

TRADURRE IN ITALIANO IL TESTO SEGUENTE:

How to lie with Statistics

“Users report 23% fewer cavities with *Doakes’s* toothpaste”, the big type says. These results come from a reassuringly “independent” laboratory, and the account is certified by a certified public accountant. What more do you want?

Yet if you are not outstandingly gullible or optimistic, you will recall from experience that one toothpaste is seldom much better than any other. Then how can the Doakes people report such results?

Let’s see how easy it is for Doakes to get a headline without a falsehood in it, and everything certified as well. The principal trick in this case is the statistically inadequate sample: the test group of users, you discover by reading the small type, consisted of just a dozen persons.

Let any small group of persons keep count of cavities for six months, then switch to Doakes’s. One of three things is bound to happen: distinctly more cavities, distinctly fewer, or about the same number. If the first or last of these possibilities occurs, Doakes & Company files the figures (well out of sight somewhere) and tries again. Sooner or later, by the operation of chance, a test group is going to show a big improvement worthy of a headline and perhaps a whole advertising campaign. This will happen whether they adopt Doakes’s or just keep using their same old toothpaste.

The importance of using a small group is this: with a large group any difference produced by chance is likely to be a small one and unworthy of big type: a 2% improvement claim is not going to sell much toothpaste.

How meaningless results can be produced by pure chance (given a small enough number of cases) is something you can test for yourself at small cost. Just start tossing a penny. How often will it come up heads? Half the time, of course. Everyone knows that!

Well, let’s check that and see..... I have just tried ten tosses and got heads eight times, which proves that pennies come up heads 80% of the time.... Well, by toothpaste statistics they do. Now try yourself. You may get a fifty-fifty result, but probably you won’t; your result, like mine, stands a good chance of being quite far from fifty-fifty. But if your patience holds out for a thousand tosses you are almost (though not quite) certain to come out with a result very close to half heads — a result, that is, which represents the real probability. Only when there is a substantial number of trials involved is the law of averages a useful description or prediction.

TRADURRE IN INGLESE LE FRASI SEGUENTI:

1. Alcune statistiche possono essere molto fuorvianti.
2. Quante persone hanno provato il dentifricio Doakes?
3. Con poche prove si ottengono risultati casuali.
4. Se lanci una moneta 2 volte puoi facilmente ottenere 2 teste.
5. 2000 lanci di moneta difficilmente danno 2000 teste.