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## Childhood growth and diet: insights from analysis of deciduous teeth from the Tooth Fairy collection (France)

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Since 2014, we have collected naturally exfoliated deciduous teeth from French children of known kinship and life-histories. These teeth are part of the Tooth Fairy collection which is composed to date of 882 deciduous teeth from 89 individuals from 36 French families. The life history records include date and place of birth, sex, birth weight and length, weight measurements during the first six months of life, whether the child was premature or a full-term birth, delivery conditions, and dietary information including weaning age. Data collection and exploitation was approved by the French authority Commission Nationale de l'Informatique et des Libertés. Analyses conducted so far have focused on first and second upper deciduous molars. All teeth have been imaged at high-resolution, dental impression have been taken for occlusal microwear texture analysis, and molars have been sectioned for histologic analysis. Our preliminary results show a range of Retzius periodicities between four to 12 days. Females tend to have a higher Retzius periodicity linked to lower birth weight while males exhibit the opposite condition. Microwear measurements vary greatly across the same facet of the same tooth/individual (up to 67% variation). Microwear texture variables were found to correlate with the degree of macrowear and facet shape. By combining macro-, meso- and microstructural analysis, the Tooth Fairy collection will be used to track factors influencing growth and diet around birth and during early postnatal life. This holistic approach will ultimately provide a framework to understand subtle variations in growth and diet in archaeological specimens. This research was supported by the FYSSEN foundation, the Région Nouvelle Aquitaine (CHROQUI project n°2014-1R40217), and the European Research Council (VAMOS project n°676828)