

Stat 1040
Quiz 1, Old

Name _____
Recitation Instructor _____

1. An energy drink is a beverage that contains simulant drugs, mainly caffeine, which are claimed to provide improved performance on academic tests. Does the energy drink *Reload* (16 oz.) make you a better test-taker? Design an experiment to help you answer this question by using all 320 Stat 1040 students who will take the first midterm on September 30th. Briefly describe the best possible design and also consider any ethical issues. (5 points)

Because of ethical considerations, only choose students who consent to participate in the study. Divide this group randomly (toss of a coin) into a treatment group and a control group. One hour before the exam, each student in the treatment group gets a Reload. Students in the control group get a placebo drink that looks and tastes like Reload. Give the exam. Those who grade the exam do not know who is in each group. So this experiment will be double-blind. Finally, check the results.

2. An observational study finds that women who participate in regular exercise programs have fewer bronchial infections than other women. Provide a confounding factor that sheds doubt on the claim. (5 points)

Women who exercise may be healthier to begin with. Healthy women are more likely to exercise regularly and are also more likely to have fewer bronchial infections.