


## Lecture 3a: Practice Problems: John McGready



**Lecture 3a: Practice Problem Solutions**

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John McGready  
Johns Hopkins University

**Solutions**

1. Define *statistical power* and explain some possible implications of having low power in a study
  - In the context of hypothesis testing, statistical power is the probability of rejecting the null hypothesis when the alternative is the truth
  - In other words, the probability of “rejecting when we should”
  - The probability of finding a difference if it really exists

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**Solutions**

1. Define *statistical power* and explain some possible implications of having low power in a study
  - If we have a study with low power and fail to reject the null hypothesis (fail to find a difference), it is difficult to ascertain whether the null hypothesis is true . . . (there truly is no difference) or whether the alternative hypothesis is the truth (there is a difference) but the study could not detect this difference

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**Solutions**

2. Explain the relationship between power and sample size in a study (all other factors remaining constant)
  - The basic relationship: as sample size increases across both groups, the power of the study increases

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