



### F28 Standardized Age Estimation Case Report of a Living Person

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The educational goal of this presentation is to present and discuss a standardized method proposed in Switzerland that documents the findings of the final report of an age estimation that is to be presented in a legal context.

Dental structures may represent a valuable source of age information. Teeth develop, erupt, and may be present throughout the life of an individual.

The estimation of age of living persons may become of importance when: 1) suspicious or non-existent identification papers are presented or found (illegal presence in a foreign country, etc.); 2) the age is not known (refugees, adopted children, loss of memory); 3) the date of birth has supposedly been incorrectly registered; 4) identification papers are illegible.

It should be emphasized that when the identity is unknown, age estimation may be helpful in the reconstruction of the identity.

Children as well as adults may be involved. Methods of estimation are more precise in children than adults where any method may lead to unreliable results. The timing and sequence of teeth development, as contained in development charts, have been used as valid criteria for age estimation. Dental development remains the most accurate index for age estimation from before birth until the early teens, after which accuracy declines sharply. In the case of a living person, the radiographic method is the method of choice, but visual assessment of the whole dentition should also be considered and commented.

According to several studies, although third molars are the most variable teeth in the dentition, they remain so far the most reliable biologic indicator available during the middle teens and early twenties as an estimator of chronological age. In Switzerland as in many other countries, an 18-year-old individual becomes an adult. Legal implications change markedly. If reliable age documentation is lacking, the radiographic evaluation of the maturation of third molar roots can be used in several cases to assess whether an individual is a juvenile or an adult.

Except for Kvaal et al. (1995) who estimated the chronological age of an adult from measurements of the size of the pulp on full mouth dental radiographs using six types of teeth from each jaw, most recently published studies are referring to criteria described by Demirjian, et al. (1973). These authors proposed schematic drawings and definitions of the eight stages of crown and root maturation used to score third molar development. These data are widely used and form a basis on which universal dental maturity score can be calculated. This score is then translated into a chronological age with aids of tables specific for a certain amount of populations.

The Swiss methodology of age estimation of a living person used in the different forensic institutes usually refer to data published by Mincer et al. (1993), Willerhausen et al. (2001) and others which all basically refer to the criteria described by Demirjian et al. (1973). The outcomes can be somewhat jeopardized by the various ethnicities of the analyzed cases. Most of them are associated with illegal residents dealing with criminal activity.

A final case report to be presented to a judge or a court shows the following findings and results:

- date of examination, presumed identity, presumed or declared age
- name(s) and function(s) of the examiner(s)
- clinical examination (oral cavity, dental and periodontal findings)
- radiographic examination of the third molars (panoramic and apical X-Rays)
- analysis of the findings
- indication of treatment if any
- conclusion
- sources and bibliography

The final report also contains the following iconography of the case:

- full face and profile
- intraoral views
- study models
- all radiographic views
- particular details of interest if any

The progression of the analysis, the judge or court expectations, and the conclusive criteria will be discussed.

#### **Age Estimation, Forensic Odontology, Forensic Sciences**