Simple Method for Size Correcting Linear Measurement Data.

- The following is a protocol for allometric size correction based on Reist (1985) and can be performed in Excel and a simple statistics program like SPSS.

Procedure:

1. Open your data in Excel and transform all variables to be size adjusted to logarithms

2. Compute the mean body size (SL or centroid size) of all specimens in the study. Record.

3. Input your data to SPSS (or comparable program) and compute the slopes of the individual regressions of the log of each variable against log size for each sample in the study. So if you have five samples and two variables to be size adjusted, you should have 10 individual slopes, five for each variable. Record these individual slopes.

4. Compute the pooled within-groups slope, β, for each variable as the weighted average of the slopes of the individual regressions of log Y against log Size for each of the samples in the study, with the weights being the number of individuals per sample (n_i).

5. To size adjust each variable, use the equation

\[ \log_{\text{adj}} Y = \log Y_i - \beta (\log \text{Size}_i - \log \text{Size}_{\text{Gmn}}) \]

Where:

- \( \log_{\text{adj}} Y \) is the variable after size adjustment
- \( \log Y_i \) is the logarithm of the variable measure of the \( i^{\text{th}} \) specimen
- \( \beta \) is the pooled within-groups slope computed above for each variable
- \( \log \text{Size}_i \) is log of the size measure (SL or centroid size) of the \( i^{\text{th}} \) specimen
- \( \log \text{Size}_{\text{Gmn}} \) is the log of the grand mean size of all specimens included in the study (from point 2 above)

6. Repeat for each variable as needed. The data are now size-adjusted to the grand mean size of all specimens in the study. Size adjusted means and standard deviations can be computed for each sample and compared.