A145 Ball Footprint Classification System

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As a result of noticing a low success rate for identifying school children from their infant footprints, the goal of this presentation is to help attendees understand the importance of footprinting newborns correctly in order to obtain a positive identification.

This presentation will impact the forensic science community by assisting officials in identifying children in various cases. By implementing a more thorough methodology in footprinting newborns, the amount of misidentifications can be decreased.

There has been a low success rate for identifying school children from their infant baby prints. Baby prints have historically been used by hospitals as souvenirs for parents. These prints, while valuable in the wealth of information that can be obtained from them, are often taken incorrectly; many prints are obtained from those who have little training in fingerprinting an individual. The art of fingerprinting an individual is key when it comes to footprinting newborns because of the similar technique needed to successfully obtain a suitable print. Even the footprints obtained from twenty newborns at five different nurseries that are known to provide maximum detail only had 11% of prints that were deemed adequate enough for identification by an expert analyst. Research has shown that the development of the arch of the foot around the ages of four and five, results in an unsuccessful identification in children.[1] A study conducted by the California Department of Justice saw that out of 50 subjects, they could only identify a handful.[2] Low success rates have also been found when attempting to identify children using a co-classification system where a researcher utilized two methodologies in classifying footprints.[3] Research conducted from this study has indicated that utilizing a two-dimensional method that focuses solely on the ball of the foot would result in a higher match rate. Similar to the principle of fingerprinting, instead of using the whole hand to classify an individual, the study will show that the imprint of just the balls of the feet will provide a suitable and accurate way for classifying an individual from infancy to adulthood. Creating a classification system solely using the ball of the foot will yield a higher match rate than examining the entire foot. Volunteers have provided their baby footprints for analysis in this project. Additionally, current prints were obtained from volunteers through the ink rolling method for comparison and for the creation of a database. Through comparison of both baby footprints and their adult counterparts, unique characteristics for each individual were dominantly seen in the area of the balls of their feet, but as we moved to the sole and the heel of the foot, unique characteristics were not as prominent. This proves promising in the development of a classification system that would focus mainly on the ball of the foot. Data gathered from this research could be the foundation for a national database in order to help identify children when other methods of identification are unavailable due to cost, lack of DNA exemplars, or time constraints. Implementation of this proposed system would rely heavily on educating numerous hospitals in order to obtain suitable prints for future use in the identification of children as they age.

References:

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3. Vernon W. The development and practice of forensic podiatry. Journal of Clinical Forensic Medicine 2006;13:284-87.

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