The GLM Procedure

Class Level Information		
Class	Levels	Values
Treatment	2	Control Treated
Memory	2	Long Short
Week	5	2 4 8 12 16

Number of Observations Read	90
Number of Observations Used	90

The GLM Procedure

Dependent Variable: NewPerCorrect

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	9	3184.90079	353.87787	2.04	0.0454
Error	80	13887.30031	173.59125		
Corrected Total	89	17072.20110			

R-Square	Coeff Var	Root MSE	NewPerCorrect Mean
0.186555	19.13995	13.17540	68.83717

Source	DF	Type I SS	Mean Square	F Value	Pr > F
Treatment	1	1004.887789	1004.887789	5.79	0.0184
Week	4	174.238019	43.559505	0.25	0.9083
Treatment*Week	4	2005.774978	501.443745	2.89	0.0274

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Treatment	1	1004.887789	1004.887789	5.79	0.0184
Week	4	456.139893	114.034973	0.66	0.6237
Treatment*Week	4	2005.774978	501.443745	2.89	0.0274

Parameter	Estimate	Standard Error	t Value	Pr > |t|
Contrast: (ControlWeek2+ControlWeek4)/2 vs (TreatedWeek2 + TreatedWeek4)/2	-16.6690385	4.50442969	-3.70	0.0004

Interaction Plot for NewPerCorrect
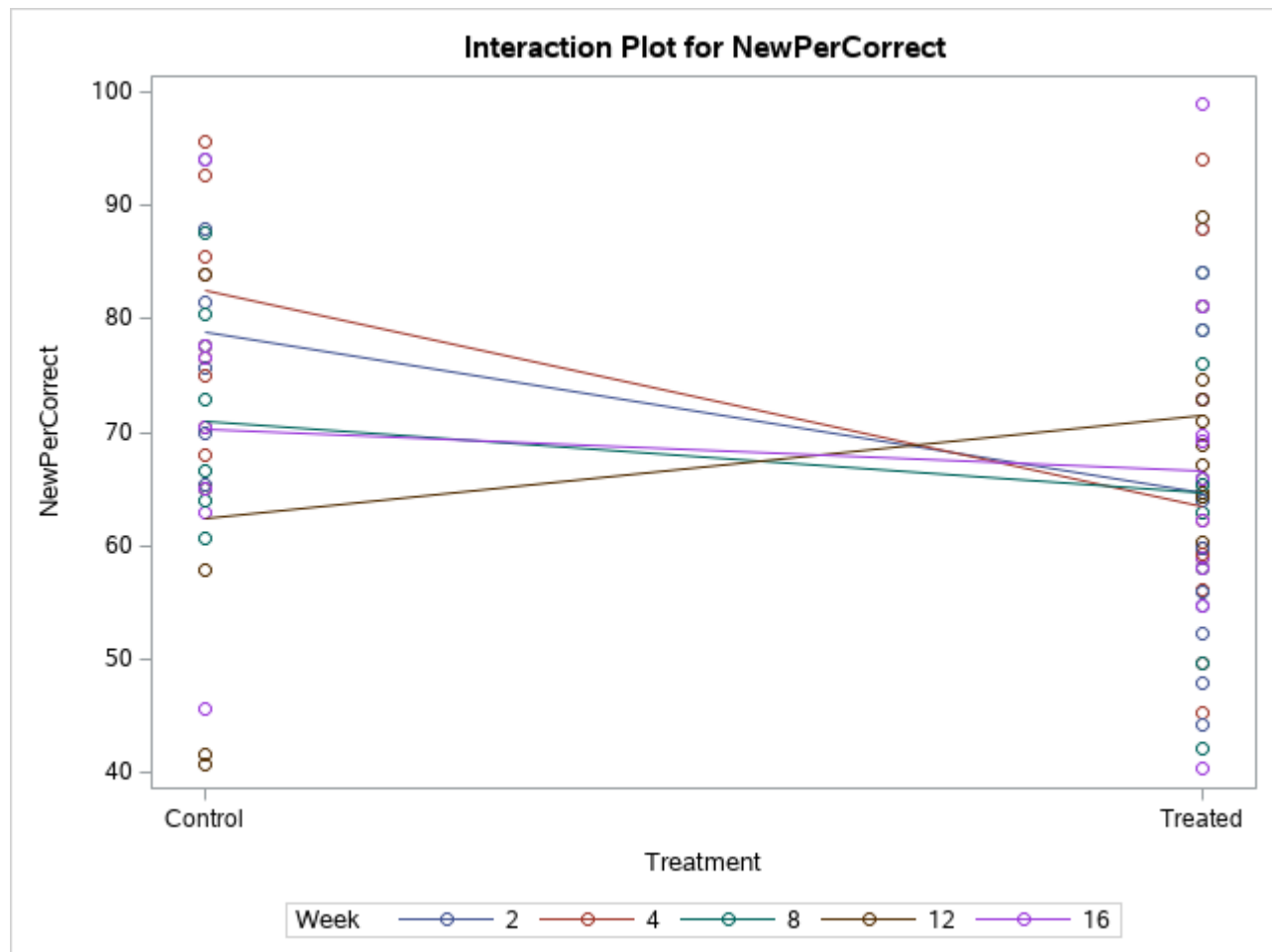
The GLM Procedure
Least Squares Means
Adjustment for Multiple Comparisons: Tukey-Kramer

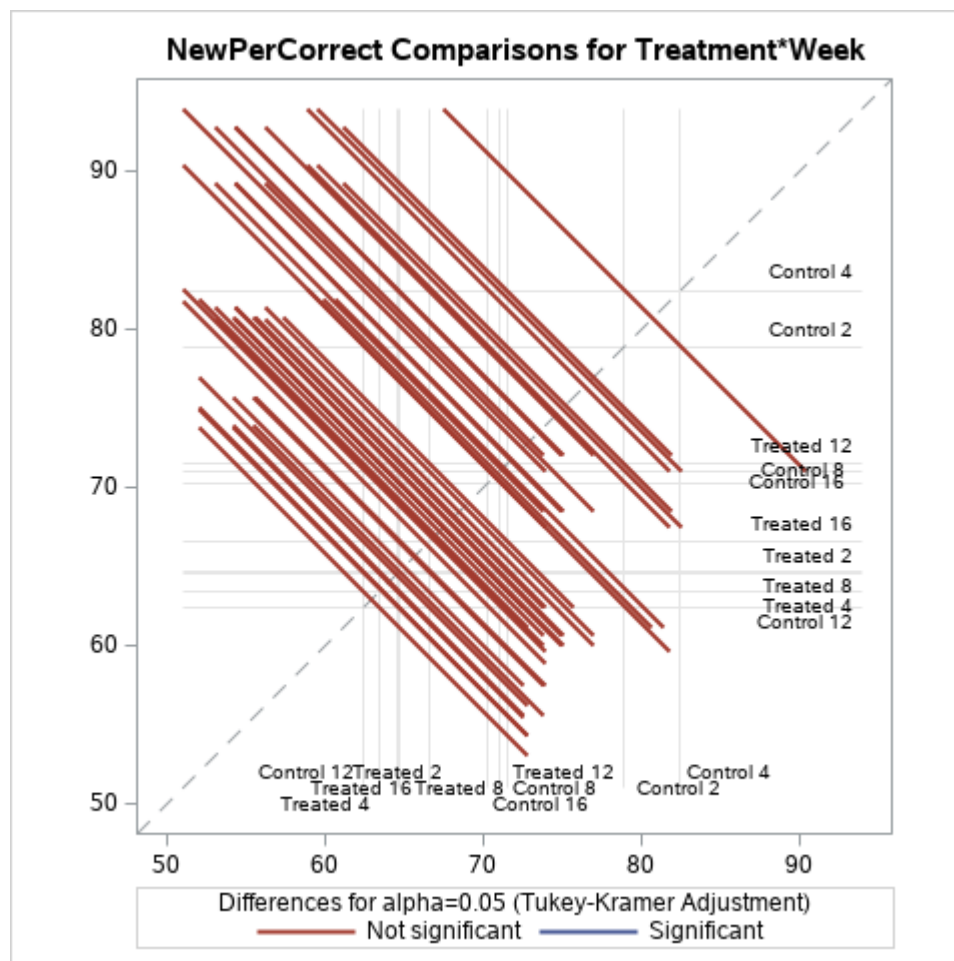| Treatment	Week	NewPerCorrect LSMEAN	LSMEAN Number
Control	2	78.8830711	1
Control	4	82.4544997	2
Control	8	71.0259283	3
Control	12	62.4544997	4
Control	16	70.3116426	5
Treated	2	64.6224100	6
Treated	4	63.3770838	7
Treated	8	64.7407202	8
Treated	12	71.5589020	9
Treated	16	66.5589020	10

Least Squares Means for Effect Treatment*Week
t for H0: LSMean(i)=LSMean(j) / Pr > |t|

Dependent Variable: NewPerCorrect

i/j	1	2	3	4	5	6	7	8	9	10
1		-0.50712 1.0000	1.115667 0.9817	2.332759 0.3802	1.217092 0.9675	2.238643 0.4399	2.434135 0.3203	2.220071 0.4521	1.14975 0.9776	1.934652 0.6459
2	0.507122 1.0000		1.622789 0.8331	2.839881 0.1410	1.724213 0.7785	2.799287 0.1545	2.994779 0.0978	2.780715 0.1610	1.710394 0.7863	2.495296 0.2869
3	-1.11567 0.9817	-1.62279 0.8331		1.217092 0.9675	0.101424 1.0000	1.005226 0.9911	1.200718 0.9702	0.986654 0.9923	-0.08367 1.0000	0.701235 0.9994

	Least Squares Means for Effect Treatment*Week t for H0: LSMean(i)=LSMean(j) / Pr > |t| Dependent Variable: NewPerCorrect									
i/j	1	2	3	4	5	6	7	8	9	10
4	-2.33276 0.3802	-2.83988 0.1410	-1.21709 0.9675		-1.11567 0.9817	-0.34032 1.0000	-0.14483 1.0000	-0.35889 1.0000	-1.42921 0.9143	-0.64431 0.9997
5	-1.21709 0.9675	-1.72421 0.7785	-0.10142 1.0000	1.115667 0.9817		0.893098 0.9963	1.088589 0.9845	0.874525 0.9968	-0.1958 1.0000	0.589106 0.9999
6	-2.23864 0.4399	-2.79929 0.1545	-1.00523 0.9911	0.340319 1.0000	-0.8931 0.9963		0.221667 1.0000	-0.02106 1.0000	-1.23469 0.9643	-0.34469 1.0000
7	-2.43413 0.3203	-2.99478 0.0978	-1.20072 0.9702	0.144828 1.0000	-1.08859 0.9845	-0.22167 1.0000		-0.24273 1.0000	-1.45635 0.9048	-0.56636 0.9999
8	-2.22007 0.4521	-2.78071 0.1610	-0.98665 0.9923	0.358892 1.0000	-0.87453 0.9968	0.021059 1.0000	0.242726 1.0000		-1.21363 0.9681	-0.32363 1.0000
9	-1.14975 0.9776	-1.71039 0.7863	0.083666 1.0000	1.429212 0.9143	0.195795 1.0000	1.234688 0.9643	1.456355 0.9048	1.213629 0.9681		0.889995 0.9964
10	-1.93465 0.6459	-2.4953 0.2869	-0.70124 0.9994	0.64431 0.9997	-0.58911 0.9999	0.344694 1.0000	0.56636 0.9999	0.323634 1.0000	-0.88999 0.9964	
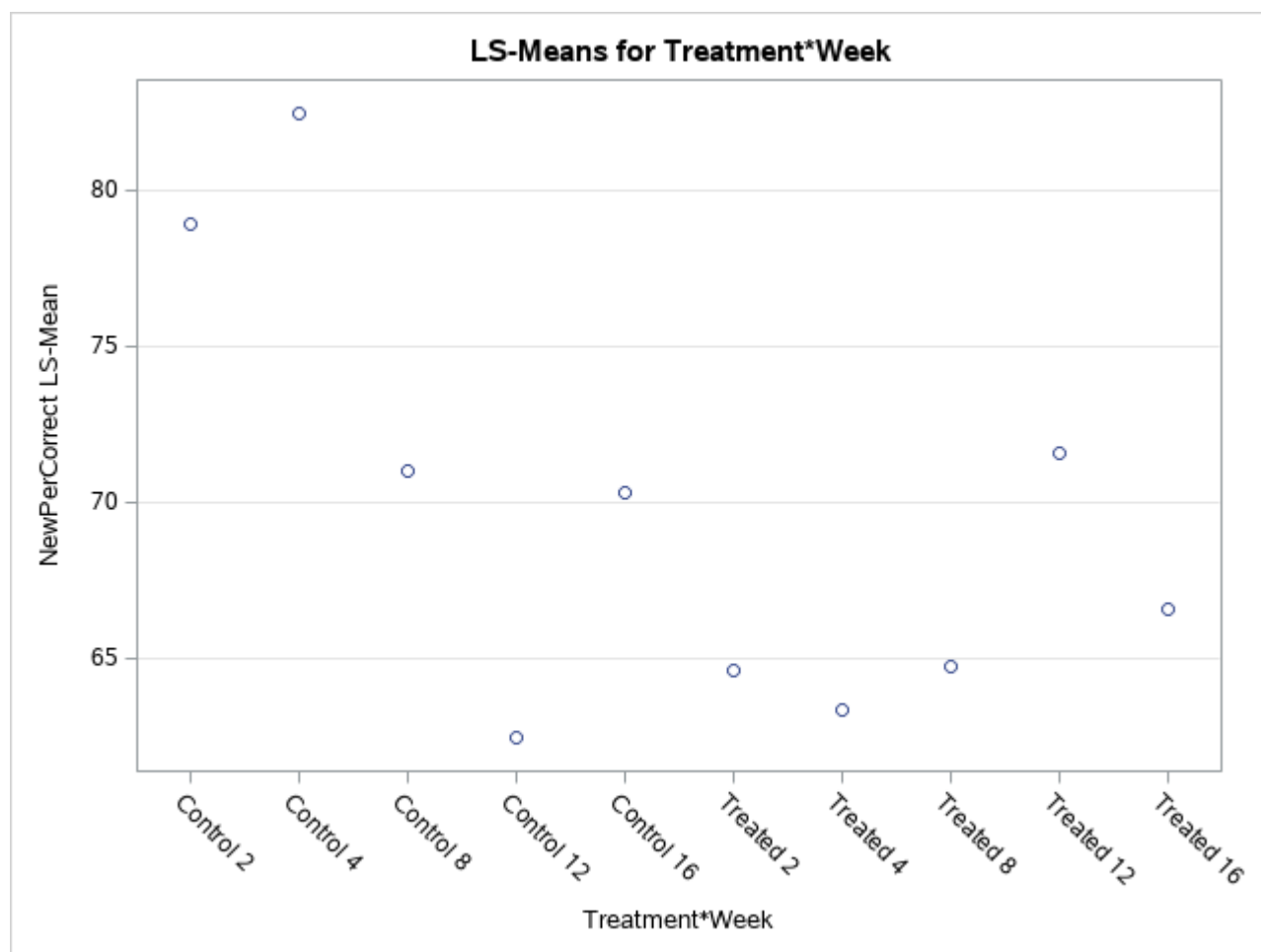
LS-Means for Treatment*Week

NewPerCorrect Comparisons for Treatment*Week

Differences for alpha=0.05 (Tukey-Kramer Adjustment)
—— Not significant   —— Significant

The Mixed Procedure

Model Information	
Data Set	WORK.MONKEY
Dependent Variable	NewPerCorrect
Covariance Structure	Compound Symmetry
Subject Effect	Monkey
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Between-Within

Class Level Information		
Class	**Levels**	**Values**
Treatment	2	Control Treated
Memory	2	Long Short
Monkey	18	Alf Allen Andy Chak Chim Corne Dunca Edy Irv Jessi Joey Junio Just Phil Poe Poet Spank Sport
Week	5	2 4 8 12 16

Dimensions	
Covariance Parameters	2
Columns in X	18
Columns in Z	0

Dimensions	
Subjects	18
Max Obs per Subject	5

Number of Observations	
Number of Observations Read	90
Number of Observations Used	90
Number of Observations Not Used	0

Iteration History			
Iteration	Evaluations	-2 Res Log Like	Criterion
0	1	661.28546604	
1	1	646.68367788	0.00000000

Convergence criteria met.

Covariance Parameter Estimates		
Cov Parm	Subject	Estimate
CS	Monkey	63.2214
Residual		110.37

Fit Statistics	
-2 Res Log Likelihood	646.7
AIC (Smaller is Better)	650.7
AICC (Smaller is Better)	650.8
BIC (Smaller is Better)	652.5

Null Model Likelihood Ratio Test		
DF	Chi-Square	Pr > ChiSq
1	14.60	0.0001

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Treatment	1	16	2.36	0.1443
Week	4	64	1.03	0.3971
Treatment*Week	4	64	4.54	0.0027

Estimates					
Label	Estimate	Standard Error	DF	t Value	Pr > |t|
Contrast: (ControlWeek2+ControlWeek4)/2 vs (TreatedWeek2 + TreatedWeek4)/2	-16.6690	5.2611	64	-3.17	0.0024

Least Squares Means							
Effect	Treatment	Week	Estimate	Standard Error	DF	t Value	Pr > |t|
Treatment*Week	Control	2	78.8831	4.9798	64	15.84	<.0001
Treatment*Week	Control	4	82.4545	4.9798	64	16.56	<.0001
Treatment*Week	Control	8	71.0259	4.9798	64	14.26	<.0001
Treatment*Week	Control	12	62.4545	4.9798	64	12.54	<.0001
Treatment*Week	Control	16	70.3116	4.9798	64	14.12	<.0001
Treatment*Week	Treated	2	64.6224	3.9725	64	16.27	<.0001

Least Squares Means

Effect	Treatment	Week	Estimate	Standard Error	DF	t Value	Pr > |t|
Treatment*Week	Treated	4	63.3771	3.9725	64	15.95	<.0001
Treatment*Week	Treated	8	64.7407	3.9725	64	16.30	<.0001
Treatment*Week	Treated	12	71.5589	3.9725	64	18.01	<.0001
Treatment*Week	Treated	16	66.5589	3.9725	64	16.75	<.0001

Differences of Least Squares Means

Effect	Treatment	Week	_Treatment	_Week	Estimate	Standard Error	DF	t Value	Pr > |t|	Adjustment	Adj P
Treatment*Week	Control	2	Control	4	-3.5714	5.6155	64	-0.64	0.5271	Tukey-Kramer	0.9997
Treatment*Week	Control	2	Control	8	7.8571	5.6155	64	1.40	0.1666	Tukey-Kramer	0.9231
Treatment*Week	Control	2	Control	12	16.4286	5.6155	64	2.93	0.0048	Tukey-Kramer	0.1198
Treatment*Week	Control	2	Control	16	8.5714	5.6155	64	1.53	0.1318	Tukey-Kramer	0.8764
Treatment*Week	Control	2	Treated	2	14.2607	6.3702	64	2.24	0.0287	Tukey-Kramer	0.4423
Treatment*Week	Control	2	Treated	4	15.5060	6.3702	64	2.43	0.0177	Tukey-Kramer	0.3239
Treatment*Week	Control	2	Treated	8	14.1424	6.3702	64	2.22	0.0300	Tukey-Kramer	0.4543
Treatment*Week	Control	2	Treated	12	7.3242	6.3702	64	1.15	0.2545	Tukey-Kramer	0.9771
Treatment*Week	Control	2	Treated	16	12.3242	6.3702	64	1.93	0.0575	Tukey-Kramer	0.6461
Treatment*Week	Control	4	Control	8	11.4286	5.6155	64	2.04	0.0460	Tukey-Kramer	0.5783
Treatment*Week	Control	4	Control	12	20.0000	5.6155	64	3.56	0.0007	Tukey-Kramer	0.0228
Treatment*Week	Control	4	Control	16	12.1429	5.6155	64	2.16	0.0343	Tukey-Kramer	0.4924
Treatment*Week	Control	4	Treated	2	17.8321	6.3702	64	2.80	0.0068	Tukey-Kramer	0.1588
Treatment*Week	Control	4	Treated	4	19.0774	6.3702	64	2.99	0.0039	Tukey-Kramer	0.1018
Treatment*Week	Control	4	Treated	8	17.7138	6.3702	64	2.78	0.0071	Tukey-Kramer	0.1653
Treatment*Week	Control	4	Treated	12	10.8956	6.3702	64	1.71	0.0920	Tukey-Kramer	0.7855
Treatment*Week	Control	4	Treated	16	15.8956	6.3702	64	2.50	0.0152	Tukey-Kramer	0.2907
Treatment*Week	Control	8	Control	12	8.5714	5.6155	64	1.53	0.1318	Tukey-Kramer	0.8764
Treatment*Week	Control	8	Control	16	0.7143	5.6155	64	0.13	0.8992	Tukey-Kramer	1.0000
Treatment*Week	Control	8	Treated	2	6.4035	6.3702	64	1.01	0.3186	Tukey-Kramer	0.9909
Treatment*Week	Control	8	Treated	4	7.6488	6.3702	64	1.20	0.2343	Tukey-Kramer	0.9696
Treatment*Week	Control	8	Treated	8	6.2852	6.3702	64	0.99	0.3275	Tukey-Kramer	0.9921
Treatment*Week	Control	8	Treated	12	-0.5330	6.3702	64	-0.08	0.9336	Tukey-Kramer	1.0000
Treatment*Week	Control	8	Treated	16	4.4670	6.3702	64	0.70	0.4857	Tukey-Kramer	0.9994
Treatment*Week	Control	12	Control	16	-7.8571	5.6155	64	-1.40	0.1666	Tukey-Kramer	0.9231
Treatment*Week	Control	12	Treated	2	-2.1679	6.3702	64	-0.34	0.7347	Tukey-Kramer	1.0000
Treatment*Week	Control	12	Treated	4	-0.9226	6.3702	64	-0.14	0.8853	Tukey-Kramer	1.0000
Treatment*Week	Control	12	Treated	8	-2.2862	6.3702	64	-0.36	0.7209	Tukey-Kramer	1.0000
Treatment*Week	Control	12	Treated	12	-9.1044	6.3702	64	-1.43	0.1578	Tukey-Kramer	0.9133
Treatment*Week	Control	12	Treated	16	-4.1044	6.3702	64	-0.64	0.5217	Tukey-Kramer	0.9997
Treatment*Week	Control	16	Treated	2	5.6892	6.3702	64	0.89	0.3752	Tukey-Kramer	0.9962
Treatment*Week	Control	16	Treated	4	6.9346	6.3702	64	1.09	0.2804	Tukey-Kramer	0.9842
Treatment*Week	Control	16	Treated	8	5.5709	6.3702	64	0.87	0.3851	Tukey-Kramer	0.9967
Treatment*Week	Control	16	Treated	12	-1.2473	6.3702	64	-0.20	0.8454	Tukey-Kramer	1.0000
Treatment*Week	Control	16	Treated	16	3.7527	6.3702	64	0.59	0.5579	Tukey-Kramer	0.9999
Treatment*Week	Treated	2	Treated	4	1.2453	4.4796	64	0.28	0.7819	Tukey-Kramer	1.0000
Treatment*Week	Treated	2	Treated	8	-0.1183	4.4796	64	-0.03	0.9790	Tukey-Kramer	1.0000
Treatment*Week	Treated	2	Treated	12	-6.9365	4.4796	64	-1.55	0.1264	Tukey-Kramer	0.8670
Treatment*Week	Treated	2	Treated	16	-1.9365	4.4796	64	-0.43	0.6670	Tukey-Kramer	1.0000
Treatment*Week	Treated	4	Treated	8	-1.3636	4.4796	64	-0.30	0.7618	Tukey-Kramer	1.0000
Treatment*Week	Treated	4	Treated	12	-8.1818	4.4796	64	-1.83	0.0724	Tukey-Kramer	0.7163

Differences of Least Squares Means

Effect	Treatment	Week	_Treatment	_Week	Estimate	Standard Error	DF	t Value	Pr > |t|	Adjustment	Adj P
Treatment*Week	Treated	4	Treated	16	-3.1818	4.4796	64	-0.71	0.4801	Tukey-Kramer	0.9994
Treatment*Week	Treated	8	Treated	12	-6.8182	4.4796	64	-1.52	0.1329	Tukey-Kramer	0.8783
Treatment*Week	Treated	8	Treated	16	-1.8182	4.4796	64	-0.41	0.6862	Tukey-Kramer	1.0000
Treatment*Week	Treated	12	Treated	16	5.0000	4.4796	64	1.12	0.2685	Tukey-Kramer	0.9812

The Mixed Procedure

Model Information

Data Set	WORK.MONKEY
Dependent Variable	NewPerCorrect
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information

Class	Levels	Values
Treatment	2	Control Treated
Week	5	2 4 8 12 16

Dimensions

Covariance Parameters	1
Columns in X	18
Columns in Z	0
Subjects	1
Max Obs per Subject	90

Number of Observations

Number of Observations Read	90
Number of Observations Used	90
Number of Observations Not Used	0

Covariance Parameter Estimates

Cov Parm	Estimate
Residual	173.59

Fit Statistics

-2 Res Log Likelihood	661.3
AIC (Smaller is Better)	663.3
AICC (Smaller is Better)	663.3
BIC (Smaller is Better)	665.7

Type 3 Tests of Fixed Effects

Effect	Num DF	Den DF	F Value	Pr > F
Treatment	1	80	5.79	0.0184
Week	4	80	0.66	0.6237

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Treatment*Week	4	80	2.89	0.0274

Coefficients for Treatment*Week Least Squares Means													
Effect	Treatment	Week	Row1	Row2	Row3	Row4	Row5	Row6	Row7	Row8	Row9	Row10
Intercept			1	1	1	1	1	1	1	1	1	1
Treatment	Control		1	1	1	1	1					
Treatment	Treated							1	1	1	1	1
Week		2	1					1				
Week		4		1					1			
Week		8			1					1		
Week		12				1					1	
Week		16					1					1
Treatment*Week	Control	2	1									
Treatment*Week	Control	4		1								
Treatment*Week	Control	8			1							
Treatment*Week	Control	12				1						
Treatment*Week	Control	16					1					
Treatment*Week	Treated	2						1				
Treatment*Week	Treated	4							1			
Treatment*Week	Treated	8								1		
Treatment*Week	Treated	12									1	
Treatment*Week	Treated	16										1

Least Squares Means							
Effect	Treatment	Week	Estimate	Standard Error	DF	t Value	Pr > |t|
Treatment*Week	Control	2	78.8831	4.9798	80	15.84	<.0001
Treatment*Week	Control	4	82.4545	4.9798	80	16.56	<.0001
Treatment*Week	Control	8	71.0259	4.9798	80	14.26	<.0001
Treatment*Week	Control	12	62.4545	4.9798	80	12.54	<.0001
Treatment*Week	Control	16	70.3116	4.9798	80	14.12	<.0001
Treatment*Week	Treated	2	64.6224	3.9725	80	16.27	<.0001
Treatment*Week	Treated	4	63.3771	3.9725	80	15.95	<.0001
Treatment*Week	Treated	8	64.7407	3.9725	80	16.30	<.0001
Treatment*Week	Treated	12	71.5589	3.9725	80	18.01	<.0001
Treatment*Week	Treated	16	66.5589	3.9725	80	16.75	<.0001