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The tales fossilised teeth of primates can tell

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ABSTRACT

Like tree rings, teeth grow in a rhythmic manner on daily (cross striations) and weekly (rhetzius lines) basis. These growth lines are faithfully recorded in the tooth enamel of all the mammals including those of primates. Enamel being the hardest tissue, stays unaltered for millions of years. In fact, a single fairly well preserved fossil primate tooth can preserve invaluable developmental information, such as gestation period, age at weaning, age at death, prenatal and postnatal diet, ecology, water intake, body and brain size etc. In order to count these rhythmic growth lines primate teeth are physically sectioned for understanding ontogeny, such as crown formation times, daily secretion rates, rhetzius line periodicity and enamel extension rates. With the recent application of non-invasive X-Ray Synchrotron microtomography the rare fossils can now be digitally sectioned. By applying laser ablation based stable carbon and oxygen isotope analyses, one can now reconstruct high resolution dietary preferences and niche partitioning among various primate communities and past climatic conditions including palaeomonsoon.