



# What every dentist must know about forensic odontology: An overview

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## Abstract

**Background** The contribution of forensic odontology to dental ageing and superimposition are always dependent on the dentist's awareness of the responsibilities in advocacy for human rights and the integrity of maintain dental records.

**Objective** The state-of-the-art article provides insights for undergraduate and postgraduate dental students as well as experienced dentists towards identifying the basic tenets of forensic odontology.

**Results** The article enumerates the classic and advances techniques commonly used in forensic odontology to identify a cadaver's age, gender, specification of time of death, diagnosing uncategorized diseases and detecting trace toxins which could never been retrieved from incinerated bodies.

**Advances in Knowledge** Not only does this include dental impressions and gypsum cast, but it encompasses all digital photos, intraoral and extraoral radiographs, panoramic tomography, CBCT, TMJ imaging sorted chronologically. If saving blocks and casts need space, they can be digitized. However, the need for old-fashioned physical records is expected to be minimal with the popularity of the use of digital scanners and computational applications.

## Keywords

Forensic Odontology, Cadavers, Autopsy, Cheiloscopy, Odontometrics



which form a characteristic pattern on the external surface of the lips are also used to determine age and gender in forensic dentistry[2,14,21-23]. Because teeth can be an important deposit of exogenous substances accumulated both in the pulp and in the calcified tissues, they are an invaluable source of data from a toxicological point of view[24].

Substantial postmortem changes elude accurate estimate of the time of death. The recent application of histological techniques is proving to be an increasingly valuable tool in forensic research. Early post-mortem examination shows that the initial epithelial changes observed were homogenization and eosinophilia while cytoplasmic vacuolation, shredding of the epithelium, ballooning, loss of nuclei and suprabasilar split were noticed after one day of the time of death. Therefore, the histological changes in the gingival tissues may be useful in estimating the time of death in the early post-mortem period[18].

Because DNA can be amplified from a blood sample, dental pulp or other tissues using the polymerase chain reaction (PCR), PCR is widely used in forensic sciences because it demonstrated to be 100% reliable when used to assess the gender of teeth which had been heated at 100°C for 15 minutes. Teeth could resist higher temperature for longer time if they are submerged or impacted in gnathic bones, rendering them a rich source for DNA extraction[25,26].

Forensic odontology uses the input of every generalizable finding the dental research introduces[27-32]. However, forensic odontology cannot be useful without general practitioner, prosthodontists, orthodontists and all clinical dentists, regardless of their specialties, be fully aware of the need for keeping permanent and reliable dental records[33]. Not only does this include dental impressions and gypsum cast, but it encompasses all digital photos, intraoral and extraoral radiographs, panoramic tomography, CBCT, TMJ imaging sorted chronologically. If saving blocks and casts need space, they can be digitized. However, the need for old-fashioned physical records is expected to be minimal with the popularity of the use of digital scanners and computational applications[34]. Dentists and maxillofacial surgeons should also familiarize themselves with the medicolegal legislature and volunteer to cooperate with the department of forensic medicine when needed. Incidental findings may also reshape our understanding of oncological diseases and their infiltrations[35].

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