



F40 Key Principles of Dental Evidence Processing Taught to Criminal Justice Students

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After attending this presentation, attendees will understand the principles of forensic odontology taught to criminal justice students at Florida Gulf Coast University. Emphasis is placed on a thorough understanding of the techniques involved in the recognition, documentation, collection, and preservation of dental evidence.

This presentation will impact the forensic community by demonstrating the steps necessary for the processing of dental evidence from recognition to interpretation. With this knowledge they will be able to assess during which steps of dental evidence processing they desire the consultation and involvement of the forensic odontologist.

By attending this presentation the participant will understand the principles of forensic odontology taught to criminal justice students at Florida Gulf Coast University. Emphasis is placed on a thorough understanding of the techniques involved in the recognition, documentation, collection and preservation of dental evidence. These steps are prerequisites for the interpretation of dental evidence.

Recognition that evidence of dental origin may include bite marks, saliva, or teeth is the first step in processing dental evidence. Saliva and bite marks may be found on foodstuff, other inanimate objects, and/or the victim. Several types of bite marks are presented utilizing the ABFO image series and ABFO descriptive terms explained in the *Manual of Forensic Odontology*, third edition. Alternate light sources, which may enhance the detection of saliva and the photographing of bite marks, are discussed.

Principles of proper photographic documentation are discussed and types of photographic distortions are reviewed. The photographic technique of "splitting the bite" is demonstrated. The value of the ABFO#2 ruler in evaluating the presence or lack of photographic distortion and analyzing dental evidence is stressed.

After proper documentation, evidence must be collected and preserved. The double swab technique as originally described by Dr. David Sweet et al., is taught as the preferred swabbing method for DNA sampling. (1) A sample collection kit commonly used in Florida is utilized in the swabbing demonstration.

While the preservation of most inanimate objects is fairly straight forward, the preservation of food, the preservation of the three dimensional aspects of bite marks, and the preservation of the cutaneous human bite marks found on deceased victims are more specialized. Only the impression technique for the preservation of the three dimensionality of bite marks is included in this presentation.

Commonly a forensic odontologist is consulted regarding a case involving dental bite marks when a suspect is in custody and processing of the suspect's dental evidence is requested. Then the forensic odontologist performs a comparative analysis of the suspect's evidence to the crime scene evidence. Using Adobe Photoshop™ crime scene photographs are rotated, cropped, and sized to actual life size. The suspect's models, wax exemplars, and acetate overlays are compared to the crime scene evidence. After analysis is completed the forensic odontologist can render and expert opinion regarding the evidence.

Reference:

- (1) Sweet D, Lorente M, Lorente JA, Valenzuela A, Villanueva E, An improved method to recover saliva from human skin: the double swab technique. *J Forensic Sci* 1997;42(2): 320-2

Dental Evidence Processing, Forensic Odontology, Bite Marks