	Assessment	Difference	Pairing	Outcome - Dependent Variable		# Groups	N	Statistical Test	Assumptions			Alone
				Measurement Type	Distribution				Normal	Independent	Equal Variance	
Univariate 1 Predictor	Difference	Means	Not Matched	Continuous or Ordinal	Normal	2		Student's t-test	✓	✓	✓	Yes
						> 2		ANOVA (1-way)	✓	✓	✓	Yes
					Non-Normal	2		Mann-Whitney U (aka Wilcoxon rank sum)		✓	✓	Yes
						> 2		Kruskal-Wallis		✓	✓	Yes
			Matched	Continuous or Ordinal	Normal	2		Paired t-test	✓ Diff			Yes
						≥ 2	≥ 2 Times	Repeated Measures ANOVA (2-way)/ Mixed-Effects	✓		✓ Sphericity	Yes
					Non-Normal	2		Wilcoxon signed-rank test			~ dist of diff symmetrical	Yes
						> 2	>2 Times	Friedman ANOVA by ranks				No
		Proportions	Not Matched	Nominal		2	< 20	Fisher's exact test		✓		Yes
						≥ 2	≥ 20	Chi-square		✓		Yes
					Dichotomous	2	>2 Studies	Mantel-Haenszel, Cramer's V		✓	~ dist of studies equal	No
			Matched	Nominal	Dichotomous	2	2 Times	McNemar's test		✓		No
	Association/ Correlation		Indept/Dept Pairing	Continuous or Ordinal	Normal			Pearson's r	✓ Linear		✓	Yes
					Non-Normal			Spearman r_s	Linear			Yes
Multivariate 1 or > Predictors	Difference	No Time	Not Matched	Continuous or Ordinal	Normal	≥ 2		MANOVA	✓	✓	✓	No
		No Time	Not Matched	Nominal	Dichotomous	2	Rule of 10	Logistic Regression	Linear w/Log Odds	✓		No
					Categorical	>2	Rule of 10	Discriminant Function/ Logistic Regression	✓	✓	✓	No
				Ordinal	Ordinal	>2	Rule of 10	Ordinal Logistic Regression	Parallel Curves	✓		No
		Time	Not Matched	Nominal & Time	Censored	2	Rule of 10	Cox proportional hazards	Constant Relative Hazard	✓		No
	Association/ Correlation	No Time	Indept/Dept Pairing	Continuous or Ordinal	Normal		Rule of 10	linear regression	✓ Linear	✓ Variables	✓	No
	Either	Time or No Time	Matched or Repeated	Any				Mixed Models				No

Adapted from Daniel Byrne, "Publishing Your Medical Research Paper", Vanderbilt University Medical Center

*NOTE: Mann-Whitney is also called the Wilcoxon rank sum which is NOT the same as the Wilcoxon signed rank test

Definitions

Normal = Parametric Distribution = Bell Shape Curve

Non-Normal = Non-parametric =Skewed

Types of Variables

Continuous = Interval = Scale (Age, Weight, Blood Pressure, Blood Counts)

Ordinal = Categorical but Ordered (Tumor Stage, Obesity Scale, Severity of Disease, Intensity Scores)

Nominal = Categorical but NO Order (Gender, Race, Death, Presence of Disease, anything Yes/No)

Equivalents				
Normal	**Non-Normal**	**Matched Normal**	**Matched Non-Normal**	**Multivariable**
Student's t-test	Mann-Whitney	Paired t-test	Wilcoxon signed-rank	
ANOVA	Kruskal-Wallis	ANOVA (2-way)	Friedman ANOVA	MANOVA
Pearson's	Spearman			linear regression

Equivalents			
<5 per group	**≥ 5 per group**	**Multiple Studies**	**Comparison of Repeated Measure**
Fisher's exact	Chi-square	Mantel-Haenszel	McNemar's

Regression Summary - Outcome Type				
Continuous/Linear	**Dichotomous**	**Categorical**	**Ordinal**	**Dichotomous & Time**
Linear	Logistic	Discriminant Function	Ordinal Logistic	Cox Proportional