NASA Life Sciences Data Archive
Investigator name: Kenneth Baldwin
Mission (Payload): STS-58 (SLS-2)
Experiment title (ID): Effects of Zero-Gravity Exposure on Biochemical and Metabolic Properties of Skeletal Muscle (178127)
File name/Inventory ID: Preflight data folder

Sheet1

	bw		plantaris
f1	342	f1	341
f2	342	f2	370
f3	352	f3	346
f4	351	f4	323
f5	314	f5	265
nc1	330	nc1	437
nc2	336	nc2	389
nc3	294	nc3	393
nc4	277	nc4	328
nc5	323	nc5	411
nc6	366	nc6	513

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	340.2	321
Variance	237.2	1000
Observations	5	6
Pooled Variance	660 9777778	
Hypothesized Me	0	
df	9	
t	1 233309521	
P(T<=t) one-tail	0 124349795	
t Critical one-tail	1.833113856	
P(T<=t) two-tail	0.248699589	
t Critical two-tail	2.262158887	

t-Test: Two-Sample Assuming Equal Varian

	Variable 1	Variable 2
Mean	328	411.8333
Variance	1581.5	3754.567
Observati	5	6
Pooled Va	2779.87	
Hypothesi	0	
df	9	
t	-2.59452	
P(T<=t) o	0.014499	
t Critical o	1.833114	
P(T<=t) tw	0.028998	
t Critical t	2.262159	

	vi
f1	71
f2	77
f3	86
f4	106
f5	90
f6	84
f7	82
f8	88
f9	82
f10	89
nc1	89
nc2	98
nc3	109
nc4	111
nc5	106
nc6	101
nc7	91
nc8	111
nc9	115
nc10	138

es

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	85.5	106.9
Variance	85.38889	195.4333
Observati	10	10
Pooled Va	140.4111	
Hypothesi	0	
df	18	
t	-4.03829	
P(T<=t) o	0.000386	
t Critical o	1.734063	
P(T<=t) tw	0.000771	
t Critical t	2.100924	

	mg
f1	745
f2	781
f3	621
f4	626
f5	509
nc1	806
nc2	782
nc3	773
nc4	605
nc5	679
nc6	917

	vl
f1	981
f2	986
f3	1159
f4	924
f5	807
nc1	1237
nc2	1026
nc3	1056
nc4	1128
nc5	1149
nc6	1342

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	656.4	760.3333
Variance	11819.8	11600.67
Observati	5	6
Pooled Va	11698.06	
Hypothesi	0	
df	9	
t	-1.58695	
P(T<=t) o	0.073493	
t Critical o	1.833114	
P(T<=t) tw	0.146987	
t Critical t	2.262159	

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	971.4	1156.333
Variance	16193.3	13777.87
Observati	5	6
Pooled Va	14851.39	
Hypothesi	0	
df	9	
t	-2.50609	
P(T<=t) o	0.016763	
t Critical o	1.833114	
P(T<=t) tw	0.033525	
t Critical t	2.262159	

	soleus_		vi
f1-i	86	f1	71
f2-r	105	f2	77
f3	101	f3	86
f4	112	f4	106
f5	91	f5	90
f6	107	f6	84
f7	96	f7	82
f8	107	f8	88
f9	78	f9	82
f10	72	f10	89
nc1	142	nc1	89
nc2	149	nc2	98
nc3	114	nc3	109
nc4	112	nc4	111
nc5	118	nc5	106
nc6	122	nc6	86
nc7	118	nc7	101
nc8	118	nc8	91
nc9	135	nc9	111
nc10	145	nc10	115
nc11	139	nc11	91
nc12	153	nc12	138

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	95.3	130.4167
Variance	188.9	221.7197
Observations	10	12
Pooled Variance	206.9508333	
Hypothesized Me	0	
df	20	
t	-5.701104191	
P(T<=t) one-tail	7.01672E-06	
t Critical one-tail	1.724718004	
P(T<=t) two-tail	1.40334E-05	
t Critical two-tail	2.085962478	

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	85.5	103.8333
Variance	85.38889	212.3333
Observati	10	12
Pooled Va	155.2083	
Hypothesi	0	
df	20	
t	-3.43687	
P(T<=t) o	0.001305	
t Critical o	1.724718	
P(T<=t) tw	0.00261	
t Critical t	2.085962	

	1a
I1	630
I2	740
I3	680
I4	664
I5	482
nc1	617
nc2	632
nc3	592
nc4	593
nc5	651
nc6	684

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	639.2	628.1667
Variance	9309.2	1264.567
Observati	5	6
Pooled Va	4839.959	
Hypothesi	0	
df	9	
t	0.261909	
P(T<=t) o	0.399644	
t Critical o	1.833114	
P(T<=t) tw	0.799287	
t Critical t	2.262159	

THE FOLLOWING RESULTS ARE FOR:
MUSCLE = 1.000
GROUP 1.000

TOTAL OBSERVATIONS: 6

	MUSCLE	GROUP	ANWT	MWT	MGPERG
N OF CASES	6	6	6	6	6
MINIMUM	1.000	1.000	277.000	114.000	0.339
MAXIMUM	1.000	1.000	366.000	142.000	0.430
RANGE	0.000	0.000	89.000	28.000	0.091
MEAN	1.000	1.000	321.000	127.667	0.399
VARIANCE	0.000	0.000	1000.000	152.267	0.001
STANDARD DEV	0.000	0.000	31.623	12.340	0.035
STD. ERROR	0.000	0.000	12.910	5.038	0.014
SKEWNESS(G1)	0.000	0.000	-0.067	0.051	-0.867
KURTOSIS(G2)	0.000	0.000	-0.975	-1.820	-0.583
SUM	6.000	6.000	1926.000	766.000	2.395
C.V.	0.000	0.000	0.099	0.097	0.087

THE FOLLOWING RESULTS ARE FOR:
MUSCLE 1.000
GROUP = 2.000

TOTAL OBSERVATIONS: 5

	MUSCLE	GROUP	ANWT	MWT	MGPERG
N OF CASES	5	5	5	5	5
MINIMUM	1.000	2.000	314.000	76.000	0.242
MAXIMUM	1.000	2.000	352.000	101.000	0.295
RANGE	0.000	0.000	38.000	25.000	0.053
MEAN	1.000	2.000	340.200	90.000	0.264
VARIANCE	0.000	0.000	237.200	92.500	0.000
STANDARD DEV	0.000	0.000	15.401	9.618	0.021
STD. ERROR	0.000	0.000	6.888	4.301	0.009
SKEWNESS(G1)	0.000	0.000	-1.153	-0.396	0.553
KURTOSIS(G2)	0.000	0.000	-0.200	-1.005	-0.993
SUM	5.000	10.000	1701.000	450.000	1.321
C.V.	0.000	0.000	0.045	0.107	0.079

THE FOLLOWING RESULTS ARE FOR:

MUSCLE = 2.000
GROUP = 1.000

TOTAL OBSERVATIONS: 6

	MUSCLE	GROUP	ANWT	MWT	MGPERG
N OF CASES	6	6	6	6	6
MINIMUM	2.000	1.000	277.000	89.000	0.249
MAXIMUM	2.000	1.000	366.000	111.000	0.365
RANGE	0.000	0.000	89.000	22.000	0.116
MEAN	2.000	1.000	321.000	101.167	0.319
VARIANCE	0.000	0.000	1000.000	86.567	0.002
STANDARD DEV	0.000	0.000	31.623	9.304	0.049
STD. ERROR	0.000	0.000	12.910	3.798	0.020
SKEWNESS(G1)	0.000	0.000	-0.067	-0.356	-0.518
KURTOSIS(G2)	0.000	0.000	-0.975	-1.519	-1.385
SUM	12.000	6.000	1926.000	607.000	1.912
C.V.	0.000	0.000	0.099	0.092	0.153

THE FOLLOWING RESULTS ARE FOR:

MUSCLE = 2.000
GROUP = 2.000

TOTAL OBSERVATIONS: 5

	MUSCLE	GROUP	ANWT	MWT	MGPERG
N OF CASES	5	5	5	5	5
MINIMUM	2.000	2.000	314.000	71.000	0.208
MAXIMUM	2.000	2.000	352.000	90.000	0.261
RANGE	0.000	0.000	38.000	19.000	0.054
MEAN	2.000	2.000	340.200	82.200	0.242
VARIANCE	0.000	0.000	237.200	50.200	0.000
STANDARD DEV	0.000	0.000	15.401	7.085	0.022
STD. ERROR	0.000	0.000	6.888	3.169	0.010
SKEWNESS(G1)	0.000	0.000	-1.153	-0.688	-0.820
KURTOSIS(G2)	0.000	0.000	-0.200	-0.564	-0.817
SUM	10.000	10.000	1701.000	411.000	1.210
C.V.	0.000	0.000	0.045	0.086	0.090

THE FOLLOWING RESULTS ARE FOR:
MUSCLE = 3.000
GROUP = 1.000

TOTAL OBSERVATIONS: 6

	MUSCLE	GROUP	ANWT	MWT	MGPERG
N OF CASES	6	6	6	6	6
MINIMUM	3.000	1.000	277.000	328.000	1.158
MAXIMUM	3.000	1.000	366.000	513.000	1.402
RANGE	0.000	0.000	89.000	185.000	0.244
MEAN	3.000	1.000	321.000	411.833	1.279
VARIANCE	0.000	0.000	1000.000	3754.567	0.009
STANDARD DEV	0.000	0.000	31.623	61.275	0.094
STD. ERROR	0.000	0.000	12.910	25.015	0.038
SKEWNESS(G1)	0.000	0.000	-0.067	0.422	-0.151
KURTOSIS(G2)	0.000	0.000	-0.975	-0.362	-1.340
SUM	18.000	6.000	1926.000	2471.000	7.677
C.V.	0.000	0.000	0.099	0.149	0.073

THE FOLLOWING RESULTS ARE FOR:
MUSCLE = 3.000
GROUP = 2.000

TOTAL OBSERVATIONS: 5

	MUSCLE	GROUP	ANWT	MWT	MGPERG
N OF CASES	5	5	5	5	5
MINIMUM	3.000	2.000	314.000	265.000	0.844
MAXIMUM	3.000	2.000	352.000	370.000	1.082
RANGE	0.000	0.000	38.000	105.000	0.238
MEAN	3.000	2.000	340.200	329.000	0.965
VARIANCE	0.000	0.000	237.200	1561.500	0.008
STANDARD DEV	0.000	0.000	15.401	39.516	0.089
STD. ERROR	0.000	0.000	6.888	17.672	0.040
SKEWNESS(G1)	0.000	0.000	-1.153	-0.846	-0.099
KURTOSIS(G2)	0.000	0.000	-0.200	-0.474	-0.972
SUM	15.000	10.000	1701.000	1645.000	4.826
C.V.	0.000	0.000	0.045	0.120	0.092

THE FOLLOWING RESULTS ARE FOR:
MUSCLE = 4.000
GROUP = 1.000

TOTAL OBSERVATIONS: 6

	MUSCLE	GROUP	ANWT	MWT	MGPERG
N OF CASES	6	6	6	6	6
MINIMUM	4.000	1.000	277.000	592.000	1.869
MAXIMUM	4.000	1.000	366.000	684.000	2.141
RANGE	0.000	0.000	89.000	92.000	0.272
MEAN	4.000	1.000	321.000	628.167	1.965
VARIANCE	0.000	0.000	1000.000	1264.567	0.012
STANDARD DEV	0.000	0.000	31.623	35.561	0.111
STD. ERROR	0.000	0.000	12.910	14.518	0.045
SKEWNESS(G1)	0.000	0.000	-0.067	0.457	0.541
KURTOSIS(G2)	0.000	0.000	-0.975	-1.012	-1.100
SUM	24.000	6.000	1926.000	3769.000	11.789
C.V.	0.000	0.000	0.099	0.057	0.056

THE FOLLOWING RESULTS ARE FOR:
MUSCLE = 4.000
GROUP = 2.000

TOTAL OBSERVATIONS: 5

	MUSCLE	GROUP	ANWT	MWT	MGPERG
N OF CASES	5	5	5	5	5
MINIMUM	4.000	2.000	314.000	482.000	1.535
MAXIMUM	4.000	2.000	352.000	740.000	2.164
RANGE	0.000	0.000	38.000	258.000	0.629
MEAN	4.000	2.000	340.200	639.200	1.873
VARIANCE	0.000	0.000	237.200	9309.200	0.051
STANDARD DEV	0.000	0.000	15.401	96.484	0.226
STD. ERROR	0.000	0.000	6.888	43.149	0.101
SKEWNESS(G1)	0.000	0.000	-1.153	-0.865	-0.336
KURTOSIS(G2)	0.000	0.000	-0.200	-0.414	-0.562
SUM	20.000	10.000	1701.000	3196.000	9.364
C.V.	0.000	0.000	0.045	0.151	0.120

TOTAL OBSERVATIONS: 11

INDEPENDENT SAMPLES T-TEST ON MGPERG GROUPED BY GROUP

GROUP	N	MEAN	SD
1.000	6	0.399	0.035
2.000	5	0.264	0.021

SEPARATE VARIANCES T = 7.961 DF 8.3 PROB = .000
POOLED VARIANCES T = 7.595 DF = 9 PROB = .000

INDEPENDENT SAMPLES T-TEST ON MGPERG GROUPED BY GROUP

GROUP	N	MEAN	SD
1.000	6	0.319	0.049
2.000	5	0.242	0.022

SEPARATE VARIANCES T = 3.468 DF = 7.2 PROB = .010
POOLED VARIANCES T = 3.244 DF = 9 PROB = .010

INDEPENDENT SAMPLES T-TEST ON MGPERG GROUPED BY GROUP

GROUP	N	MEAN	SD
1.000	6	1.279	0.094
2.000	5	0.965	0.089

SEPARATE VARIANCES T = 5.685 DF = 8.8 PROB = .000
POOLED VARIANCES T = 5.654 DF 9 PROB = .000

INDEPENDENT SAMPLES T-TEST ON MGPERG GROUPED BY GROUP

GROUP	N	MEAN	SD
1.000	6	1.965	0.111
2.000	5	1.873	0.226

INDEPENDENT SAMPLES T-TEST ON MWT GROUPED BY GROUP

GROUP	N	MEAN	SD
1.000	6	127.667	12.340
2.000	5	90.000	9.618

SEPARATE VARIANCES T = 5.686 DF = 9.0 PROB = .000
POOLED VARIANCES T = 5.548 DF 9 PROB = .000

INDEPENDENT SAMPLES T-TEST ON MWT GROUPED BY GROUP

GROUP	N	MEAN	SD
1.000	6	101.167	9.304
2.000	5	82.200	7.085

SEPARATE VARIANCES T = 3.834 DF = 9.0 PROB .004
POOLED VARIANCES T = 3.733 DF = 9 PROB = .005

INDEPENDENT SAMPLES T-TEST ON MWT GROUPED BY GROUP

GROUP	N	MEAN	SD
1.000	6	411.833	61.275
2.000	5	329.000	39.516

SEPARATE VARIANCES T = 2.705 DF = 8.6 PROB .025
POOLED VARIANCES T 2.595 DF = 9 PROB = .029

muscle

Muscle 1

INDEPENDENT SAMPLES T-TEST ON MWT GROUPED BY GROUP

GROUP	N	MEAN	SD
1.000	6	127.667 ✓	12.340 ✓
2.000	5	90.000 ✓	9.618 ✓

SEPARATE VARIANCES T = 5.686 DF = 9.0 PROB = .000
POOLED VARIANCES T = 5.548 DF = 9 PROB = .000

Muscle 2

muscle 2

INDEPENDENT SAMPLES T-TEST ON MWT GROUPED BY GROUP

GROUP	N	MEAN	SD
1.000	6	101.167 ✓	9.304 ✓
2.000	5	82.200 ✓	7.085 ✓

SEPARATE VARIANCES T = 3.834 DF = 9.0 PROB = .004
POOLED VARIANCES T = 3.733 DF = 9 PROB = .005

Muscle 3

muscle 3

INDEPENDENT SAMPLES T-TEST ON MWT GROUPED BY GROUP

GROUP	N	MEAN	SD
1.000	6	411.833 ✓	61.275 ✓
2.000	5	329.000 ✓	39.516 ✓

SEPARATE VARIANCES T = 2.705 DF = 8.6 PROB = .025
POOLED VARIANCES T = 2.595 DF = 9 PROB = .029

Muscle 4
Omit because too little
difference between mean values.

muscle 4
Omit because too little
difference betw $\bar{X}$ values.