**What is this test used for?**

The repeated measures ANOVA is used to determine whether the mean difference between 3 or more paired observations is significantly different from zero. The participants are either the same individuals tested on two or more occasions, or under two or more different conditions, on the same dependent variable.

H0: There are no differences between TIME1/CONDITION1, TIME2/CONDITION2, and TIME3/CONDITION3 on the dependent variable.

H1: There are differences between TIME1/CONDITION1, TIME2/CONDITION2, and TIME3/CONDITION3 on the dependent variable.

**Assumptions**

1. You have a continuous dependent variable; meaning, the dependent variable is measured at either the interval or ratio level.
2. Your independent variable is categorical with two or more related groups.
3. No significant outliers. Look at boxplot.
4. Dependent variable is normally distributed. Look at skewness and kurtosis statistics (are they not more than 1-2?). Look at normality tests (Shapiro-Wilk and Kolmogorov-Smirnox tests. If they are significant (*p* < .05), then you do not meet this assumption.
5. Variances of the differences between related groups are equal (the assumption of sphericity). Look at Mauchley’s Test of Sphericity. If significant (*p* < .05), then you can use the Greenhouse-Geisser correction.

**Interpretation**

1. Look at results of the omnibus test (the *F* statistic) and significance value (the *p* value).
   1. If the *p* value is less than your alpha level (normally .05), then you reject your null hypothesis. This gives you the ability to look at and interpret post hoc tests.
   2. If the *p* value is larger than your alpha level (normally .05), then you fail to reject (or you accept) your null hypothesis. If you fail to reject your null hypothesis, do not look at post hoc tests.
2. Look at the post hoc Tukey tests on the “Multiple Comparisons” results table. This table will tell you where there is a significant difference between the group means, if any exists.
   1. Look at the significance value comparing GROUP1 to GROUP2, GROUP1 to GROUP3, and GROUP2 to GROUP3. If the significance value is less than .05, there is a significant difference between those groups.
   2. Look at the confidence intervals for those comparisons as well. If the confidence interval includes zero, there is not a significant difference.

**Reporting**

A repeated measures ANOVA was used to determine whether there was a statistically significant mean difference between TIME1/CONDITION1, TIME2/CONDITION2, and TIME3/CONDITION3. No outliers were detected as assessed by boxplot. The assumption of normality was not violated, as assessed by Shapiro-Wilk's test (p > .05). TIME1/CONDITION1 scores on the DEPENDENT VARIABLE were higher/lower (M = ??, SD = ??) compared to TIME2/CONDITION2 (M = ??, SD = ??) and TIME3/CONDITION3 (M = ??, SD = ??), a statistically significant mean increase/decrease of ??, 95% CI [??, ??], F(df1, df2) = ??, p < .05.

**Effect Size Test**

Confidence Intervals