

When to Come in From the Sun

By [LAURA JOHANNES](#)

Beach season is here, and with it the risk of sunburn. **Ultraviolet warning wristbands**, which change color to tell you when to get out of the sun, can help prevent sunburn, says a company that sells them. Dermatologists say the bands are an excellent teaching tool—but warn that they are merely an approximation of how long you can stay under the rays.



UVSunSense

UVSunSense's wristband turns dark purple when first exposed to sun, then fades to a light lavender when it's time to re-apply sunscreen



Skin types at the fair end of the spectrum are more susceptible to the burning rays of the sun -- and to a higher risk for cancers and premature aging of the skin. But a little sun exposure also releases endorphins and gives us needed vitamin D. WSJ's Melinda Beck and Laura Landro debate how good or bad the sun is for you on the News Hub.

More than a million cases of skin cancer are diagnosed in the U.S. every year, according to the American Academy of Dermatology. Risk of melanoma, the deadliest form of skin cancer, has been linked in many studies to sunburn.

Plastic wristbands sold by UVSunSense LLC of Whippany, N.J., at a suggested retail price of \$6.99 for a pack of seven, contain a sun-

sensitive dye, the company says. The band turns bright purple when first exposed to sunlight, then changes colors depending on how long you've been in the sun. When the band is a light lavender, it is time to apply more sunscreen. When it turns pale yellow, it's time to get out of the sun entirely, according to the company's packaging. (An earlier design, still available in stores, uses a different color scheme.) The bands, available online and in a few stores for about a year, hit major retail stores nationally in May.

Unlike other sunburn-preventing gadgets—such as wristband timers that estimate safe exposure—the UVSunSense bands are designed to tell you how well your sunscreen is working. The company recommends applying sunscreen of at least SPF 15 to both the band and your body. The sunscreen slows the color change on the bands and is designed to mirror how well the sunscreen is working on your body. "It takes the guessing game out of when you need to reapply your sunscreen," says Gary Goldenberg, assistant professor of dermatology and pathology at Mount Sinai School of Medicine in New York.

A Chemical Reaction

The bands work in a two-stage chemical reaction, says Ori Faran, chief executive of Skyrad Ltd., a Neshar, Israel, company that sells the band material to UVSunSense. When the band hits the sun, the dye changes to bright purple. After that, a second chemical reaction kicks in that changes the band gradually to its final color, says Dr. Faran, who is a physicist. Since that reaction is dependent on the energy from the sun, the speed of the color changes varies depending on how much ultraviolet light the band receives, he adds.

(An unscientific test for this column, conducted on a sunny afternoon in California, found the bands seemed to work as advertised.)

The wristbands haven't yet been tested in formal clinical trials, but dermatologists give them qualified good reviews. The bands are "an excellent way to show kids that there really is something happening to your skin," says David J. Leffell, a professor of dermatology at the Yale University School of Medicine in New Haven.

But don't let the results override common sense, he adds, since the bands' accuracy may vary based on each individual's skin. It's still important to re-apply sunscreen after an hour or two and stay out of direct sunlight during peak hours, dermatologists say.

The wristbands are calibrated for type 2 skin, defined by dermatologists as people who burn easily and tan minimally. About 50% of U.S. Caucasians have type 2 skin, estimates Zoe D. Draelos, a consulting professor of dermatology at Duke University School of Medicine in Durham, N.C. The rest of the Caucasian population is roughly split between type 1, the fairest type of skin, and type 3, which tans to light brown and only burns sometimes. "The bands provide a guideline for the average Caucasian individual," Dr. Draelos says.

The bands can still be used as an educational tool in darker-skinned people, says UVSunSense co-founder William Luisi, but they will "err on the early side." Very fair-skinned people may be warned too late, he adds, but so far the company has received no complaints of burns.

Sun on Your Nose

Skyrad says it designed the bands to change to the final color when the most sun-exposed parts of the body—such as shoulder and nose—have received about 80% of the dose of sun needed to burn a person with type 2 skin.

The bands, while waterproof and designed to retain sunscreen in water about as well as human skin, haven't been tested during swimming. Even if the sunscreen is water resistant, it can rub off when you dry yourself with a towel so you should re-apply the sunscreen, says Dr. Goldenberg of Mount Sinai School of Medicine. And if you go swimming and dry yourself with a towel, rub the band about as much as you rub your body so the sunscreen rubs off it to the same degree, he suggests.

Write to Laura Johannes at aches@wsj.com