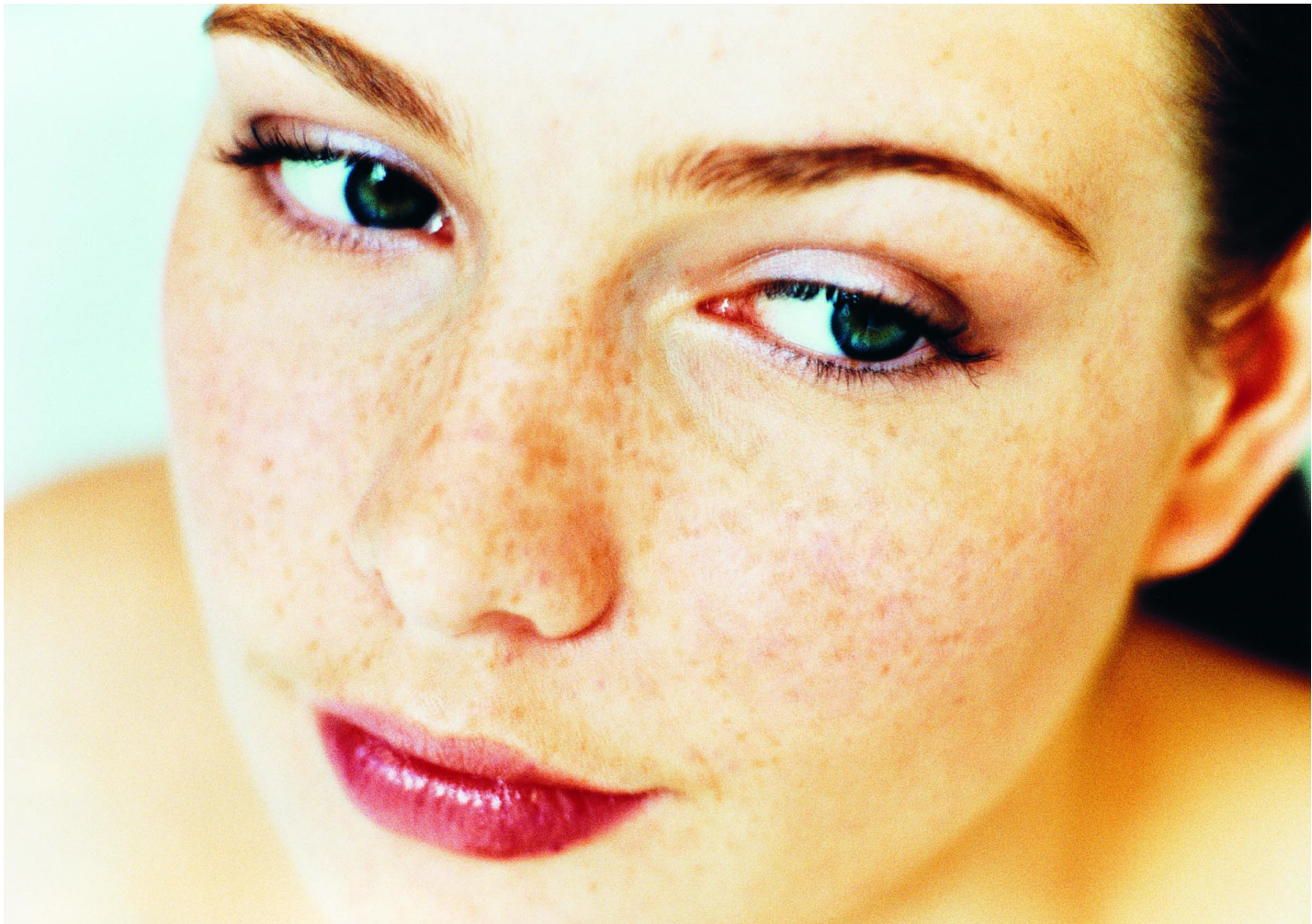
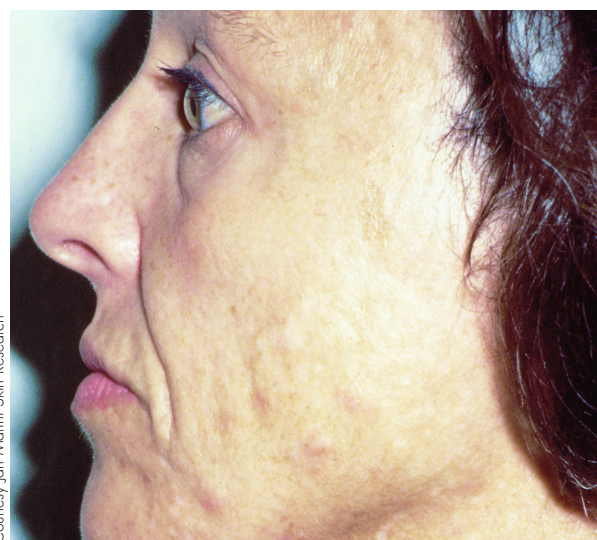
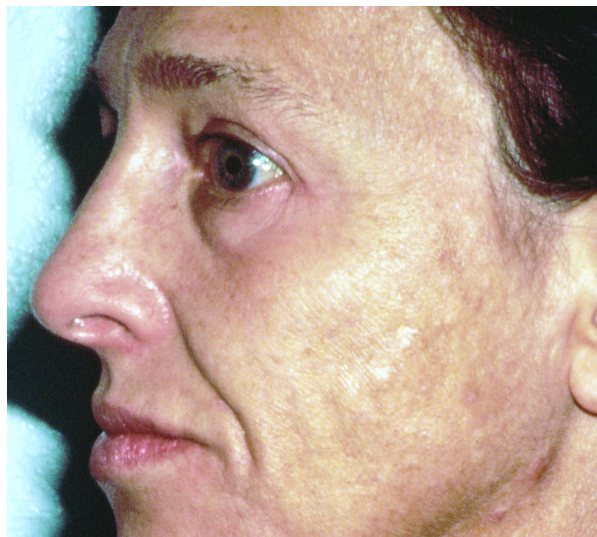


Lightening Strikes

By Lisa
Randazzo

At its most basic, what connects the endearing beauty mark on a baby's bottom and the painful, pockmarked face of an acneic teenager is nothing less than a continuum of melanocytes gone awry. In between? The expectant mother with the pregnancy mask who came to you for help last week, an anorexic cheerleader with a spotted face and your client with Crohn's disease on sulfonamides, who arrives for her facial each month with a brand-new dark patch on her face. While the mechanisms jump-starting these pigmentation problems are unrelated, the end result in each case is a cluster of melanocytes. The problems we identify as *hyperpigmentation* represent the end result of *melanogenesis*—a chain of events that, if interfered with at any point along the way, will alter the outcome of melanin synthesis, which occurs in the epidermis and produces the uneven pigmentation we see.





Courtesy Jan Mairni Skin Research

Successfully treating hyperpigmentation takes diligent, long-term compliance.

“One mistake I often see is estheticians going after hyperpigmentation too aggressively.”

The good news is that while the Food and Drug Administration recognizes only *hydroquinone* as a lightening agent—which works by inhibiting *tyrosinase*, an enzyme necessary for the production of melanin—the skincare industry has been mining and combining new ingredients to come up with some effective formulas that work in much the same way. This means that clients no longer need to head straight to the dermatologist at the first sign of a shadow on their cheek: Creating a monitored program that combines a daily regimen of these new brightening formulations along with profes-

sional peels that can effectively fade the existing discoloration can do wonders for the majority of your hyperpigmentation clients.

The Motive of Melanin

If you were to hold planet Earth in the palm of your hand and twirl it around for an objective view of its populations, you would not be able to argue the evolutionary nature of melanin. “There appears to be widespread agreement that melanin contributes to human survival,” says Christine Heathman, GlyMed Plus, Spanish Fork, Utah, in the “Understanding Pigmentation Disorders and Solutions” section of the training manual for Advanced Aesthetics, the company’s educational arm. “Melanin’s evolutionary benefits derive from its chemistry as an absorber and electron exchanger. Melanin also modifies photoreception.”

Driven to protect, melanogenesis begins at the first sign of either internal or external assault. And while you cannot change what nature has imbedded so firmly into your immune system, you can let the knowledge of melanin synthesis guide you when developing effective skincare programs.

“One mistake I often see is estheticians going after hyperpigmentation too aggressively with microdermabrasion or some other exfoliation modality,” says Mark Lees, Ph.D., Dr. Mark Lees Skin Care, Pensacola, Florida. “They think they can scrape it off, and that’s ridiculous. Now of course, you can peel off the pigmented surface, but you can’t do anything about the skin cells at the dermal/epidermal junction. You cannot go after skin aggressively because trauma is one of the *causes* of hyperpigmentation. You’re going to end up with a worse problem

than when you started—especially with darker skin types. When treating hyperpigmentation, any kind of peel has to be light and gentle.”

To help your esthetician avoid making such a mistake, Lyn Ross, L.M.E., the president/CEO of Institut’DERMed, Atlanta, recommends buying a microdermabrasion machine that has a dual control to allow manipu-

Waves and Currents

Technology fits into nearly all skincare programs, and those designed to treat hyperpigmentation are no exception. Here are a few hi-tech modalities that you may already be using in your spa to treat other skin conditions:

Intense Pulsed Light. “IPL uses high-intensity light to heat



Courtesy Dr. Gregory Keller

up melanosomes, which are inside the melanocytes, and destroy them,” says Michail Pankratov, vice-president of clinical affairs, Palomar, Burlington, Massachusetts. “It’s a **restorative** treatment, one that works on the actual pigmentation. It does not work preventively in any way.”

LED photomodulation. LED technology, which is “low-energy light” that uses less power than a 25-watt light bulb, is most widely known for its use in creating clear readout displays for digital clocks and car dashboards. So where does it fit into skin care? LED photomodulation is used to either accelerate or inhibit cell activity, classifying it as a **preventive** modality in skin care. In the case of treating hyperpigmentation, LEDs are used to slow down fibroblast activity, which in turn inhibits the formation of collagen that’s so central to acne scars.

Iontophoresis. Because the stratum corneum makes it difficult to deliver ingredients to lower layers of the skin, researchers at Seoul National University College of Medicine conducted a controlled study in which they used iontophoresis—electrical current—to transport vitamin C, a proven tyrosinase inhibitor that’s traditionally difficult to deliver by formulation alone. The researchers concluded that vitamin C application with iontophoresis may be an effective treatment modality for melasma.

lation of both the suction and the crystal flow. “The suction should be kept on medium to low, and the crystal setting should be on medium to high. You want to limit the number of passes to four. The idea is to limit any chance of drawing blood—which will feed melanocytes—and also limit any chance of producing an inflammatory response.”

The most common types of hyperpigmentation you’ll see in your spa will be *post-inflammatory response*—which includes reactions to medications and injury-induced discoloration from acne, eczema, waxing, peels, laser treatments and sunburn—and *melasma*, which is usually hormonal, and can occur as a result of pregnancy, birth control medication and menopause.

Regimen and Results

The results you’re able to anticipate for any client are contingent on many variables—only some of which are under your control. Factors you can’t do anything about include the origin of the discoloration and its location within the dermis. What the client *can* do is to keep the skin protected from UV rays—and also from *heat*, if possible. This will keep the hyperpigmentation from getting worse and help boost all treatment efforts.

“At least 90% of the hyperpigmentation that I see is from the sun, and then there’s the heat factor that most people in the industry just don’t address, but it’s a real issue,” says Lees. “My partner of 13 years wears sunscreen religiously every day. In spite of this, I’ve seen her darkening increase by 75% over the years. She admits it has to be because of the heat—she just can’t stay out of the hot Florida sun. She loves sports, is always at her son’s ball games and jogs every day. I really

It seems that persistence is key when treating hyperpigmentation.

believe there's a thermal factor involved with melanin synthesis and that you'll never have true success with a lightening program if a client won't change her lifestyle accordingly."

Compliance plays an integral role in the efficacy of a lightening program, and getting clients to stick with it is especially difficult because, of all the skin conditions you might treat in your spa, significantly lightening hyperpigmentation takes the longest.

"You need to put the client on a multifaceted program, and she needs to stay compliant," says Ross. "The program needs to be comprehensive and customized to her individual skin condition. You will need to evaluate her at stages to determine progress and redesign the program as necessary along the way." It seems that persistence is key when treating hyperpig-

mentation. "You're not going to see any results with just a deep pore cleansing," warns Ross. "A basic program design would be to pretreat with a series of 6 or 12 microdermabrasion treatments—the number would depend on skin thickness and degree of pathology—and then administer chemical exfoliation. I usually start with a Jessner peel because it's gentler and more comfortable, and see what result I get with that. At this point I combine my professional treatments with melanin-suppressing agents such as hydroquinone, kojic acid, ascorbic acid and licorice extract. These work to control tyrosinase, which prevents the melanin clusters that we know as hyperpigmentation. And then, of course, the client needs to apply her sunblock religiously."

Determining how hyperpigmentation is going to respond to treatment is

“One of the most common types of hyperpigmentation is postinflammatory response.”

impossible, but it’s always a good idea, before starting a lengthy program, to give the client your idea of a realistic outcome. “Epidermal hyperpigmentation is a lot easier to treat than dermal hyperpigmentation,” says Ross. “If the discoloration is down to the dermis, you’ll never get rid of it, but you *can treat* it.”

The Potions

The FDA continues to single out hydroquinone as the only agent that can be labeled a *skin lightener*, and only when formulated at percentages above 2%—which is available only by prescription. “Hydroquinone remains the only FDA-approved lightening agent, but a lot of people pooh-pooh it, and it has gotten a lot of bad press—just as mineral oil and petroleum ingredients have,” says Lees.

Whether because of the controver-

sy surrounding hydroquinone or the plain inefficiency of hydroquinone at 2%, the skincare industry has developed some impressive frontline products that go a long way toward treating and preventing discoloration while evening out skin tone and texture.

“The cosmeceutical market has come up with a lot of combinations that are really innovative. Are these combinations as good as 4% hydroquinone? Probably not,” says Pearl Grimes, M.D., clinical dermatologist, U.C.L.A. Medical Center, Los Angeles. “But lesser forms of hyperpigmentation can respond to these OTC products. One of the most common types of hyperpigmentation is post-inflammatory response, which means that it’s secondary to another (inflammatory) condition. So if the primary condition is treated, such as acne, we

Impressions

can usually treat the resulting hyperpigmentation. Melasma is another common type of hyperpigmentation, which can be more difficult to treat because its origin is usually hormonal and hereditary. This is the mottled hyperpigmentation you see on the forehead and cheeks. If it's mild, it may respond to OTC combinations, but it will likely need prescription hydroquinone. Why do I keep going back to hydroquinone? Because it remains the gold standard for treating hyperpigmentation. Of course, it should be accompanied by a program of professional chemical peels, microdermabrasion and a daily topical regimen."

Tyrosinase inhibitors. "Most ingredients that are considered to be skin lightening agents are, in fact, not; they are actually tyrosinase inhibiting agents," says Lori Smith, vice-president, Visual Changes Skin Care International,

"We've found that combining a synergy of tyrosinase inhibiting ingredients is more efficacious than just using one."

Fresno, California. "What this means is that instead of lightening the pigment that's already present, they work to stop the production of excessive melanin by interrupting the enzyme tyrosinase keeping it from acting upon the melanocyte—otherwise known as a pigment factory—and, thereby, inhibit further melanin production."

Kojic acid and several forms of *vitamin C* are probably the most commonly known and used tyrosinase inhibitors. Smith says that others would include *licorice extract*, *bearberry*, *mulberry root*, *Japanese green tea*, *rumex*, *wheat germ extract*, *azelaic acid*, *l-ergothione* and *phytic acid*.

"There's one ingredient I think is fantastic and that I highly recommend: *magnesium ascorbyl phosphate*. It's a fat-soluble form of vitamin C that trips-up the melanin process, and I've found good results by combining this with hydroquinone," says Lees.

The beauty of formulating at the cosmeceutical level is that the knowledge harnessed from years of research and development has shown coexisting nutritives and actives in many of these agents. "We've found that combining a synergy of tyrosinase inhibiting ingredients is more efficacious

“It’s widely accepted that melanogenesis can be driven, in part, by free radicals.”

than just using one because most of them have a secondary benefit for the skin,” says Smith. “Also, for the right skin types, formulating with a combination of tyrosinase inhibiting ingredients and alpha and/or beta hydroxy acids has proven to speed the process of skin lightening. This results due to the exfoliating effects of the alpha

and beta hydroxy acids, which remove the existing hyperpigmentation while the tyrosinase inhibitors are working to prevent new melanin from forming.”

Antioxidants. “Vitamins C and E have been evaluated as pigment lightening agents due to their free-radical scavenging abilities,” says Heathman. “Although the conclusive studies are yet to be published, it’s widely accepted that melanogenesis can be driven, in part, by free radicals.”

Camouflage. “Patients benefit immediately from the protective, opaque, mineral-based camouflage makeups made to withstand many hours of wear on the skin’s discolored surface while the client is waiting for the effects of professional intervention,” says Heathman. “First, there’s the additional ‘physical’ protection it provides from UV and other environmental elements that can cause free-radical damage, but it also offers the aesthetic improvement so integral to a client’s feelings of self-worth.”

One of the most important things you can do for your clients with hyperpigmentation disorders is to maintain a realistic perspective. There are a lot of treatment options and possible outcomes. If you’re well informed, you can make the most of a market that knows no demographic boundaries. And always remember that you need to monitor hyperpigmentation regimens from start to finish. “Take pictures *before you start treatment*,” says Ross, “because clients will forget how bad the discoloration was and they’ll stop being compliant, and then it will all come back.” ♦

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