



FACE FACE FORWARD

Photo Courtesy Kerstin Florian



*Industry experts discuss what research
is uncovering about new
and old skincare
ingredients.*

"I think that the definition of a cosmetic is obsolete," says Guy Langer, vice president of sales and marketing, DD Chemco, Northridge, California, and chairman of the board of the Society of Cosmetic Chemists, California Chapter. "The FDA has so few resources for personal care. It's equipped to handle product complaints from the consumer, but it's just not equipped to handle manufacturer claims."

By Lisa Randazzo



Indeed, skin care continues to transcend itself at an exponential rate. Born of the cosmetic industry and brought to maturity by science and medicine, skincare products baffle their makers and marketers by eluding definitive labeling, while the

PUTTING IT BACK

Skin care sloughed its way into the '90s with the advent of alpha hydroxy acids and the youthful skin they could offer; AHAs provided a more sophisticated means of exfoliation, a way to reveal a fresh new face beneath the stratum corneum. The result was a younger-looking, yet more fragile skin.

"First, there was the phase we went through exfoliating and stripping the skin," says Lydia Sarfati, Repêchage, New York, New York. "Now we are trying to replace the good things we took away."

Most of today's skincare research is concentrating on nourishing ingredients, including antioxidants such as vitamins and minerals, and enzymes that trigger a variety of dermal changes.

"The current research that I'm most impressed with involves antioxidants," says Dr. Mark Lees, Mark Lees Skin Care, Pensacola, Florida. "What we're discovering is that when you combine the antioxidants, they seem to work together very well and have an anti-aging effect."

The hottest group of antioxidants includes vitamins C and E. The problem with antioxidants is that they're "hard to stabilize because they're very reactive with oxygen," explains Lees. "When they encounter oxygen, they start oxidizing. So the challenge is to keep them stable in the jar until they come in contact with the skin."

The only way to keep antioxidants stable within the jar is by dropping them into a formula specifically developed for this purpose: "Providing a formula that will deliver vitamins in a stable form is not an unsurmountable problem," says Langer. "It's just a formulation issue, which can be handled if the company is willing to pay for the extra research and



Courtesy: PGA National Resort & Spa

Combining relaxing treatments with tomorrow's technology is key to total skin care.

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skincare cops employ dusty old guidelines to govern space-age ingredients.

"The FDA dictates that if a product penetrates the stratum corneum, then it must be classified as a drug," says Rebecca James Gadberry, Youthglow, Huntington Beach, California. "When this happens, the FDA puts all sorts of restrictions on a product's use. We're working with technology that is allowing us to know amazing things, yet we're being governed by FDA regulations set down in 1938."

As the functionality of skincare ingredients and the formulations that make them so effective continue to improve, manufacturers are finding they must rein in their marketing claims even as research continues to substantiate their discoveries.



Courtesy Repêchage

Savvy clients look to spas to deliver today's space-age skincare ingredients.

“Within 90 minutes of a skin injury, the area becomes saturated with zinc.”

production. [The degree of difficulty] depends on the vitamin: Ascorbic acid, for instance, is very difficult to keep stable. So is retinol, which is really expensive. One company that manufactures retinol uses an argon blanket and keeps the product totally protected from air during production. The procedure is very costly.”

Barbara Green, director of technical and consumer affairs, NeoStrata, Princeton, New Jersey, agrees. “To have an effective formulation you need to stay in the acidic range, and this is difficult when working with lower pH levels. Our chemists are often called upon to handle such situations. People think AHAs and sunscreens can’t be combined. They can, but it’s difficult and requires a good deal of effort and research.”

MINERALS

Other current research in skin care involves minerals—inexpensive, readily available ingredients such as calcium and zinc.

“Unfortunately, most people think of ‘minerals’ as a dirty word,” says Glen Lockhart, executive director, BiON, San Diego, California. “But calcium is a mineral, and an important one at that. Calcium is a regulator of the pigment process, and a regulator of the cell turnover process.” So, he adds, if a client is intolerant of any of the AHAs—which are also used to stimulate the cell

turnover process—you can resurface her skin with calcium treatments.

Zinc is also an antioxidant, and probably the most critical mineral for the immune system. “Zinc is essential for the skin’s healing processes,” offers Lockhart. “Within 90 minutes of a skin injury, the area becomes saturated with zinc. Zinc levels remain elevated through about day seven, when they begin to decline and return to a normal level on about day 14.” Studies show that zinc is required for DNA repair and DNA replication for cellular division, making it necessary for the rapid production of cells to replace those destroyed by injury, says Lockhart.

“Research into the functions of zinc informs skincare manufacturers that it may be an ideal ingredient in products developed for aging skin. Zinc would also be advantageous in products dealing with repeated injury or repeated inflammation. Certainly [products for] the treatment of acne would fall into this group,” Lockhart adds.

Another function of zinc is that of a catalyst of superoxide dismutase (SOD), a powerful antioxidant produced by the skin that’s active in fighting off free radicals.

“An injury site experiences a 60% to 70% decrease of antioxidants such as SOD, vitamin C and vitamin E during the healing process,” explains Lockhart. “So supplementation of these antioxidants—in addition to stimulation of SOD—is very important.” This is useful information when manufacturers develop products for use after planned injury, such as peels and cosmetic surgery.

ENZYMES

Enzymes that trigger dermal activity are another hot area of research that represent

an exciting new frontier in skin care.

"There are companies looking at how certain natural products affect enzyme activity on the skin," says Langer. "When the skin ages, enzymes break down. If there are substances that can trigger these enzymes, then that's a point of interest. Collagenase is an enzyme that destroys collagen, for instance. There are some plant extracts that have been found to inhibit the activity of collagenase. All this is of interest to some companies, but a lot of companies don't want to pay for [the research]."

The most sophisticated enzyme research, says Langer, is that being done for DNA repair. "This involves adding an enzyme that helps the skin repair itself after DNA damage from ultraviolet rays. The two main ingredients are ultrasomes, which are milk flora extracts; and photosomes, which are extracts from plankton that sit on top of the water where they're constantly exposed to the sun and have, therefore, adapted to UV exposure. There is very sound science supporting this research, and it has a lot of appeal for companies that want a more sophisticated approach to sun care."

DELIVERY

The stratum corneum is designed by nature to keep products out, a fact that transforms the delivery of vitamins and nutrients to the epidermis and dermis into sort of a Houdini act.

"You have to remember that our skin was created to be impenetrable, because it's designed to protect our blood supply," says Robert Posner, owner, ABBE Cosmetic Group International, Long Island, New York. "But liposomes are very effective delivery systems. They are quite simply microscopic balloons that

are composed of soy lecithin and have nothing inside. They are made by throwing the lecithin—at a very high speed—at a screen with microscopic holes. Science has found a way to fill these balloons with different substances."

Because the quality and efficiency of liposomes vary depending on who manufactures them and what's inside, working with them can be tricky. The photosomes and ultrasomes used for DNA repair, for example, are made by a company that also makes products for the pharmaceutical industry; it uses very sophisticated, state-of-the-art technology. "Some really tiny liposomes can even make it into the bloodstream, which is something you really don't want," cautions Langer.

Many companies have had problems working with liposomes. "It's a shame that nobody in this industry has really exploited liposome technology," laments Posner. "Lancome first came out with the technology, but had problems keeping the liposomes in the product. Nobody has a really good understanding of [the technology], which is probably why no one bothers with it. I find this truly amazing, because liposomes are a really wonderful, all-natural delivery system."

Cyclodextrins are the next generation of delivery system, says Tanya Gospodinova, Bio-Tec U.S.A., Washington, D.C. A form of molecular encapsulation, starch-derived cyclodextrins have the ability to deliver drug and cosmetic formulations to the dermis



Aging baby boomers are learning to nourish their skin in addition to exfoliating to maintain a youthful appearance.

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THE BARRIER

One of the most detrimental byproducts of aging is deterioration of the skin's natural protector—lipids. Replacing these lipids is key to maintaining youthful skin, and many companies cite interest in this area of research.

“Lipids are your barrier against environmental harshness from winds, detergents and surfactants,” says Langer. “The prevalent use of AHAs also strips the skin [of lipids] through exfoliation, leaving a younger skin that you want to protect. So lipid replacement—or lipid therapy—is a real point of interest. Basically, lipids are oils, and any combination of lipids can help repair the barrier.”

Silicone ingredients are also a hot

FOR MATURE SKIN

“Forty million women are about to go through a ‘change of life,’ and there’s going to be a lot of interest in products that address this,” says Guy Langer, vice president, sales and marketing, DD Chemco, Northridge, California, and chairman of the board of the Society of Cosmetic Chemists, California Chapter.

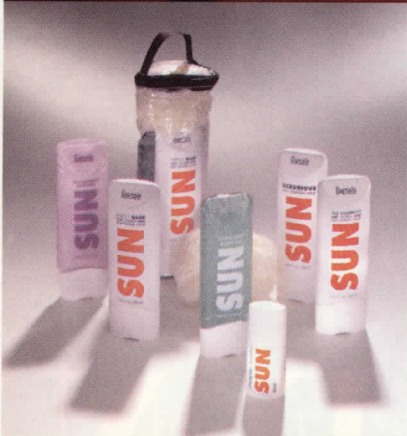
Hormonal shifts that occur as we age cause skin processes to slow down, and replacing essential vitamins and minerals can help bring back that youthful glow.

“There’s a whole different attitude toward menopause than in the past,” says Lydia Sarfati, Repêchage, New York, New York. Sarfati suggests the following ingredients for treating menopausal skin:

- **Echinacea** enhances the immune response of skin by raising levels of hyaluronic acid. It has strong anti-inflammatory properties and is soothing, calming and fortifying.
- **Gotu kola** is used for the improvement of blood flow and also improves elasticity in the skin by stimulating fibroblast activity.
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Relaxation is a significant factor in achieving a youthful glow.

It's important to recognize that there's more to skin care than scraping away some dead skin and slathering on the latest moisturizer.

topic of research, says Gadberry. "Silicones act as barrier ingredients and are good mineral oil replacements. They help keep skin moist and feeling nice. They're also good emulsifiers, so they help reduce the amount of emulsifiers needed in other parts of the formulation."

Lost lipids can also be replaced with lipids from plants, says Posner. "The use of functional lipids with antioxidants has proven effective in retaining the moisture balance of the skin. This is new and this is what people will realize is necessary to maintain youthful skin."

Lipid synthesis is another method of replacing and repairing the skin's barrier. According to Gadberry, ingredients that stimulate lipid synthesis include: phospholipids, magnesium ascorbyl phosphate and tissue respiratory factor.

"Oat fraction is another area of research that shows some interest and promise," adds Lees. "It's believed that oat fraction may, on its own, stimulate lipid production. But that's still new, and I haven't done any work on it personally."

SENSITIVE SKIN

Clients with sensitive skin know that it can be more than a mere nuisance; it can compromise not only the health of their skin but its overall life span as well.

"Research suggests that chronically inflamed skin seems to break down and age quicker," says Lees. "So if we can regulate inflammation, we can help prevent aging."

Anti-inflammatories include green tea, licorice and chamomile, says Gadberry. "But these ingredients must be chemically standardized to be effective as anti-inflammatories."

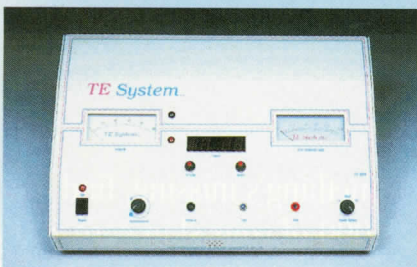
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NO BOUNDARIES

As research and development continue to answer and surpass the demands of our industry, one wonders if limits exist to how long we can forestall the aging process. The fountain of youth may be in the laboratory.

"Technology is enabling us to discover new ingredients and their functions at an incredible rate," says Gadberry. "I get literature for at least 25 new ingredients across my desk each week, and it's not unusual to have full documentation on most of them. In 1990, there were about 3,500 ingredients listed in the *Cosmetics, Toiletries and Fragrances Association Dictionary*. This year's edition had 8,999."

It's hard to argue that skincare products are a staple of our industry, but it's important to recognize that there's more to skin care than scraping away some dead skin and slathering on the latest moisturizer.

"Oxidative stress does damage to cells from the inside," reminds CA Botana's Dr. Dieter Kuster. "The question is how to reduce damage from the inside, because cells talk to each other, and if they're damaged then they'll create more damaged cells. This is why the spa concept is so important to skin care. You can externally correct the moisture content of skin and bring it back to a vibrant state. Equally important is relaxation that helps reduce internal oxidative stress, because only when the body is totally relaxed does it begin to repair itself." ♣

Lisa Randazzo is *DAYSPA's* associate editor.