Experimental design

A variable we control in an experiment is called a **factor**, and the different categories of the factor are its **levels**.
Each combination of levels of the different factors is called a **treatment**.

Sources of bias from the design of an experiment

1. **Observational study.** Researchers don't choose which cases to put in which groups, they just observe them.
2. **Confounding**. Levels of one factor are always put together with levels of another factor.

Designing an experiment to avoid bias

1. **Control**. Make conditions as similar as possible for different treatment groups.

2. **Randomize**. This allows you to control for unknown sources of variation.

3. **Blocking**. Intentionally dividing participants with similar characteristics uniformly among treatment groups.

4. **Blinding**. The participants or the administrators of the experiment, or both, don’t know how participants have been allocated to treatment groups.