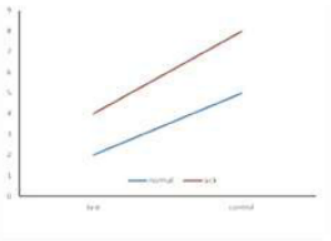
PHYL3004: PHYSIOLOGY OF INTEGRATED ORGAN SYSTEMS UNIT NOTES

Statistics

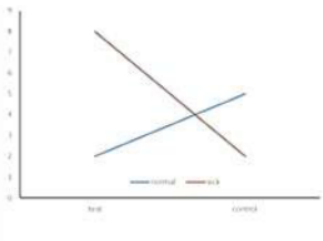
- Univariate data has one measured variable which has random variation
- Bivariate data has two measured variables
- Pearson correlation coefficient (r) is used to test for association
- Coefficient of determination (R^2) is how well the line fits the data

Interaction

- Was the effect for factor 2 the same for all levels of factor one
- If the test has the same effect on two groups, there is no interaction
    - Graphs will be parallel



No interaction, "test" has SAME effect on sick and normal



Interaction, "test" has DIFFERENT effect on sick and normal

Non-Parametric Statistics

- Mann-Whitney U-Test is equivalent to an unpaired t-test
- Wilcoxon signed-rank test is equivalent to a paired t-test
- Non-parametric tests do not assume normal distribution
    - Assumption that measurements are ordinal but not interval
    - Ignores how much bigger or smaller a value is and only looks at rank order

Non-Normal Data

- Normal distribution assumes that mean and median are the same
- Skew will show as different mean and median on frequency histogram
    - Kurtosis is when plot is too flat or pointy
- Same median and mean does not prove normality of data