

## Unit 4 Summary Lab Assignment

Name: \_\_\_\_\_

### Learning Goal:

- Use a two-way table to analyze the association between two categorical variables.
- Create a hypothetical two-way table to answer complex probability questions.

### Specific Learning Objective:

- Given a two-way table, calculate and interpret risk probabilities.
  - Compare risk by calculating the percentage point difference in risk, the relative risk quotient, and percent increase or decrease in risk.
- 1) A study in Sweden looked at the impact of playing soccer on the incidence of arthritis of the hip or knee. They gathered information on former professional soccer players; people who played soccer but not professionally, and those who never played soccer.

	<b>Professional soccer player</b>	<b>Non-professional soccer player</b>	<b>Did not play soccer</b>	<b>Row Totals</b>
<b>Arthritis</b>	10	9	24	
<b>No arthritis</b>	61	206	548	
<b>Column Totals</b>				

- a) Does this study suggest that the more soccer you play, the greater the risk of arthritis of the hip or knee? Be sure to identify the explanatory and response variables to inform how you construct your fractions for comparison.
- b) What is the relative risk of developing arthritis if you play non-professional soccer? (Use non-players as the basis of your comparison.) Write a sentence that communicates the meaning of this number.
- c) What is the relative risk of developing arthritis if you play professional soccer? (Use non-players as the basis of your comparison.) Write a sentence that communicates the meaning of this number.

- 2) The table summarizes the results from an observational study that followed a random sample of 8,474 people for about four years. All participants were free from heart disease at the beginning of the study. The variable Anger categorizes participants as Low Anger, Moderate Anger, High Anger based on the Speilberger Trait Anger Scale test, which measures how prone a person is to sudden feelings of anger. CHD stands for coronary heart disease, which is a count of the people who had heart attacks or needed medical attention for heart disease during the study.

	Low Anger	Moderate Anger	High Anger	Total
CHD	53	110	27	190
No CHD	3,057	4,621	606	8,284
Total	3,110	4,731	633	8,474

- a) Does this data suggest that there is an association between anger and heart disease? Support your answer.

- b) Use the method of your choice to compare the likelihood that a High Anger person has CHD to a Low Anger person. Write a sentence to communicate your results.