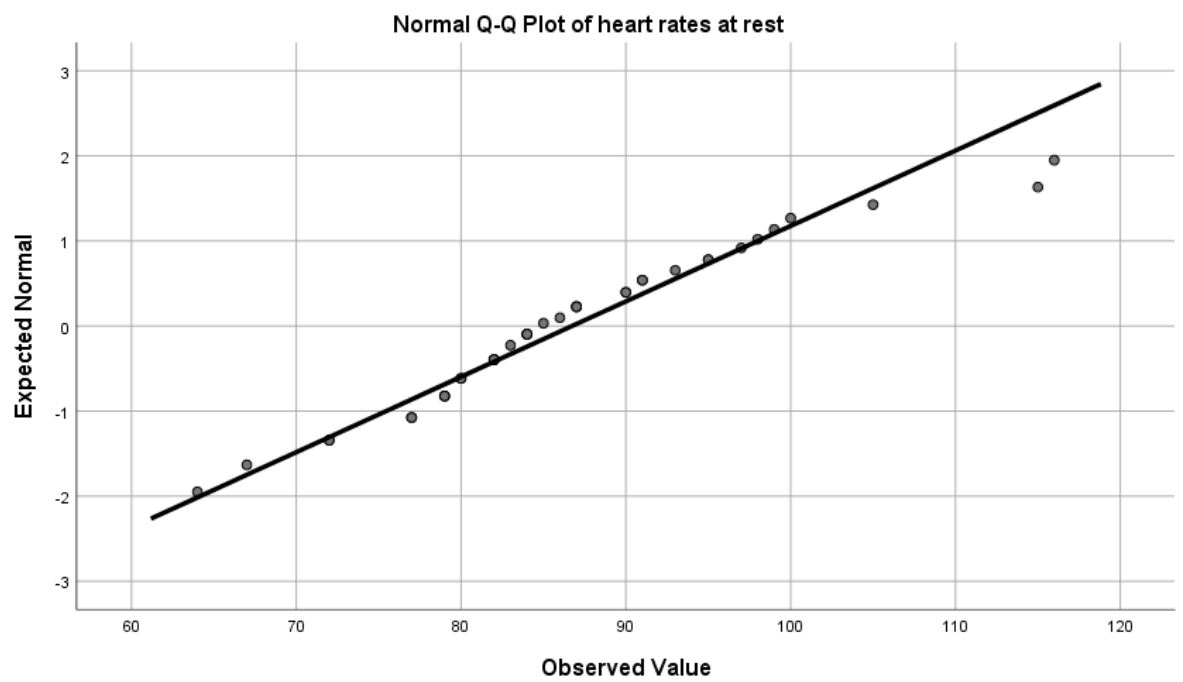
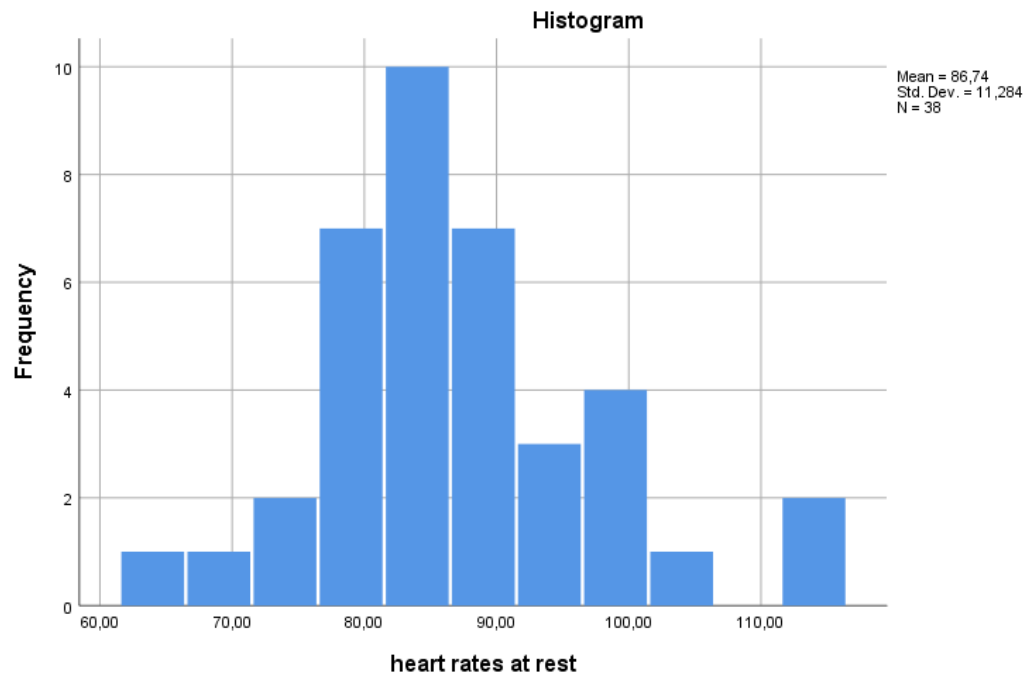
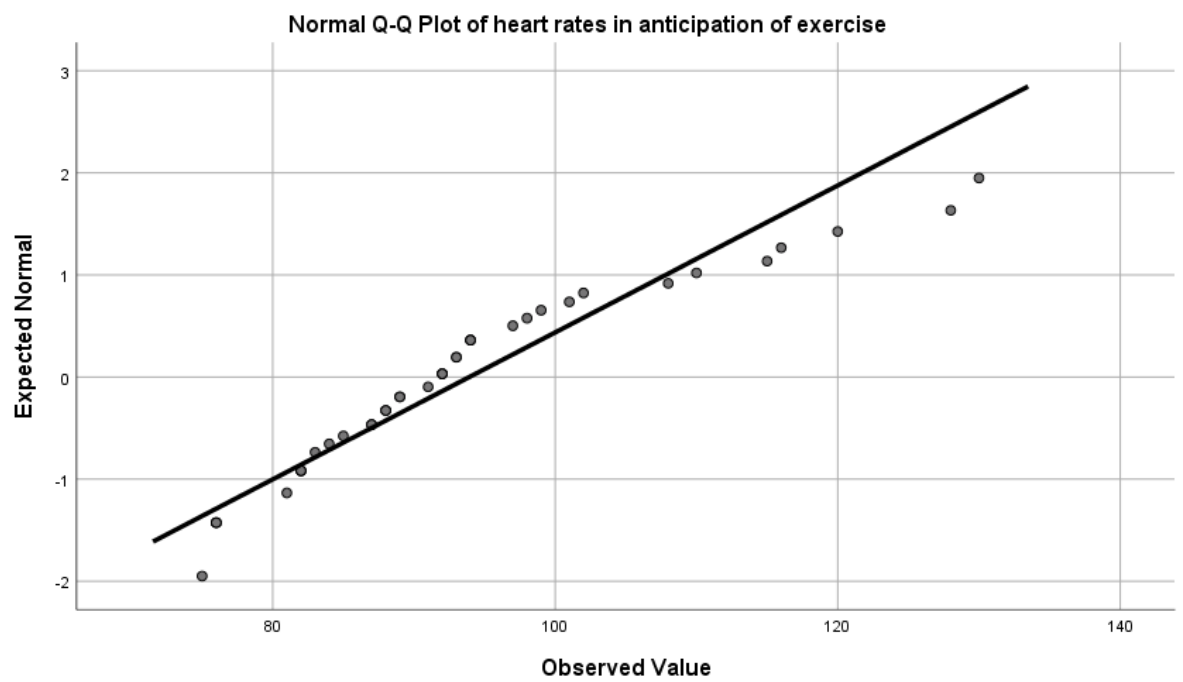
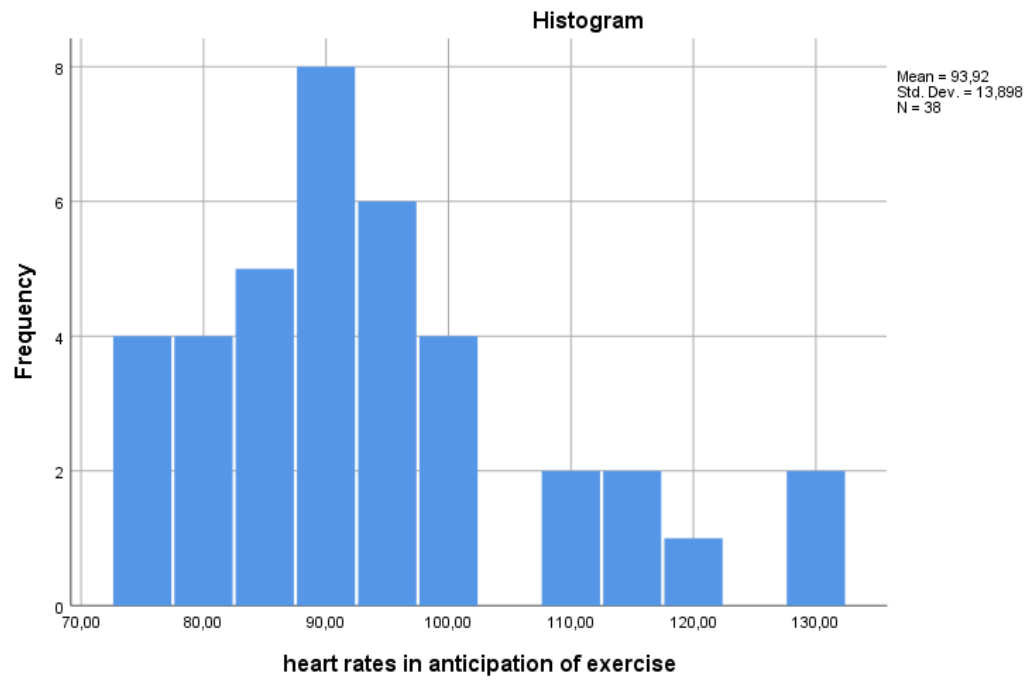


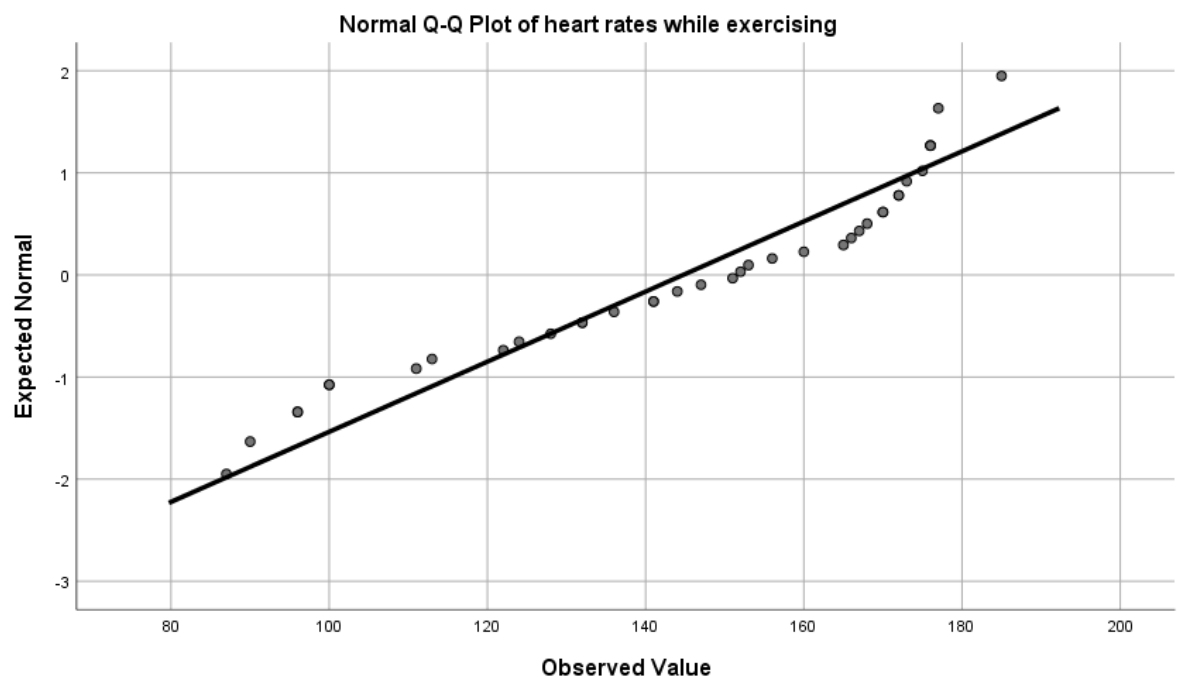
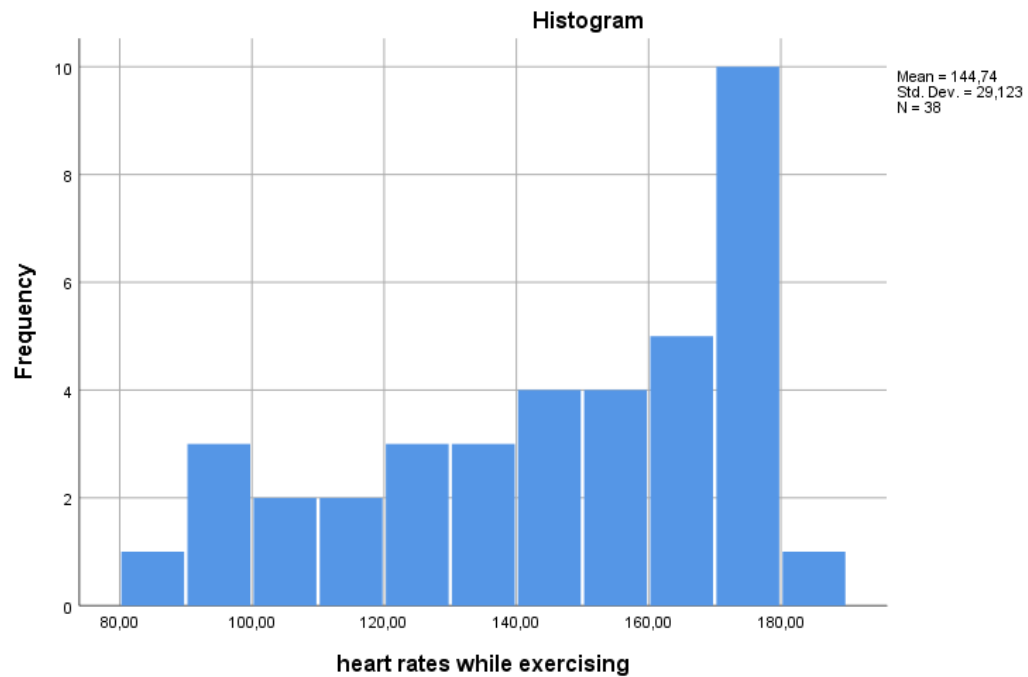
1. a) Normality: Data have normal distribution
Homogeneity: same variance
Linearity : linear pattern
Independence: Data are independent

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
heart rates at rest	,122	38	,162	,961	38	,198
heart rates in anticipation of exercise	,182	38	,003	,911	38	,005
heart rates while exercising	,151	38	,028	,910	38	,005

a. Lilliefors Significance Correction







b) dependent t-test should be used since the data belongs to the same persons at different times.

c) Part1:

two-tailed:

Ho: heart rates at rest has no difference with heart rates in anticipation of exercise.

H1: heart rates at rest has difference with heart rates in anticipation of exercise.

one-tailed:

Ho: heart rates at rest is not higher than heart rates in anticipation of exercise.

H1: heart rates at rest is higher than heart rates in anticipation of exercise.

Part2:

two-tailed:

Ho: heart rates while exercising has no difference with heart rates in anticipation of exercise.

H1: heart rates while exercising has difference with heart rates in anticipation of exercise.

one-tailed:

Ho: heart rates while exercising is not higher than heart rates in anticipation of exercise.

H1: heart rates while exercising is higher than heart rates in anticipation of exercise.

Part3:

two-tailed:

Ho: heart rates at rest has no difference with heart rates while exercising.

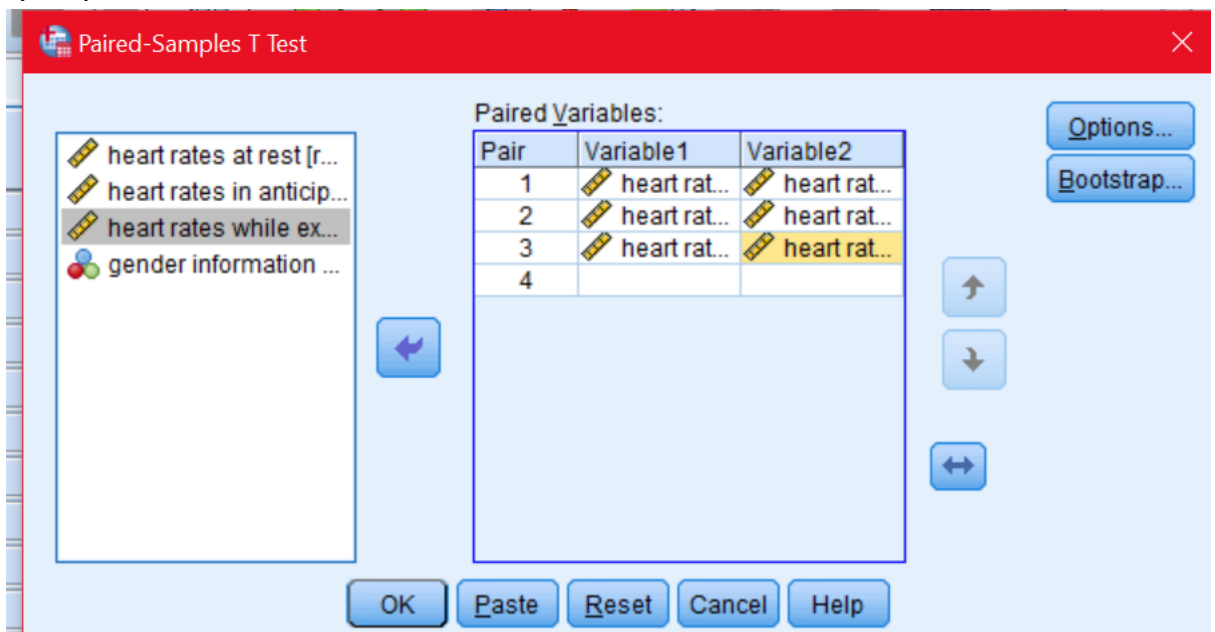
H1: heart rates at rest has difference with heart rates while exercising.

one-tailed:

Ho: heart rates at rest is not higher than heart rates while exercising.

H1: heart rates at rest is higher than heart rates while exercising.

d) & e)



Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	heart rates at rest	86,7368	38	11,28425	1,83055
	heart rates in anticipation of exercise	93,9211	38	13,89805	2,25456
Pair 2	heart rates while exercising	144,7368	38	29,12293	4,72436
	heart rates in anticipation of exercise	93,9211	38	13,89805	2,25456
Pair 3	heart rates at rest	86,7368	38	11,28425	1,83055
	heart rates while exercising	144,7368	38	29,12293	4,72436

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	heart rates at rest & heart rates in anticipation of exercise	38	,493	,002
Pair 2	heart rates while exercising & heart rates in anticipation of exercise	38	,349	,032
Pair 3	heart rates at rest & heart rates while exercising	38	,344	,035

Paired Samples Test									
		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	heart rates at rest- heart rates in anticipation of exercise	-7,18421	12,88170	2,08969	-11,41832	-2,95010	-3,438	37	,001
Pair 2	heart rates while exercising - heart rates in anticipation of exercise	50,81579	27,54245	4,46798	41,76281	59,86877	11,373	37	,000
Pair 3	heart rates at rest- heart rates while exercising	-58,00000	27,37922	4,44150	-66,99933	-49,00067	-13,059	37	,000

two-tailed:

Part1: A paired-samples t-test was conducted to compare heart rates at rest in heart rates in anticipation of exercise.

There was a significant difference in the scores for level heart rates at rest ($M=86.73$, $SD=11.28$) and heart rates in anticipation of exercise ($M=93.92$ $SD=13.89$), conditions; $t(37)=-3.43$, $p=.001$

Part2: A paired-samples t-test was conducted to compare heart rates while exercising in heart rates in anticipation of exercise.

There was a significant difference in the scores for level heart rates while exercising ($M=144.73$, $SD=29.12$) and heart rates in anticipation of exercise ($M=93.92$, $SD=13.89$), conditions; $t(37)=11.37$, $p=.000$

Part3: A paired-samples t-test was conducted to compare heart rates at rest in heart rates while exercising.

There was a significant difference in the scores for level heart rates at rest ($M=86.73$, $SD=11.28$) and heart rates while exercising ($M=144.73$, $SD=29.12$), conditions; $t(37)=-13.05$, $p=.000$.

one-tailed: (dividing p-value with 2)

Part1: A paired-samples t-test was conducted to compare heart rates at rest in heart rates in anticipation of exercise.

There was a significant difference in the scores for level heart rates at rest ($M=86.73$, $SD=11.28$) and heart rates in anticipation of exercise ($M=93.92$, $SD=13.89$), conditions; $t(37)=-3.43$, $p=.0005$

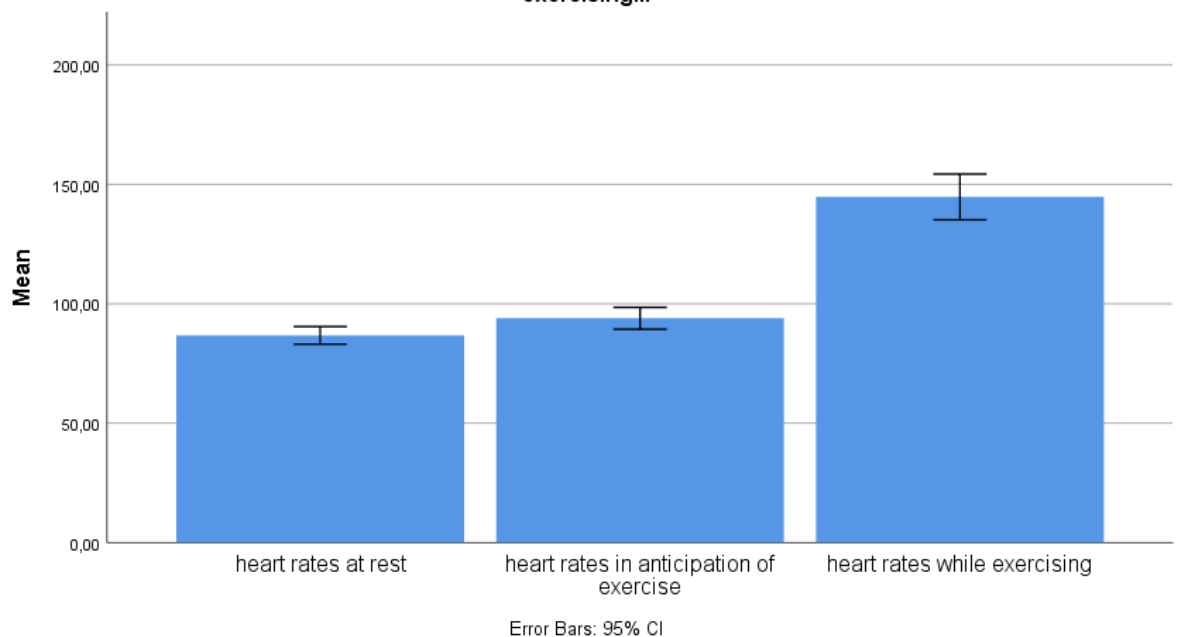
Part2: A paired-samples t-test was conducted to compare heart rates while exercising in heart rates in anticipation of exercise.

There was a significant difference in the scores for level heart rates while exercising ($M=144.73$, $SD=29.12$) and heart rates in anticipation of exercise ($M=93.92$, $SD=13.89$), conditions; $t(37)=11.37$, $p=.000$

Part3: A paired-samples t-test was conducted to compare heart rates at rest in heart rates while exercising.

There was a significant difference in the scores for level heart rates at rest ($M=86.73$, $SD=11.28$) and heart rates while exercising ($M=144.73$, $SD=29.12$), conditions; $t(37)=-13.05$, $p=.000$.

Simple Bar Mean of heart rates at rest, Mean of heart rates in anticipation of exercise, Mean of heart rates while exercising...



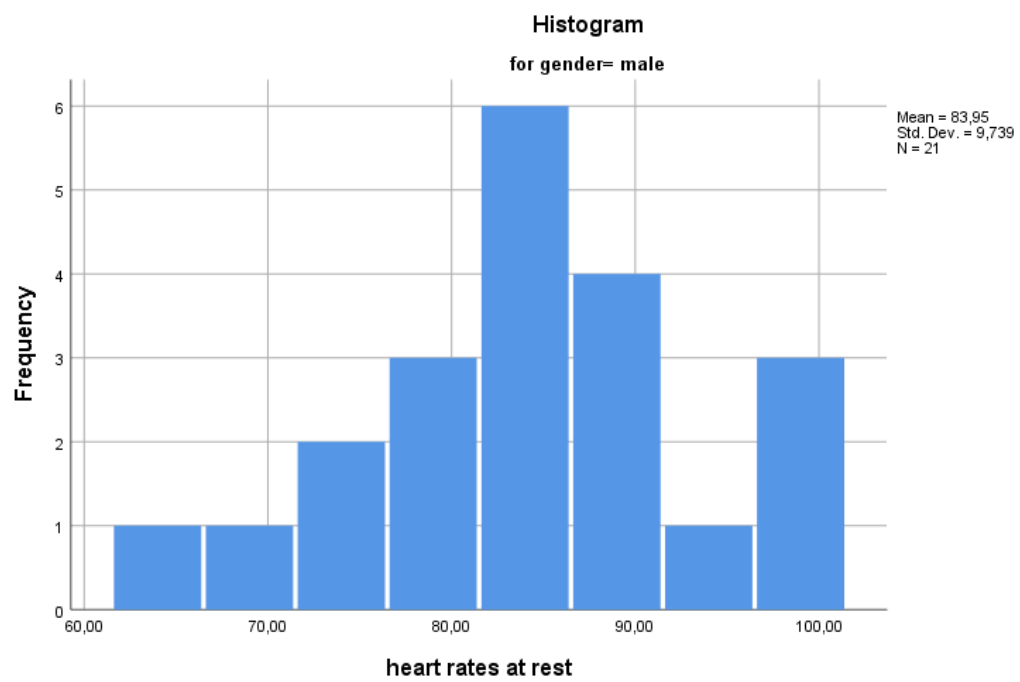
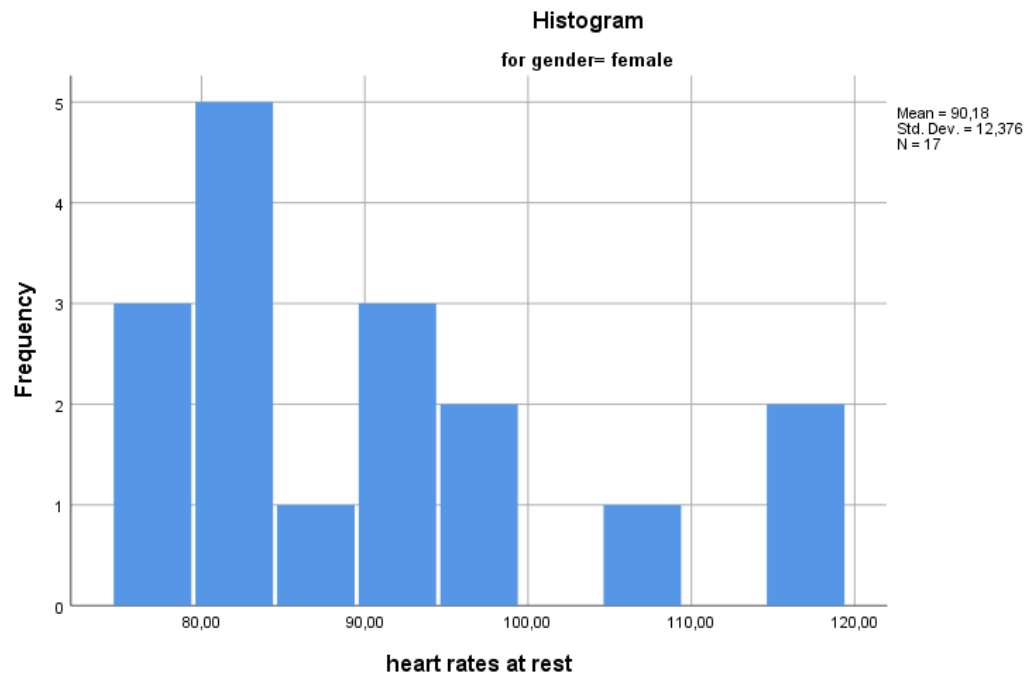
2. a)

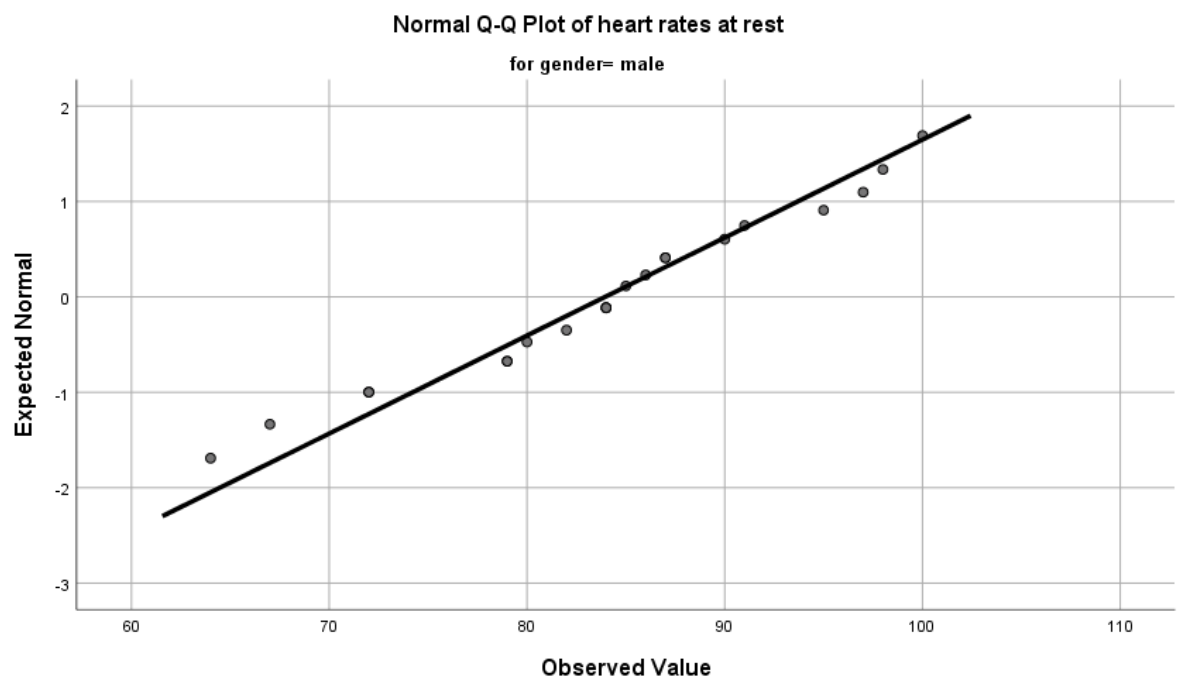
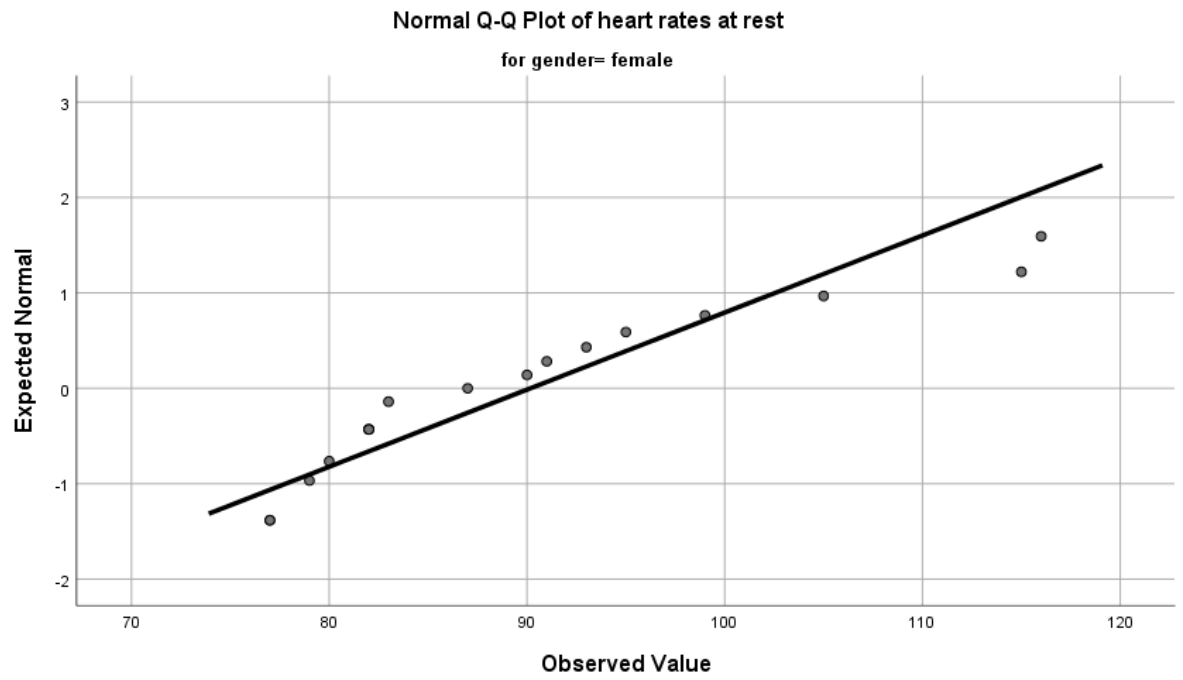
Tests of Normality							
		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
heart rates at rest	female	,190	17	,106	,875	17	,026
	male	,121	21	,200*	,967	21	,656
heart rates in anticipation of exercise	female	,188	17	,111	,866	17	,019
	male	,174	21	,097	,900	21	,034
heart rates while exercising	female	,133	17	,200*	,937	17	,280
	male	,186	21	,056	,869	21	,009

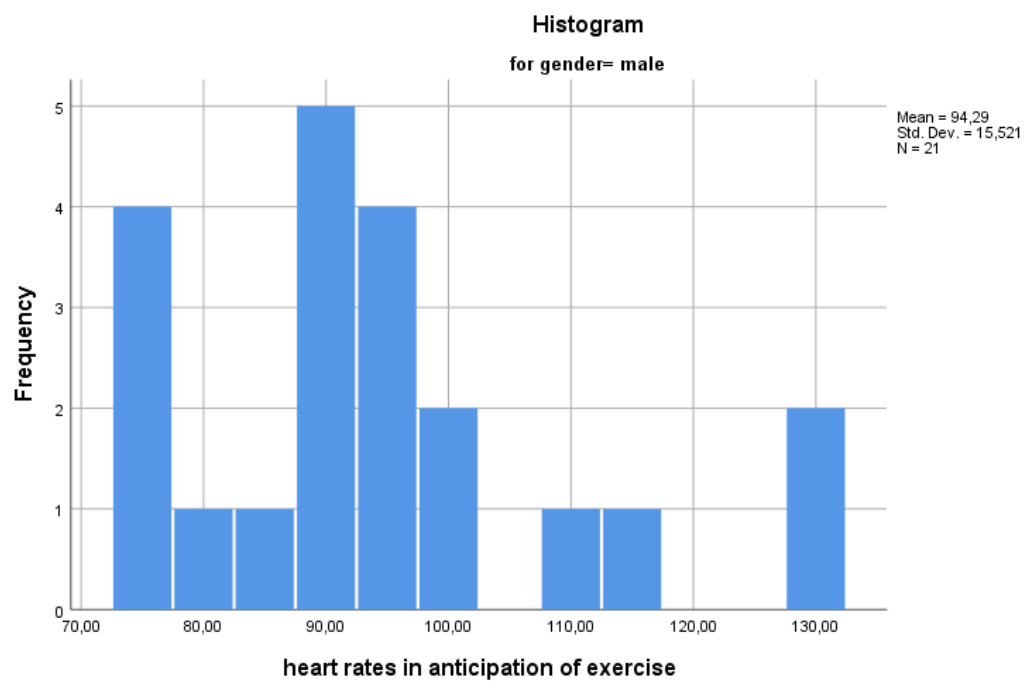
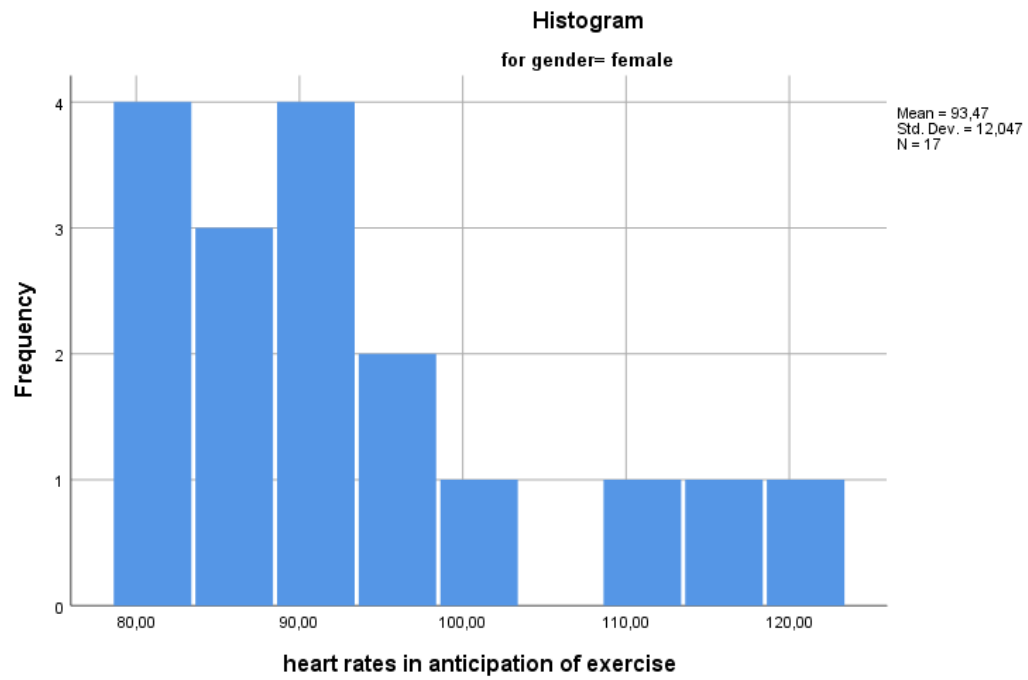
*. This is a lower bound of the true significance.

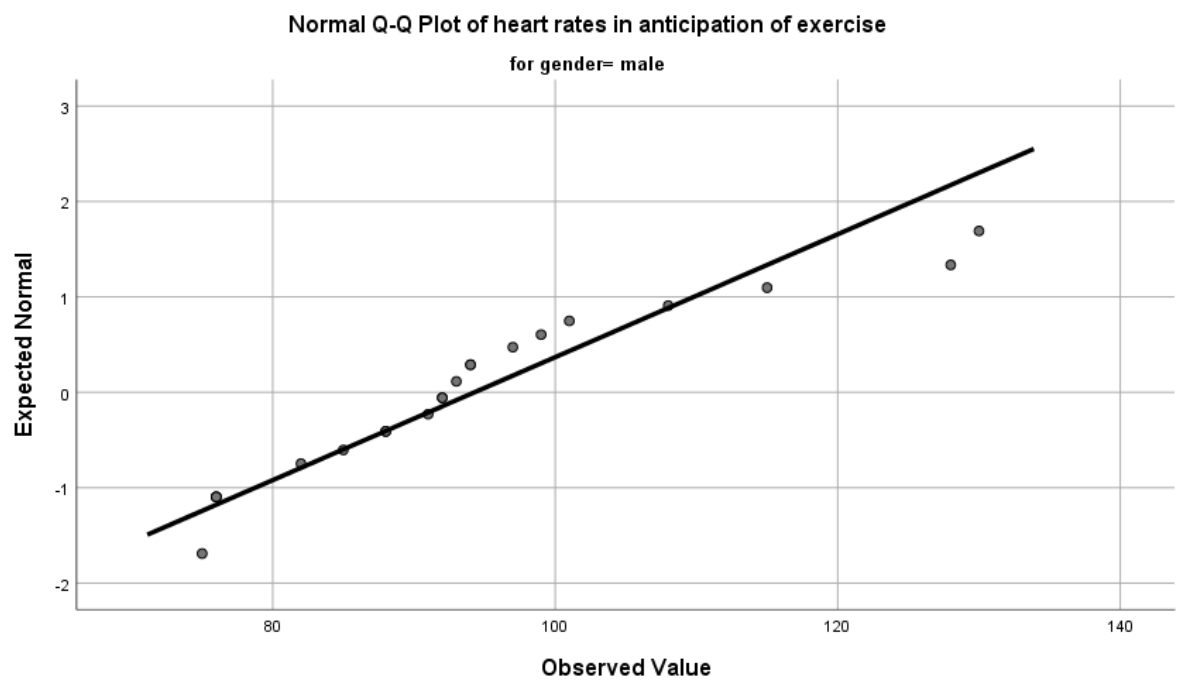
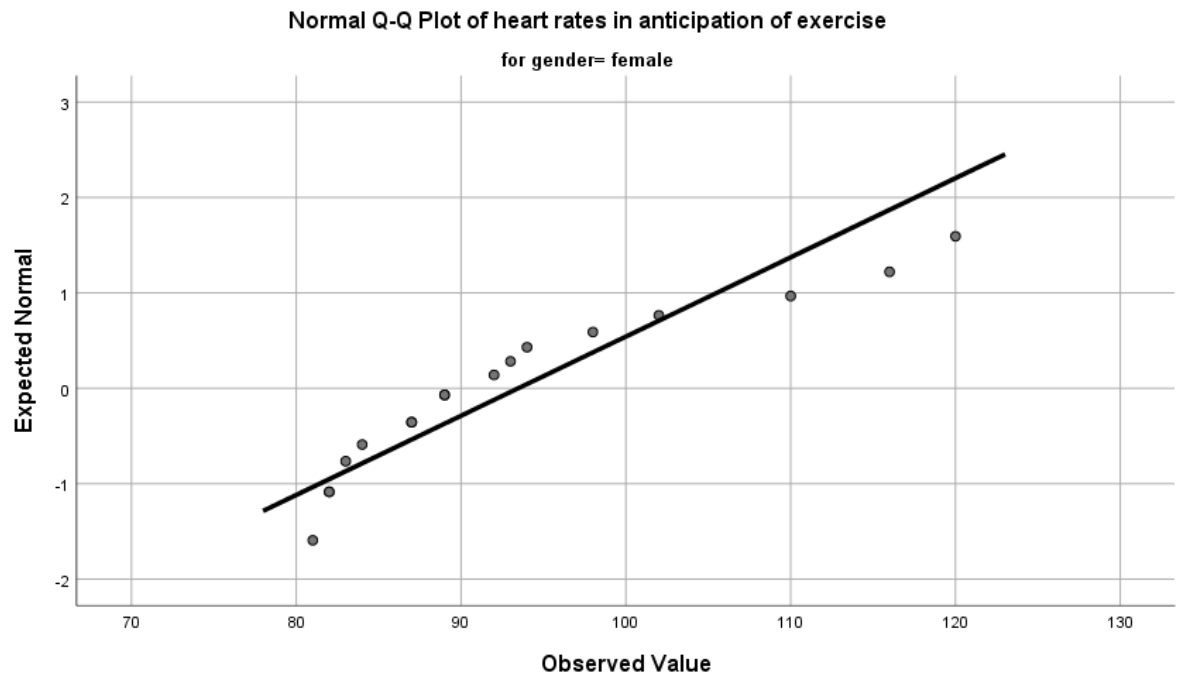
a. Lilliefors Significance Correction

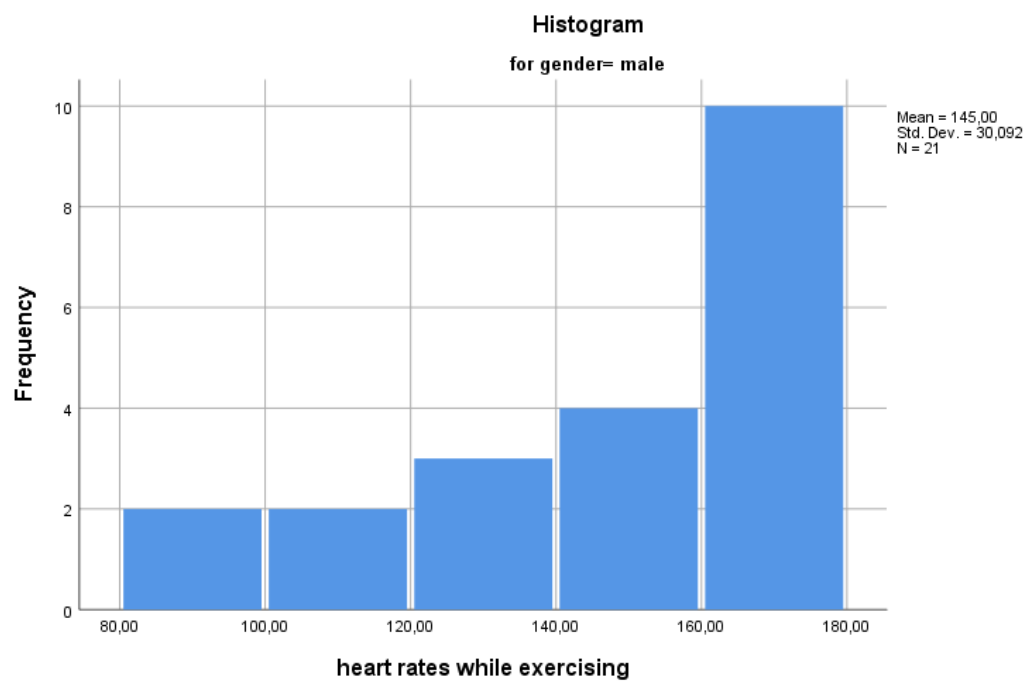
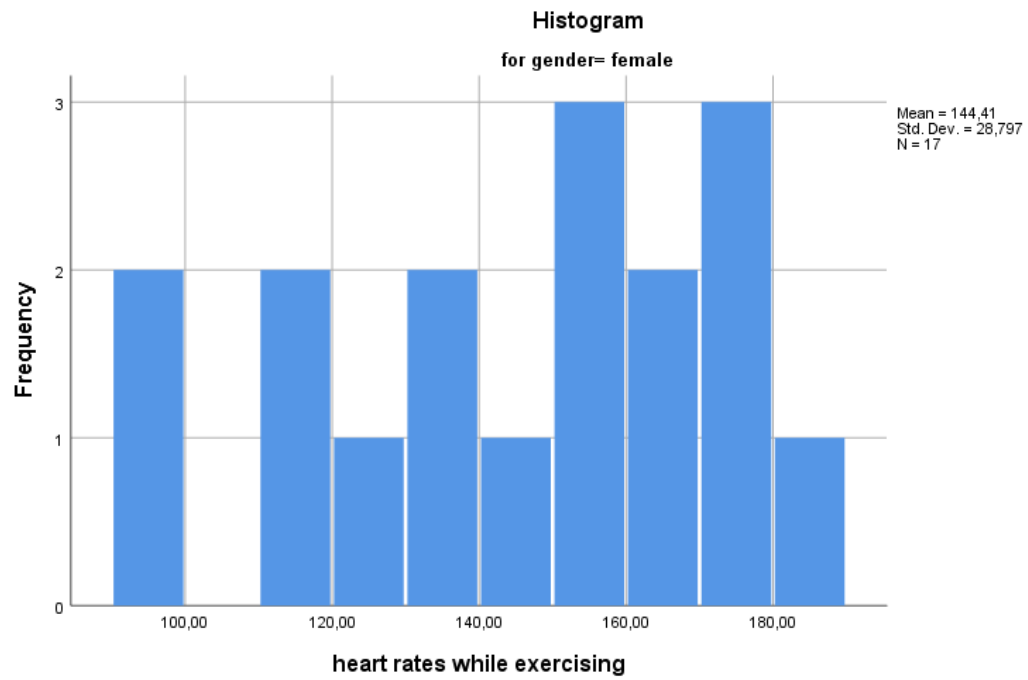
Test of Homogeneity of Variance					
		Levene Statistic	df1	df2	Sig.
heart rates at rest	Based on Mean	1,245	1	36	,272
	Based on Median	,915	1	36	,345
	Based on Median and with adjusted df	,915	1	33,522	,346
	Based on trimmed mean	1,163	1	36	,288
heart rates in anticipation of exercise	Based on Mean	,415	1	36	,523
	Based on Median	,409	1	36	,527
	Based on Median and with adjusted df	,409	1	34,923	,527
	Based on trimmed mean	,396	1	36	,533
heart rates while exercising	Based on Mean	,014	1	36	,907
	Based on Median	,010	1	36	,923
	Based on Median and with adjusted df	,010	1	35,904	,923
	Based on trimmed mean	,006	1	36	,936

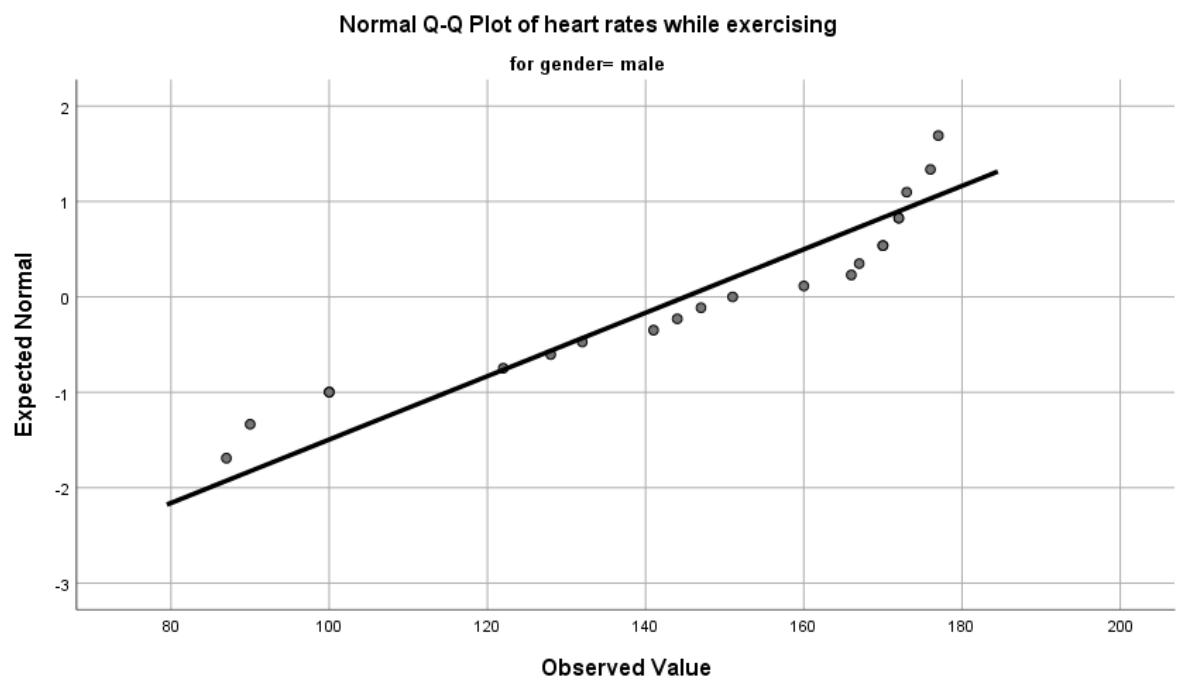
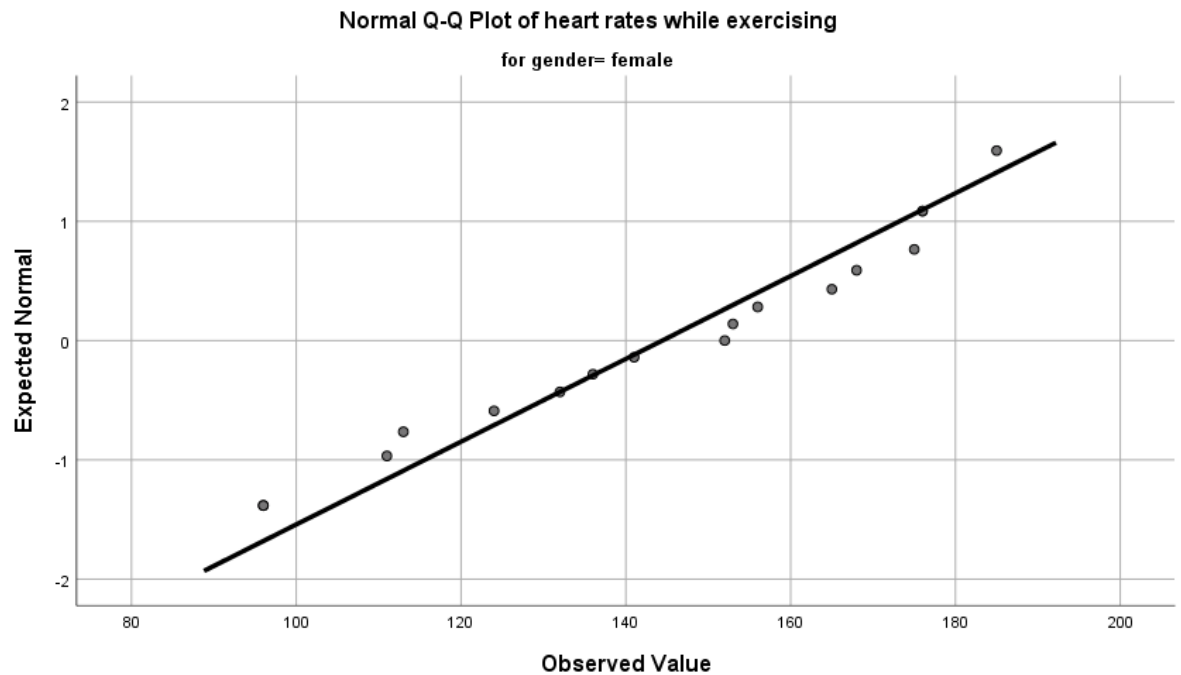












b) independent t-tests are needed since we'll compare the different categories which include different samples.

c) & d) & e)

Part1:

two-tailed:

Ho: heart rates at rest have no difference between females and males.

H1: heart rates at rest have differences between females and males.

one-tailed:

Ho: heart rates at rest are not higher in females than heart rates in males.

H1: heart rates at rest are higher in females than heart rates in males.

Part2:
two-tailed:

Ho: heart rates at anticipation of exercise have no difference between females and males.

H1: heart rates at anticipation of exercise have differences between females and males.

one-tailed:

Ho: heart rates at anticipation of exercise are not higher in females than heart rates in males.

H1: heart rates at anticipation of exercise are higher in females than heart rates in males.

Part3:
two-tailed:

Ho: heart rates while exercising have no difference between females and males.

H1: heart rates while exercising have differences between females and males.

one-tailed:

Ho: heart rates while exercising are not higher in females than heart rates in males.

H1: heart rates while exercising are higher in females than heart rates in males.

```
T-TEST GROUPS=gender(1 2)
/MISSING=ANALYSIS
/VARIABLES=rest
/CRITERIA=CI(.95).
```

T-Test

Group Statistics

gender information of the participants. 1=female, 2=male		N	Mean	Std. Deviation	Std. Error Mean
heart rates at rest	female	17	90,1765	12,37556	3,00151
	male	21	83,9524	9,73897	2,12522

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
heart rates at rest	Equal variances assumed	1,245	,272	1,736	36	,091	6,22409	3,58527	-1,04718	13,49536
	Equal variances not assumed			1,692	30,027	,101	6,22409	3,67772	-1,28654	13,73472

→ T-Test

Group Statistics

		gender information of the participants. 1=female, 2=male	N	Mean	Std. Deviation	Std. Error Mean
heart rates in anticipation of exercise	female		17	93,4706	12,04739	2,92192
	male		21	94,2857	15,52141	3,38705

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
anticipation	Equal variances assumed	,415	,523	-,177	36	,860	-,81513	4,59485	-10,13391	8,50366
	Equal variances not assumed			-,182	35,954	,856	-,81513	4,47322	-9,88765	8,25740

→ T-Test

Group Statistics

		gender information of the participants. 1=female, 2=male	N	Mean	Std. Deviation	Std. Error Mean
heart rates while exercising	female		17	144,4118	28,79683	6,98426
	male		21	145,0000	30,09153	6,56651

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
e	Equal variances assumed	,014	,907	-,061	36	,952	-,58824	9,63208	-20,12299	18,94652
	Equal variances not assumed			-,061	34,945	,951	-,58824	9,58639	-20,05075	18,87428

two-tailed:

Part1: An independent t-test was conducted to compare heart rates at rest for the females and males. There was a significant difference in the scores for females (M=90.17, SD=12.37) and males (M=83.95 SD=9.73) , conditions; $t(36)=1.73$, $p=.091$

Part2: An independent t-test was conducted to compare heart rates in anticipation of exercise for the females and males. There was a significant difference in the scores for females (M=93.47, SD=12.04) and males (M=94.28 SD=15.52) , conditions; $t(36)=-.17$, $p=.860$

Part3: An independent t-test was conducted to compare heart rates while exercising for the females and males. There was a significant difference in the scores for females (M=144.41, SD=28.79) and males (M=145.00 SD=30.09) , conditions; $t(36)=-.6$ $p=.952$

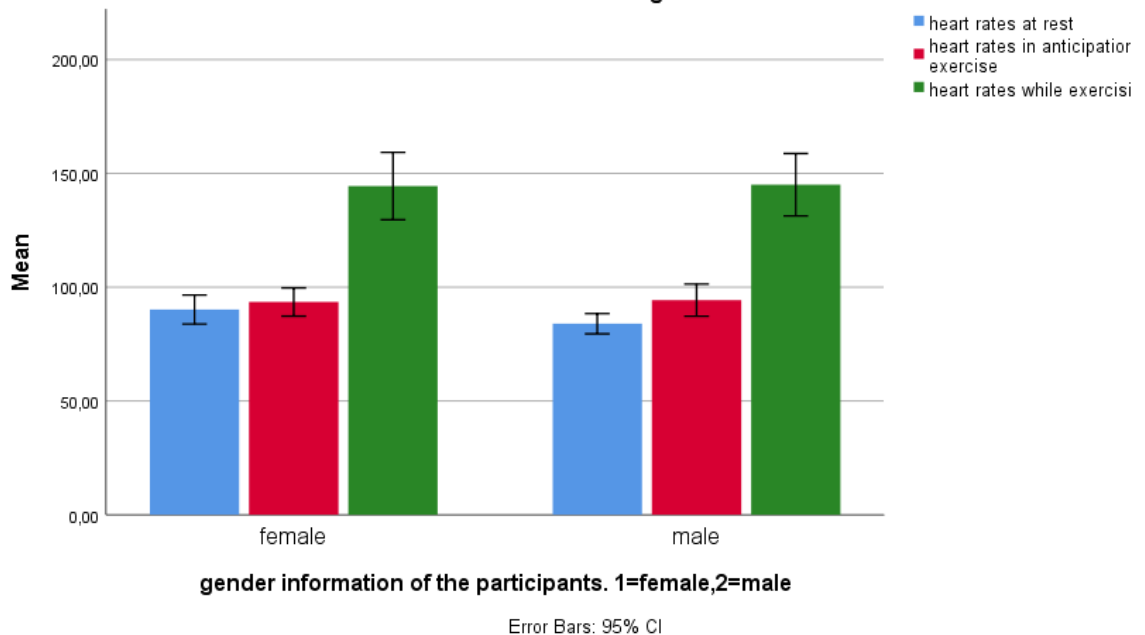
one-tailed: (dividing p-value with 2)

Part1: An independent t-test was conducted to compare heart rates at rest for the females and males. There was a significant difference in the scores for females (M=90.17, SD=12.37) and males (M=83.95 SD=9.73) , conditions; $t(36)=1.73$, $p=.045$

Part2: An independent t-test was conducted to compare heart rates in anticipation of exercise for the females and males. There was a significant difference in the scores for females (M=93.47, SD=12.04) and males (M=94.28 SD=15.52) , conditions; $t(36)=-.17$, $p=.430$

Part3: An independent t-test was conducted to compare heart rates while exercising for the females and males. There was a significant difference in the scores for females (M=144.41, SD=28.79) and males (M=145.00 SD=30.09) , conditions; $t(36)=-.6$ $p=.476$

Clustered Bar Mean of heart rates at rest, Mean of heart rates in anticipation of exercise, Mean of heart rates while exercising...



- Heart rates increased the most during exercise, this applies to both the general (female+male) and both male and female categories. Anticipation of exercise shows a similar heart rate as resting time, although slightly higher than resting time, they are almost equal. Although there are slight differences between the gender groups, the greatest difference exists at resting time. However, in general, the heart rates of gender groups are similar and very close to each other.