



E42 Forensic Podiatry — Pedal Evidence in Forensic Casework

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After attending this presentation, attendees will understand the value of an important and emerging sub-discipline of forensic science, i.e., forensic podiatry, which deals with the examination of pedal evidence usually encountered at crime scenes.

This presentation will impact the forensic science community by presenting the utility of a comparatively new sub-section of forensic science which is concerned with the inspection of pedal evidence at crime scenes; this may motivate young forensic scientists to take up this discipline for research and practice.

Forensic podiatry is a comparatively new scientific sub-discipline of forensic science which deals with the examination of pedal evidence generally encountered at crime scenes. According to DiMaggio and Vernon, it is defined as the application of sound and researched podiatric knowledge and experience in forensic investigations, to show the association of an individual with a scene of crime, or to answer any other legal question concerned with the foot or footwear that requires knowledge of the functioning foot.¹ Forensic podiatrists contribute to the personal identification in forensic investigations whenever foot-related evidence is recovered from a crime scene. The need to establish the identity of dismembered remains may arise in cases of mass fatality incidents such as terrorist attacks, mass murders, transport accidents, tsunamis, floods, and earthquakes. Dismembered and mutilated remains are usually encountered in these mass fatality incidents. There is an increased likelihood of the recovery of feet (often enclosed in shoes), separated from the body in mass disasters such as high-power explosions and bomb blasts, airplane crashes, and other high-impact transportation accidents. In this regard, forensic podiatrists can collect the evidence related to the foot and assist in the identification of the individual from the foot and its parts. Furthermore, forensic podiatrists conduct the examination of footprints generally recovered at the crime scene. Footprints are commonly recovered at every crime scene in the form of bare footprints, socked footprints, or shoe prints.

There are many ways in which footprints can be used in establishing personal identification in forensic podiatry. The analysis of bare footprints involves identification based upon the individualistic characteristics of the footprints. Features such as corns, pits, ridges, humps, creases, deformity, an extra toe, riding toes, missing toe in the foot impression, and flat footedness are considered as individualistic characteristics of the footprints which can be utilized as forensic evidence in establishing personal identification. This kind of physical evidence can positively link a suspect to a crime or it can prove one's innocence. By using different anthropometric methods, the stature, sex, and body weight can also be estimated from the footprints recovered at the crime scene. As stature and body weight can provide an idea about the size of the individual, they can also provide useful clues to a forensic scientist in criminal investigation. Apart from these evidences in forensic podiatry, gait analysis and step/stride length analysis can also furnish some indication about the criminals involved in a particular case.

This presentation will discuss various methods of personal identification related to the pedal evidence which is usually recovered from the crime scene or scene of occurrence in the form of mutilated/dismembered remains, footprints, or questioned footwear.

Reference:

1. DiMaggio JA, Vernon W. *Forensic Podiatry-Principles and Methods*, Springer, New York, Dordrecht Heidelberg, London: Humana Press, 2011.

Forensic Podiatry, Pedal Evidence, Foot and Footprint Characters