Statistics
1st Semester Exam Review: Experiments & Observations Review

Two studies are run to determine the effect of low levels of wine consumption on cholesterol level. The first study measures the cholesterol levels of 100 volunteers who have not consumed alcohol in the past year and compares these values with their cholesterol levels after 1 year, during which time each volunteer drinks one glass of wine daily. The second study measures the cholesterol levels of 100 volunteers who have not consumed alcohol in the past year, randomly picks half the group to drink one glass of wine daily for a year while the others drink no alcohol for the year, and finally measures their levels again.

a. Was the first study an observation or experiment? Explain.
b. Was the second study an observation or experiment? Explain.
c. Create an experimental design diagram for the second study.
d. In the second study, they found that the results were not statistically significant. What does that mean in context of the study?

A new weight-loss supplement is to be tested at three different levels (once, twice, and three times a day). Design an experiment, including a control group and including blocking by gender, for 80 overweight volunteers, half of whom are men.

a. Create an experimental design diagram.
b. If the difference between the groups was significantly significant, describe what that means in context.