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Understanding the Dynamics and Forensics of Officer Involved Shooting Investigations

Title: *It's Hard to Argue with Something You Can See: Understanding the Role of Physical Evidence in Forensic Reconstructions*

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Title: It's Hard to Argue with Something you can see - Understanding the Role of Forensic Reconstructions in Officer Involved Shooting Investigations

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Officer involved shooting incidents have dominated news headlines in recent years. An officers decision to use deadly force is quickly judged by mainstream media coverage, who often portray those actions in a negative light without the benefit of the full information. Rarely are an officer's actions applied to existing case law when reported by the media. The negative public sentiment that results from such coverage further divides police-community relations and municipalities are often faced with contentious lawsuits. In reality there is much more to an officer involved shooting investigation than what appears on the surface of news media reports.

Police officers are often required to insert themselves into dangerous situations. When confronted with a potentially deadly situation, the human body goes through a physiological process in order to meet the immediate threat presented. This process should be properly understood and considered by those conducting the investigation and evaluating the officer's conduct.

Thorough forensic examinations and proper witness interviews, may provide information as to what occurred during the shooting event. The goal of the investigator is to collect and document physical and informational evidence, that will eventually be applied to applicable law, in order to determine whether or not the officer's use of force was justified.

This presentation will address the physiological process that one endures when standing in the face of a life or death; fight or flight moment. Forensic exams that assist in reconstructing officer involved shooting events such as ballistics, trajectory, gunshot residue analysis, bloodstains patterns, and wound identification will all be discussed during the presentation.

This presentation will address the general roles that forensic sciences such as bloodstain pattern analysis, shooting reconstruction, and general scene reconstruction play in investigations. Emphasis will be placed on the dynamics of officer involved shooting investigations.

Long before the inception of what we now call *forensic evidence* Law enforcement relied on *physical evidence* to prove or disprove matters in question. The introduction of advanced scientific techniques into criminal and civil investigations has captivated the general public and placed huge demands on scientific laboratories, however, the underlying concept of physical evidence has remained unchanged for many years.

Physical evidence is as simple as the name implies; a type of evidence that can be seen or touched. The very premise upon which crime scene investigations are conducted involves collecting items of physical evidence in order to conclusively prove or disprove an issue or a matter in question. Suppose one were to stand before a group of people with an object concealed under a cardboard box and then announce to the group that object was blue in color. The group listening to the announcement has a decision to make. Do I take the word of the announcer that the object is blue, or should I request further proof? If the announcer then removed the cardboard box allowing the object to be seen by the group and thereby proving that the object was blue, it removes the issue of uncertainty. Now the group can clearly see that the object is blue. More likely than not the group now accepts as factual the color of the object as being blue.

This same basic premise correlates to crime scene investigations. Long before the inception of science and technology into criminal and civil investigations, physical evidence was collected as a means of corroborating or refuting an issue. While testimonial evidence will normally play a role in most investigations, physical evidence is much more convincing… it's hard to argue with something you can see. When a person holds a blue object in front of you, it's difficult to refute that the object is blue when you are looking at it. When the appropriate physical evidence is collected from the scene, the details of the scene and the event become more convincing. Physical evidence never lies. It's presence at the scene speaks for itself.

With the advancements of science and technology in criminal and civil investigations, there are scientific disciplines available by which to document physical evidence in order to corroborate or refute issues that arise. A proper understanding of bloodstain patterns and ballistic evidence will assist in corroborating or refuting issues within the case investigation.

Bloodstain Pattern Analysis:

Bloodstain Pattern Analysis is the examination and interpretation of the shapes, sizes, locations, directions, and distribution patterns of bloodstains at a given scene, in order to provide an interpretation of the physical events which gave rise to their origin. By understanding the basic physical properties of liquid blood and its flight characteristics, reliable assessments may be made in order to explain how particular bloodstains came to be present in the manner in which they are observed.

The proper identification and documentation of bloodstains at a scene may be used to: corroborate or refute statements of principles in the case, determine the amount of force used to create the bloodstains, determine the area of origin from which the bloodstains originated, or to articulate certain activities and movements of the people involved.

The proper documentation of blood letting scenes involves memorializing the areas that contain blood as well as the areas that do not contain blood. The absence of blood can be just as important to the overall reconstruction as the presence of blood. All bloodstains should be observed and understood within the context of the scene.

Ballistics:

Ballistics is the study of Bullets and Firearms. Ballistic evidence may assist in determining issues such as:

- The type of firearm that was used in the shooting event
- The type of bullet used in the shooting event
- The number of rounds fired
- The *approximate* location of the shooter based on ejected cartridge casing locations
- The angle at which a bullet penetrates a surface
- The bullet's flight path or trajectory
- The identification of the specific firearm used in the event

The study of ballistics is generally broken down into the following subcategories:

Internal Ballistics is the study of projectiles in the weapon. Internal ballistics essentially involves the sequence of events surrounding the shot being fired.

External Ballistics is the study of the flight of the bullet in air, from the moment it leaves the gun to the moment it strikes a target.

Terminal Ballistics is the study of the penetration of bullets into solid material.

Wound Ballistics: is the study of the penetration of bullets into skin and tissue.

Gunshot wounds may take on different appearances depending on variables such as: the distance from the firearm to the victim, whether or not the bullet struck an intermediate surface prior to striking the victim, the caliber of the weapon used, etc.

A Contact Wound occurs when the muzzle of the gun is pressed into direct contact with the skin.

An Intermediate Range Wound occurs when the muzzle of the gun is held away from the body at a distance in which the powder particles may land on the skin and produce stippling or powder tattooing.

A distance wound occurs when the muzzle of the gun is held at a distance away from the body that is great enough as to prohibit any particles or soot from being deposited on the skin or clothing.

Muzzle to target distance determination tests may be performed in order to approximate the distance from which a shot was fired.

Officer Involved Shooting Investigations:

Most officer involved shootings happen suddenly and leave little time for cognitive decision making. Danger is most often in close proximity to the officer which prompts high levels of sympathetic nervous system response. This results in many cognitive and physiological changes to the officer, which the officer can not control. As a result, the shooting officer may experience difficulty in recalling certain events, recalling the number of rounds fired, or may have difficulty in determining correct times or distances. The officer may further experience auditory occlusion or exclusion as well as tunnel vision or focus vision. When the shooting officer focuses intently on the imminent threat before him, he may not be aware of events occurring in the surrounding areas. In light of these situations, it becomes important for the crime scene investigator to document the appropriate information and to reconstruct the events leading up to and including the shooting itself.

When investigating officer involved shooting incidents, distances should be noted and careful measurements should be taken. The presence or absence of cover available to the officer should be noted and recorded. The perspective of the officer facing the imminent threat should be recorded as well as the perspective of the person/threat toward the officer.

Document the threat that was perceived by the officer. If the offender possessed a firearm, note the condition of the firearm. Is the safety on or off? How many cartridges are loaded into the firearm? Has the offender actually fired the weapon? If no weapon is recovered, document the circumstances surrounding the event that put the officer in fear. What did the officer perceive as a threat, and does the evidence support or contradict that perception as being reasonable?

Round counts should be performed on the duty weapons of all officers involved in the shooting. Determine the number of rounds issued to the shooting officer(s) by their respective agency. Secure the duty firearm from the officer and note the number of cartridges remaining in both the duty firearm and any additional magazine carriers. This information will assist in accurately determining the number of rounds fired by each officer. After the remaining cartridges have been properly documented, the officer's duty weapon should be retained in the agency's evidence room until the adjudication of the case.