

COSMETICS: FACT OR FICTION

by **Hilton Becker, M.D.**



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“What degree of absorption is there when a face cream is left on the face for 12 hours? Or suntan lotion applied to the entire body?”

Cosmetics have traditionally received little attention because it has been wrongly assumed that such products do not really affect our health and safety.

The skin was believed to be a nearly perfect barrier that prevented chemicals applied to it from penetrating into the body. This belief went unchallenged until the 1960's when studies on DMSO showed that substances are able to penetrate through the skin into the body's tissues and blood stream. Indeed,

an increasingly popular way to deliver drugs is “transdermally”. For example, nitroglycerin, used to prevent angina, is placed on adhesive discs for delivery through the skin.

It has now been accepted that all chemicals penetrate the skin to some extent and many in significant amounts. Interestingly, smaller sized substances, as most of the potentially harmful chemicals are, penetrate the skin more easily. The larger molecules, such as

collagen, elastin, and proteins, which cosmetic companies claim have a beneficial effect on the skin, are *not* able to penetrate it. The only way to get collagen into the skin is by injection. Even if collagen is injected into the skin, it is broken down and reabsorbed.

What degree of absorption is there when a face cream is left on the face for 12 hours? Or suntan lotion applied to the entire body? What is the effect over a number of years? No one knows.

Ingredients in a commonly used hand cream

Ingredients: *Water, Aloe Vera Gel, Stearic Acid, Cetyl Alcohol, C12-15 Alcohols Octanoate, Mineral Oil, Sorbitol Triethanolamine, Dimethicone, Keratin, Cocoamidopropyl Dimethylamine Propionate, AMP Isostearic Hydrolyzed Animal Protein, Tocopheryl Acetate (Vitamin E Acetate), Cyclomethicone, PEG-100 Stearate, Dimethicone Copolyol, Glycol Stearate, Glycerol Stearate, Magnesium Aluminum Silicate, Steramide AMP, Fragrance, Carbomer 934 Disodium EDTA, PG, SD Alcohol 40, Methylparaben, Propylparaben, DMDM Hydantoin, Red dye 4, and Yellow dye 10.*

If these ingredients appeared on a food label would you purchase the product?

Believe it or not, these chemicals comprise a leading body cream which millions of Americans apply to their skin several times a day.

That same intelligent woman who checks food labels for harmful additives naively smears her body with potions concocted from a myriad of multisyllabic chemicals. Does she know what they do to her body or why they cost so much? Probably not. Last year the cosmetic industry spent 900 million dollars on advertising. Fiercely competitive marketing experts work very hard to convince women that *their* product offers youth and beauty.

For most women, the extravagant claims of alluring ads make it simply irresistible not to try products promising rejuvenation or the prevention of aging. (How many different jars of creams are in *your* bathroom?)

Let's face it. American women are conditioned to place blind faith in big name manufacturers. They spend 17 billion dollars a year on cosmetics and most do not know what they are using.

COSMETICS CAN COST A LOT MORE THAN JUST MONEY. A University of California study showed that hairdressers and cosmetologists had a four times greater incidence of malignant myeloma. In one year over 200,000 emergency room visits related to cosmetic usage were logged. And this is just the tip of the iceberg. How many have failed to realize that the itching, reddened skin or hive-like welts were

caused by skin care products? No one knows. Although a great deal is not known about cosmetic ingredients, there are a few that, although known to be potentially harmful, are still used in cosmetics.

For example:

- Amines, amino derivatives, and dioxane cause cancer in laboratory animals.
- Mercury compounds cause allergic reactions and skin irritations.
- Hexachlorophene causes neurotoxic manifestations.
- P-Hydroxyanisone is a skin sensitizer and causes depigmentation.
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Many consumers believe that the FDA monitors the production of skin care products. In fact, no regulation requires cosmetic firms to register with the FDA nor are they required to report adverse reaction or to release their formulas. There are no regulations requiring that cosmetics be tested for safety or efficacy before they are marketed. Incredible as it may seem, some ingredients in cosmetics are carcinogenic. For example, certain colors that have been used in lipstick for years have been shown to cause cancer in laboratory animals.

“In fact, no regulation requires cosmetic firms to register with the FDA.”

The FDA, working under the Food, Drug and Cosmetic Act, is not only handicapped by a low budget and lack of personnel, but by an inherent weakness in the law. Only when products claim to affect the structure or any function of the body, including the skin, can the FDA classify that product as a drug and demand the same research that drugs must provide. Such claims as facelift without surgery, for instance,

have prompted FDA action.

Cosmetics are considered by the FDA to be articles applied to the body for cleansing, beautifying or promoting attractiveness without affecting the body structure or function.

The classification makes a big difference. Drugs have to be approved by the FDA before they can be sold to the public. Manufacturers must prove the products are safe and serve their intended purpose.

If a company claims that its product can affect the skin below the surface, for example, can repair cells or make the skin function as if it were young again, the FDA may consider the product a drug for regulatory purposes. If the FDA considers it to be a new drug, the manufacturers must prove that it is safe and effective before it can be legally marketed. *None of the currently marketed wrinkle fixers have a new drug approval.*

Recent claims for antiaging creams would seem to classify them as drugs, not cosmetics, and several consumer groups are pushing to have these products declared drugs so manufacturers will have to prove their claims.

Can skin care products prevent premature aging of the skin? Let's examine the major classifications:

Sun Screens:

The only truly effective means of preventing premature aging is the avoidance of sunlight. There is no question that exposure to damaging sun rays causes premature aging of the skin. Sun blocks are the best established antiaging products currently available and they cost much less than any of the products purported to keep the skin young. Indeed, most skin care products base their antiaging claims on the sunscreen content.

Moisturizers:

Moisturizers can aid water retention, thus decreasing roughness, scales, and cracks typically seen in older skin. However, no moisturizer has been shown to be any more effective than petrolatum (petroleum jelly). This was confirmed by a study performed at the University of Pennsylvania over a 10 year period. Petrolatum is a petro chemical known to cause other skin problems.

According to a *Consumer Reports*' article, the most expensive moisturizer actually received the lowest ratings! Moisturizers can aid moisture retention. Moist skin looks younger than dry skin. The way these products work is fairly simple. Application of oil to the skin surface prevents the evaporation of the skin's natural moisture. The most effective products, however, leave a greasy feel and are not well accepted by the public. Instead, those products whose efficacy is weakened by emulsifiers which mitigate the offensive feeling are the most commonly used.

Skin Supplements and Nutrients:

There is virtually *no* evidence showing that skin supplements will rejuvenate the skin by topical application. Most nutrients would probably be more effective if taken orally.

There are a myriad of special ingredients that are added to cosmetics, once again, with very little proven scientific efficacy.

One example is amino acids which are components of protein. They are added in an attempt to nourish the skin. There is a good deal of argument over whether or not this can be done. As for nourishing ingredients, additives such as proteins, amino acids, collagen and elastin, there is no conclusive evidence that the skin can absorb any of these products. Most experts maintain that the size of the molecules are too large to penetrate the outer layer of the skin.

Abrasives (Exfoliants):

The surface texture of the skin can be altered by removing the dead cells, dirt and surface oils that block pores. Exfoliants thus give the skin a smoother, fresher look.

Cosmetic companies do little or nothing to educate consumers about cosmetic ingredients or to make them aware of potential problems. It is therefore very difficult to get a realistic picture of what is going on.

Over 1,000 companies manufacture cosmetics that are applied to the face. Competition is brisk and these companies are not in the business of educating consumers. Sales are dependent on product advertisement rather than knowledge of ingredients, mecha-

nism of action and scientific studies.

Phrases like, "dermatologist-tested", "hypo-allergenic", and "non-comedogenic" are used indiscriminately. "Dermatologist-tested" means that a dermatologist has tested the product but does not state what it was tested for. "Hypo-allergenic" does not mean that the product is free of allergens. Hypo means less, however, there is no established criteria for what this means. "Allergy tested" means that the product has been tested for allergies but does not specify which ones. "Natural cosmetics" means that the products contain natural ingredients but not necessarily free of preservatives.

Cosmetics should, therefore, be carefully selected. Selection should not be based on enticing advertisements, but rather on fact.

Dr. Hilton Becker is a board certified plastic and reconstructive surgeon practicing in Boca Raton and West Palm Beach. A list of references is available from the author.

REFERENCES

1. Shelhen, Dori. *Erasing Wrinkles: Easter Said than Done*. FDA Consumer, July-August, 1987.
2. Stossel, John. *Lamb's Cells for your Face? Dermatologists are Dubious*. Consumer Notebook SCI/DI, September 1979.
3. Morrison, Maggie. *When a Beauty Product Backfires - What to Do*. Mademoiselle, November 1985.
4. Somerville, Barbara. *Chemical Overload*. Palm Beach Post.
5. Winter, Ruth. *Complete Information about the Harmful and Desirable Ingredients found in men's and women's cosmetics*. Consumers Dictionary of Cosmetic Ingredients - New Third Revised Edition.
6. Moser, Penny W. *An Antiaging cream with a new wrinkle: It may work*. Discover, August, 1987.
7. Encyclopaedia Britannica, Inc. *Medical and Health Annual 1989*.
8. McNamara S.H., Thyman, Phelps and McNamara. *Performance*

Claims for Skin Care Cosmetics. D & CI/ October, 1985.

9. Schoen, L.A. and Lazar, P., M.D. *The Look You Like*. Copyright, 1990 by Marcel Dekker, Inc.
10. *Reactions to Cosmetics*. Copyright 1987, American Academy of Dermatology.
11. *The Intelligent Woman's Guide to Buying Skin Care Products*. Woman's Day, June 17, 1986.
12. *All Purpose Moisturizers*. Consumer Reports, November 1986.