Comparing Diaphyseal Length to Dental Calcification Age of Subadults from Elmbank Cemetery

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INTRODUCTION

Long bone growth is more vulnerable to diet, disease, and lifestyle factors, making it a useful measure to examine the life history of a skeletal series. Dental calcification, which is under tighter genetic factors, making it a useful measure to examine the life history of a single individual. Long bone growth is more vulnerable to diet, disease, and lifestyle factors, making it a useful measure to examine the life history of a single individual. The goal of this research was to better understand the growth of subadults buried at the historic Elmbank Cemetery. St. Thomas Cemetery was also included for comparison.

Elmbank Cemetery (1833-1939) served a Catholic Irish immigrant community in Upper Canada. The area was largely agricultural with poor soil quality.

St. Thomas Cemetery (1821-1874) was part of St. Thomas’ Anglican Church in Belleville, Ontario.

METHODS

Dental calcification, diaphyseal length, and presence of pathological conditions were recorded for 154 subadults based on field notes from the relocation of Elmbank Cemetery off the grounds of the Pearson International Airport, Toronto, in 2000. The relocation was conducted by Archaeological Services Incorporated under the guidance of the Archdiocese of Toronto and approval of the available descendant families.

Dental calcification age was used as a proxy for chronological age. This was calculated by averaging the age estimations for each tooth according to standards formulated by Moorrees, Fleming, and Hunt (1969). All long bones were studied and graphed, but for the purposes of this poster the femur was selected to represent the consistent trends across all long bones. Included on the graphs are Hoffman’s three growth curves of expected diaphyseal lengths according to age-mean and ± 1.96 standard deviations.

RESULTS

The difference between Elmbank and St. Thomas for the pre-weaning period (0-1.17) was not statistically significant (p = 0.27). The similar growth and development status of newborn and toddler-aged individuals at St. Thomas and Elmbank may be due to the passive immunity and nutrition that breast milk provides. The concentration of individuals below Hoffman’s curves between two and four years could be the result of weaning diarrhea, caused by the exposure to pathogens and a less nutritious diet. The slight dip in the Lowest curve for Elmbank children also reflects this period of stress.

DISCUSSION

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REFERENCES