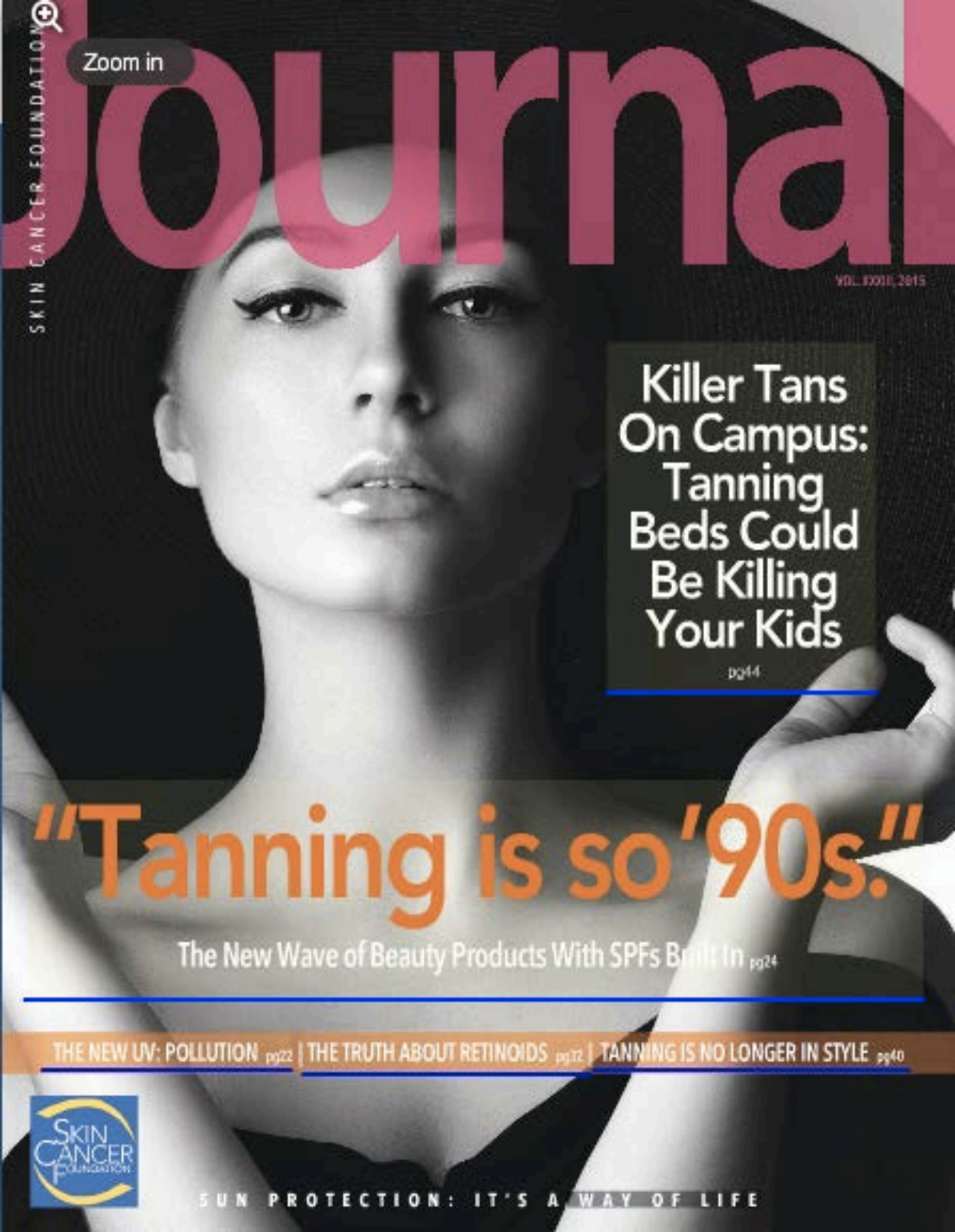
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SKIN CANCER FOUNDATION
Journal
VOL. XXXII, 2015
Killer Tans On Campus: Tanning Beds Could Be Killing Your Kids
pg44
"Tanning is so '90s."
The New Wave of Beauty Products With SPFs Built In pg24
THE NEW UV: POLLUTION pg22 | THE TRUTH ABOUT RETINOIDS pg32 | TANNING IS NO LONGER IN STYLE pg40
SKIN CANCER FOUNDATION
SUN PROTECTION: IT'S A WAY OF LIFE

What if...

you ate a cookie every time you left the house, whether you were running an errand or going to work? By the end of the year, you would have surely gained a few pounds, right? Sun exposure is comparable: every little bit adds to your lifetime skin damage.

doyouknowyourultraviolet ABC's?

For the latest information and updates go to: SkinCancer.org

This is what I tell my patients when they ask me, "Do I have to wear sunscreen even when I'm out for just a few minutes?" While a minute amount of the sun's ultraviolet (UV) light is not going to cause skin cancer, when you add up all the minor exposures, they take their toll over time.

This is true even when you are working inside by a window or driving in your car. Did you know that the sun's ultraviolet A rays go right through window glass? **[See Figure 1].** This is one reason why long-distance drivers and pilots have an increased risk of skin cancer. In addition, pilots regularly work high in the atmosphere, where the thinner stratospheric ozone offers less UV protection, and their windshields do not adequately protect them from the sun's UVA radiation. Airline pilots are exposed to the same amount of UV rays during a one-hour flight that they would be during 20 minutes in a tanning bed, according to a recent study from the University of California, San Francisco.[1] Many of my patients who are pilots were unaware of these facts until they already had skin cancer; they thought the cockpit protected them. Such misconceptions about the dangers of exposure to UV abound.

UV PRIMER

Two types of UV light reach Earth: A and B. UVB is the so-called "burning," shortwave ray that most of us associate with UV. It is strongest in summer and between the hours of 10AM and 2PM (though you can still sunburn at 4 PM!). The longer-wave ray, UVA, however, is a culprit most people aren't aware of. Until recently, the scientific community thought it was just a temporary tanning ray and aging ray.[2] It turns out that UVA penetrates deeper into the skin than UVB, and significantly increases the risk of melanoma and other skin cancers.[3]

SUNSCREEN AND THE UVA RACE

Unfortunately, many sunscreens filter out UVB quite well but fall short with UVA. Thus, people who stay out in the sun longer because their sunscreen staves off sunburn often may only be soaking up more UVA rays.

European countries are ahead of us in sunscreen development. They created the designation "UPF," for "universal (or "ultraviolet") protection factor," signifying the product's combination of UVA and UVB protection, whereas our "SPF," for "Sun Protection Factor," has traditionally measured only UVB protection. In recent years, several sunscreen ingredients offering much-improved UVA protection have been approved in Europe, while in the US, possibly due to overzealous safety concerns, the FDA has not approved a single individual new sunscreen ingredient since the year 2000. (Ecamsule, or Mexoryl SX, though not FDA-approved as an individual ingredient, was given approval by the FDA in 2006 to be used in the US only in ecamsule-containing sunscreens registered under a New Drug Application.) All told, seven individual UVA ingredients are approved in Europe, vs. only three in the US.[4]

In June of 2011 the FDA announced new rules changing sunscreen labeling in the US. Sunscreens with effective UVA- and UVB-filtering agents are now labeled "broad-spectrum," and those broad-spectrum sunscreens that also achieve an SPF of 15 or greater are allowed to state on the label that they help prevent skin cancer and premature aging. This has helped the public become aware of the importance of UVA protection and choose sunscreens more wisely. Yet critics note that in the US, UVA protection even in broad-spectrum sunscreens could stand considerable improvement.

Figure 1: Unilateral Dermatoheliosis
Left side of the face of a man who drove a truck for many years but never wore sunscreen. People who regularly drive long distances suffer significantly more sun damage on the side of their face closest to their side window.

Now, FDA approval of superior UVA-filtering ingredients could be coming closer. The Sunscreen Innovation Act (SIA) was passed into law by Congress on Sept 14, 2014, stepping up the approval process by mandating that the FDA rule on new ingredient applications within six months. The hope is to fast-track approval of over-the-counter products with superior UVA protection that are already proven safe and effective and in wide use overseas, including Tinosorb A and B, Mexoryl and Mexoryl SR. With this new law, companies can petition directly to the Secretary of Health and Human Services, which then must oversee the FDA's receipt, timetable of analysis and solicitation of further research.[5] Unfortunately, the FDA recently demanded further research on all new UVA ingredients submitted to it for approval.

YOU CAN FIND GOOD UVA PROTECTION

While FDA approval of new sunscreen ingredients is urgently needed, it is by no means impossible to find good broad-spectrum protection in the US. First, make sure your sunscreen is SPF 15 or higher (30 or higher is even better!), which guarantees effective UVB protection. Second, look for sunscreens containing zinc oxide or

titanium dioxide, both mineral-based "physical" sunscreens that deflect rather than absorb the sun's rays. These have been found to offer the best UVA protection of any sunscreen ingredients currently in the US. Many manufacturers shied away from these oxides, because their conspicuous stark white look was not attractive to many consumers. However, modern technology now allows for "micronizing," or miniaturizing, the oxide particles, making the sunscreen transparent. Studies show that even these micronized sunscreens do NOT get absorbed into the skin or cause other health problems.[6]

TANNING BED UV: NOT SAFER THAN SUN EXPOSURE

The major part of the radiation produced by tanning beds is UVA, and tanning salons like to maintain that indoor UVA tanning is safer than outdoor tanning. But in addition to the research showing the dangers of UVA, multiple studies have linked recent significant increases in melanoma among young women to indoor tanning. In short, we now know that tanning beds and the UVA rays they predominantly emit can be serious promoters of melanoma.[7]

Tanning salons also go so far as to proclaim the "health" benefits of indoor tanning, citing their ability to manufacture vitamin D in the body. True, having a high enough level of Vitamin D in our bloodstream is important for bone strength and the functioning of many organ systems. Vitamin D may even help protect against melanoma! However, the body manufactures Vitamin D in the skin primarily after UVB exposure, not UVA exposure. What's more, it produces all the vitamin D it can muster after just a few minutes of UVB exposure; after that, the body's supply of vitamin D actually starts to decrease! And NO ONE goes in tanning booths for just a few minutes!

The truth is, tanning bed UV produces health damage, not health benefits. It is far safer to acquire vitamin D through D-rich food and supplements. We live in a time when Vitamin D supplements are plentiful, inexpensive and highly effective. Why tempt fate tanning when we know we can take a supplement and avoid increasing our risk of skin cancer? [See **"Vitamin D: A Bad Excuse For A Tan"** on pg. 68.]

CONCLUSIONS

Being a smart consumer means knowing how to differentiate what is safe from what is dangerous, and what is beneficial from what harms our health. Whether from the sun or from a tanning booth, UVA and UVB are ultimately harmful and dangerous. **There is no such thing as a healthy UV tan.**

References on pages 105-107.

AMY FORMAN TAUB, MD, founded Advanced Dermatology (AD), one of the top 50 medical and cosmetic dermatology practices in the US, specializing in skin cancer detection, aesthetic dermatology, laser surgery, photodynamic therapy, procedural treatments for acne and scarring, non-surgical body shaping and cosmeceutical-grade skincare. Dr. Taub also founded the website skinfo.com and opened *skinfo®* Specialty Skincare Boutique in the same locations as AD. Dr. Taub is a pioneer in photodynamic therapy and full facial volumetric filler rejuvenation, as well as an expert in laser treatment. She is a frequent lecturer and author in the US and abroad, with 10 book chapters and over 20 original peer-reviewed publications in major journals. She is a member of The Skin Cancer Foundation's Amonette Circle.

UV and the EYES

The skin is not the only victim of UV. Ultraviolet radiation has also been linked to both melanoma and non-melanoma skin cancers of the eyelid, conjunctival melanomas, and even cataracts.[8] Most sunglasses and even contact lenses can filter out UV to different degrees. However, you should always verify that the lenses offer broad-spectrum (UVA/UVB) protection - ideally 99% or higher. Also be aware that sunlight can still reach your eyes from the top, bottom or sides of the glasses. Wearing wide, **wraparound lenses** is ideal, and wearing a wide-brim hat will add to this eye protection.

Today, you can even find sunscreens specially formulated to use on your eyelids or the areas around the eye, without the risk that they will harm the sensitive eyelid skin or migrate into the eye and cause pain. These sunscreens are especially good for professional athletes and other sports-minded individuals.

It is often said that the eyes are the "windows to the soul." They also present some of the clearest visual signs we have of aging. The earliest signs of aging are often wrinkles around the eye, which are partly the result of lifetime UV exposure. Treatments to improve these conditions include fillers, botulinum toxin and laser resurfacing, but as always, prevention is your best bet, as well as the most cost-effective alternative.