

# Statistical Reasoning in Sports - Chapter 4 Assessment

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## *Part 1: The Research*

- The purpose of this assessment is to demonstrate that you can design a comparative random experiment for a team, sport or other group that you are interested in investigating.
- Choose the response variable you want to measure (like improvement in bench-press maximum or change in golf score), and explanatory variable you want to test (like pre-workout meal or type of golf ball) to see how it might affect the athlete's/team's/group's *ability* for the response variable as compared different values of the explanatory variable.
- For this chapter we are designing an experiment so there is no data to gather, no app-simulation to run or conclusion to draw.
- It is ok to be creative or unrealistic as long as you are demonstrating understanding and application of the principles we have learned in this chapter.
- Ask me for help with your research !

## *Part 2 : The Written Report.*

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- Header is in upper-right corner: [5 pts]
  - First and last name
  - 5<sup>o</sup> Statistical Reasoning in Sports
  - Chapter 4 Assessment
- Title is written in the form of a question: Something like, “Will Cross-Country runners show improvement in their race times by eating gummy bears before their meets?” [5 pts]
- Explain your question of interest [expand on the title]. Include other important and/or interesting details about this team/sport/group. In other words, why did you choose this topic ? [10 pts]
- Explain your population of interest. In other words, who do you want to generalize these results to and why? [10 pts]
- Explain who you will use for your experimental subjects and how you will select them. [10 pts]
- Define your explanatory and response variables. [10 pts]
- Determine what will you use as a control group – will you need to use a placebo? [10 pts]
- State your null and alternative hypothesis for the question you posed in your title. [10 pts]
- Explain in detail how you will randomly assign individuals to treatments. [10 pts]
- Explain how will you measure your response variable. Don’t forget to include units of measurement. [10 pts]
- How will you decide if your treatment was effective and what will you do with your results if you determine that the treatment is effective? [10 pts]

Plan to write multiple sentences (a small paragraph) for most of the above items to receive full credit.

**Ask me for help!** This project is to assess what you have learned this chapter, but I want you to be successful so please ask me for advice and/or to check your work.