



### F4 A Camera Apparatus That Can Aid in the Reduction or Elimination of Type I Angular Distortion in Bite Mark Photography

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After attending this presentation, attendees will understand an innovative technique to reduce or eliminate Angular I Distortion by using an attachable camera apparatus in bite mark injuries.

This presentation will impact the forensic community and/or humanity by enabling any forensic investigator, even those with minimal or no training in bite mark photography to take quality pattern injury images of victims to be analyzed and submitted as quality evidence in a court of law.

The author will introduce an innovative apparatus that can be attached to a digital or 35mm camera to aid and assist first responder photographers, law enforcement agencies, medical professionals and odontologists in the reduction or elimination of Type I Angular Distortion while taking bite mark evidence photographs.

The first line of processing evidence of any crime scene is through photography and other visual mediums. Often time an Odontologist is not available to take the necessary photographs in bite mark cases. The first responder may have minimal amount of photography training and possibly none in bite mark photography. Depending on the nature of the incident and sensitivity of the occurrence, a time-limited activity may allow one opportunity to correctly complete the task. In bite mark cases, wide-angle orientation images are usually taken first without the scale, followed by close up photographs with scale. The purpose of the close up images is to obtain an accurate spatial relationship. This final process is crucial to insure that a significant comparison analysis can be accomplished.

One of the concerns in bite mark photography is Angular Distortion. There are four types. The apparatus being discussed minimizes Type I distortion only. Type I Distortion is the result of the scale and the pattern injury being on the same plane, but the camera angle not being perpendicular to the pattern injury.

Scale placement is of utmost importance in photography. The recommended scale is the ABFO #2 designed by the American Board of Forensic Odontology for use in bite mark photography and is considered the standard measuring device for this application. This is an L shape scale with measuring units on the inside of the L. Included are circular reference shapes, contrasting measuring bars and an 18% gray scale. The width of the L's is one inch. This technique incorporates **TWO** ABFO # 2 Scales. The scales should be placed upon the same plane of the pattern injury. If the plane runs on an angle, that angle must be matched to the scale. First, by placing two scales at right angles to one another, a square or rectangle is formed around the pattern injury. The second step is to align the guides that are attached to the camera apparatus, parallel to the square or rectangle (formed by the two rulers) around the bite mark. These guides are adjustable vertically and horizontally to incorporate the variable widths of the bite marks and distance into the LCD monitor or viewfinder. Bite marks should be photographed using oblique lighting, both at the crime scene and morgue. It is recommended that the LCD monitor be used for composing images when shooting close-ups in order to avoid parallax error when using a digital camera. An articulating LCD can be a great help when taking high, low or awkward angled images. If the currently recommended 5.0 mega-pixel resolution capability or higher digital cameras are used, then it is not necessary to use Macro Mode or to be within a few inches for a close shot. There are software products that allow for enlarging and obtaining Life Size (1:1) images. Even with the software program, detecting and correcting angular distortion is paramount before any accurate resizing and meaningful comparison can occur. One advantage of using a digital camera is the immediacy of the image. It is suggested that the camera be mounted on a tripod for support, and for keeping the camera in position after composing the close-up image for both types of cameras.

Documentation in photography is an important and powerful tool in the investigation of violent crimes as in bite mark injury. By using the attached apparatus, a forensic investigator may reduce Angular I Distortion and provide high quality images as evidence.

**Forensic Odontology, Forensic Photography, Angular I Distortion**