

# Age estimation using root dentin transparency in Thai population

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## ABSTRACT

**Objective:** The objectives of the study were to find the relationship between chronological age and root dentin transparent zone in Thai population and to compare the chronological age with age estimated by Lamendin's formula.

**Materials and methods:** The samples consisted of 47 single rooted teeth (23 males and 24 females between 20 to 79 years old (mean 52.47, SD. 18.485). The measurement method was based on the method published by Lamendin et al.. Linear measurements of the root transparency zone, periodontosis and root length were done on the labial surfaces of teeth by four calibrated observers. The percentage of the transparency zone was defined as T and the percentage of the periodontosis was defined as P. Ages based on Lamendin's formula were calculated. Statistical analysis was done using the SPSS statistical software package. Inter- and intra-observer agreement was evaluated using intraclass correlation coefficient (ICC). Linear regression was fitted with the data from the present samples.

**Results:** No statistically significant differences ( $p < 0.05$ ) were found between genders, upper and lower teeth, anterior teeth and premolars, and among 4 tooth groups. The mean age difference between chronological age and age estimated by Lamendin's formula was -3.35 (SD. 14.04) year. The lowest age difference was found when the subjects were between 50 and 59.9 years old (-1.18 (SD. 6.53) year). A linear regression formula was generated for the present samples as: Age (A) =  $17.769 + (0.476P) + (0.506T)$  with  $r^2 = 0.472$ , standard error of the estimate = 13.74. ICC showed good to excellent intra-observer agreement (ICC 0.96-0.99) and also inter-observer agreement (ICC 0.80-0.97).

**Conclusion:** This research has provided useful information about the dental age estimation of Thai population using root dentin transparency. The regression formulae can be useful for age estimation of Thai population after tooth development is completed.