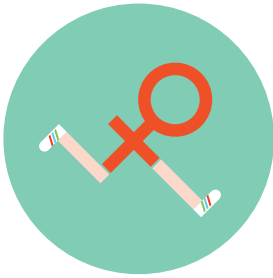


Sorry, Wrong Number

Get the truth behind some of the world's most misleading statistics.

As the old saying goes, there are three kinds of lies: lies, damned lies, and statistics. That's the trouble with stats—they're pliable. Using the right variables, you can submit a study that proves natural blondes will go extinct in 200 years, as *Good Morning America* once reported, or that having kids may cause your IQ to plunge, as MSNBC warned. Charles Seife, author of the new book *Proofiness: The Dark Arts of Mathematical Deception* and a professor at New York University, checks the math behind a few of the most egregious statistical myths.



THE LIE:
Women will outrun men by the year 2156.

THE RECALCULATION: "In 2004, a group of scientists analyzed men's and women's world records in the 100-meter dash and came to a startling conclusion," Seife says. "Even though men were improving their sprint times year after year, so were women, and the women's times were improving faster than men. By the year 2156, the study surmised, women would catch up with, and then surpass, their male counterparts. But the scientists made a bogus assumption: The rates of improvement wouldn't change over time. If this were true, women sprinters would break the sound barrier by the year 2600 and, shortly thereafter, sprint faster than light and travel backwards in time."

THE TAKEAWAY: "Past performance doesn't guarantee future events."



THE LIE:
A Hummer is better for the environment than a Prius.

THE RECALCULATION: "A few years ago, anti-environmentalist pundits crowed about a study that purported to find all the hidden costs of building cars, such as mining nickel for Prius batteries, and concluded that Hummers were greener than Priuses. But the study falls apart upon closer inspection. It assumed, for example, that a Hummer would be driven for 35 years and clock an amazing 379,000 miles during its lifetime—on average. This is nonsense that makes the Hummer look more environmentally friendly than it is. Just because the study's claims were expressed in mathematical terms doesn't make them any truer."

THE TAKEAWAY: "Numbers can be made to lie."



THE LIE:
Jury convictions are correct 99.973% of the time.

THE RECALCULATION: "This statistic is surprisingly influential. It even wound up in a 2006 Supreme Court opinion, *Kansas v. Marsh*. The figure was ginned up with a relatively simple computation: comparing the number of people convicted of felonies around the country to the number of people later exonerated of their crimes. Unfortunately, the calculation didn't take into account that the exonerations were drawn from a very small subset of felonies like murders, rapes, and other sexual assaults, rather than from all felonies such as blackmail and check kiting. As a result, the number was way off. A more likely number, suggested by several studies, is that a jury conviction is wrong about 3 percent to 5 percent of the time."

THE TAKEAWAY: "Sometimes calculations aren't as straightforward as they seem." (See page 80.)



THE LIE:
98.6 degrees is our normal body temperature.

THE RECALCULATION: "The figure we use to define a normal body temperature—98.6 degrees Fahrenheit—seems very accurate and official. It is anything but. In the late 1860s, German physician Carl Wunderlich claimed to make large numbers of painstaking measurements of patients' armpit temperatures. It's likely he fudged much of his data—we don't typically take temperatures in our armpits—but his determination of 'normal,' 37 degrees Celsius, became standard. Translating the number into Fahrenheit turned 37 degrees—a nice, round number—into 98.6, a precise-sounding number with a decimal, making the standard seem more authoritative than it actually is."

THE TAKEAWAY: "Numbers aren't always as precise as they appear."