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The collection and preservation of blood stain evidence is important because this evidence can be used to type blood or run DNA analysis. There are two different types of blood that can be collected at a crime scene: liquid and dried blood. Liquid blood evidence is generally collected from blood pools but can be collected off of clothing as well, using a gauze pad or a sterile cotton cloth. Once the sample is collected it must be refrigerated or frozen and brought to the laboratory as quickly as possible. The sample must first be dried thoroughly at room temperature. It is important to get the sample to the laboratory as quickly as possible because after 48 hours the sample might be useless. If the sample has to be mailed it should be completely air dried before packaging. If the sample isn't completely dry when it needs to be packaged, the sample should be rolled in paper and labeled and then put into either a brown paper bag or a box. The paper bag or box is then sealed and labeled again. It is important to only place one item per container to avoid contamination and samples should not be placed in plastic containers. Samples shouldn't be in plastic containers because if the sample is still damp the moisture from the sample can cause microorganisms that can destroy the evidence. Also, due to this fact, samples should not be in any container for more than two hours. Dried bloodstains can be found on small objects, larger objects and on clothing. When dried blood is found on a small object the entire object can be sent to the lab after it's been properly packaged and labeled. When dried blood is found on a larger object that is transportable, an investigator should cover the stained area with paper and tape the paper to the object to avoid contamination. If the object that is stained is not transportable there are different ways that an investigator can collect the sample. One option is to cut out the stained area of the large object. If the portion is cut out the sample is packaged the same way as described above but a control sample should also be provided in a separate package. Another option is to use fingerprint tape and lift the sample as well as the surrounding control area. If this method is used it is important for investigators to not touch the sticky side of the tape with bare hands and the investigator should run an eraser or some type of blunt object over the placed tape to ensure that contact is made with the dried stain. The lifted stain is then be packaged and labeled, then delivered to the laboratory. Another way to collect a sample off of an object is to use a clean sharp object to scrape flakes of the stain into a paper packet. The last two methods of collection of a dried bloodstain on a large object require the use of distilled water to dampen the stain before rolling a thread in the stain or absorbing the stain with a cotton square. These two methods are not recommended due to the risk of contamination. When dried blood is found on clothing the entire article of clothing should be packaged and labeled and delivered to the lab. It is important for the investigator to remember to keep each sample separated so that there is no contamination between samples. Back to Crime Library Clean (ideally sterile) syringes or disposable pipettes should be used to collect liquid blood, which should then be transferred to a clean (preferably sterile) test tube. With a clean spatula, a blood clot may be moved to a clean test tube. To absorb liquid blood or a blood clot, a clean cotton towel can be used (avoiding areas containing only serum). If wet blood samples are taken, they must be preserved in an anticoagulant and stored in a refrigerator. These samples should be sent to the lab as soon as possible. Label the specimens with the case number, item number, date, time, location, and the name of the evidence collector. Also Read: Blood Spatter Analysis ■ Wet Bloodstains: Small objects with wet bloodstains should be left to air dry before being collected. An attempt should be made to keep any bloodstain patterns intact during packaging and transit. Wet bloodstains may be seen on large objects that cannot be removed from a crime scene. Wet blood should be wiped using a clean cotton cloth. Allow bloodstained cotton fabric to air dry before placing it in a paper container. Each object and container must be labelled correctly. ■ Dried Bloodstains: on removable items Dried bloodstains on weapons, clothing, and other mobile objects should be gathered separately rather than as a whole. Each item should be placed in its own (paper) container, which should be securely sealed and labelled. The bloodstain pattern should be noted and drawn as needed. The stain can be removed off the object using tape or scraped off with a clean piece of paper. The tape lifter or the blood crusted paper can then be placed in a "druggist fold" and sealed in an envelope. Each item must be appropriately labelled. Subscribe to get the latest posts sent to your email. The collection and preservation of blood stain evidence is important because this evidence can be used to type blood or run DNA analysis. There are two different types of blood that can be collected at a crime scene: liquid and dried blood. Liquid blood evidence is generally collected from blood pools but can be collected off of clothing as well, using a gauze pad or a sterile cotton cloth. Once the sample is collected it must be refrigerated or frozen and brought to the laboratory as quickly as possible. 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It is important for the investigator to remember to keep each sample separated so that there is no contamination between samples. Back to Crime Library How is Blood Collected from a Crime Scene? When a crime is committed, one of the most crucial pieces of evidence that investigators look for is blood. Blood can provide valuable information about the perpetrator, the victim, and the events surrounding the crime. In this article, we will explore the process of collecting blood from a crime scene and the importance of proper collection techniques. Why is Blood Collection Important? Blood is a vital piece of evidence in criminal investigations because it can: • Identify the perpetrator: Blood can be matched to a specific individual through DNA analysis, allowing investigators to identify the perpetrator. • Reconstruct the crime scene: Bloodstains can provide information about the location of the crime, the direction of movement, and the sequence of events. • Provide medical information: Blood can be analyzed to determine the victim's medical condition, including any underlying health issues or injuries. • Link evidence: Blood can be used to link multiple pieces of evidence together, such as a weapon, clothing, or other items found at the crime scene. How is Blood Collected from a Crime Scene? The process of collecting blood from a crime scene involves several steps: Preparation Before collecting blood, investigators must: • Wear personal protective equipment (PPE): Investigators wear gloves, masks, and protective clothing to prevent contamination and protect themselves from potential biohazards. • Survey the scene: Investigators carefully survey the crime scene to identify potential sources of blood and determine the best collection methods. • Document the scene: Investigators document the crime scene, including photographs and notes, to ensure that all evidence is preserved and accounted for. Collection Methods There are several methods for collecting blood from a crime scene: • Swabbing: Investigators use cotton swabs or Q-tips to collect blood from surfaces, such as walls, floors, and furniture. • Vacuuming: Investigators use vacuum cleaners with specialized filters to collect blood from carpets, rugs, and other soft surfaces. • Brushing: Investigators use soft-bristled brushes to collect blood from surfaces, such as clothing or fabric. • Direct collection: Investigators collect blood directly from the source, such as a wound or a bloodstain. Collection Techniques When collecting blood, investigators must use proper techniques to ensure that the evidence is preserved and not contaminated: • Use sterile equipment: Investigators use sterile equipment, such as gloves and swabs, to prevent contamination. • Avoid touching surfaces: Investigators avoid touching surfaces that may have come into contact with blood to prevent cross-contamination. • Use a controlled environment: Investigators collect blood in a controlled environment, such as a crime lab, to prevent contamination and ensure proper handling. Handling and Storage Once blood is collected, it must be handled and stored properly to ensure its integrity: • Labeling: Investigators label each sample with the crime scene number, location, and date. • Sealing: Investigators seal each sample in airtight containers to prevent contamination and degradation. • Storage: Investigators store each sample in a secure, climate-controlled environment, such as a crime lab or evidence storage facility. Conclusion Collecting blood from a crime scene is a critical step in the investigation process. Proper collection techniques and handling procedures are essential to ensure that the evidence is preserved and not contaminated. By following the steps outlined in this article, investigators can ensure that blood evidence is collected and handled properly, providing valuable information to help solve crimes and bring perpetrators to justice. Table: Blood Collection Methods Method Description Swabbing Collecting blood from surfaces using cotton swabs or Q-tips Vacuuming Collecting blood from carpets, rugs, and other soft surfaces using vacuum cleaners with specialized filters Brushing Collecting blood from surfaces using soft-bristled brushes Direct collection Collecting blood directly from the source, such as a wound or bloodstain Table: Blood Collection Techniques Technique Description Use sterile equipment Using sterile equipment, such as gloves and swabs, to prevent contamination Avoid touching surfaces Avoiding touching surfaces that may have come into contact with blood to prevent cross-contamination Use a controlled environment Collecting blood in a controlled environment, such as a crime lab, to prevent contamination and ensure proper handling Table: Handling and Storage Step Description Labeling Labeling each sample with the crime scene number, location, and date Sealing Sealing each sample in airtight containers to prevent contamination and degradation Storage Storing each sample in a secure, climate-controlled environment, such as a crime lab or evidence storage facility The National Institute of Justice says "DNA collection and analysis gives the criminal justice field a powerful tool for convicting the guilty and exonerating the innocent." Only one-tenth of one percent of DNA differs from person to person. Although the DNA between people is so similar the small differences can be used to identify an individual, victim or suspect. This DNA evidence is the most important evidence to lawyers, because it is the most accurate method of identifying someone. The Federal Bureau of Investigation (FBI) has chosen 13 points of Short Tandem Repeats to be used as the base for DNA analysis and aside from identical twins, the chances of these points being the same in two individuals is 1 in 1 billion or greater. DNA analysis is a fairly new technology. The first use of DNA analysis was in the 1980s to convict a man from Portland, Oregon of raping a 13 year old. In this case, DNA samples were taken from the suspect and from the fetus which had been aborted. The DNA was then analyzed and the results were conclusive. The results were conclusive because a fetus has the mother's and the father's DNA and common sequences between were found between the accused man's DNA and the fetus. The accused also confessed and was convicted. There are different techniques to analyze DNA. Most labs have the ability to test Nuclear DNA, which is DNA that is found in the Nucleus of every cell. There are other labs that have the ability to use mitochondrial DNA analysis or Y-chromosome analysis. One of the first techniques used to analyze DNA was Restriction Fragment Length Polymorphism or RFLP. This technique analyzes the length of repeating bases in strands of DNA. The repetitions are known as Variable Number Tandem Repeats, or VNTRs, due to the fact that they can repeat from up to thirty times per strand, though the number of time it repeats varies from strand to strand. The RFLP technique also requires the DNA to be dissolved in a specific enzyme that helps break the DNA at specific points. In the case of RFLPs, a large sample of DNA that has not been contaminated is needed. Another method of DNA analysis is Short Tandem Repeat (STR) Analysis . Unlike RFLP, STR analysis can use a smaller sample of DNA. This is because scientists can use a process known as Polymerase Chain Reaction or PCR to amplify or make copies of the DNA and produce the desired amount of material needed. Once the DNA has been amplified STR analysis looks at how many times base pairs repeat at a specific location. This can be repetitions of two (dinucleotide), three (trinucleotide), four (tetranucleotide) or five (pentanucleotide) base pairs. Investigators have found that base pairs of four or five seem to be the most accurate. A special method to analyze DNA is through Y-Marking analysis or analysis of the Y chromosome. This type of analysis helps identify DNA from different males. Another method that is special is Mitochondrial DNA Analysis. This type of analysis uses DNA from the mitochondria of a cell. It has been found that this type of DNA is most useful is helping to solve cold cases because degraded DNA (DNA that has been improperly stored or stored too long)can be analyzed and can help find a perpetrator. A new special technique Single Nucleotide Polymorphism or SNP are most often used to determine a person's chance of contracting a certain disease. Forensic scientists rarely use SNP, but did to help successfully identify victims of several September 11th victims after other identification methods failed. Back to Crime Library Home Crime Scene Response Evidence Collection Crime Scene and Evidence Photography Articles Videos College and University Programs Become a Crime Scene Investigator Employment Resources/Links Bookstore Search The importance of avoiding cross contamination cannot be overemphasized. The investigator performing the collection must ensure tools are clean or sterilized and that gloves are changed between handling each sample. Collection methods differ depending on the type of evidence and the substrate upon which it is found. It is preferable to collect evidence in its original state. If the evidence is fragile or can easily be lost, the entire object should be collected and packaged, if size and circumstances permit. Some laboratories recommend the submission of substrate controls. Substrate controls are clean samples of the collection materials or unstained portions of the material the biological evidence is deposited on. The laboratories can use these to troubleshoot contamination, Polymerase Chain Reaction (PCR) inhibition, or interference with fluorescence. The investigator should consult the local forensic laboratory and refer to the department standard operating procedures regarding collection and preservation of biological evidence. Blood & Other Body Fluids Type of Collection Procedure Cuttings Removal of a section of the item containing the stain using a sterile or clean cutting device. Wet Absorption A sterile swab, gauze pad, or threads are slightly moistened with sterile distilled water. An effort should be made to concentrate the stain in a localized portion of the swab or pad. For example, when using a swab, the stain should be concentrated on the tip. The collection medium is concentrated into the stain and allowed to air dry. Some laboratories recommend following the first moistened swabbing with a second dry swabbing to ensure thorough sample collection. Both swabs are retained and submitted for analysis. Scraping Method Using a clean razor blade or scalpel, the sample is scraped into a clean piece of paper that can be folded and packaged in a paper envelope or other appropriate packaging. Lifting with Tape For dried blood stains on a non-absorbent surface, fingerprint lifting tape may be placed over the stain and lifted off. The stain is transferred to the adhesive side of the tape, which may then be secured on a clear piece of acetate for submission to the laboratory. Hair & Fiber Collection Type of Collection Procedure Visual Collection On some surfaces, hairs and fibers can be seen with the naked eye. Using clean forceps and trace paper, the sample can be removed from the surface and placed into a clean piece of paper that can be folded and packaged in a paper envelope or other appropriate packaging. Tape Lifting Water or methanol soluble tapes are available for the collection of trace hair and fiber evidence. The tape is applied to the location of the suspected sample, removed, and packaged. Vacuuming Method The area where the suspected samples are located are vacuumed up and caught in a filtered trap attached to the vacuum. These samples are packaged in clean trace paper for submission to the laboratory. Vacuuming is the least desirable collection method because there is a risk of cross contamination if the equipment is not properly cleaned between each use. Back Forward