Do anti-aging skin creams work? Mostly no, dermatologists say

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Winter is not good to our skin. The wind chaps. The dry air wicks. The combination blows us into the arms of the billion-dollar cosmeceutical industry, which awaits with pricey over-the-counter potions and serums promising to undo the season's damage.

But these companies often promise much more than simple moisturizing. Their products can, according to their advertising, "help to boost oxygen microcirculation." They can reset "the skin's aging clock by converting resting stem cells." They contain ingredients that can "turn on digestive enzymes that will only go after scars and wrinkles" or "help to promote collagen production." In short, they can utterly transform your old, dry, thinning, wrinkled skin.

Tempting. But is it true?

Yes and no, say dermatologists and scientists. Mostly no, but really it's hard to say.

The creams do moisturize - even the cheapest ones will do that - and that does help make the skin appear more supple and healthy. As for the other claims, few studies have been published in medical journals to show the products work as advertised or are safe to use. And the U.S. Food and Drug Administration doesn't require companies to prove that cosmetic products are safe or effective.

"Efficacy is very vague in terms of over-the-counter products," said Dr.

Simon Yoo, assistant professor of dermatology at Northwestern University's Feinberg School of Medicine. "Without any oversight, it is difficult to say whether these do anything."

At the same time, the FDA has expressed concerns over some claims made by companies selling anti-aging creams. Marketers of cosmetics are generally are not allowed to state that their product alters the structure or function of the body or treats or prevents disease - to make a "drug claim."

The FDA maintains a list of more than 80 companies - including such beauty giants as L'Oreal, Avon and Revlon - that the agency believes may be importing, manufacturing or shipping creams with drug claims.

The FDA also has sent a handful of warning letters to cosmetics companies, mostly small ones, for making drug claims, a spokeswoman for the agency said.

"It is a good example of how people can use science-y-ness to try and sell a product," said Dr. Ben Goldacre, who wrote about moisturizers in his book "Bad Science: Quacks, Hacks and Big Pharma Flacks." "It is used decoratively as marketing in a way that is meaningless."

Companies rarely publish studies showing their products are effective, said dermatologist Dr. Vesna Petronic-Rosic of the University of Chicago Medical Center, though they generally look into the potential for skin irritation.

Some companies cite scientific evidence that anti-aging ingredients work, but they decline to provide those studies or to show that the product contains enough of the substances to have an effect.

Take, for example, "The Youth As We Know It Moisture Cream" from

Bliss, which sells for $79 for 1.7 ounces at Sephora. The package says the cream contains the "10 most important anti-aging ingredients we've found in 10 years of giving 'great face.'"

The label also says it helps to "promote collagen production," "boost oxygen microcirculation" and "improve skin's firmness," among other things.

Asked to provide scientific studies showing that the anti-aging ingredients work, Bliss spokeswoman Brooke Temner wrote in an e-mail: "There are studies on the raw materials executed by our raw material suppliers that demonstrate the ingredients' functionality, however, Bliss is not at liberty to share this proprietary information."

"When formulating our products, we adhere to the standards of the federal Food, Drug, and Cosmetic Act," Bliss vice president of communications Katie Welch wrote in an e-mail.

The press materials for ReVive Peau Magnifique Youth Recruit, which costs $1,500 for four ampuls of serum at Neiman Marcus, say it "resets the skin's aging clock by converting resting adult stem cells to newly minted skin cells."

But ReVive founder Dr. Gregory Bays Brown acknowledged that "we did not do peer-reviewed studies. There is literature out there that other people have done."

Brown, a plastic surgeon, said the company has done a study, included in his patent, to show that one of the ingredients, epidermal growth factor, gets into the lower layers of the skin and increases cell turnover. The research was not published in a peer-reviewed journal.

"It is inefficient, but it's enough to increase cell turnover," he said. "It is

sort of crude, and we were able to show that."

Scientific data do exist on epidermal growth factor, some of it published by Brown in peer-reviewed medical journals before he founded ReVive.

"There is quite a lot of information on these active ingredients in the scientific and patent literature - most can show effects on cell proliferation (in a test tube or petri dish) or in animal models of wound healing," said Natalie Medlicott, an associate professor at New Zealand's National School of Pharmacy at the University of Otago and an expert in epidermal growth factors.

But without published studies on the creams themselves, it's impossible to know whether the epidermal growth factor in them is effective. "The usual difficulty with such products is whether or not the large protein molecules such as the epidermal growth factor remain active in the formulation and, if they are active, whether they actually get delivered across intact skin," Medlicott said.

Telomerase, another ingredient in Peau Magnifique Youth Recruit, is "an enzyme that activates and differentiates dormant adult stem cells into brand new skin cells" and "repairs DNA fragmentation," according to the product's press materials.

But what effect does the telomerase in this product have on a customer's skin? "We don't know exactly," Brown said. "We know stem cells line the hair follicle and sweat glands. They are on the surface. We don't know if it has an effect on those cells."

Brown added that ReVive tests the safety of each product it puts on the market.

Perricone MD Cosmeceuticals stated in a company blog post that an

ingredient called DMAE in its Face Finishing Moisturizer "allows for face-lift-like benefits as well as other long lasting anti-aging contributions when applied to the face or taken as a supplement."

But the product packaging does not state how much DMAE is in the cream, which sells for $65 for 2 ounces at Sephora.

A search of medical literature turned up no clinical trials on the product to show it works, though several small published studies have looked at DMAE's effect on skin cells and skin and suggested that it can help with firming.

How? Pharmacologist Francois Marceau Laval University in Quebec found that when skin cells were exposed to DMAE, tiny compartments inside the cells swelled up and some cells died. The swelling, he said, is a likely explanation for the skin thickening, or firming.

"This is not necessarily very dangerous, but has not been properly analyzed scientifically," Marceau, whose study was published in 2007 in the British Journal of Dermatology, wrote in an email. "I would like to see them follow formal FDA rules for drug development."

Perricone MD Cosmeceuticals did not respond to repeated requests for comment.

Dermatologists interviewed for this story said most skin creams are harmless. If you like a product, enjoy it, they said, but realize your skin likely won't be miraculously transformed.

"Go ahead, but it won't do much more than a moisturizer that is a lot less expensive," Yoo said. "It won't be any better than Neutrogena or Cetaphil for less than a 10th of the price or a 100th of the price."