



Odontology Section – 2005

F21 General vs. Population-Specific Dental Age Estimation Method: A Greek Study

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Attendees will learn, retain or implement into their practice dental age estimation methods, which should take into account differences in diet and dental care when victims come from across countries and cultures such as in case of international disaster.

This presentation will impact the forensic community and/or humanity by showing that population-specific differences in diet and dental care are important factors and should be addressed in dental age estimation methods.

If someone's age is in question – whether based upon human remains or in a living person – forensic odontologists can choose from a number of dental age estimation methods. However, most dental age estimation methods have utilized teeth from mixed populations, so as to be applicable to any population. However, a generic method may theoretically result in less accurate age estimates, because population-specific factors are not taken into account.

The principal investigator traveled to Athens, Greece to evaluate whether population-specific factors might exist in the Greek population and how they might be incorporated into more accurate dental age estimation method. The trip was sponsored by grants from the Friendship Association of the Finnish-Athens Institute, the Columbus Foundation of University of Tartu, Estonia, and the American School of Classical Studies at Athens. The investigator examined the skeletons in the Wiener Laboratory's Human Skeletal Collection, housed at the University of Athens. This important collection consists of 63 modern day Greek skeletons of known age at death, cause of death, and gender. The investigator photographed all the skulls, jaws, and teeth of these skeletons. A photographic database of the findings has been prepared and various age-related changes have been measured. In addition the investigator dissected one representative tooth from each age group for histological analyses.

The results showed that virtually all of the teeth examined had cervical abrasions, which increased in degree with age. These were more marked in extent than reported in previous studies. The degree of abrasion was a significant factor correlated with the estimated age of these Greek skeletons. Greek cuisine is rich in acids such as lemon juice and vinegar, which may contribute to these cervical abrasions. Other reported methods of dental age estimation do not utilize cervical abrasion, perhaps because the degree of abrasion is more variable and not significantly correlated with age in previously studied populations. However, in selected populations such as the Greeks, it may be crucial to take into account differences in diet and dental care.

The findings of this study are especially important when identification questions arise in international disasters, when victims come from across countries and cultures. The author recommends further study of culture and country-specific differences in dental wear patterns as an adjunct to improving the accuracy of dental age estimation.

Dental Age Estimation, Cervical Abrasion, Population-Specific Factor