

Statistics 110 – Test II, Fall 2004
Minitab Output Exhibits

EXHIBIT 1	<p>Measured Variables</p> <p>FatPercent Per cent body fat (e.g. 15.23 means 15.23%) Age Age (years) Neck Neck circumference (cm.) Chest Chest circumference (cm.) Abdomen Abdomen circumference (cm.) Hip Hip circumference (cm.) Knee Knee circumference (cm.) Fat% After Body fat % , after menu change</p>														
EXHIBIT 2	<p>Coded Variables</p> <p>BFOver20 Body fat higher than 20%(Yes, No) BFover20After Body fat higher than 20%(Yes, No) after menu change Over50 Age 51 or more (Y=Yes, N=No) Abdomen_N Abdomen circumference (cm.) for age 50 or under Abdomen_Y Abdomen circumference (cm.) for age over 50 years</p>														
EXHIBIT 3															
EXHIBIT 4	<p>One-Sample T: FatPercent</p> <table border="1"> <thead> <tr> <th>Variable</th> <th>N</th> <th>Mean</th> <th>StDev</th> <th>SE Mean</th> <th>95.0% CI</th> </tr> </thead> <tbody> <tr> <td>FatPercent</td> <td>252</td> <td>19.136</td> <td>8.479</td> <td>0.534</td> <td>(18.085, 20.188)</td> </tr> </tbody> </table>	Variable	N	Mean	StDev	SE Mean	95.0% CI	FatPercent	252	19.136	8.479	0.534	(18.085, 20.188)		
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FatPercent	252	19.136	8.479	0.534	(18.085, 20.188)										
EXHIBIT 5	<p>Test and CI for One Proportion: BFOver20</p> <p>Test of p = 0.35 vs p not = 0.35</p> <p>Event = Yes</p> <table border="1"> <thead> <tr> <th>Variable</th> <th>X</th> <th>N</th> <th>Sample p</th> <th>95.0% CI</th> <th>Exact P-Value</th> </tr> </thead> <tbody> <tr> <td>BFOver20</td> <td>119</td> <td>251</td> <td>0.474104</td> <td>(0.410967, 0.537859)</td> <td>0.000</td> </tr> </tbody> </table>	Variable	X	N	Sample p	95.0% CI	Exact P-Value	BFOver20	119	251	0.474104	(0.410967, 0.537859)	0.000		
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BFOver20	119	251	0.474104	(0.410967, 0.537859)	0.000										
EXHIBIT 6	<p>One-Sample T: FatPercent</p> <p>Test of mu = 20 vs mu > 20</p> <table border="1"> <thead> <tr> <th>Variable</th> <th>N</th> <th>Mean</th> <th>StDev</th> <th>SE Mean</th> <th>T-value</th> <th>P-value</th> </tr> </thead> <tbody> <tr> <td>FatPercent</td> <td>252</td> <td>19.136</td> <td>8.479</td> <td>0.534</td> <td>-1.62</td> <td>0.946</td> </tr> </tbody> </table>	Variable	N	Mean	StDev	SE Mean	T-value	P-value	FatPercent	252	19.136	8.479	0.534	-1.62	0.946
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EXHIBIT 7	One-Sample T: FatPercent Test of mu = 35 vs mu < 35 <table border="1"> <thead> <tr> <th>Variable</th> <th>N</th> <th>Mean</th> <th>StDev</th> <th>SE Mean</th> <th>T-value</th> <th>P-value</th> </tr> </thead> <tbody> <tr> <td>FatPercent</td> <td>252</td> <td>19.136</td> <td>8.479</td> <td>0.534</td> <td>-29.70</td> <td>0.000</td> </tr> </tbody> </table>	Variable	N	Mean	StDev	SE Mean	T-value	P-value	FatPercent	252	19.136	8.479	0.534	-29.70	0.000						
Variable	N	Mean	StDev	SE Mean	T-value	P-value															
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EXHIBIT 8	Paired T-Test and CI: Chest, Hip Paired T for Chest - Hip <table border="1"> <thead> <tr> <th></th> <th>N</th> <th>Mean</th> <th>StDev</th> <th>SE Mean</th> </tr> </thead> <tbody> <tr> <td>Chest</td> <td>252</td> <td>100.824</td> <td>8.430</td> <td>0.531</td> </tr> <tr> <td>Hip</td> <td>252</td> <td>99.905</td> <td>7.164</td> <td>0.451</td> </tr> <tr> <td>Difference</td> <td>252</td> <td>0.919</td> <td>4.713</td> <td>0.297</td> </tr> </tbody> </table> 95% CI for mean difference: (0.335, 1.504) T-Test of mean difference = 0 (vs not = 0): T-Value = 3.10 P-Value = 0.002		N	Mean	StDev	SE Mean	Chest	252	100.824	8.430	0.531	Hip	252	99.905	7.164	0.451	Difference	252	0.919	4.713	0.297
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EXHIBIT 9	Two-Sample T-Test and CI: Abdomen, Over50 Two-sample T for Abdomen <table border="1"> <thead> <tr> <th>Over50</th> <th>N</th> <th>Mean</th> <th>StDev</th> <th>SE Mean</th> </tr> </thead> <tbody> <tr> <td>N</td> <td>175</td> <td>91.3</td> <td>10.1</td> <td>0.76</td> </tr> <tr> <td>Y</td> <td>76</td> <td>94.6</td> <td>10.3</td> <td>1.2</td> </tr> </tbody> </table> Difference = mu (N) - mu (Y) Estimate for difference: -3.29 95% upper bound for difference: -0.97 T-Test of difference = 0 (vs <): T-Value = -2.35 P-Value = 0.010 DF = 140	Over50	N	Mean	StDev	SE Mean	N	175	91.3	10.1	0.76	Y	76	94.6	10.3	1.2					
Over50	N	Mean	StDev	SE Mean																	
N	175	91.3	10.1	0.76																	
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EXHIBIT 10	Two-Sample T-Test and CI: Abdomen_N, Abdomen_Y Two-sample T for Abdomen_N vs Abdomen_Y <table border="1"> <thead> <tr> <th></th> <th>N</th> <th>Mean</th> <th>StDev</th> <th>SE Mean</th> </tr> </thead> <tbody> <tr> <td>Abdomen_</td> <td>175</td> <td>91.3</td> <td>10.1</td> <td>0.76</td> </tr> <tr> <td>Abdomen_</td> <td>76</td> <td>94.6</td> <td>10.3</td> <td>1.2</td> </tr> </tbody> </table> Difference = mu Abdomen_N - mu Abdomen_Y Estimate for difference: -3.29 95% upper bound for difference: -0.97 T-Test of difference = 0 (vs <): T-Value = -2.35 P-Value = 0.010 DF = 140		N	Mean	StDev	SE Mean	Abdomen_	175	91.3	10.1	0.76	Abdomen_	76	94.6	10.3	1.2					
	N	Mean	StDev	SE Mean																	
Abdomen_	175	91.3	10.1	0.76																	
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EXHIBIT 11	Test and CI for Two Proportions: BF0ver20, Over50 Event = Yes <table border="1"> <thead> <tr> <th>Over50</th> <th>X</th> <th>N</th> <th>Sample p</th> </tr> </thead> <tbody> <tr> <td>N</td> <td>78</td> <td>175</td> <td>0.445714</td> </tr> <tr> <td>Y</td> <td>41</td> <td>76</td> <td>0.539474</td> </tr> </tbody> </table> Estimate for p(N) - p(Y): -0.0937594 95% CI for p(N) - p(Y): (-0.227852, 0.0403328) Test for p(N) - p(Y) = 0 (vs not = 0): Z = -1.37 P-Value = 0.171	Over50	X	N	Sample p	N	78	175	0.445714	Y	41	76	0.539474								
Over50	X	N	Sample p																		
N	78	175	0.445714																		
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EXHIBIT 12	Test and CI for Two Proportions: BF0ver20, BFOver20After Event = Yes <table border="1"> <thead> <tr> <th>Variable</th> <th>X</th> <th>N</th> <th>Sample p</th> </tr> </thead> <tbody> <tr> <td>BF0ver20</td> <td>119</td> <td>251</td> <td>0.474104</td> </tr> <tr> <td>BFOver20Afte</td> <td>114</td> <td>251</td> <td>0.454183</td> </tr> </tbody> </table> Estimate for $p(\text{BF0ver20}) - p(\text{BFOver20Afte})$: 0.0199203 95% lower bound for $p(\text{BF0ver20}) - p(\text{BFOver20Afte})$: -0.0532895 Test for $p(\text{BF0ver20}) - p(\text{BFOver20Afte}) = 0$ (vs > 0): Z = 0.45 p-Value = 0.327	Variable	X	N	Sample p	BF0ver20	119	251	0.474104	BFOver20Afte	114	251	0.454183								
Variable	X	N	Sample p																		
BF0ver20	119	251	0.474104																		
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EXHIBIT 13	Paired T-Test and CI: FatPercent, Fat%After Paired T for FatPercent - Fat%After <table border="1"> <thead> <tr> <th></th> <th>N</th> <th>Mean</th> <th>StDev</th> <th>SE Mean</th> </tr> </thead> <tbody> <tr> <td>FatPercent</td> <td>252</td> <td>19.136</td> <td>8.479</td> <td>0.534</td> </tr> <tr> <td>Fat%After</td> <td>252</td> <td>18.661</td> <td>8.372</td> <td>0.527</td> </tr> <tr> <td>Difference</td> <td>252</td> <td>0.4754</td> <td>1.2889</td> <td>0.0812</td> </tr> </tbody> </table> T-Test of mean difference = 0 (vs > 0): T-Value = 5.85 P-Value = 0.000		N	Mean	StDev	SE Mean	FatPercent	252	19.136	8.479	0.534	Fat%After	252	18.661	8.372	0.527	Difference	252	0.4754	1.2889	0.0812
	N	Mean	StDev	SE Mean																	
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	N	Mean	StDev	SE Mean																	
FatPerce	252	19.14	8.48	0.53																	
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EXHIBIT 15	One-Sample T: Neck <table border="1"> <thead> <tr> <th>Variable</th> <th>N</th> <th>Mean</th> <th>StDev</th> <th>SE Mean</th> <th>95.0% CI</th> </tr> </thead> <tbody> <tr> <td>Neck</td> <td>251</td> <td>37.939</td> <td>2.287</td> <td>0.144</td> <td>(37.655, 38.224)</td> </tr> </tbody> </table>	Variable	N	Mean	StDev	SE Mean	95.0% CI	Neck	251	37.939	2.287	0.144	(37.655, 38.224)								
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EXHIBIT 16	One-Sample T: Knee <table border="1"> <thead> <tr> <th>Variable</th> <th>N</th> <th>Mean</th> <th>StDev</th> <th>SE Mean</th> <th>95.0% CI</th> </tr> </thead> <tbody> <tr> <td>Knee</td> <td>252</td> <td>38.590</td> <td>2.412</td> <td>0.152</td> <td>(38.291, 38.890)</td> </tr> </tbody> </table>	Variable	N	Mean	StDev	SE Mean	95.0% CI	Knee	252	38.590	2.412	0.152	(38.291, 38.890)								
Variable	N	Mean	StDev	SE Mean	95.0% CI																
Knee	252	38.590	2.412	0.152	(38.291, 38.890)																
EXHIBIT 17	Paired T-Test and CI: Neck, Knee Paired T for Neck - Knee <table border="1"> <thead> <tr> <th></th> <th>N</th> <th>Mean</th> <th>StDev</th> <th>SE Mean</th> </tr> </thead> <tbody> <tr> <td>Neck</td> <td>251</td> <td>37.939</td> <td>2.287</td> <td>0.144</td> </tr> <tr> <td>Knee</td> <td>251</td> <td>38.549</td> <td>2.323</td> <td>0.147</td> </tr> <tr> <td>Difference</td> <td>251</td> <td>-0.609</td> <td>1.956</td> <td>0.123</td> </tr> </tbody> </table> 95% upper bound for mean difference: -0.405 T-Test of mean difference = 0 (vs < 0): T-Value = -4.93 P-Value = 0.000		N	Mean	StDev	SE Mean	Neck	251	37.939	2.287	0.144	Knee	251	38.549	2.323	0.147	Difference	251	-0.609	1.956	0.123
	N	Mean	StDev	SE Mean																	
Neck	251	37.939	2.287	0.144																	
Knee	251	38.549	2.323	0.147																	
Difference	251	-0.609	1.956	0.123																	