

Sethna

Tanning season is upon us. And though the statistics are more frightening than ever, science is finally offering a ray of hope. Aimee Lee Ball reports.

A tan is a paradigm of the idea that looks can be deceiving. Ever since Coco Chanel returned from a cruise to dictate bronzing as de rigueur for chic Parisians, we have categorically viewed the sun-drenched look as healthy and desirable, a symbol of the good life. We don't seem to grasp that tanning is an *injury* response in the skin, second cousin to bruises that turn black-and-blue, but with far greater consequences. Much of the wrinkling, coarsening, and leathery look of skin attributed to aging is actually the result of sun damage, from both prolonged periods of sun worship and from what is called incidental exposure—the kind you get just walking down the street. The concept of a “safe tan” is oxymoronic (and arguably moronic). There is probably nothing else you do knowingly, cheerfully, *deliberately*, to make yourself look older.

These are vanity issues, germane if you're happy to die young and leave a good-looking corpse. But if you're interested in longevity, consider the much more insidious effects of sun damage known (in descending order of frequency but increasing order of lethality) as basal cell carcinoma, squamous cell carcinoma, and malignant melanoma: by any other name, skin cancer. More than 800,000 Americans will develop skin cancer in 1995, according to the National Cancer Institute. It's the most common cancer in the world

today, accounting for one out of every three new cancers. It's the leading cancer among women 25 to 29 and second only to breast cancer among women 30 to 34. And they're not all ash blondes. Everyone is vulnerable. Carcinomas tend to grow right where they start. Melanoma spreads easily to the lungs, liver, or brain by sending down “roots” into deeper layers of the skin. And you can look and feel perfectly healthy in the early stages of cancer. The American Academy of Dermatology (AAD) considers skin cancer an undeclared epidemic and has proclaimed May 1, 1995, Melanoma Monday (catchy name, hmm?), promoting self-examination the way gynecologists advocate breast self-exam. The average young adult has about 25 moles, and doctors want us to know the difference between the Cindy Crawford kind and the kind that kills. If melanoma is detected and treated early, the cure rate is close to 100 percent.

The ongoing search for a safe tan was one topic tackled at a recent AAD convention. A dermatology convention is a jolly place: In between booths set up for renting cellular phones and making dinner reservations are seminars titled “Diapers and Diaper Rash: The Inside Story,” “What's New in Psoriasis,” and “Notes of a Wart Watcher.” (The last comes with lunch.) But this is where you learn the latest wrinkles (a little dermatology humor) in skin protection.

Most of the light that reaches us from the sun is visible light. Less than 10 percent is ultraviolet radiation, but most skin damage is inflicted by these UV rays. For some time scientists have known that skin exposed to sunlight produces more of the protective, UV-absorbing pigment called melanin. A tan, the visible result of melanin production, is actually the body's attempt to increase sun protection *after* the skin is already permanently damaged. Scientists already know that UV rays damage the DNA in our skin cells. One recent study suggests that UV rays introduce lesions into the DNA of epidermis cells and trigger enzymes to repair the damage. But one in every million lesions may not be properly repaired, and all un-repaired damage increases the risk of skin cancer.

For years it was thought that we only had to worry about shortwave (UVB) rays, which are what hit the outer layers of the skin. Tanning salons promised bronzing with impunity by using lamps that beamed "safe" UVA rays. But recent studies confirm the danger of UVA rays, which are longer and penetrate the skin's deeper layers. When your shadow is shorter than your body, you're at major risk for UVB damage, but UVA risk continues pretty much the same all day. That risk is growing as the chlorofluorocarbons in aerosol sprays and refrigerants deplete the ozone, the protective layer of gas wrapped around the earth. Sun is sun, whether it's hot or cold (even though the sun's angle in winter reduces UVB exposure, UVA is virtually the same all year), and up to 80 percent of UV rays penetrate clouds. But the closer to the equator, the more potent the rays.

Perhaps you now slather on some sunscreen as penance for years of baby oil and iodine. A 1994 study at the University of Oklahoma Health Sciences Center showed that using an SPF 29 sunscreen reduced the incidence of precancerous lesions by 36 percent. "Even dark-skinned people who tan easily benefited," says Mark Naylor, M.D., an assistant professor of dermatology, who conducted the research. "That's important because you can get skin cancer never having had a sunburn in your life." There was a similar study with similar results in Australia, the skin-cancer capital of the world because of all those British complexions under the highest solar radiation on earth.

"Sometimes it seems as if you need a Ph.D. in photobiology to understand a package of sunscreen," admits Stanley B. Levy, M.D., clinical professor of dermatology at the University of North Carolina at Chapel Hill and the director of medical affairs for Almay. But there are just two categories: Chemical sunscreens *absorb* UV radiation, and physical sunscreens *reflect* it. The newly popular term *chemical-free* simply means a product contains a reflective ingredient such as titanium dioxide (although there's some evidence that it is a powerful UV absorber, too). That's the stuff so chalky and opaque

that it's sometimes colored orange or purple and worn by lifeguards in proud stripes across their noses. In its latest incarnation it's a micronized powder, ground so fine that it can be worn on the face without looking clownish (Clarins Sun Block SPF 25, Chanel Natureblock Cream SPF 15).

Sunscreens are regulated by the Food and Drug Administration as over-the-counter (OTC) drugs and must include an expiration date, unless the company has demonstrated that the product remains stable for three years. In 1993 the FDA issued a tentative set of standards about sunscreens that has yet to be finalized. But any ingredient not included in that document must submit to a New Drug Application (NDA), a review process with clinical trials that can cost millions. "The problem in developing a new sunscreen is that it costs roughly the same as developing an antibiotic," explains Robert M. Sayre, president of Rapid Precision Testing Laboratories in Cordova, TN. "Sunscreens are sold for little more than hand lotions, and companies can't recover their money. There's only been one

new ingredient proposed in 20 years." That ingredient is Parsol 1789, and in this country it's only in one product, called Shade UVA Guard. (Photoplex, another product with the ingredient, disappeared in late 1993 after the FDA got many reports about adverse reactions.) Givaudan-Roure, the company that makes Parsol 1789, submitted a "citizen's petition" to the FDA in 1990 to declare it safe and effective, but the FDA declined to include it in the recent document. But Parsol 1789 is in 20 products in Canada, a country that appears to be more welcoming to sunscreen possibilities and is about to greet another one, called Mexoryl SX. "It's unique," says Frederick W. Danby, chairman of the Canadian Dermatology Association's

Sunscreen Product Education Committee. "It has the ability to absorb UV light and twist the molecule. When it snaps back to its normal shape, it releases the energy as heat."

Mexoryl SX and other sunscreens are sold all over Europe. "Any of them could be available here under a New Drug Application," says Jeanne Rippere, a microbiologist, who leads the FDA's sunscreen review. "I know that's probably not a viable option for a lot of products. But there have been several petitions to the agency asking that we include these European ingredients in the OTC review based upon their foreign marketing."

Authorities, including the American Academy of Dermatology, traditionally advocate an SPF 15, and many people infer that the higher SPFs are superfluous. Not Laurence J. Meyer, M.D., a dermatologist at the VA Medical Center in Salt Lake City. "You come spend the day with me," he challenges. "If it's winter, we'll go skiing. If it's summer, we'll go hiking. You wear SPF 15 and I'll ▶ 202

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explanation, referring to *Mad Dogs and Englishmen*, the film she's just completed, in which she plays a heroin addict—a role for which she'd lost some 18 pounds.

From heroin addict to Lauder girl overnight? Hurley is the consummate chameleon. This comes across even in her polite English resumé: There's an entry for Vile Bodies, a dance troupe she founded while at school; later, needlepoint is listed as one of her pastimes. "I find that needlepoint is a wonderful thing to do when you're on location during a movie. If you read a book, people think you're bored. On the set of *Passenger 57*, I'd have a large gun on my lap and my tapestry on top of that. Uzis and needlepoint." Naturally.

Hugh Grant has been called a modern Cary Grant, witty, comedic, and intelligent. Who, then, is Hurley?

"There are so many people I'd love to be. Ava Gardner seemed quite cool and beautiful at the same time. I'd love to be Audrey Hepburn, but I'm twice her size and not delicate at all. I'm quite fond of Mae West, yes! And some days I'd like to be Julie Andrews, twirling about in the mountains wearing Austrian clothes."

Hurley's in luck. At Estée Lauder, she will probably get to play them all. ■

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wear SPF 45, and at the end of the day we'll see who has more color." Meyer believes that the actual "in-use" protection of a sunscreen is often less than indicated by a formal SPF for several reasons: Sunscreens are tested in a solar simulator that uses an artificial light source. Plus people often use a lighter coat than recommended (a full ounce is required to make a good layer). And in real life people sweat. "SPF 15 is wonderful for everyday use," says Meyer. "The higher numbers are useful on snow, over sand and water, and for very long exposure time. With sunscreens, 'one size fits all' is inappropriate."

Cryptic marketing terminology leads to more confusion. Words like *hypoallergenic* and *for sensitive skin* are to cosmetics what *lite* and *reduced fat* are to foods. Companies making these claims are on the honor system, kept credible by the knowledge that any misstatement will be savaged by their competitors. "Even 'oil-free' gels can feel oily," says Almay's Stanley Levy, "which is not surprising—sunscreen ingredients are oils. The term *oil-free* is not regulated. It means the product is free of oils *other* than the sunscreen." The FDA document suggests that the word *waterproof* is too absolute and should be changed to *very water-resistant*. And sunscreens marketed for children are essentially no different from products for adults, but may contain fewer ingredients that could irritate the skin. "They may certainly be used by adults, just like No-More-Tears shampoo," says Levy. "But if they're more expensive, they're probably not worth it."

Which brings us to economics. If money were the only consideration, one study hypothesized, it might well be more cost-effective to go unprotected and treat a skin cancer down the line than to buy sunscreen over the years. This point of view highlights the fact that it's hard to moti-

vate people to adopt an expensive lifetime habit that offers little immediate gratification. "Generic brands may be good," says Levy. "But there are quality and stability concerns. You may be safer to spend a little more and go with a company that can stand behind its name."

It's confusing terrain. And we're irresponsible consumers. Go get your sunscreen, please. You know, the tube that's been buried in your glove compartment or golf bag since last July. Go ahead—I'll wait... See the fine print on the label that says "active ingredient"? It's not active anymore. During the long winter of its discontent, it has bitten the dust. "Sunscreen is no different from lipstick," says Edward Jackson, Ph.D., president of Jackson Research Associates, a scientific testing service in Sumner, WA. "You don't want it in a hot car in July in Dallas or in Minneapolis in January. The poor sunscreen can break apart."

A Swedish study showed how people really apply it: Men were better about their ears, women were better in general, but both sexes were bad about applying it around the eyes and mouth, and we don't use enough. We're also unreliable in assessing our skin type, fitting ourselves into one of those ubiquitous categories like "tans easily" or "always burns." In a Dutch study, only two out of almost 800 people correctly described themselves as most susceptible to sun damage—the "always burn, never tan" type—despite their personal histories.

In January 1994 researchers at the M.D. Anderson Cancer Center at the University of Texas in Houston stunned the medical community by releasing a study that concluded that sunscreens may actually *increase* melanoma by creating a false sense of security about sunbathing, and recommended wearing clothing rather than sunscreens to prevent skin damage. But you're not even safe dressed. "Just because a fabric is opaque doesn't mean that ultraviolet light can't get through," says Rapid Precision Testing Laboratories' Robert Sayre. "It can penetrate the fibers. And the worst thing that light-sensitive people can do is to wear white."

Last year Julian Menter, Ph. D., a professor at the Morehouse School of Medicine in Atlanta, found that typical summer clothing offers inadequate protection from the sun. A white cotton T-shirt has about an SPF 6, and a pink cotton polo has an SPF 8, which drops to SPF 5 when you sweat. (Virtually all clothing loses about one-third of its SPF when wet. "A wet T-shirt transmits more light than a dry one, which is why there are contests," says Menter dryly.) The amusing concept of laboratory mice testing beach clothes becomes more sobering when you learn that *all* of the mice wearing typical summer fabrics developed squamous carcinomas. The mice protected by a new high-SPF fabric didn't even show reddening.

Most of these new fabrics achieve their SPF properties through a special combination of fiber, weave, and dye. One team of researchers at the University of New South Wales in Australia developed a compound that absorbs UV rays and claimed that when combined with cotton and other fabrics it could give the materials an astonishing SPF 100. But UV protection built into any clothing will eventually come out in the wash. In this country, any clothing ► 211

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with a sun-protection claim is considered a medical device and is regulated by the FDA, but there is no standard for how long the product must last after laundering (as there is for children's fire-retardant pajamas). So far, only one manufacturer has received FDA clearance: Sun Precautions (for its Solumbra line), founded by a man who was diagnosed with malignant melanoma at age 26 (800-882-7860). But you don't have to buy a whole new wardrobe. Unbleached cotton has a high SPF, and some high-luster polyesters reflect UV rays. The general rule of thumb: Hold a garment up to a window or lamp. The more light that comes through, the more UV light will get through to your skin.

The ultimate protection would be a head-to-toe sunscreen that lasts a long time without being reapplied and doesn't have caustic or toxic side effects—along the lines of hair dye or disposable contact lenses. "It's a good idea, technologically within our grasp," says Jackson. "But we need to get through certain hurdles and challenges." Semi-permanent sunscreen presents a problem that hair coloring does not: "Hair is basically inactive," says Jackson. "Skin is like an envelope holding our more-fluid insides together, and it is our interface with air. It literally needs to breathe, and it needs hydration. You can't seal it off."

The future is not quite now in this field, but it is on hand. Advanced Polymer Systems in California has applied for FDA approval to make sunscreen with Microsponge particles (already used for foundations, deodorants, and baby wipes), to better distribute the product on the skin. This company also uses a genetically engineered melanin, approximating the body's own (except that this melanin is black, not brown, and requires a patented process to achieve a more realistic color). A French company is experimenting with nylon beads in sunscreens to absorb light and provide better "scattering" (like balls on a billiard table). "Anything we can do to make less product more effective is good," says Sayre. "Companies that make the active ingredients aren't happy because they want to sell tons of stuff, not pounds. But it's putting chemicals on the skin. We know the benefits of daily-use products, not just day-at-the-beach products: It's like brushing your teeth every day versus getting your teeth cleaned at the dentist." Much of the research employs laboratory-grown human skin, harvested from circumcision remnants at a California biotechnology company called Advanced Tissue Sciences.

More futuristic stuff: At Boston University, Barbara Gilchrest, M.D., chairman of the department of dermatology, and her associates are trying to identify a way of tanning without damaging the skin. They can increase melanin without exposure to the sun by treating the skin topically with very small DNA fragments. "We think we can trick the skin into thinking that it's seen sun, gotten damaged, chopped up the DNA, and gone forward in making a protective tan," explains Gilchrest. The theory has been put to the test with blonde, brunette, and red-headed guinea pigs. And in other studies, the search goes on for an oral sunscreen, to be taken the same way you take an oral contraceptive. "For some people, it's

easier to take a pill," says Gilchrest. "There's a lot of innuendo about things like beta-carotene and vitamin E, but there are no data yet. These things are already present in the skin in very generous amounts, functioning to prevent oxidative damage and intrinsic aging. Whether you can improve on nature, we don't know."

There's also some question as to whether we need protection from the sun's *infrared* light as well as the UV range. "We know that people who use space heaters and people who sit by a fireplace with their legs exposed can get a chronic irritation that's a form of skin damage," says Levy. "You know what that kind of infrared light is like: It's low intensity but you feel *warm*. We need to study that further."

Three government biggies—the National Weather Service, the Environmental Protection Agency, and the Centers for Disease Control—recently got together to create the UV Index, a kind of early-warning system announced with local weather reports in 58 U.S. cities. Officials agree it will be as accurate as the weather forecast. (Make up your own joke here.) The EPA also has an information hotline about UV risk: 800-296-1996. The message is clear: Avoid sun like the plague.

Message received. As commentary on my skin color (fish-belly white), my godchild suggests I match my SPF to my age. Rotten kid. But I have come to regard a tan as a relic with, like other antiques, too high a price tag. Fish-belly white seems a fair exchange for a cancer-free future, now that we know the true meaning of "If looks could kill...." ■

THE NEW PRINCE OF BROADWAY

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Mouth Versus Eyes

The tour de force of Fiennes' art resides in the eyes and mouth working at cross-purposes.

In *A Dangerous Man*, Lawrence's eyes are described as "blue sky shining through the empty sockets of a skull." Robert Redford cast Fiennes as Charles Van Doren based mostly on the actor's eyes. The eyes, Redford knew, could do most of the work. The eyes radiate a genuineness that wins us over, while the mouth, twitching, reveals a Machiavellian reticence. His lips perform a unique ballet, compressing, then expanding. I watched his mouth's virtuosity as he performed Hamlet, and in the laxness or rigidity of the lips I felt I could discern the hero's dilemma. Onstage, Fiennes' eyes don't seem as penetrating as they do onscreen; instead, his profile emerges as the primary feature—a Roman nose, signifying (to this viewer) power and patrilineage, like the nose of Daniel Day-Lewis. And Fiennes' large hands hang down, poignant and leaden, to prove the hero's grief.

Disguise and Breakdown

Ralph Fiennes onstage and onscreen comes to us disguised, as liar, dissembler, a man whose facade is breaking down. His poignance as a star is a consequence of his vulnerability to emotional collapse. Thus he proves himself the spiritual son of the great Method actors, like Montgomery Clift, a star who specialized in playing confused, secretive ▶ 213