



E54 An Application of Gunshot Residue (GSR) as Trace Evidence

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After attending this presentation, attendees will understand an application of GSR as a tool in the investigation of gun accidents involving minors. This will occur through the introduction of GSR as an investigative application and a review of accidental cases involving children and firearms.

This presentation will impact the forensic science community by demonstrating the efficacy of GSR as a form of evidence outside homicide and other criminal cases in which it is commonly applied.

Investigators often encounter difficulties with firearm investigations involving minors. These difficulties occur for a variety of reasons and include the emotional nature of the crimes involving children, interference by parents, guardians, and other individuals, as well as legal protections for minors and children. Further, interviewing children associated with the discharge of a firearm is difficult due to the inability of the minor to effectively articulate their involvement or their knowledge of the incident.

The presence of GSR can provide information to an investigation process by associating an individual with the discharge of a firearm. This association may include activities such as firing a weapon and being in close proximity to a firearm during discharge as well as handling a firearm, a fired cartridge, or some other surface bearing GSR. Unfortunately, GSR, like many other types of evidence, cannot conclusively identify a shooter. A negative finding is not exculpatory in nature and a positive test for GSR cannot distinguish a shooter, witness, or victim. GSR testing is most probative in cases in which an individual claims not to have been in the proximity of a firearm during discharge as individuals are not expected to have GSR during everyday activities. While working within these parameters, GSR can provide valuable information for the investigative process.

Ultimately, the analytical conclusions as well as the impact on an investigation must be clearly and accurately represented in a report and subsequently conveyed to all participants in the criminal justice process and possibly to a jury. A thorough understanding of the application of GSR as trace evidence prior to its use benefits all individuals involved in the investigative process. This will be demonstrated via the review of six cases from Harris County, TX. The role of GSR evidence will be put into context with other evidence revealed through independent investigation.

In conclusion, this presentation will provide an overview to the application of GSR through a review of gun accidents involving minors. Additionally, the presentation will provide a review of several cases involving GSR in the investigation of cases involving firearms.

Gunshot Residue, Firearms, Accidents