

Twins: A Gold Mine for Research



Each year, thousands of attendees dress alike for Twins Days. These twins were taking a dip in the pool at the Bertram Inn and Conference Center in Aurora, Ohio on the first day of the festival. (Charles Robinson)

This is one party where virtually no one shows up alone. Two thousand sets of twins packed into the small city of Twinsburg, Ohio earlier this month to celebrate their twin-ness at a three-day festival called [Twins Days](#). Throughout the weekend, twins marched in the “Double Take” parade, competed in look-alike contests, and snapped photos with one another at a welcome wiener roast on Friday night. Though the festival is meant for twins, there is another group that is just as eager to attend this annual celebration of shared genetics—scientists.

Researchers savor the opportunity of so many twins together at once. By studying, and especially by comparing, data derived from twin sets, researchers working within the hubbub of Twins Days have unlocked valuable secrets for plastic surgeons, psychologists, dentists, dermatologists, criminal investigators, corporate marketers, geneticists, gynecologists, and immunologists over [the festival’s 39-year history](#).

Twins Days hosted its first researcher in 1978—a doctor from [Tulane University](#) who traveled from New Orleans to collect hand and footprints, according to [an account of the festival’s history](#) written by a former chairman. Since then, dozens of studies have originated in Twinsburg, named for a set of twins—the [Wilcox brothers](#)—who lived

there shortly after its founding in the 1800s.

This year's festival theme was "Twinstock—Groovy in Twinsburg!" No matter their age, almost all the twins in attendance dressed alike. Two sets of twins carried matching signs in mock protest of the Vietnam War. A pair of women dressed in pink genie-garb inspired by the popular '70s TV series *I Dream of Jeannie*.

Though the pairs come for the party, the majority take time during the weekend to file into research tents, two by two, for the sake of science, says Sandy Miller, a member of the organizing committee who has staffed the festival's headquarters for decades.

"They're very aware that what they are is genetically interesting and the fact that people want to study that is something that resonates with them," says [Dr. Paul Breslin](#), who has studied twins at the festival as a researcher with the [Rutgers University Department of Nutritional Sciences](#) and the [Monell Chemical Senses Center](#), a nonprofit institute in Philadelphia that researches taste and smell. "What makes [Twins Days] a fantastic opportunity is that you can get effectively a year's worth of data in three days if you really work hard."

This year, one researcher handed out nose clips and cups of popcorn to twins in a pop-up tent. [Dr. Danielle Reed](#), a geneticist at Monell, had sprinkled the popcorn with a flavor compound called [MP-300](#), which was created in 2004 by [Kyowa Hakko Kirin](#), a Japanese company that manufactures drugs and food additives. The company claims the compound produces a taste sensation known as [kokumi](#)—a concept that is popular in Korea but virtually unknown to Americans.

"Americans don't really have a word for it—some people think it means mouthfeel, or when you have a broth, it's that feeling that it's really sustaining and yummy," Reed says. "There's a sense that kokumi makes food taste much better." She has tried the additive herself. Her personal review? "Mmm."

Reed and her team wondered if a person's ability to taste kokumi, or their preference for it, might have a genetic link. Breslin [has shown](#) that the ability to taste [umami](#), a similar savory concept first identified in Japan that is now considered to be one of the

five basic tastes, is at least partly dependent on one's genes.

Not all tastes can be traced to genetics, though—a study by Breslin based on data gathered at Twins Days showed a person's sensitivity to the sourness of citric acid was highly genetic, while their detection of saltiness in sodium chloride had little to do with their genes.

In her experiment, Reed asked 400 twins to rate the taste of the popcorn for qualities like sweetness, saltiness, and bitterness before jotting down their overall impressions. Back at Monell, Reed will compare the survey results of each twin. If the identical twins she surveyed both gave similar ratings to the taste of the popcorn but fraternal twins rated it differently from one another, then the shared ratings of the identical twins are likely rooted in their shared genetics. If fraternal twins agree on the taste roughly as often as identical twins, or if everyone's ratings differ dramatically, then the kokumi sensation must be largely a learned phenomenon.



Two young twins pause on festival grounds after participating in the official group photo at Twins Days.
(John Robinson)