

Problems

1. At the beginning of this semester, **two** measurements of head circumference were made on each student in Stat 200. We want to know if we get, on the average, the same mean on the second measurement as we do on the first. Given below are some of the 700 students' measurements:

Student	1	2	3	4	5	...	700
1 st Measurement	56.0	59.0	52.5	61.5	55.2	...	57.5
2 nd Measurement	55.5	59.4	53.5	60.0	57.0	...	56.8

The results? The averages were 56.5442 on the first and 56.5330 on the second.

2. A politician asserted that only 40% of the American public supported the use of ground troops in Kosovo--Secretary of Defense Cohen disputed this, saying it was certainly more than 40%. A CNN poll of 850 people showed that 442, or 52%, did favor the use of ground troops. Who do you think is right--the politician or Cohen?

3. From time-to-time the National Institutes of Health (NIH) examines age and total cholesterol levels among males and females. Here are the ages and TCL's of 10 adult males:

Male	1	2	3	4	5	6	7	8	9	10
Age	28	31	52	67	44	35	51	64	24	39
TCL	190	188	215	235	220	167	200	278	165	195

Is there a relationship between the age and TCL?

4. The American Heart Association says in brochures it puts out on nutrition that the average TCL among women in the age group 55-64 is 208. A nutritionist who believes the TCL is higher than this obtained the TCL's of 25 women and found that the average was 223 with a standard deviation of 30. Does this data contradict what the American Heart Association claims (and supports the nutritionists belief)? .

5. A family planning researcher was curious about attitudes of college students regarding the oldest age of a person they would have sex with. She asked 70 males and 120 females about this and found the median oldest age they'd have sex with was 26 for males and 24 for females. Should she conclude there is no difference between males and females on this issue?

6. Given below are the responses of 200 students to the questions ‘Do you think your self-esteem has risen since coming to college?’ and ‘Are you (or do you think you are) overweight or about right or underweight?’:

		Think I am			
		Overweight	About Right	Underweight	Total
Self-Esteem Risen?	No	24	35	5	64
	Yes	31	89	16	136
	Total	55	124	21	200

Is there a relationship between a person’s self-esteem and how they feel about their weight?

7. The amount of cooked beef in hamburgers was compared at two fast-food places (Orion’s and Leo’s). The weights (in ounces) of 7 Orion hamburgers and 5 Leo hamburgers are given below:

Orion’s	7.2	7.8	7.4	7.3	7.4	7.6	7.5
Place							
Leo’s	7.5	7.9	7.6	7.7	7.8		

Is the average amount of beef the same at the two places? Or are they different?

8. Does the number of parties students go to per month vary with how one perceives her or his weight? Here is some data on this:

View of Weight	N	Mean
Overweight	190	5.542
About right	506	6.513
Underweight	67	5.104

Is there a difference in the average number of parties students go to, for the three views of their weight?

9. Does the median age at which one starts to date depend on one’s religious preference? The responses of 196 Stat 200 students on their religious preference and the median ages at which they started to date are as follows:

Religion	N	Median
Catholic	86	15.5
Jewish	11	14.0
Non-Beli	20	15.0
Other	44	15.5
Protesta	35	14.5

Are the median ages one starts to date the same for all religious preferences?

10. A potential presidential candidate in the 2000 presidential election wished to know if men and women had equal preferences for his candidacy vs this not being the case (he suspected that men were more likely to favor him). Her pollster polled a random sample of 400 men and 400 women, with the following results:

	Preference: Would vote for her?		
	No	Yes	Total
Men	180	220	400
Women	164	236	400
Total	344	556	800

11. Four treatments of a disease were compared to see if the cure rates were the same or not, as measured by the 5-year survival rate (proportion of people surviving 5 years). The number of patients and their outcome by treatment are given in the table below:

Treatment	Survived?		
	No	Yes	Total
1	35	65	100
2	48	57	105
3	25	70	95
4	50	120	170

Are the 5-year survival rates the same or not?

12. A shoe manufacturer asked one of his researchers to find out how to guess what the length of people's left foot would be using their height. The researcher came up with the following data on 12 people:

Person	1	2	3	4	5	6	7	8	9	10	11	12
Length of left foot	17.5	24.0	29.0	25.5	20.0	22.5	32.0	28.0	24.5	26.5	27.0	25.0
Height of person	63	63	72	63	65	61	77	76	64	64	65	62

How does he make his guesses?