



Every August, Twinsburg, Ohio, hosts two action-packed days of parades, contests, and festivities for Twins Days, a celebration of twins, both fraternal and identical. The event draws nearly 3,000 sets of twins--close to 1,000 of which are identical and female. Dressed in matching ensembles, the twins parade through the town, and compete in contests such as "Most-Alike Females" and "Most Clever Outfit." There's a talent show for twins, features singing, dancing, drumming, baton twirling, lip syncing to country music and an eerie twin performance know as the "Mirror Act."

Amid the fanfare and the bandstands, the celebration's organizers set up booths and invite those doing twin-related research to submit proposals.

Over the years, identical twins -- who provide scientists with one of the few existing ways to really measure nature vs. nurture -- have been studied exhaustively: twins and multiple sclerosis, twins and alcoholism, Alzheimer's, cancer, mental disorders, heart disease.

Darrick E. Antell, MD, a top Manhattan plastic surgeon with a wood-paneled Park Avenue office and a roster of celebrity and socialite clients, came to Twinsburg after searching the medical literature for information on aging--specifically, whether genetic or environmental factors were most important in the way people ended up looking as they aged. There was very little, surprisingly.

Temporarily stumped, he heard himself say something that eventually lead him to undertake his own research: The clue came from his response to patients who asked him how long their face-lifts would last.

He would reply, "Let's say you had an identical twin, and you had a face-lift that made you look eight years younger, but your twin didn't have a face-lift. You would always look eight years younger than your twin, even as you both continued to age."

Twins was the magic word. Antell began thinking about what would happen if, instead of one twin having a face-lift while the other didn't, the twins had made contrasting lifestyle choices. Would they, too, age differently?

Next stop, Twinsburg. Antell and his associate, Eva Taczanowski, arrived equipped with a battery of cameras, film, an ecru bedsheet for a photo backdrop, and stacks of questionnaires. During the two days of the festival, as twins lined up outside their booth, the team took hundreds of photographs and conducted interviews, talking personally to most of the twins and collecting their filled in questionnaires.

Gay and Gwyn were among the twins whose different lifestyles had created a dramatic aging gap. For the early part of their lives, they were indistinguishable, except to those who knew them best. But by the time Antell photographed the sisters, their pictures—taken within minutes of each other—looked like before-and-after shots of the same woman after ten to fifteen hard-wearing years had passed.

Photographic evidence to the contrary, not only are Gay and Gwyn genetically identical; in many ways, their lives have followed similar patterns. Both are divorced, one with three grown children, the other with four. They have pursued comparable careers: Gay is a retired registered nurse and medical technician; Gwyn is a retired medical technician. Both women have been prescribed medication for hypothyroidism and undergone estrogen replacement. Both suffer from regular headaches. Neither has had a serious illness, although Gay has high blood pressure, and takes a beta-blocker. When he took their histories, Antell found that the differences in their lifestyles were the kind that show up on a face.

Gay, the "older" twin, had lived in California for thirty years, baking in the sun year-round, sometimes as a nudist. She smoked a pack of cigarettes a day for four years, used marijuana heavily for seven, and drank wine and beer socially for ten years. She also had a history of depression, exacerbated when one of her children contracted leukemia and died.

Gwyn, by contrast, who has considerably fewer wrinkles and finer-textured skin, lives in Maryland where she has had only moderate—sun exposure, has never smoked or drunk alcohol, and never had the sort of tragedy her sister suffered when her son died.

Sun exposure, smoking (both cigarettes and marijuana), and deep emotional stress, Antell hypothesizes, caused Gay's more pronounced wrinkles, age spots, enlarged pores, and leathery skin.

Kathleen and Karen, in their fifties, have even more in common than Gay and Gwyn. They both live in Maryland, where they grew up. They each have one child. They look as though they might have modeled a few years back, perhaps for a "Which twin has the Toni?" ad. They arrived at Antell's booth with similar haircuts and lipstick shades, wearing matching coral-red polo shirts and pearl-stud earrings. But they, too, no longer looked identical: Kathleen appeared older by several years.

How did that happen? Kathleen explained that she had smoked a pack of cigarettes a day for thirty years, while Karen has

never smoked. Kathleen spent more time sunning herself. (Karen also takes an estrogen-replacement drug, Premarin, which she has used since she had a hysterectomy in 1985.) As for anxiety, Kathleen, who is married, suggested stress as a contributing factor to her wrinkles; Karen, who is divorced, didn't mention stress in her questionnaire.

When Antell returned from Twinsburg, he spread the hundreds of photos out and studied the questionnaires the many sets of twins had filled in. The evidence was clear: When one identical twin looked noticeably older than the other, the two most consistent factors were that the older-looking twin had a history of sun exposure and smoking, while the other did not.

Antell ranks smoking as the number one culprit. "It's a total-body problem," he says. "Smoking decreases the blood flow to your skin, and of course to the liver, heart, and kidneys. It retards healing time—we insist that patients stop smoking two weeks prior to surgery," he says. "What we see in the face of a smoker is a window to what has happened inside."

Not everyone agrees that smoking does more damage to the external skin than sun, however. Nia Terezakis, MD, an internationally known New Orleans dermatologist reverses the order. "Sun is worse; no question," she says. "At least in direct damage to the skin—look at the skin on your stomach, it's like a baby's skin, but it's the same age as the skin on your face. What's the difference? Sun."

Other risk factors include such climate conditions as extreme cold, dry air, and wind, emotional stress, diet, and external irritants like pollution, Terezakis says. But Antell and Terezakis do agree on two points: To keep skin healthy, supple, and young-looking, avoid sun exposure and don't smoke.

Once the damage has been done, can it be undone? Yes and no. Antell has performed plastic surgery on seven sets of twins, including Gay and Gwyn. "With plastic surgery, we treated laxity of skin and wrinkles," Antell says. He explains that the techniques used on Gay were more aggressive. Gay and Gwyn are now considerably more in balance, but Gay still looks a few years older. For Antell's other twin clients, less extreme measures include laser resurfacing, chemical peels, and topical treatments such as Retin-A, all of which he says improve the quality of the skin, shrink enlarged pores, and fade age spots.

Terezakis has her own dramatic pictures, which are eerily like Antell's twin shots, except that in her case, the "twins" are the same woman, before and after treatments with Terezakis's own concoction of .025 percent tretinoin, a lime-green gel-like substance. In her pictures, every woman—including those in their twenties—looks noticeably younger after treatment. Dr. Terezakis points out that even the noses of her patients look finer and more delicate after treatment, as enlarged pores account for some of the apparent expansion of the nose that can accompany aging. The photos show that the vertical frown lines often treated with Botox injections are also softened with consistent applications of tretinoin. (Antell prescribes his own solution, a hydroquinone and Retin-A combination; other doctors use Renova, combined with vitamin A or C derivatives to get similar effects.)

Antell reports that until they saw his photographs, most of the twins thought they still looked identical (and some, like a pair of Mennonite sisters in their sixties who had lived the cleanest of lives, were, in fact, indistinguishable). The twins who had a substantial appearance gap were surprised when they realized how different they looked. "They look at each other more than they look in the mirror, so they don't see themselves side-by-side that often," says Antell. How about the post-photo shock reaction? "A lot of them wanted to have plastic surgery," says Antell, "not just the 'older' twin, but both of them. They want to look alike again."