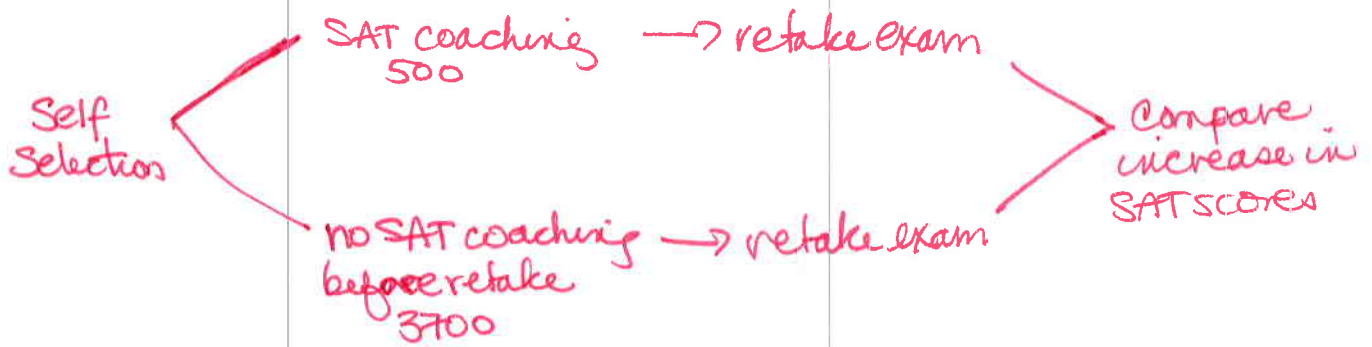
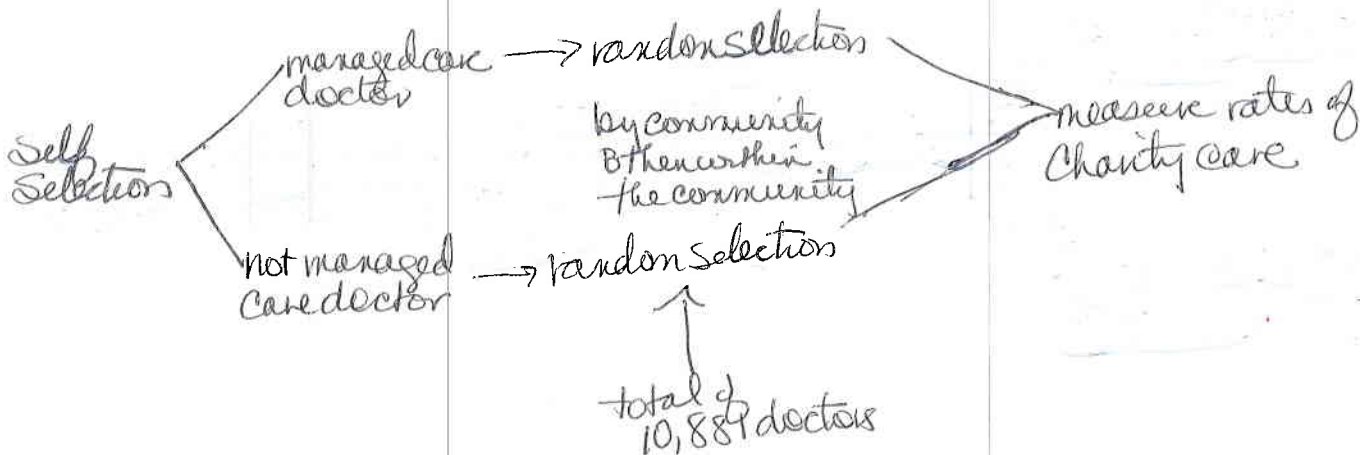


Instructions: For each of the experiments described below, draw the experimental design diagram. Be sure to note on each diagram all of the following: 1) the method of assignment to groups, 2) the number in each group, 3) the treatment each group received, 4) clearly state the response variable that is observed and compared at the end of the experiment. Remember that experiments are designed before any outcomes are known.

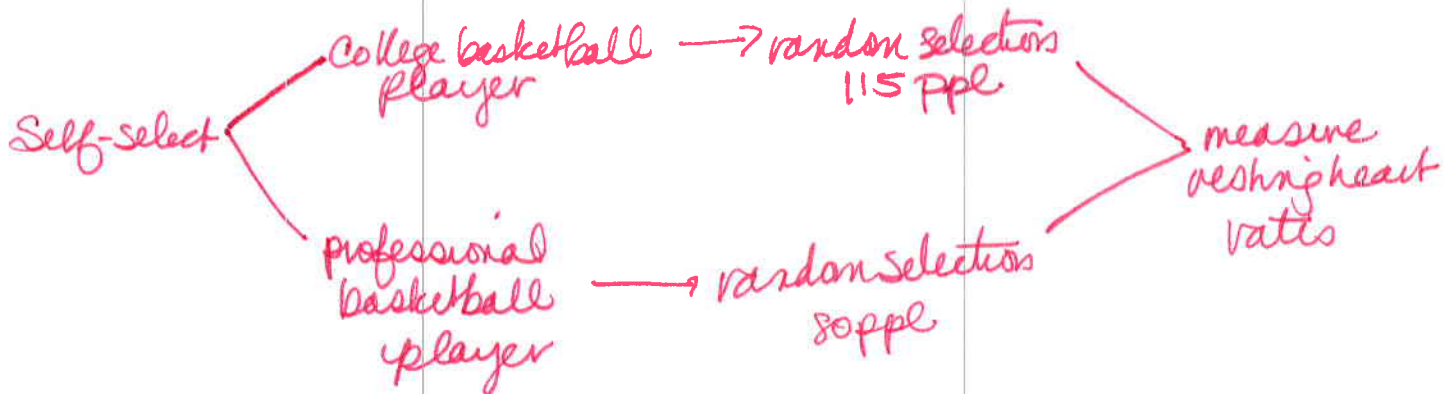
- Does coaching raise SAT scores? Because many students score higher on a second try even without coaching, a study looked at an SRS of 4200 students who took the SAT twice. Of these, 500 had taken coaching courses between their two attempts at the SAT. The study compared the average increase in scores (out of the total possible score of 2400) for students who were coached with the average increase for students who were not coached.



- Do doctors in managed care plans give less charity care? Researchers chose 60 communities at random, then chose doctors at random in each community. In all, they interviewed 10,881 doctors. Overall, 77.3% of the doctors said they had given some care free or at reduced rates because of the patient's financial need in the month before the interview. Doctors who received at least 85% of their practice income from managed care plans were significantly less likely than other doctors to provide charity care.



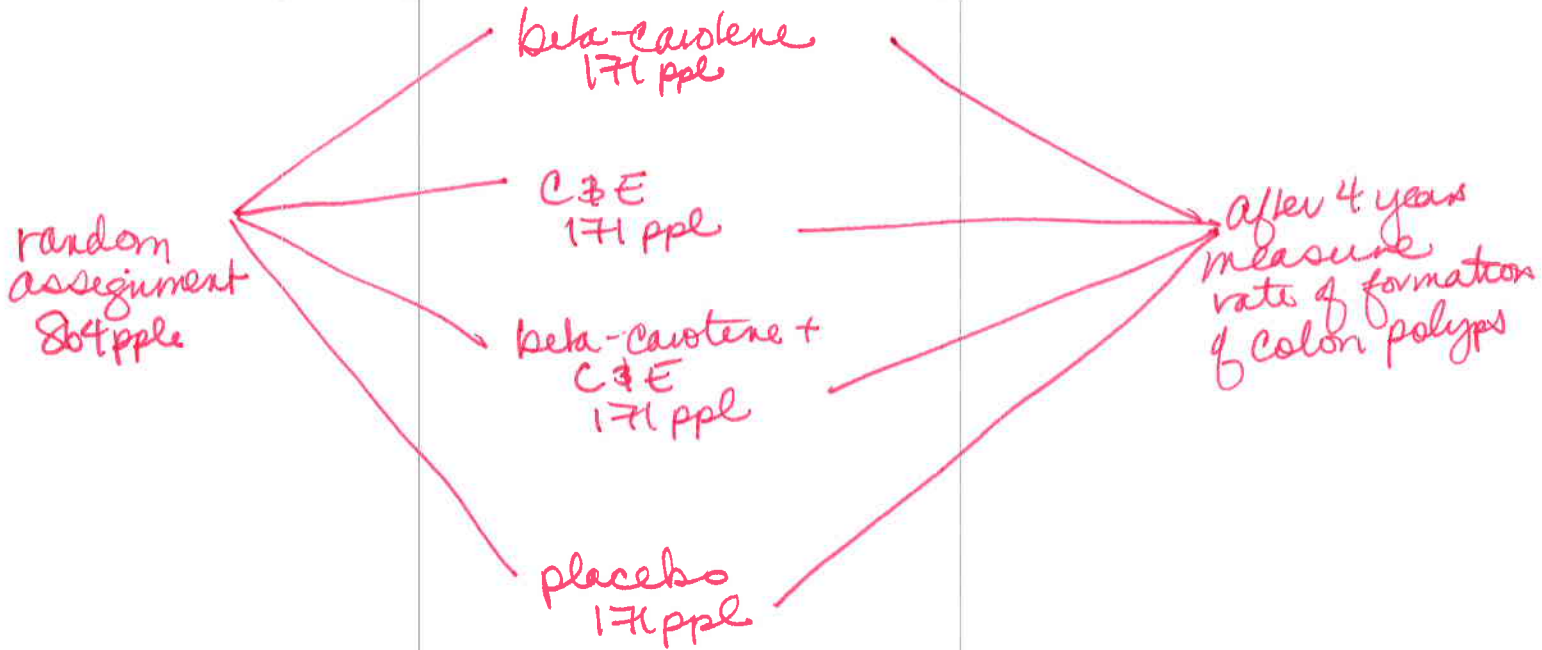
3. A researcher claims that the mean resting pulse rate of all college basketball players in the United States is less than the mean resting pulse rate of all professional basketball players in the United States. The resting pulse rates of a random sample of 115 college basketball players were measured as were the resting pulse rates of a random sample of 80 professional basketball players. The mean resting pulse rates of the two groups were compared.



4. A farmer wishes to determine which of two brands of baby-pig pellets, Kent or Moormans, produces better weight gain. Two of his sows each give birth to litters of 10 pigs on the same day, so he decides to give the baby-pigs in litter A only Kent pellets, while the pigs in litter B will get only Moormans pellets. After four weeks, the average weight gain for pigs in litter A is greater than the average weight gain for pigs in litter B.



5. Does taking vitamins prevent colon cancer? A study assigned 864 subjects at random to four groups. One group took beta-carotene, another took vitamins C and E, a third took all three, and the fourth group took only a dummy pill. After four years, there was no difference among the groups in the formation of polyps in the colon that precede cancer.



6. For each of the studies above, what is the explanatory variable and what is the response variable?

a. Put your answer for #1 here.

ex: SAT coaching      response: improvement in SAT score

b. Put your answer for #2 here.

ex: managed care doctor status      response: rate of charity care

c. Put your answer for #3 here.

ex: College or profession basketball players      response: resting heart rate

d. Put your answer for #4 here.

ex: type of pellet in food      response: weight gain

e. Put your answer for #5 here.

Rx: type of vitamin taken      response: rate of colon polyp formation