

Practice questions (Assignment)

t-test & Correlation

A researcher in exercise physiology wanted to know whether body composition differs among prepubescent males and females. To test the null hypothesis, she measured skin-folders on 10 males and 7 females and obtained the following results.

Males	Females
24	21
25	17
27	18
28	14
28	21
21	23
23	21
24	
23	
21	

1. Calculate the t value and accept or reject the null hypothesis at level of $\alpha = .05$

* **Show your entire calculation processes**

2. Calculate 95% of confidence interval

A kinesiology major wanted to predict VO2 max based on the mile run. To develop the regression equation, she obtained VO2 max values (ml/kg/min) in the exercise physiology laboratory on 18 students. Two days later, she measured the same 18 students on the mile walk-run with scores reported as total time in seconds. The data are as follows.

<i>Subject</i>	<i>Mile walk run</i>	<i>VO2 max</i>
1	250	60.3
2	315	57.2
3	420	55.4
4	410	51.4
5	436	52.5
6	511	45.6
7	460	38.4
8	510	41.5
9	530	39.6
10	586	33.2
11	591	37.7
12	600	40.1
13	626	32.0
14	643	35.4
15	650	33.7
16	675	35.9
17	710	27.4
18	720	25.3

3. Calculate r between the two variables (i.e., Mile walk run and VO2 max) and test significance at $\alpha = .05$ (Show your entire calculation processes)

A sport psychologist wondered whether motivation could improve aerobic capacity. To answer the question, he measured 20 subjects on VO2 max on a treadmill. Students were verbally instructed to do their very best. One week later, the subjects were measured again and were told they would receive \$100 if their VO2 max was higher than it was the first time. Following are the data.

Pre	Post
34	51
25	55
45	68
31	45
28	45
27	41
21	31
54	68
42	48
39	49
41	43
38	48
45	42
42	41
41	56
43	68
48	54
47	61
34	52
33	45

4. Calculate the t value and accept or reject the null hypothesis at level of $\alpha = .01$ (**Show your entire calculation processes**)