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Valid Statistical Approaches for Analyzing Sholl Data: Mixed Effects versus Simple Linear Models

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Highlights

- *In vivo* studies of dendritic morphology in which multiple neurons are sampled per animal often use a simple linear model to detect significant differences which can lead to faulty inference.
- Mixed models account for intra-class correlation that occurs with clustered data often generated in dendrite analysis to accurately estimate the standard deviation of the parameter estimate and, hence, produce accurate p-values.
- A mixed effects approach accurately models the true variability in data sets sampling multiple neurons per animal, such as Sholl analysis.

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