Data Article

Tooth formation age dataset for early childhood bioarchaeological and medical studies

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A R T I C L E   I N F O

A B S T R A C T

We compiled data from histological sources on the formation ages for human mandibular and maxillary permanent first molars, lateral and central incisors and canines. From this we summarised the data by reporting weighted means for cusp initiation, crown completion and apex completion. This provides a reference for bioarchaeological and medical studies investigating early childhood. More specifically, this reference is a crucial element in the study of early childhood nutrition and morbidity from osteological analysis and stable isotope analyses of teeth and their growth increments.

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Specifications Table

Subject	Social Sciences
Specific subject area	Human tooth formation ages are necessary for archaeological studies of the early diets and morbidity of past humans.
Type of data	Table
How data were acquired	Bibliographic: published data from dental histology papers Analysis: weighted means and standard errors
Data format	Secondary
Parameters for data collection	Cusp initiation, crown completion and apex completion ages for human permanent first molars, canines and incisors
Description of data collection	Data was collected through a review of scientific publications on dental histology listing formation ages for certain human teeth (see parameters). We summarized collected data by reporting weighted means and standard errors for each type of tooth
Data source location	Dental histology scientific publications (References in text)
Data accessibility	Repository name: Pandora (Hebe: Data repository for the study of past childhood) Data identification number: https://doi.org/10.48493/p5g4-ps12 Direct URL to data: https://pandoradata.earth/dataset/tooth-formation-age-dataset-for-early-childhood-bioarchaeological-and-medical-studies

Value of the Data

- This data collects human tooth formation ages for permanent first molars, canines and incisors. Such references are a requirement for dental research, particularly within an archaeological context.
- This data can be employed by archaeologists, physical anthropologists, palaeopathologists, paediatrics, and histologists.
- This data is a requirement for archaeological studies of childhood diet and morbidity using stable isotope and osteological analyses. The data can also be employed to improve the precision of age-at-death determinations for juvenile individuals found in archaeological contexts.

1. Data Description

Collected data consisted of previously reported means for tooth formation ages: (a) cusp initiation (ci); (b) crown completion (cc); and (c) apex completion (ac). This data was originally collected for the crowns and roots of both upper and lower first molars (M1), lateral incisors (I2), central incisors (I1), and canines (C). These were calculated from measurements on more than 10,000 individuals from across the different studies and from different world regions [1–7]. Collected data and summary calculations are given within the same file in separate sheets. For collected data we report the original mean and standard deviation for ci, cc and ac according to tooth type and sex (male, female, unreported). In this respect, original publications provide for each study group summary statistics on measurements but did not report the individual results. Within the collected data sheet, we also identify the target population on which the study was made and provide the bibliographic references. We summarized this data by reporting weighted means and standard errors, weighted by the standard deviations given in the original data.

2. Experimental Design, Materials and Methods

We employed Google Scholar to identify previously published histological studies on tooth formation ages. Different combinations of key words such as "tooth", "dentin/dentine", "human", "formation", "development" were employed. To the best of our knowledge we identified

all published studies concerning our tooth selection. We targeted data on human permanent first molars, canines and incisors since these are the most suitable within bioarchaeological research of early childhood nutrition and palaeopathology [8,9]. Collected data is reported in an Excel spreadsheet file, as described in the previous section. This also includes, in a separate sheet, a data summary where weighted means and standard errors are reported. The data file is made available via the data platform of the Pandora initiative (https://pandoradata.earth/) and included within the Hebe data repository for the study of past childhood (https://pandoradata.earth/organization/hebe-data-repository-for-the-study-of-past-childhood).

CRediT Author Statement

Carlo Cocozza: Collected the data; **Ricardo Fernandes:** Defined the data structure and performed data analysis. The original draft of the article was written by Carlo Cocozza and edited by Ricardo Fernandes.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships which have, or could be perceived to have, influenced the work reported in this article.

Acknowledgments

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