

BACKGROUND

My graduate research explores the factors that enabled humans to evolve large brains, despite the intense energetic demands of such brains. For this project, I would like to evaluate the role of diet in the frequency of complex behaviors, such as tool use, across primates. While most anthropologists assume that primates with large brains most often participate in tool use behavior, to my knowledge, an actual analysis of this relationship has not yet occurred. Additionally, no anthropologist has yet explored possible connections between types of diet and tool use. Primate diets are incredibly variable, so this type of analysis could prove quite informative. Indeed, existing research has demonstrated connections between type of diet and brain size, so it is very possible that diet may be a driver of tool use behaviors as well.

METHODS

Data Acquisition

In the published literature, there is an immense amount of available data on primate diets and tool use behavior, however, there is no data set which combines this information for a comparative analysis. Thus, I will search through the literature and combine data from published, peer-reviewed articles to create a master spreadsheet which contains all variables of interest for each primate species, such as brain size, diet type, frequency of tool use, and other variables which may prove to be informative. After the creation of this spreadsheet, I will import it into R for further cleaning, such as renaming columns and possibly changing data class of certain variables.

Rights to Use/Share Data

It is a common, accepted practice within my discipline to extract data from multiple published articles to create a novel spreadsheet for comparative analyses. As the data which will be included in this analysis is 1) publicly available as the authors chose to share the data in their publication and 2) there is a precedent to doing research in this way and then publishing its results, this research is free of any concerns regarding data acquisition.

Analysis

Firstly, I will confirm/reject if brain size is correlated with frequency of tool use behaviors. Then I will explore possible connections between types of diet and tool use behaviors across primate species. I suspect that primates whose diet includes predominantly high calorie food sources such as fruit and occasionally meat will participate in tool use behaviors at a higher frequency than primates which eat predominately plants. This analysis will include various visualizations, such as likely at least one scatterplot image, which will be attached in the final paper.