

Wattles: Beware the ThermaCool

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SAN FRANCISCO -- Not everyone is as enamored of the loose skin hanging under a woman's neck -- the wattle, if you will -- as Richard Fish.

Fish, a bumbling lawyer on the canceled Fox show *Ally McBeal*, gained a reputation for his wattle fixation after an erotic dalliance with ex-Attorney General Janet Reno.

But as enticing as Reno's crepey neck may have been to Fish, most women prefer not to have excess skin hanging underneath their chin.

Until recently, however, a face lift was often the only answer. It's an option that many people avoid, considering it can leave a woman looking like she's perpetually riding a motorcycle at high speed.

A new technology called ThermaCool might be an alternative. The device, which resembles a grocery scanner, pulses heat deep into the skin while cryogenically cooling the top layer to prevent burning. The damage to the deeper layer of skin causes a tightening and lifting that's less extreme than a face lift but more dramatic than other noninvasive techniques. And unlike laser or chemical treatments that can take months to heal, there's no down time.

"It's not going to replace the standard surgical techniques," said Dr. Leroy Young, chair of the [American Society of Plastic Surgeons](#) task force on emerging trends, who practices in St. Louis, Missouri. "It may postpone that a little bit, and it may be used to fine-tune the results of a surgical procedure. But it definitely works."

And it definitely hurts, as a recent sample treatment proved.

The test consisted of three zaps above the left eyelid from a ThermaCool device. First, a patient counselor at the [San Francisco Plastic Surgery and Laser Center](#) applied a topical anesthetic. After waiting an hour for the anesthetic to take effect, a nurse adhered a grounding cable to the stomach to provide a safe exit route for the current. She gave a practice zap to calibrate the device.

After calibration, the nurse delivered two zaps, which didn't hurt. Heat was going into the forehead, and it felt as if a warm moth had fluttered by the eyeball. But the third zap,

which was closer to the temple, felt momentarily like a red-hot corkscrew entering the head. Skin is more sensitive in that area, the nurse said.

Afterward, the immediate effect was far from dramatic. The left eyebrow appeared slightly higher than it had been prior to the treatment. It was unclear, however, whether anyone else would notice. The skin was slightly red afterward, but there was no burning.

Thermage, the company that sells ThermaCool, says the full effect of the treatment peaks at around six months.

A typical treatment, which would cover the entire face, costs about \$3,000. Just the top, middle or jowl area runs between \$1,500 and \$2,000. The results last for at least two years, and possibly longer, but researchers haven't followed patients for more than two years.

The main energy-producing component of the ThermaCool system sells for \$40,000. Disposable tips, which diffuse the radio frequency and deliver cryogenic cooling, cost \$190 each.

If the sample treatment had been more extensive, it would have required sedation, said ThermaCool inventor and plastic surgeon Dr. Edward Knowlton. Some patients also get anesthetic injections. The pain is brief, and not nearly as severe, Knowlton said, as the discomfort associated with laser resurfacing or a chemical peel. It also eliminates the skin-crusting and recovery time that follow those treatments.

Knowlton, who holds 24 patents on the device and is now chief scientist at Thermage, invented ThermaCool more than a decade ago, after using radio frequency to cauterize tissue during surgery. He thought that if he could diffuse the radio frequency to prevent it from burning tissue, it could firm aging skin.

Thermage began business in 1995 and soon garnered a \$10 million investment from Morgenthaler Ventures, which provided enough money to start FDA clinical trials.

"We started out with a rather basic prototype, and then we ramped up from that into a full research and development program for several years, until we were convinced we had something that was safe and could actually tighten skin," Knowlton said.



To test the device, six researchers enrolled 79 women and seven men and treated only their forehead area. About 80 percent of patients showed significant improvement, and five experienced a small burn in the treatment area. Adverse side effects are rare, said Thermage CEO Robert Byrnes.

Besides burning, too much ThermoCool treatment could cause the patient's skin to collapse slightly, possibly because the device can dissolve fat cells.

"We don't really understand what's happening but ... the good news (is) if that occurs, you can use dermal fillers," Byrnes said.

Thermage has engineered the process so it will almost never harm the skin, by intensely cooling the surface of the skin, which allows heat to get deep inside.

"When you normally use radio-frequency technology, you get kind of a welding effect, where all the heat and energy are focused on one point," Byrnes said. "We are able to spread that heat over a large surface area -- a couple centimeters square -- which allows us to deliver large volumes of heat deep into the tissue."

A special filter diffuses the electromagnetic waves, so instead of welding the skin, the device can heat the dermis and subcutaneous tissue to about 60 degrees Celsius (140 degrees Fahrenheit), which causes collagen to contract.

Initially, the treated skin might seem tighter due to the contracted collagen and some swelling. But most of the change occurs as the skin gradually lays down more collagen in response to the shrunken collagen. That increases the density of dermis and epidermis layers of skin, making it firmer.

Many plastic surgeons downplay the potential of ThermoCool. But the changes in before and after photographs supplied by Thermage are dramatic. The women could easily have had surgery.

Byrnes says it works better for some people than others, but no one is sure why. Most say it's more appropriate for people in their 30s and 40s, rather than older individuals who might need more work.

"It's good for a patient that perhaps needs a little tightening, not a lot, (such as) baby boomers," said Dr. Rod Rohrich, president of the American Society of Plastic Surgery. "We don't want to age gracefully; we want to stay young forever."

Dr. Donald Altman, a plastic surgeon in Irvine, California, said ThermoCool's popularity is slowly increasing. He recently held a seminar on the treatment for about 30 people; he expected three or four might actually receive the treatment. Altman also curbs his enthusiasm for the technique (although he pays for a sponsored link on Google for Thermage search results).

"We're trying to present it rather than sell it," Altman said. "But I do think there are candidates who can use this, (who) otherwise might not be able to get plastic surgery."

Still, the wattle and arm-flab reduction in the photos is seductive. ThermoCool seems to dramatically improve the appearance of some lucky patients.

ThermaCool is approved for the entire face in Canada and Europe. In the United States the FDA has approved it only for the upper part of the face, but doctors are permitted to use it on any part of the body. They often treat the entire face and neck, as well as the stomach, arms and even breasts.

And the device's utility will likely not stop with aesthetic improvements. Byrnes, who has spent the bulk of his career at companies with arguably more serious goals than lifting sagging facial skin, said he was hesitant to take on the leadership of a company focusing mainly on aesthetics. But he hopes ThermaCool will one day receive FDA approval for tightening aging tendons and connective tissue.