More on Ch. 13 Experimental Design

Matched Pairs Design

COMPLETELY RANDOMIZED DESIGN

Group of 32 dog volunteers

Group 1: 16 dogs

Treatment 1: dogs eat new food for 6 weeks

Group 2: 16 dogs

Treatment 2: dogs eat "safe" food for 6 weeks

Compare health of dogs, to be evaluated by a veterinarian

Never call your subjects a RANDOM SAMPLE, unless you know for sure they were randomly selected from your population.
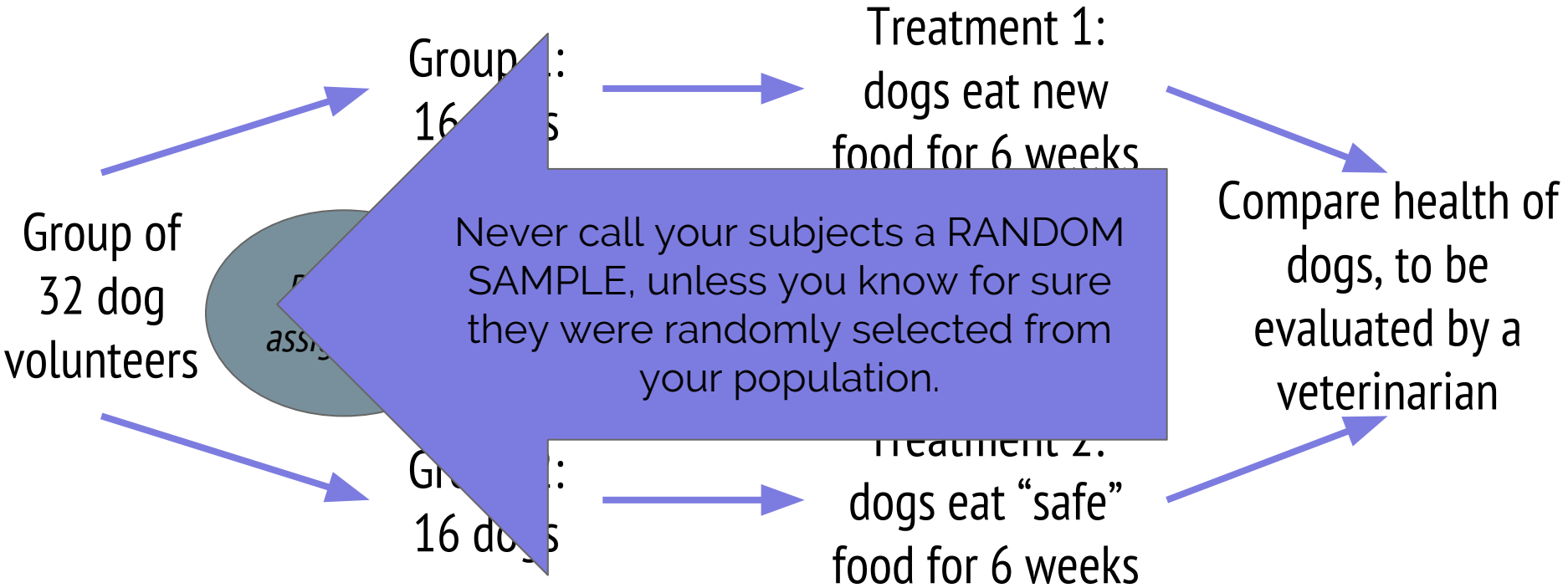
Completely randomized experiment means NO BLOCKING ALLOWED!

A random SAMPLE (of subjects)

allows us to GENERALIZE our results to a larger population.

vs.

Random ASSIGNMENT (of subjects to treatment groups)

allows us to determine a cause-and-effect relationship.

Matched Pairs (a special type of blocking)

Remember that "blocking" means we separate our subjects into groups, and then run a separate experiment within each group.

Matched Pairs can be done in 2 ways:

1) We create blocks of size 2 (where the pairs are similar in some aspect), and then randomly assign each member of the pair one of the two treatments.

2) A "before-and-after" type of test, where each subject gets BOTH treatments (and usually we randomize the order of the treatments).

And then we measure the *difference* between the 2 results.

Randomizing for Matched Pairs:

- Give each pair a different #, 1 or 2
- Flip a coin!

If 'Heads,' #1 gets treatment A and #2 gets treatment B.

If 'Tails,' vice versa.