A130   The Use of Canine Field Testing to Optimize the Operating Parameters of a Non-Contact Collection Device for Human Scent

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After attending this presentation, attendees will understand the significance of utilizing the optimal operating settings of dynamic airflow devices used for the non-contact collection of human scent, and the impact they have on canine response when discriminating individuals.

This presentation will impact the forensic science community by highlighting the importance of collecting human scent from crime scenes or articles of evidence utilizing the optimal collection time and airflow speed of the human scent collection system to provide sufficient scent for canine discriminating purposes. In addition, this will encourage the standardization of human scent collection protocols for law enforcement officials.

The collection of human scent from crime scenes can aid investigators in determining whether a suspect/victim was present at a particular location. The tool often used to correlate a person scent to a specific location is a human scent discriminating canine which is trained to detect the scent of an individual excluding all other scents. The collection of human scent can be performed by several different methods: swiping, passive collection, and non-contact collection. Swiping of an object allows for the rapid collection of human scent onto a sorbent material; however, this method of collection introduces the potential of destroying important evidence, such as fingerprints. Passive collection of human scent is a lengthier process which involves placing a sorbent material near an object for a prescribed period of time resulting in the transfer of human scent from the object to the material. Lastly, non-contact collection utilizes a dynamic airflow to draw human scent away from an object and onto a sorbent material. The non-contact collection of human scent is a quick process leaving any potential evidence intact for further forensic analysis.

The Human Scent Collection System (HSCS) is a device which was created for the non-contact collection of human scent from objects and/or locations. Once collected onto a sorbent material, human scent can be presented to a human scent discriminating canine for matching purposes (e.g., scent identification line-up or tracking/trailing individuals). The HSCS is a lightweight, cylindrical device that provides a dynamic airflow, drawing human scent onto a 4"x4" cotton gauze pad. Features such as a digital screen, battery operation, pre-set collection times, and airflow speeds make the HSCS easy to use. The HSCS offers two collection time settings of 30 seconds (default) and 60 seconds, as well as three airflow settings of low, medium (default), and high. These programmed settings aid with standardizing scent collection between individuals or agencies and can be easily reproduced.

Field trials were conducted to determine the optimal operating parameters of the Human Scent Collection System. The responses from human scent discriminating canines were used to gauge which combination of time settings and airflow speeds would allow for sufficient human scent collection for tracking/trailing purposes. A total of 11 canine teams were used for testing. To summarize the design of the field trials, a target walked a path leaving a scent trail at a test site. Subsequently, scent from the hands and saliva of the target was collected (onto a cotton gauze pad) utilizing the HSCS. Once all targets produced scent trails and their scent samples were collected, canine teams were taken to the start of the scent trail and a corresponding scent sample would be presented to the canine for matching purposes. Canine response to the scent sample was evaluated based on three responses: (1) did the canine begin to trail; (2) the canine's first decision; and, (3) the canine's second decision. Canine response to human scent, collected using the HSCS, indicated that the optimal operating parameters were 60 seconds collection time and a high airflow speed.

Human scent, Canines, Scent Collection Device