Effect of topically applied dexpanthenol on epidermal barrier function and stratum corneum hydration. Results of a human in vivo study.

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In a randomized, double-blind, placebo-controlled study the effect of topical dexpanthenol (CAS 81-13-0) formulated in two different lipophilic vehicles on epidermal barrier function in vivo was carried out.

Seven days' treatment with dexpanthenol improved stratum corneum hydration and reduced transepidermal water loss. Active treatment was statistically different from the vehicle control on both measures. Our results suggest that topical dexpanthenol formulated in either lipophilic vehicle stabilizes the skin barrier function.

Publication Types:

- Clinical Trial
- Randomized Controlled Trial

Tocopherol (Vitamin E)

Supplements For Healthy Skin

New Orleans LA, 25 February 2002

Protecting yourself from ultraviolet radiation and reversing photoaging takes more than an instant or a miracle. It takes the medical advice of a dermatologist, the correct formulations and the most effective method to deliver vitamins to the skin.

Speaking today at the American Academy of Dermatology's 2002 Annual Meeting in New Orleans, New York-based dermatologist Karen E. Burke, MD, spoke about the antioxidants that have proven to be the most effective in protecting against and reversing photoaging of the skin.

Vitamin E

Vitamin E is the most important antioxidant in the body that protects cell membranes and prevents damage to membrane-associated enzymes. It can be found in vegetable oils, especially sunflower oil, whole grains such as wheat germ, brown rice and oats, as well as nuts, dairy products and meats.

New laboratory research has shown that as an antioxidant, vitamin E helps inactivate free radicals. There have also been numerous studies that show that topical natural vitamin E, also called d-alpha-tocopherol, reduces sunburn cell production, chronic UV-induced damage and the production of cancer causing cells. Previous studies have demonstrated that regular vitamin E supplements, taken in conjunction with vitamin A supplements, were associated with a 70 percent reduced risk for basal cell carcinomas.

"For additional sun protection, individuals may consider taking vitamin E supplements," said Dr. Burke. "Supplementation with natural vitamin E in 400 milligrams per day has been noted to reduce photodamage, wrinkles and improve skin texture."

In addition, topical d-alpha-tocopherol can soothe dry, rough skin. When combined with vitamin C, both vitamins create a highly protective lotion against sun damage.

Cutaneous Vitamins A and E in the Context of Ultraviolet- or Chemically-Induced Oxidative Stress

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Skin Pharmacology and Applied Skin Physiology 2001;14:363-372 (DOI: 10.1159/000056370)

Abstract

Vitamins A and E are present in mammalian skin. Although the main circulating form of vitamin A in the blood is retinol, the epidermis stores it as retinyl esters. The epidermis can be easily loaded with high amounts of vitamin A by topical application of either retinol or retinaldehyde, two well-tolerated precursors of the biologically active retinoic acid, while topical α -tocopherol loads the epidermis with vitamin E. The probable physiological function of epidermal vitamin E is to contribute to the antioxidant defense of the skin, whereas that of epidermal vitamin A (retinol and retinyl esters) is not yet well understood. Besides being a precursor for retinoic acid, vitamin A also has a free radical scavenging potential. Due to their physical properties, vitamins A and E absorb ultraviolet (UV) light in the region of solar spectrum that is responsible for most of the deleterious biological effects of the sun. In the mouse, topical vitamin A has been shown to prevent the UV-induced epidermal hypovitaminosis A, while topical vitamin E prevents oxidative stress and cutaneous and systemic immunosuppression elicited by UV. Thus constitutive epidermal vitamins A and E appear complementary in preventing UV-induced deleterious cutaneous and systemic effects, and these properties can be reinforced by topical application of retinol or retinaldehyde and topical α -tocopherol.

Physiol. Res. 51: 285-290, 2002

Protective Effects of Topical Alpha-Tocopherol Acetate on UVB Irradiation in Guinea Pigs: Importance of Free Radicals

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Summary

Reactive oxygen species can be generated by daily exposure of the skin to ultraviolet light and may cause some subchronic and chronic skin disorders. The aim of this study was to investigate a possible preventive role of α -tocopherol acetate (ATA) on ultraviolet B (UVB) induced peroxidation by assessing lipid peroxide (LPO) levels and activity of reactive oxygen scavenging enzymes including glutathione peroxidase and superoxide dismutase (SOD) in guinea pigs. ATA was topically applied to the skin for three weeks before a single dose of 0.9 J/cm² UVB irradiation on the skin and lipid peroxide levels and antioxidants in plasma, skin and liver and erythrocytes were determined after decapitation. Topical application of ATA prevented the UVB irradiation-induced reduction of scavenging enzyme activities in skin and erythrocytes. In conclusion, we suggest that topical applications of ATA before UVB irradiation is effective in protecting the skin from unwanted effects of UVB irradiation.

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Role of topical and nutritional supplement to modify the oxidative stress**P. Morganti[†], C. Bruno[†], F. Guarneri[‡], A. Cardillo^{*}, P. Del Ciotto^{*} and F. Valenzano[‡]***Synopsis**

Background: Evidence suggests that signs of skin ageing such as wrinkling, ragging and actinic lentigines, may be connected to cumulative oxidative damage incurred throughout our lifetimes. To counteract this oxidative injury, skin is equipped with a network on enzymatic and non-enzymatic antioxidant systems, such as tocopherols, ascorbate polyphenols. All these compounds administered topically by cosmetics or by oral route by diet supplements, have been shown to exert an antioxidant/protective effect in skin or skin cells. *Objective:* The object of this study was to evaluate both *in vitro* and *in vivo* the activity performed by different topical antioxidants and nutritional supplements. *Methods:* A randomized double-blind placebo-controlled study was carried out for 8 weeks on 30 dry-skinned elderly volunteers, women aged between 48 and 59 years, with moderate xerosis and photoageing. Surface skin lipids, skin hydration and MDA determination were topically detected by 3C System. ROS was evaluated on the blood serum and on IL-3 stimulated human leukocytes by ROS Meter System at 505 nm. All the subjects applied twice a day for 2 months a nanocolloidal gel and/or take a diet supplement by oral route at the quantity of two capsules per day. All the formulations used were antioxidant-enriched (ascorbic acid, tocopherol, alpha-lipoic acid, melatonin, emblica). *Results:* Oxidative stress and consequently lipids peroxidation decreased from 30 to 40% ($P < 0.005$) in blood serum of all the subjects treated with antioxidant compounds topically and by oral route. Both free radicals recovered in blood serum and on skin (*in vivo*) and ROS induced by irradiation of leucocytes with UVB light (*in vitro*), appear sensibly lower in subjects antioxidant-treated. *Conclusions:* From the obtained data, it seems possible to conclude that all the compounds used play interesting role as topical and systemic photoprotectants, thanks to their interesting antioxidant property. Moreover, the antioxidant treatment seems to be a promising therapeutic approach also in reducing the oxidative stress of people affected by photoageing.

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Polyaminopropyl Biguanide (Preservative)

- **6:** Ophthalmic Res. 1994;26(3):129-36.

Contact lens care solutions and corneal epithelial barrier function: a fluorophotometric study.

Boets EP, Kerkmeer MJ, van Best JA.

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The aim of the study was to evaluate the effect of residual concentrations of two contact lens care solutions (hydrogen peroxide and polyaminopropyl biguanide) on corneal barrier function in vivo. The barrier function was determined by fluorophotometric measurement of corneal epithelial permeability in 30 contact lens wearing healthy subjects after 1 month's use of each of the solutions. All participants except one had corneal epithelial permeability values within the range for non-contact lens wearing healthy volunteers (0.011-0.061 and 0.008-0.090 nm/s, respectively). The deviating value (0.14 nm/s) was due to improper use of the contact lens care system. No statistical significant difference between the permeability values after use of the two contact lens care solutions was found (Wilcoxon ranked paired test: $p = 0.2$). It can be concluded that both solutions do not have harmful effects on corneal epithelial barrier function, provided the handling instructions are followed.

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Surfactant F 68 (*surface active agent*)

- **7:** Ann Emerg Med. 1980 Nov;9(11):572-6.

Pluronic F-68: a promising new skin wound cleanser.

Rodeheaver GT, Kurtz L, Kircher BJ, Edlich RF.

Pluronic F-68 is a new skin cleanser that has been approved by the Food and Drug Administration for use in humans. In experimental studies, this nonionic detergent prevented the development of infection with no discernible toxicity. We have used Pluronic F-68 clinically in wounds in more than 1,000 patients without demonstrable side effects. As a result of this experience, Pluronic F-68 has replaced all other commercially available scrub solutions for use as a skin wound cleanser in our medical center.

- 8: Am J Surg. 1976 Jul;132(1):67-74.

Pharmacokinetics of a new skin wound cleanser.

Rodeheaver G, Turnbull V, Edgerton MT, Kurtz L, Edlich RF.

Iodophors are effective germicidal agents that have prolonged antiseptic activity in contaminated wounds. A nontoxic surfactant, Pluronic F-68, has been used to formulate a safe and effective iodophor. The parameters necessary to regulate the activity of the iodophor were studied to develop a potent, yet safe bactericidal solution for use in human subjects. The parameters found to be most important were the pH of the solution and the concentration of sodium iodide. Lowering the pH of iodophors increased their stability and antiseptic activity. The free iodine in iodophor solutions prepared with a low pH is predominantly the highly biocidal diatomic iodine (I₂). The concentration of iodide regulated the equilibrium of the dissolved iodine between its free and complexed form. Increasing the concentration of iodide in the iodophor lowered the amount of free iodine in solution and enhanced the concentration of the complexed iodide. It is the level of free iodine in an iodophor that determines its antiseptic activity. Low levels of free iodine yielded iodophors that had a slow bacterial kill rate but a prolonged duration of action. Manipulation of these variables permitted the generation of iodophors that varied considerably in their kill rates of bacteria and their duration of antibacterial activity. Iodophors tested in this study demonstrated a distinct superiority to noncomplexed iodine solutions (tincture and aqueous iodine solutions) as wound and skin cleansers.

9. Wisdom From the Professionals

A collection of Articles

Provided by High Tech Detergent

Synthetic Surfactant or Soap ?

You may well ask why soap, which served well for so many years, was eventually displaced. Soaps are cheap and they are manufactured from a renewable source, whereas many of the synthetic detergents are made from petrochemicals. Soaps are also biodegradable; that is, they are readily broken down by bacteria, and thus they do not pollute rivers. However, due to their gelling properties, soaps do have a greater tendency to clog sewerage reticulation systems than synthetic detergents. The grease trap of a non-sewered house was often laden with soap. But the most important reason for the displacement of soap is the fact that, when a carboxylic acid soap is used in hard water, precipitation occurs. The calcium and magnesium ions, which give hardness to the water, form insoluble salts with the fatty acid in soap and a curd-like precipitate occurs and settles, of course, on what ever is being washed. By using a large excess of soap, it is possible to redisperse the precipitate, but it is extremely sticky and difficult to move. This problem with soap can be demonstrated by a simple experiment in which a concentrated solution of hard-water salts is added to a 0.1% solution of soap and also to a 0.1% solution of synthetic surfactant. The soap precipitates, but the synthetic surfactant remains clear because it's salts are water soluble.

You may live in an area where the water is extremely soft. But calcium and magnesium ions are present in the dirt that you wash out of your clothes, so that some precipitation still occurs if soap is used, and gradually deposits are built up in the fabric.

There are other disadvantages with soap; it deteriorates on storage, and it lacks cleaning power when compared with the modern synthetic surfactants, which can be designed to perform specialised cleaning tasks. Finally and very importantly from a domestic laundry point of view, soap does not rinse out; it tends to leave a residue behind in the fabric that is being washed. A residue gradually builds up and causes bad odour, deterioration of the fabric and other associated problems.

What's the Difference ?

What's the difference between a surfactant and soap ? In general terms, the difference can be likened to the difference between cotton and nylon. On the one hand, soap and cotton are produced from natural products by a relatively small modification. On the other hand, synthetic surfactants and nylon are produced entirely in a chemical factory. Synthetic surfactants are

not very new, either. Back in 1834 the first forerunner of today's synthetic surfactants was produced in the form of a sulfated castor oil, which was used in the textile industry.

The development of the first detergents in an effort to overcome the reaction of soaps with hard water provides a good illustration of one of the standard chemical approaches. If a useful substance has some undesirable property, an attempt is made to prepare an analogue, a near chemical relation, which will prove more satisfactory.

The petroleum industry had, as a waste product, the compound propylene, $\text{CH}_3\text{-CH}=\text{CH}_2$, which used to be burnt off. By joining four of these propylene molecules together and if benzene is attached at the double bond, the resulting compound reacts with sulphuric acid. Then sodium hydroxide is added to neutralise the sulfonic acid and a sodium salt is obtained. The new substance is closely related to an ordinary soap, and is an excellent detergent.