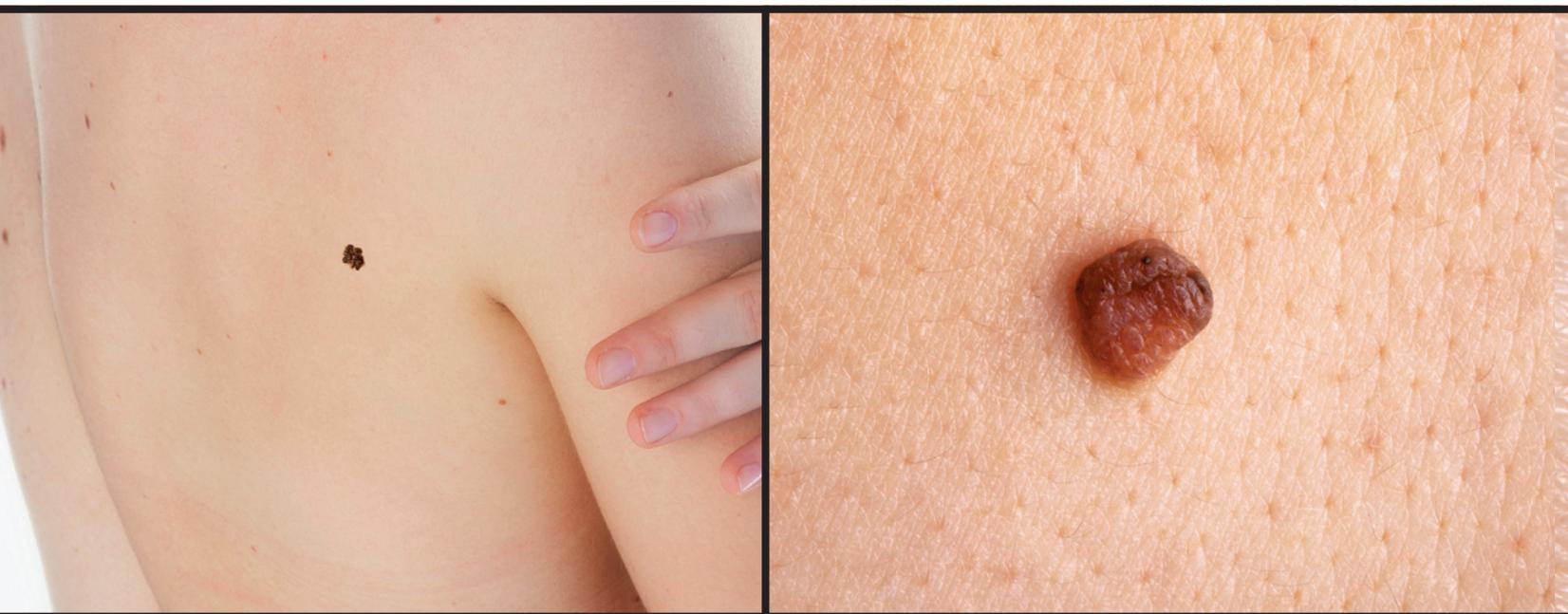


NEW METHODS

Skin care detection



For years, the best medical strategy has been,

“When in doubt, cut it out.”

*Today, innovative, noninvasive methods help
doctors diagnose with confidence.*



By Janet Carlson

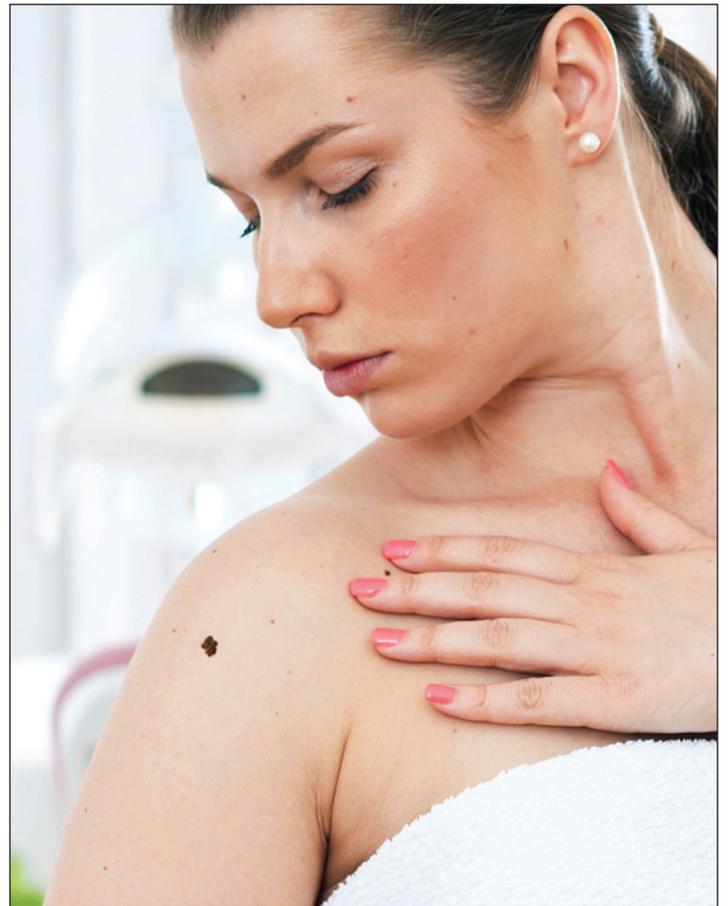
Typically, when you visit your dermatologist's office for an annual mole check, the doctor uses two tools to examine your skin: her eyes and her brain. She might pick up a dermatoscope and lean in to get a closer look at anything slightly suspicious and then apply the "ABCD" criteria to rule out skin cancer: A for asymmetry, B for border irregularity, C for color concerns, and D for diameter. Soon your dermatologist may have more tools at her disposal for distinguishing between benign and malignant growths.

Among skin cancers, basal cell and squamous cell carcinoma are readily treated and cured. They are not as worrisome as melanoma, which can be lethal if left undiagnosed, and it goes undiagnosed for several reasons: People don't always go to their dermatologists for annual checkups, and even if they do, melanomas can be hard to identify because they don't all look the same. Plus, they can appear anywhere, from scalp to genitals to between the toes. (Although most melanomas are caused by excessive sun exposure – especially from severe burns during one's youth – there's a genetic component, too, so they can crop up anywhere.)

One person an hour dies of melanoma in the U.S. It's an aggressive and merciless cancer, but when it's diagnosed early, it's virtually 100 percent curable. So, it is especially good news that a handful of new noninvasive devices promise to help doctors diagnose melanoma. One, called MelaFind, received FDA approval last fall and is now in use in some dermatology offices in the Northeast, as well as in Germany, with plans

for more locations in the coming years. MelaFind is a hand-held tool with an "eye" that's a multidimensional camera. This eye uses infrared light to see into the skin below the surface and look for irregular growth patterns. The "eye" connects to the "brain" – the computer that uses detectional algorithms. The dermatologist puts the eye on a lesion and MelaFind produces a result in just under a minute with 98 percent sensitivity – which is better than dermatologists who overall have 72 percent accuracy in identifying malignancies.

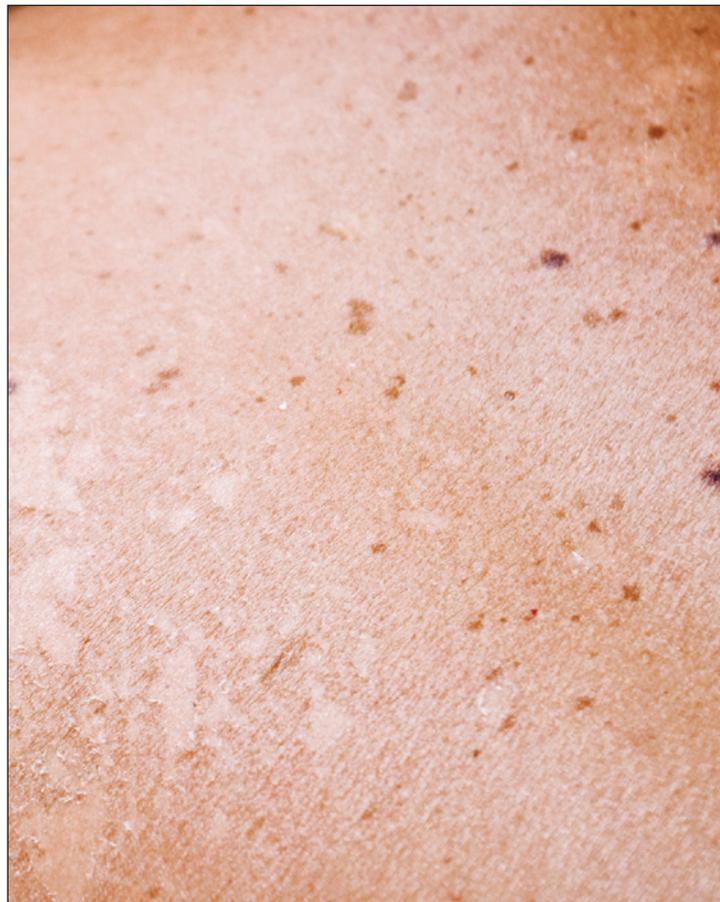
"MelaFind gives an objective result," says Joseph Gulfo, M.D., CEO of Mela Sciences, the company that created the device. "It offers peace of mind to patients" and to doctors, too, who, Gulfo says, acknowledge that melanoma's elusiveness plagues them. "They're human, after all, and they admit their fallibility openly. What looks like melanoma at 8:30 a.m. on a Tuesday might appear normal at 4:30 p.m. on a Thursday. The human variables are inevitable. MelaFind doesn't care who you are or what day it is or if the radiologist had too much caffeine.





"It's not a screening test like a mammogram. It's strictly for use in the case of what's called the 'clinically atypical pigmented lesions,'" Gulfo adds. "The average white male has 50 to 60 spots or moles on his body, let's say. Many of them will be ruled out as benign; occasionally, one will clearly present as likely cancer. Some will be in between –peculiar, and neither clearly benign nor clearly cancerous. For these, the dermatologist will use MelaFind. Up until now, a dermatologist would look at something suspicious and say, 'Hmm, should I leave it and check it again in three months or take it off now?' In this circumstance, MelaFind gives a clear answer in just under a minute."

Gulfo says the secret is in the algorithms. Mela Sciences' director of clinical operations and medical affairs, Mishti Roy, explains, "MelaFind is more knowledgeable about melanoma than anyone on the planet. It sees 5,000 different features that are mathematical. Its brain was trained on 10,000 pigmented lesions, 600 of them melanomas. That's the equivalent of a dermatologist working on earth for 300 years."





Does this mean patients won't need biopsies? No. If MelaFind rules that the lesion is cancerous, then a biopsy is the next step. If the dermatologist's judgment based on the ABCDs is "this looks benign," and MelaFind concurs, then no biopsy needs to be done.

More inventions on the horizon

Another diagnostic tool, called Verisante Aura, is currently available in Canada. It's an optical technology that employs "Raman spectroscopy" to analyze differences in molecular vibrations to discern abnormalities instantly during a patient exam. Aura helps identify all skin cancers, not just melanoma, with 99 percent sensitivity. The company has just begun the process of seeking FDA approval for marketing Aura in the U.S.

At the University of Arizona Cancer Center and four other U.S. centers, scientists are testing a Swedish invention from a company called SciBase that uses electrical current to "read" and graph differences between normal and malignant cells. This invention consists of a digital camera connected to a magnifying dermatoscope that the doctor presses to the skin. An electrode on the tip generates a mild current that doesn't penetrate as far as the nerve layer, so it works painlessly to read a normal patch of skin and then compares it to something deemed suspicious. Results appear instantaneously as a graph on a screen. Clinical trials in melanoma detection are currently in their final stages at 21 clinics in the U.S. and Europe and will be in FDA review in the upcoming months.

Optical reflectivity is the principle behind Reflectance Confocal Microscopy (RCM), which is already in use in universities and academic centers for identifying basal cell carcinoma, says a leading dermatologist, "But I would predict down the road portable versions will become available that are less expensive and can be used in private offices." What's exciting about RCM, doctors say, is that it allows them to assess cellular details and microstructures of the skin at a resolution comparable to that of a routine biopsy examination under a microscope – without having to remove skin from the patient. ■

