```
GLM Baseline Sixweeks Followup BY Treatment
  /WSFACTOR=Time 3 Polynomial
  /MEASURE=Symptoms
  /METHOD=SSTYPE(3)
  /POSTHOC=Treatment(TUKEY)
  /PLOT=PROFILE(Time*Treatment) TYPE=LINE ERRORBAR=NO MEANREFERENCE=NO YAXIS=AUTO
  /EMMEANS=TABLES(Time) COMPARE ADJ(LSD)
  /PRINT=DESCRIPTIVE ETASQ OPOWER HOMOGENEITY
  /CRITERIA=ALPHA(.05)
  /WSDESIGN=Time
  /DESIGN=Treatment.
```

General Linear Model

Table 25-7 Two-Way Mixed ANOVA: Symptom Improvement over Time With and Without Exercise

Within-Subjects Factors

Measure: Symptoms

Time	Dependent Variable
1	Baseline
2	Sixweeks
3	Followup

Between-Subjects Factors

		Value Label	N
Treatment	1	Aerobic	8
	2	Stretch	8
	3	Control	8

Descriptive Statistics

	Treatment	Mean	Std. Deviation	N
Baseline	Aerobic	23.6250	9.28805	8
	Stretch	20.0000	4.89898	8
	Control	17.3750	10.84880	8
	Total	20.3333	8.73109	24
Sixweeks	Aerobic	30.8750	8.04341	8
	Stretch	26.2500	7.18630	8
	Control	28.1250	10.98619	8
	Total	28.4167	8.71239	24
Followup	Aerobic	45.3750	8.14051	8
	Stretch	33.8750	8.62616	8
	Control	30.2500	11.56040	8
	Total	36.5000	11.26364	24

Box's Test of Equality of Covariance Matrices[a]

Box's M	36.650
F	2.407
df1	12
df2	2137.154
Sig.	.004

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.[a]

a. Design: Intercept + Treatment
Within Subjects Design: Time

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[d]
Time	Pillai's Trace	.788	37.221[b]	2.000	20.000	.000	.788	74.443	1.000
	Wilks' Lambda	.212	37.221[b]	2.000	20.000	.000	.788	74.443	1.000
	Hotelling's Trace	3.722	37.221[b]	2.000	20.000	.000	.788	74.443	1.000
	Roy's Largest Root	3.722	37.221[b]	2.000	20.000	.000	.788	74.443	1.000
Time * Treatment	Pillai's Trace	.308	1.909	4.000	42.000	.127	.154	7.636	.529
	Wilks' Lambda	.702	1.932[b]	4.000	40.000	.124	.162	7.728	.532
	Hotelling's Trace	.409	1.945	4.000	38.000	.123	.170	7.779	.532
	Roy's Largest Root	.371	3.894[c]	2.000	21.000	.036	.271	7.788	.638

a. Design: Intercept + Treatment
Within Subjects Design: Time
b. Exact statistic
c. The statistic is an upper bound on F that yields a lower bound on the significance level.
d. Computed using alpha = .05

Mauchly's Test of Sphericity[a]

Measure: Symptoms					Epsilon[b]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.		1.000	.500
Time	.989	.224	2	.894	.989		

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.[a]

a. Design: Intercept + Treatment
Within Subjects Design: Time
b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: Symptoms

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Time	Sphericity Assumed	3136.333	2	1568.167	.000	.658	80.640	1.000	
	Greenhouse-Geisser	3136.333	1.978	1585.598	.000	.658	79.754	1.000	
	Huynh-Feldt	3136.333	2.000	1568.167	.000	.658	80.640	1.000	
	Lower-bound	3136.333	1.000	3136.333	.000	.658	40.320	1.000	
Time * Treatment	Sphericity Assumed	360.833	4	90.208	.073	.181	9.278	.623	
	Greenhouse-Geisser	360.833	3.956	91.211	.073	.181	9.176	.619	
	Huynh-Feldt	360.833	4.000	90.208	.073	.181	9.278	.623	
	Lower-bound	360.833	2.000	180.417	.123	.181	4.639	.417	
Error(Time)	Sphericity Assumed	1633.500	42	38.893					
	Greenhouse-Geisser	1633.500	41.538	39.325					
	Huynh-Feldt	1633.500	42.000	38.893					
	Lower-bound	1633.500	21.000	77.786					

a. Computed using alpha = .05

Tests of Within-Subjects Contrasts

Measure: Symptoms

Source	Time	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Time	Linear	3136.333	1	3136.333	77.429	.000	.787	77.429	1.000
	Quadratic	.000	1	.000	.000	1.000	.000	.000	.050
Time * Treatment	Linear	189.042	2	94.521	2.334	.122	.182	4.667	.419
	Quadratic	171.792	2	85.896	2.304	.125	.180	4.608	.415
Error(Time)	Linear	850.625	21	40.506					
	Quadratic	782.875	21	37.280					

a. Computed using alpha = .05

Levene's Test of Equality of Error Variances[a]

		Levene Statistic	df1	df2	Sig.
Baseline	Based on Mean	2.601	2	21	.098
	Based on Median	1.314	2	21	.290
	Based on Median and with adjusted df	1.314	2	15.240	.298
	Based on trimmed mean	2.365	2	21	.119
Sixweeks	Based on Mean	.471	2	21	.631
	Based on Median	.231	2	21	.796

	Based on Median and with adjusted df	.231	2	14.479	.797
	Based on trimmed mean	.362	2	21	.701
Followup	Based on Mean	.682	2	21	.516
	Based on Median	.289	2	21	.752
	Based on Median and with adjusted df	.289	2	17.576	.753
	Based on trimmed mean	.603	2	21	.556

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.[a]

a. Design: Intercept + Treatment

Within Subjects Design: Time

Tests of Between-Subjects Effects

Measure: Symptoms

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Intercept	58140.500	1	58140.500	344.731	.000	.943	344.731	1.000
Treatment	881.083	2	440.542	2.612	.097	.199	5.224	.463
Error	3541.750	21	168.655					

a. Computed using alpha = .05

Estimated Marginal Means

Time

Estimates

Measure: Symptoms

Time	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	20.333	1.779	16.633	24.034
2	28.417	1.814	24.643	32.190
3	36.500	1.952	32.441	40.559

Pairwise Comparisons

Measure: Symptoms

(I) Time	(J) Time	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b] Lower Bound	Upper Bound
1	2	-8.083*	1.703	.000	-11.626	-4.541
	3	-16.167*	1.837	.000	-19.987	-12.346
2	1	8.083*	1.703	.000	4.541	11.626
	3	-8.083*	1.856	.000	-11.944	-4.223
3	1	16.167*	1.837	.000	12.346	19.987
	2	8.083*	1.856	.000	4.223	11.944

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Pillai's trace	.788	37.221[a]	2.000	20.000	.000	.788	74.443	1.000
Wilks' lambda	.212	37.221[a]	2.000	20.000	.000	.788	74.443	1.000
Hotelling's trace	3.722	37.221[a]	2.000	20.000	.000	.788	74.443	1.000
Roy's largest root	3.722	37.221[a]	2.000	20.000	.000	.788	74.443	1.000

Each F tests the multivariate effect of Time. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Exact statistic

b. Computed using alpha = .05

Post Hoc Tests

Treatment

Multiple Comparisons

Measure: Symptoms

Tukey HSD

(I) Treatment	(J) Treatment	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Aerobic	Stretch	6.5833	3.74894	.209	-2.8661	16.0328
	Control	8.0417	3.74894	.105	-1.4078	17.4911
Stretch	Aerobic	-6.5833	3.74894	.209	-16.0328	2.8661
	Control	1.4583	3.74894	.920	-7.9911	10.9078
Control	Aerobic	-8.0417	3.74894	.105	-17.4911	1.4078
	Stretch	-1.4583	3.74894	.920	-10.9078	7.9911

Based on observed means.

The error term is Mean Square(Error) = 56.218.

Homogeneous Subsets

Symptoms

Tukey HSD[a,b]

Treatment	N	Subset 1
Control	8	25.2500
Stretch	8	26.7083
Aerobic	8	33.2917
Sig.		.105

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 56.218.

a. Uses Harmonic Mean Sample Size = 8.000.

b. Alpha = .05.

Profile Plots