

## Statistical Deception

- Lying with statistics
- Putting a “positive spin” on the facts

Statistical deception is not necessarily a bad thing, but you need to be aware of it rather than just accepting statistics at face value.

Many problems with statistics involve problems with gathering the data:

1. **Non-representative samples**
  - too small
  - too large
  - not randomly chosen
    - convenience sample
    - purposely chosen wrong
2. **Comparing apples and oranges**
  - groups being compared were different to begin with
  - difference is due to something other than the results imply
3. **“Good boy” effect**
  - People will give the answer they think you want to hear.
4. **“NOYB” effect**
  - The more personal a question is (the more it is “none of your business”), the more likely people are to lie.
5. **Placebo effect**
  - In medicine a placebo is a fake treatment actually helps because people **think** it will work.
  - Doesn't have to deal with medicine.
  - In general, when people think they are being watched or treated, they often act differently than they would otherwise.
6. **“Moving the bullseye to fit the arrows”**
  - saying a result means something different than it really does
  - putting a “good spin” on the data
  - finding one small thing about the results that supports what you want to find
7. **Biased sources**
  - The source of your information has something to gain from the result
  - Always ask “Who says so”?
  - Try to get information from neutral parties who don't have a stake in the outcome.
8. **Misuse of the word “significant”**
  1. implying significant means big, important, or dramatic
  2. REMEMBER: it just means “unlikely to have happened by chance”
9. **Discounting significance because something is “just statistics”**