The UNIVARIATE Procedure
Variable: restingbp

Basic Statistical Measures			
Location		**Variability**	
Mean	131.3444	**Std Deviation**	17.86161
Median	130.0000	**Variance**	319.03705
Mode	120.0000	**Range**	106.00000
		Interquartile Range	20.00000

The UNIVARIATE Procedure
Variable: serumchol

Basic Statistical Measures			
Location		**Variability**	
Mean	249.6593	**Std Deviation**	51.68624
Median	245.0000	**Variance**	2671
Mode	234.0000	**Range**	438.00000
		Interquartile Range	68.00000

The UNIVARIATE Procedure
Variable: maxheartrate

Basic Statistical Measures			
Location		**Variability**	
Mean	149.6778	**Std Deviation**	23.16572
Median	153.5000	**Variance**	536.65043
Mode	162.0000	**Range**	131.00000
		Interquartile Range	33.00000

We can see from these results that resting heart rate averages around 130 with a standard deviation of around 18. This is quite high relative to healthy people. Our serum cholestrol also centers around 245 (for both mean and median). Finally, our max heart rate has a mean of 149, with 23 bpm of deviation.

The UNIVARIATE Procedure
Variable: restingbp
presence = 1

Basic Statistical Measures			
Location		**Variability**	
Mean	128.8667	**Std Deviation**	16.45766
Median	130.0000	**Variance**	270.85459
Mode	120.0000	**Range**	86.00000
		Interquartile Range	20.00000

We can see from these results that resting heart rate averages around 130 with a standard deviation of around 18. This is quite high relative to healthy people. Our serum cholestrol also centers around 245 (for both mean and median). Finally, our max heart rate has a mean of 149, with 23 bpm of deviation.

The UNIVARIATE Procedure
Variable: restingbp
presence = 2

Basic Statistical Measures			
Location		**Variability**	
Mean	134.4417	**Std Deviation**	19.09542
Median	130.0000	**Variance**	364.63522
Mode	120.0000	**Range**	100.00000
		Interquartile Range	25.00000

Note: The mode displayed is the smallest of 2 modes with a count of 13.

We can see from these results that resting heart rate averages around 130 with a standard deviation of around 18. This is quite high relative to healthy people. Our serum cholestrol also centers around 245 (for both mean and median). Finally, our max heart rate has a mean of 149, with 23 bpm of deviation.

The UNIVARIATE Procedure
Variable: serumchol
presence = 1

Basic Statistical Measures			
Location		**Variability**	
Mean	244.2133	**Std Deviation**	54.01909
Median	236.0000	**Variance**	2918
Mode	204.0000	**Range**	438.00000
		Interquartile Range	60.00000

Note: The mode displayed is the smallest of 4 modes with a count of 4.

We can see from these results that resting heart rate averages around 130 with a standard deviation of around 18. This is quite high relative to healthy people. Our serum cholestrol also centers around 245 (for both mean and median). Finally, our max heart rate has a mean of 149, with 23 bpm of deviation.

The UNIVARIATE Procedure
Variable: serumchol
presence = 2

Basic Statistical Measures			
Location		**Variability**	
Mean	256.4667	**Std Deviation**	47.96917
Median	255.5000	**Variance**	2301
Mode	254.0000	**Range**	260.00000
		Interquartile Range	60.50000

Note: The mode displayed is the smallest of 2 modes with a count of 4.

We can see from these results that resting heart rate averages around 130 with a standard deviation of around 18. This is quite high relative to healthy people. Our serum cholestrol also centers around 245 (for both mean and median). Finally, our max heart rate has a mean of 149, with 23 bpm of deviation.

The UNIVARIATE Procedure
Variable: maxheartrate
presence = 1

Basic Statistical Measures			
Location		**Variability**	
Mean	158.3333	**Std Deviation**	19.28336
Median	161.0000	**Variance**	371.84787
Mode	162.0000	**Range**	106.00000
		Interquartile Range	24.00000

The story changes when we group by presence. Here we can see that there are two groups of resting heart rates: A group with 128 BPM and a group with 134 BPM, with presence 1 and 2 respectively. The same happens with serum cholestrol, where the gap is even wider with means of 244 and 256 respectively. Finally, with maxheartrate, we see that group 1 has a higher mean of 158 vs 138 of group 2. Surprising because group 1 usually showed lower values.

The UNIVARIATE Procedure
Variable: maxheartrate
presence = 2

Basic Statistical Measures			
Location		**Variability**	
Mean	138.8583	**Std Deviation**	23.13072
Median	141.5000	**Variance**	535.03018
Mode	125.0000	**Range**	124.00000
		Interquartile Range	33.00000

Note: The mode displayed is the smallest of 2 modes with a count of 5.

The story changes when we group by presence. Here we can see that there are two groups of resting heart rates: A group with 128 BPM and a group with 134 BPM, with presence 1 and 2 respectively. The same happens with serum cholestrol, where the gap is even wider with means of 244 and 256 respectively. Finally, with maxheartrate, we see that group 1 has a higher mean of 158 vs 138 of group 2. Surprising because group 1 usually showed lower values.

The UNIVARIATE Procedure
Variable: serumchol

Moments			
N	270	**Sum Weights**	270
Mean	249.659259	**Sum Observations**	67408
Std Deviation	51.6862371	**Variance**	2671.46711
Skewness	1.18372089	**Kurtosis**	4.89559899
Uncorrected SS	17547656	**Corrected SS**	718624.652
Coeff Variation	20.7027119	**Std Error Mean**	3.14552422

Basic Statistical Measures			
Location		**Variability**	
Mean	249.6593	**Std Deviation**	51.68624
Median	245.0000	**Variance**	2671
Mode	234.0000	**Range**	438.00000
		Interquartile Range	68.00000

Tests for Location: Mu0=0				
Test	**Statistic**		**p Value**	
Student's t	**t**	79.36968	**Pr > |t|**	<.0001
Sign	**M**	135	**Pr >= |M|**	<.0001
Signed Rank	**S**	18292.5	**Pr >= |S|**	<.0001

Quantiles (Definition 5)	
Level	**Quantile**
100% Max	564
99%	409
95%	327
90%	309
75% Q3	281
50% Median	245
25% Q1	213
10%	194
5%	177

In the first histogram, we can see that we have obtained a fairly normal result. This can be confirmed quantitatively by looking at quartile distribution. We can see that one standard deviation of the data from either side of the mean covers 80% of the population. This is not as close to the near 70% that we would like for a true normal distribution, but it evenly spread.

The UNIVARIATE Procedure
Variable: serumchol

Quantiles (Definition 5)	
Level	**Quantile**
1%	149
0% Min	126

Extreme Observations			
Lowest		**Highest**	
Value	**Obs**	**Value**	**Obs**
126	34	394	104
141	58	407	156
149	170	409	233
149	9	417	29
160	61	564	1

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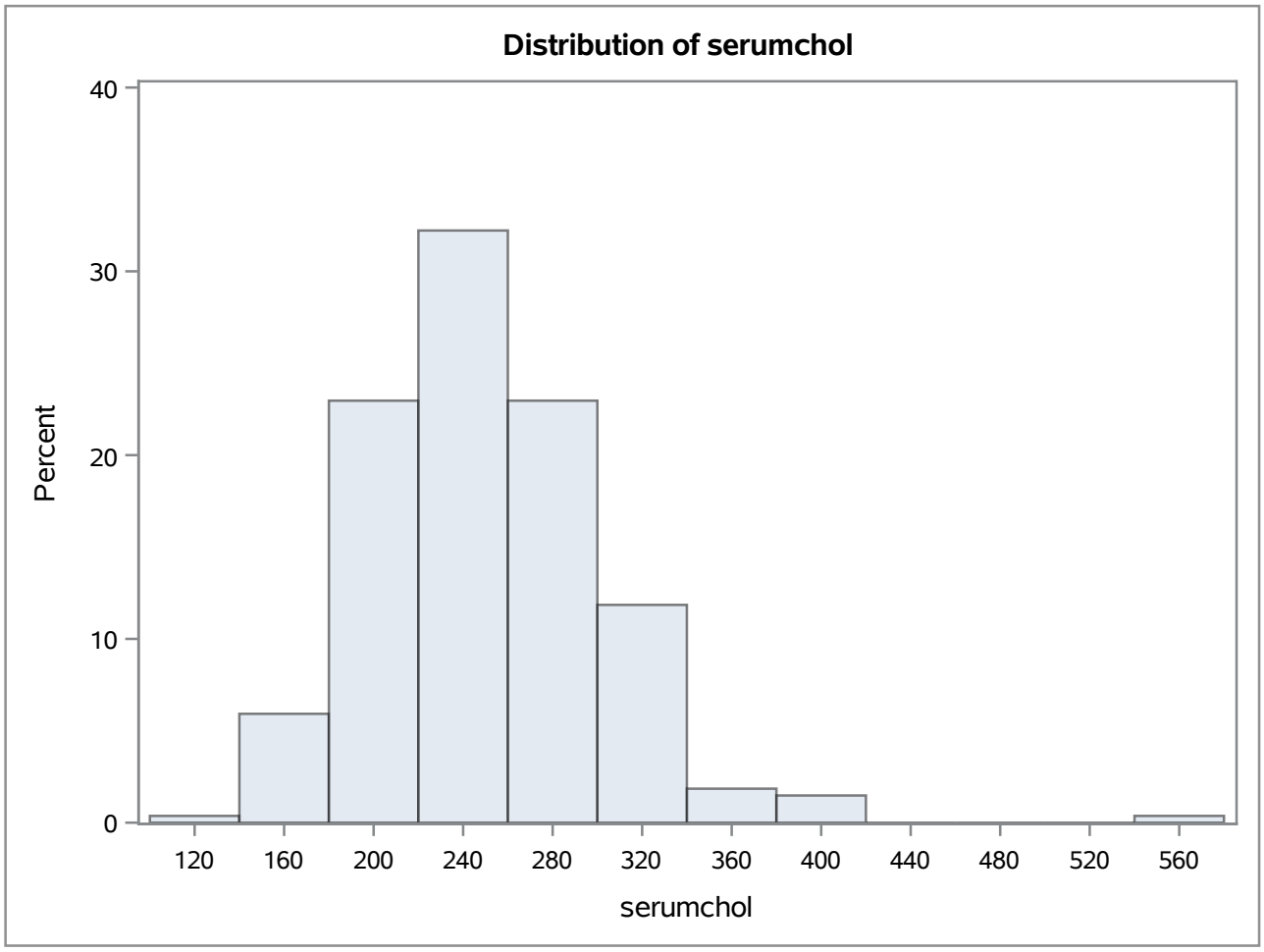
The UNIVARIATE Procedure



In the first histogram, we can see that we have obtained a fairly normal result. This can be confirmed quantitatively by looking at quartile distribution. We can see that one standard deviation of the data from either side of the mean covers 80% of the population. This is not as close to the near 70% that we would like for a true normal distribution, but it evenly spread.

Serum Cholestrol Statistics Full With Presence

The UNIVARIATE Procedure
Variable: serumchol
presence = 1

Moments			
N	150	**Sum Weights**	150
Mean	244.213333	**Sum Observations**	36632
Std Deviation	54.0190852	**Variance**	2918.06157
Skewness	1.78275981	**Kurtosis**	7.90536523
Uncorrected SS	9380814	**Corrected SS**	434791.173
Coeff Variation	22.1196298	**Std Error Mean**	4.41063984

Basic Statistical Measures			
Location		**Variability**	
Mean	244.2133	**Std Deviation**	54.01909
Median	236.0000	**Variance**	2918
Mode	204.0000	**Range**	438.00000
		Interquartile Range	60.00000

Note: The mode displayed is the smallest of 4 modes with a count of 4.

Tests for Location: Mu0=0				
Test	**Statistic**		**p Value**	
Student's t	**t**	55.36914	**Pr > |t|**	<.0001
Sign	**M**	75	**Pr >= |M|**	<.0001
Signed Rank	**S**	5662.5	**Pr >= |S|**	<.0001

Quantiles (Definition 5)	
Level	**Quantile**
100% Max	564
99%	417
95%	325
90%	307
75% Q3	269
50% Median	236
25% Q1	209
10%	194
5%	177

When we group by presence, we can now see that the normalness has gone, both visually and quantatively. However, we can see that group 1 is much more left skewed over group 2, which still has some normality.

Serum Cholestrol Statistics Full With Presence

The UNIVARIATE Procedure
Variable: serumchol
presence = 1

Quantiles (Definition 5)	
Level	**Quantile**
1%	141
0% Min	126

Extreme Observations			
Lowest		**Highest**	
Value	**Obs**	**Value**	**Obs**
126	34	354	40
141	58	360	67
149	9	394	104
160	61	417	29
168	125	564	1

When we group by presence, we can now see that the normalness has gone, both visually and quantatively. However, we can see that group 1 is much more left skewed over group 2, which still has some normality.

Serum Cholestrol Statistics Full With Presence

The UNIVARIATE Procedure
Variable: serumchol
presence = 2

Moments			
N	120	**Sum Weights**	120
Mean	256.466667	**Sum Observations**	30776
Std Deviation	47.9691661	**Variance**	2301.0409
Skewness	0.29618983	**Kurtosis**	0.53481879
Uncorrected SS	8166842	**Corrected SS**	273823.867
Coeff Variation	18.7038599	**Std Error Mean**	4.37896572

Basic Statistical Measures			
Location		**Variability**	
Mean	256.4667	**Std Deviation**	47.96917
Median	255.5000	**Variance**	2301
Mode	254.0000	**Range**	260.00000
		Interquartile Range	60.50000

Note: The mode displayed is the smallest of 2 modes with a count of 4.

Tests for Location: Mu0=0				
Test	**Statistic**		**p Value**	
Student's t	**t**	58.56786	**Pr > |t|**	<.0001
Sign	**M**	60	**Pr >= |M|**	<.0001
Signed Rank	**S**	3630	**Pr >= |S|**	<.0001

Quantiles (Definition 5)	
Level	**Quantile**
100% Max	409.0
99%	407.0
95%	330.0
90%	313.0
75% Q3	287.0
50% Median	255.5
25% Q1	226.5
10%	192.5
5%	175.5

When we group by presence, we can now see that the normalness has gone, both visually and quantatively. However, we can see that group 1 is much more left skewed over group 2, which still has some normality.

Serum Cholestrol Statistics Full With Presence

The UNIVARIATE Procedure
Variable: serumchol
presence = 2

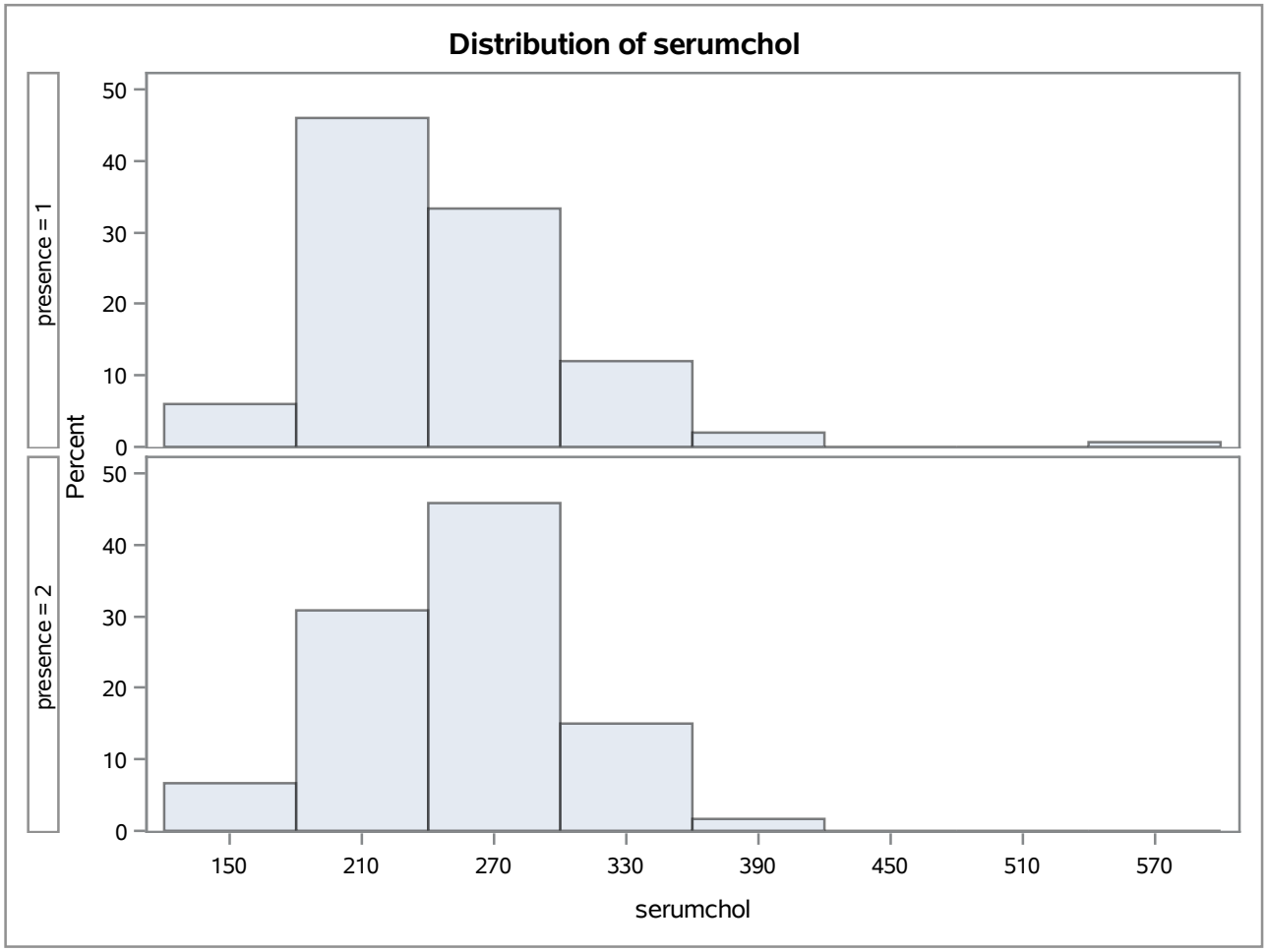
Quantiles (Definition 5)	
Level	**Quantile**
1%	164.0
0% Min	149.0

Extreme Observations			
Lowest		**Highest**	
Value	**Obs**	**Value**	**Obs**
149	170	335	266
164	255	341	251
166	175	353	265
167	219	407	156
172	234	409	233

When we group by presence, we can now see that the normalness has gone, both visually and quantatively. However, we can see that group 1 is much more left skewed over group 2, which still has some normality.

Serum Cholestrol Statistics Full With Presence

The UNIVARIATE Procedure



When we group by presence, we can now see that the normalness has gone, both visually and quantatively. However, we can see that group 1 is much more left skewed over group 2, which still has some normality.

Serum Cholestrol Statistics Full With Presence

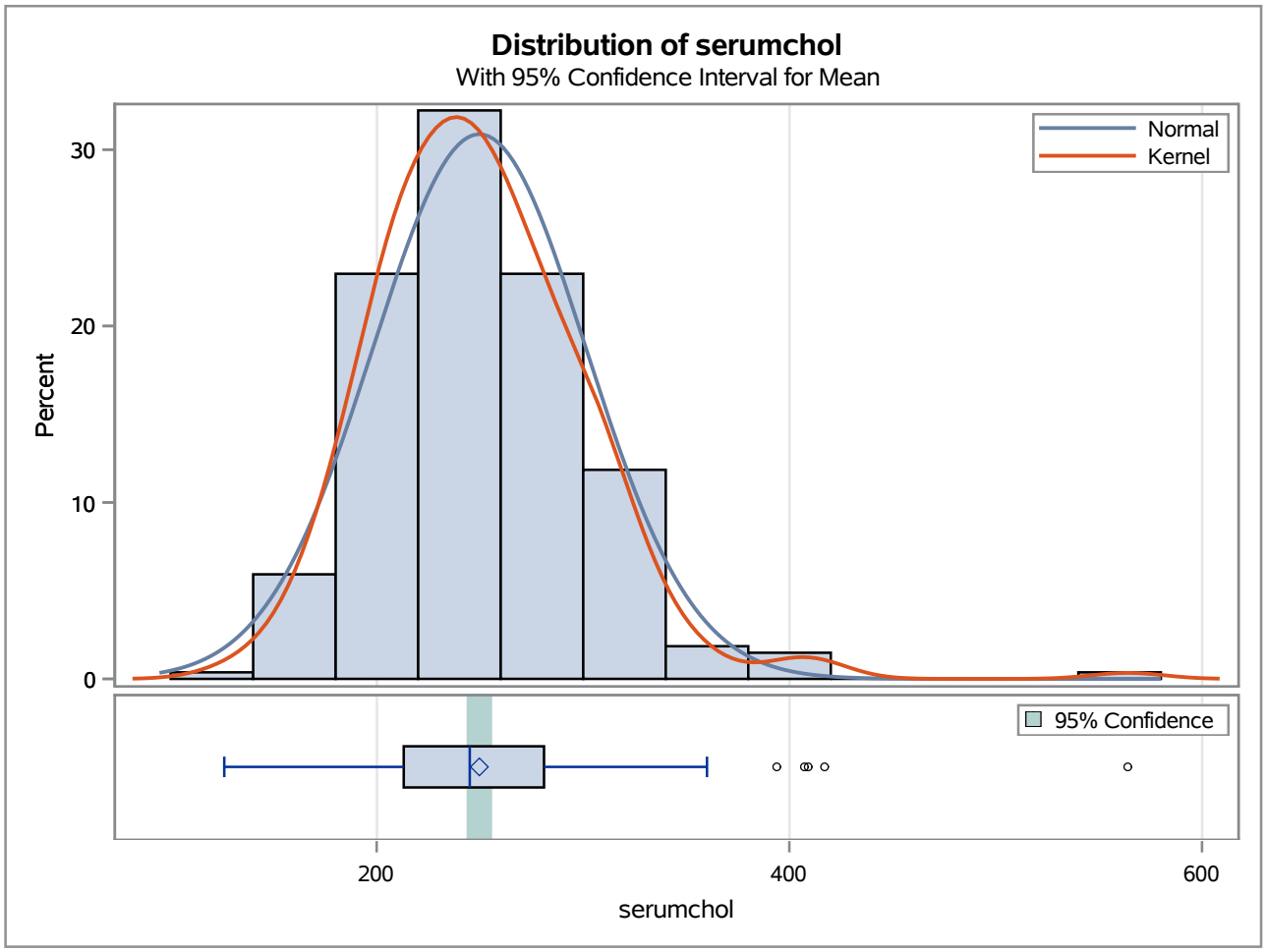
The TTEST Procedure

Variable: serumchol

N	Mean	Std Dev	Std Err	Minimum	Maximum
270	249.7	51.6862	3.1455	126.0	564.0

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
249.7	243.5	255.9	51.6862	47.6633	56.4566

DF	t Value	Pr > |t|
269	15.79	<.0001

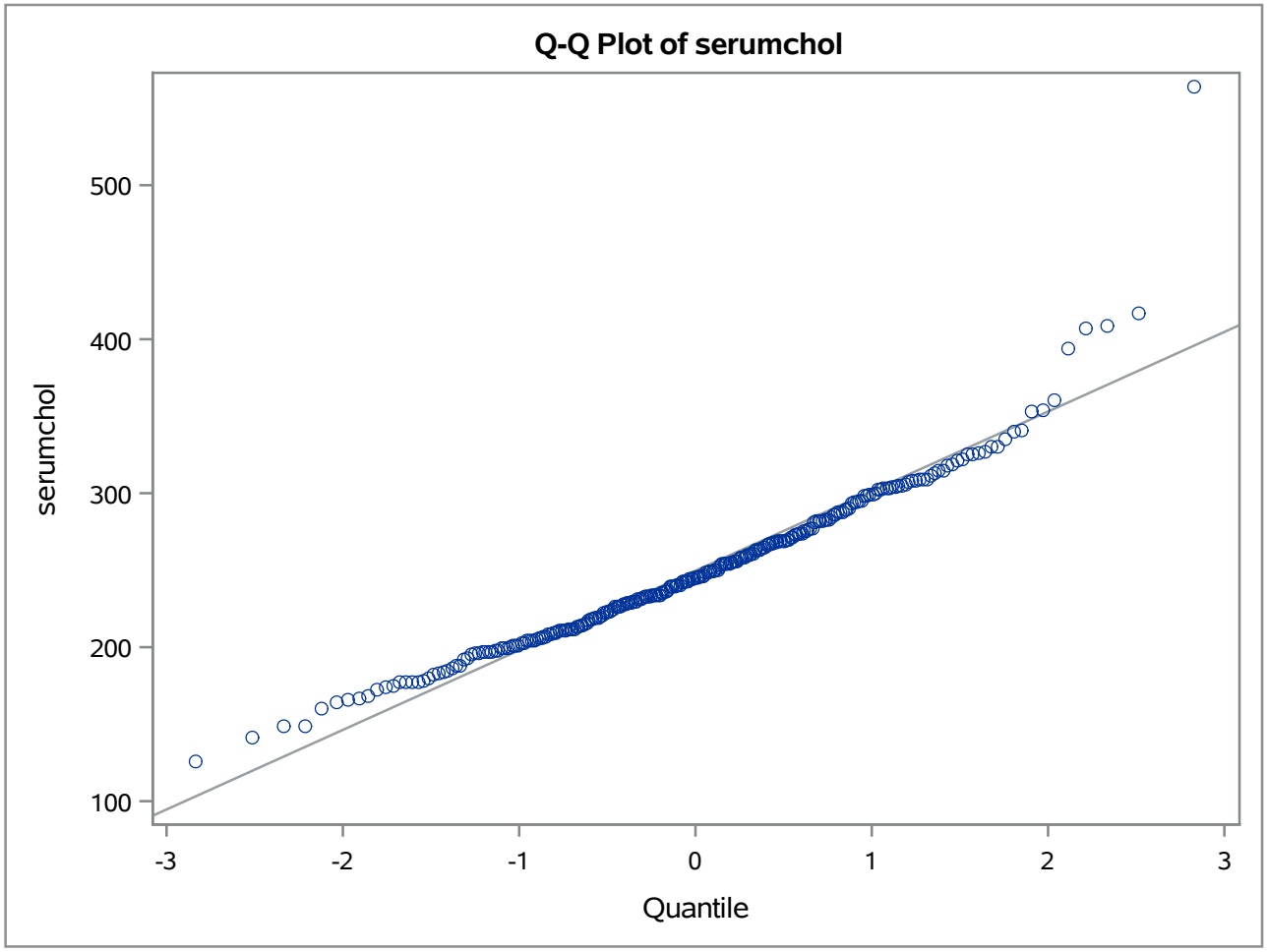


We can see from the T Test results that our median is significantly higher from 200 due to our p value being less than 0.05.

Serum Cholestrol Statistics Full With Presence

The TTEST Procedure

Variable: serumchol



We can see from the T Test results that our median is significantly higher from 200 due to our p value being less than 0.05.

Serum Cholestrol Statistics Full With Presence

The TTEST Procedure

Variable: serumchol

presence	Method	N	Mean	Std Dev	Std Err	Minimum	Maximum
1		150	244.2	54.0191	4.4106	126.0	564.0
2		120	256.5	47.9692	4.3790	149.0	409.0
Diff (1-2)	**Pooled**		-12.2533	51.4207	6.2977		
Diff (1-2)	**Satterthwaite**		-12.2533		6.2152		

presence	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
1		244.2	235.5	252.9	54.0191	48.5202	60.9348
2		256.5	247.8	265.1	47.9692	42.5722	54.9456
Diff (1-2)	**Pooled**	-12.2533	-24.6526	0.1460	51.4207	47.4116	56.1762
Diff (1-2)	**Satterthwaite**	-12.2533	-24.4908	-0.0158			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	268	-33.70	<.0001
Satterthwaite	Unequal	265.06	-34.15	<.0001

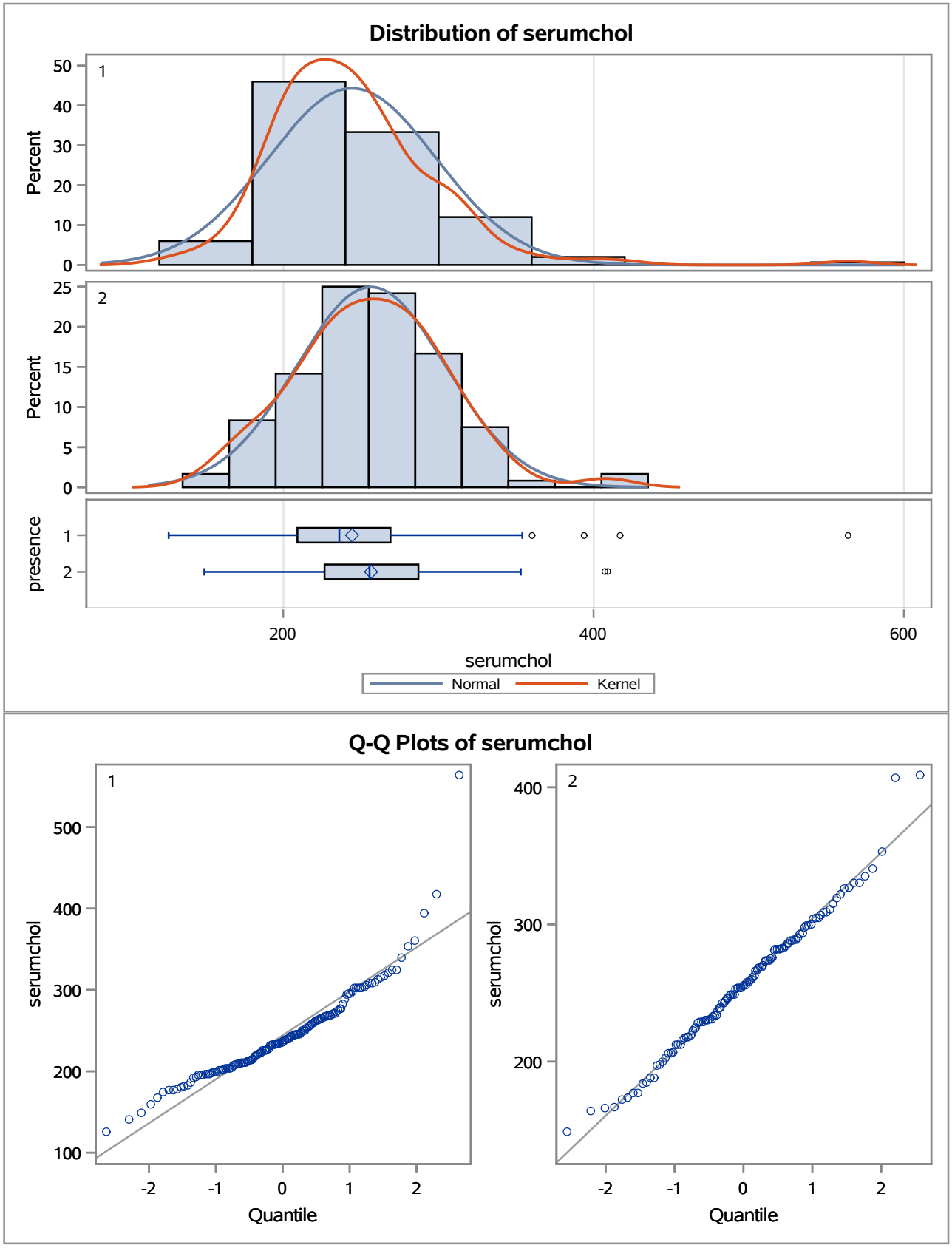
Equality of Variances				
Method	**Num DF**	**Den DF**	**F Value**	**Pr > F**
Folded F	149	119	1.27	0.1771

Here, we have the same results, where for both presences, we can see that the mean is significantly higher than 200 with p value less than 0.05

Serum Cholestrol Statistics Full With Presence

The TTEST Procedure

Variable: serumchol



Here, we have the same results, where for both presences, we can see that the mean is significantly higher than 200 with p value less than 0.05

Serum Cholestrol Statistics Full With Presence

The CORR Procedure

3 Variables:	restingbp	serumchol	maxheartrate

Simple Statistics						
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**
restingbp	270	131.34444	17.86161	35463	94.00000	200.00000
serumchol	270	249.65926	51.68624	67408	126.00000	564.00000
maxheartrate	270	149.67778	23.16572	40413	71.00000	202.00000

Pearson Correlation Coefficients, N = 270 Prob > |r| under H0: Rho=0			
	restingbp	**serumchol**	**maxheartrate**
restingbp	1.00000	0.17302 0.0044	-0.03914 0.5220
serumchol	0.17302 0.0044	1.00000	-0.01874 0.7592
maxheartrate	-0.03914 0.5220	-0.01874 0.7592	1.00000

We see that thre results here are mostly unremarkable, with the only real interesting point being that heart rate and max heart rate have basically no correlation

Serum Cholestrol Statistics Full With Presence

The CORR Procedure

presence=1

3 Variables:	restingbp	serumchol	maxheartrate

Simple Statistics						
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**
restingbp	150	128.86667	16.45766	19330	94.00000	180.00000
serumchol	150	244.21333	54.01909	36632	126.00000	564.00000
maxheartrate	150	158.33333	19.28336	23750	96.00000	202.00000

Pearson Correlation Coefficients, N = 150 Prob > |r| under H0: Rho=0			
	restingbp	**serumchol**	**maxheartrate**
restingbp	1.00000	0.10109 0.2184	0.03533 0.6678
serumchol	0.10109 0.2184	1.00000	0.02509 0.7605
maxheartrate	0.03533 0.6678	0.02509 0.7605	1.00000

Here the results become more interesting. We can see that the correlation between resting heart rate and serum cholestrol significantly differ between presence groups. The rest of the data is relatively the same, indicating nearly no corrleation between variables.

Serum Cholestrol Statistics Full With Presence

The CORR Procedure

presence=2

3 Variables:	restingbp	serumchol	maxheartrate

Simple Statistics						
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**
restingbp	120	134.44167	19.09542	16133	100.00000	200.00000
serumchol	120	256.46667	47.96917	30776	149.00000	409.00000
maxheartrate	120	138.85833	23.13072	16663	71.00000	195.00000

Pearson Correlation Coefficients, N = 120 Prob > |r| under H0: Rho=0			
	restingbp	**serumchol**	**maxheartrate**
restingbp	1.00000	0.22956 0.0117	0.02305 0.8027
serumchol	0.22956 0.0117	1.00000	0.04528 0.6234
maxheartrate	0.02305 0.8027	0.04528 0.6234	1.00000

Here the results become more interesting. We can see that the correlation between resting heart rate and serum cholestrol significantly differ between presence groups. The rest of the data is relatively the same, indicating nearly no corrleation between variables.