Child and Adolescent Dental Age Assessment Technique Chart

ABFO Dental Age Estimation Committee
"This document is a supplimental age estimation guide for the forensic odontologist"

Radiographic Dental Morphologic Development Staging Techniques

DAE Technique	Expression of Uncertainty	Age Interval of Individuals Studied	Intact or Sectioned Teeth	Measurements Required	Best Teeth Utilized (order to use)	Can Teeth Have Pathology, Restorations/No Restorations/Trauma/Rotations	Sex/Ancestry Specific
Child and Early Adolescent Techniques							
Moorrees, Fanning and Hunt, 1963	Standard Deviation (SD)	Birth to 21 years (Useful During Full Range of Morphological Dental Development)	Intact (Radiographic Technique)	Use Moorrees, Fanning & Hunt Primary and/or Permanent Tooth Stagings Chart and Corresponding Age Estimation Data	Developing Primary and Permanent Teeth (Best to Use More Than 1 Tooth if available) (Resorption Data Exists for dc, dm1, dm2)	Teeth Utilized in this Assessment of Age Should Not Have Periapical Pathology, Extensive Caries, Have Been Extensively Restored or Exhibit Dental Morphologic Abnormality	Sex Specific (European American and African American Ancestral Population Studies Available) Harris/McKee 1990
Demirjian et al., 1976 Child Technique (7 Tooth System)	Percentiles @ 94% Confidence Interval	2.5-17 Years (Useful Between the Ages of 2.5-14 Years)	Intact (Radiographic Technique)	Use Demirjian Stagings A thru H Chart and Corresponding Age Estimation Data (Addition of Stage 0 for No Calcification)	Requires Use of All 7 Teeth on Mandibular Left (Teeth #'s 18-24) If One or More of These Teeth is Not Available Use Same Tooth from Contralateral Side	Teeth Utilized in this Assessment of Age Should Not Have Periapical Pathology, Extensive Caries, Have Been Extensively Restored or Exhibit Dental Morphologic Abnormality	Sex Specific / Multiple Population Specific Studies Available
Demirjian et al., 1976 Child Technique (4 Tooth System)	Percentiles @ 94% Confidence Interval	2.5-17 Years (Useful Between the Ages of 2.5-14 Years)	Intact (Radiographic Technique)	Use Demirjian Stagings A thru H Chart and Corresponding Age Estimation Data (Addition of Stage 0 for No Calcification)	Requires Use of 4 Permanent Teeth on Mandibular Left in One of Two Combinations: (M_2, M_1, PM_2, PM_1) or (M_2, PM_2, PM_1, I_1) If One or More of These Teeth is Not Available Use Same Tooth from Contralateral Side	Teeth Utilized in this Assessment of Age Should Not Have Periapical Pathology, Extensive Caries, Have Been Extensively Restored or Exhibit Dental Morphologic Abnormality	Sex Specific / European (French-Canadian) Ancestral Study Only
Cameriere et al., 2006 Child Technique (7 Tooth System)	Standard Error of Estimate (SEE)	5-15 years old	Intact (Radiographic Technique)	Root Lengh, Width of open apex	Requires Use of All 7 Teeth on Mandibular Left (Teeth #'s 18-24) If One or More of These Teeth is Not Available Use Same Tooth from Contralateral Side	No Pathology/Trauma associated with the teeth. Ok to be restored and/or decayed	Sex Specific/ European, Mexican Hispanic European regression formula used in the DAE Quicksheet for this technique. (Multiple Population Studies and Regression Formulas Available)
Late Adolescent Technique							
Mincer et.al., 1993	Standard Deviation (SD) and Empirical Probability	14-21 years (Useful During Morphological Dental Development of the Third Molar)	Intact (Radiographic Technique)	Must Use Staging System Defined by the Particular Population Specific Study Utilized (Demirjian Molar Staging System; Gleiser and Hunt Staging System)	Use All Available Third Molars Using Modified Demirjian Stagings Chart A-H	Teeth Utilized in this Assessment of Age Should Not Have Periapical Pathology, Extensive Caries, Have Been Extensively Restored or Exhibit Dental Morphologic Abnormality	Sex Specific / Multiple Population Specific Studies Available
Tooth Development and Eruption Charts and Atlases							
Ubelaker Dental Developmental Atlas, 1989	Estimated Standard Deviation (SD)	Useful on Individuals Ages 5 Months in Utero Through 15 Years	Intact (Radiographic Technique)	Diagrams Depicted are Non-Staged Illustrations of Dental Development Eruption Defined Through Gingival Tissue	Utilize All Teeth Present	Teeth Utilized in this Assessment of Age Should Not Have Periapical Pathology, Extensive Caries, Have Been Extensively Restored or Exhibit Dental Morphologic Abnormality	Not Sex or Ancestry Specific
London Atlas of Tooth Development and Eruption 2010	Standard Deviation (SD) Data Available 2014 AlQahtani Publication	Useful on Individuals Ages 30 Weeks in Utero Through 15.5 Years	Intact (Radiographic Technique)	Diagrams Depicted are Defined by Moorrees, Fanning and Hunt Staging System of Dental Development Eruption Defined Through Alveolar Process	Utilize All Teeth Present	Teeth Utilized in this Assessment of Age Should Not Have Periapical Pathology, Extensive Caries, Have Been Extensively Restored or Exhibit Dental Morphologic Abnormality	Not Sex or Ancestry Specific