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Technological advances are making lasers more inclusive.

By Erin Reimel



For years, New York dermatologist Ellen Marmur, MD, and Miami dermatologist Stacy Chimento, MD, would sometimes find themselves apologizing to patients of color-not because the lasers they used to fade spots and scars didn't work, but because they might have done more harm than good to anyone with an olive-toned or darker complexion.

"The old-fashioned lasers depended on wavelengths that backfired on skin of color," Marmur says. To understand why, it helps to know that lasers work by seeking out contrast. For example, a laser designed to remove hyperpigmentation focuses energy on darker areas of the skin, heating up and eliminating those cells. For patients with fair skin, brown-pigmented melanin would be easy to spot and break up, according to Chimento. But when traditional lasers were used on darker skin, which has more melanin overall, the area surrounding the hyperpigmentation also absorbed the laser's energy. This could sometimes destroy the skin's normal pigment, leaving behind blisters and scarring.

A similar problem occurred with lasers used for hair removal: Patients with pale complexions and dark hair fared best, as the laser easily targeted the dark pigment of the hair follicle, heated it, and destroyed it, causing the hair to stop growing. Likewise, pulsed-dye lasers, deployed against spider veins, worked by sending energy to the darkest blood vessels under the skin-more easily visible with lighter skin tones. Thankfully, today's lasers are more customizable and less dependent on using contrast alone, making them more inclusive. "In the last several years, we've had lasers that are safe for dark skin, but the limit has been efficacy," says New York dermatologist Paul Jarrod Frank, MD.



..Light skin can handle a short, intense pulse, while darker skin has better results with a longer pulse width, which allows the laser to target a larger area of pigment -like a hair follicle-rather than the smaller particles of surrounding melanin. Adjusting the settings also works for lasers like the PicoWay® laser (which fades hyperpigmented scars, age spots, and tattoos) and the Vbeam® laser (ideal for spider veins and broken capillaries).



"If the old lasers are like walking into a room and turning on a strobe light, the new ones are like a dimmer switch," Marmur says. "Now lasers have many other parameters that we can adjust, such as pulse duration, spot size, and wavelength." Light skin can handle a short, intense pulse, while darker skin has better results with a longer pulse width, which allows the laser to target a larger area of pigment -like a hair follicle-rather than the smaller particles of surrounding melanin. Adjusting the settings also works for lasers like the PicoWay (which fades hyperpigmented scars, age spots, and tattoos) and the Vbeam laser (ideal for spider veins and broken capillaries). "We elongate the pulse duration, spreading energy out over a longer period of time," Marmur says. "The skin naturally cools itself off, so it never reaches a damaging heat level." Some patients with darker skin tones may need extra treatments to achieve desired results-but the fear of walking in for one skin issue and out with something worse is finally becoming a thing of the past.