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Destroying Myths & Discovering Cold Facts
with Force Science Institute

10 limitations of body cams you need to know for your protection

A special report from the Force Science Institute

The idea is building that once every cop is equipped with a body camera, the controversy will be taken out of police shootings and other uses of force because "what really happened" will be captured on video for all to see.

Well, to borrow the title from an old Gershwin tune, "It Ain't Necessarily So."

There's no doubt that body cameras — like dash cams, cell phone cams, and surveillance cams — can provide a unique perspective on police encounters and, in most cases, are likely to help officers. But like those other devices, a camera mounted on your uniform or on your head has limitations that need to be understood and considered when evaluating the images they record.

"Rushing to condemn an officer for inappropriate behavior based solely on body-camera evidence can be a dicey proposition," cautions Dr. Bill Lewinski, executive director of the Force Science Institute. "Certainly, a camera can provide more information about what happened on the street. But it can't necessarily provide all the information needed to make a fair and impartial final judgment. There still may be influential human factors involved, apart from what the camera sees."

In a recent conversation with Force Science News, Lewinski enumerated 10 limitations that are important to keep in mind regarding body-camera evidence (and, for the most part, recordings from other cameras as well) if you are an investigator, a police attorney, a force reviewer, or an involved officer. This information may also be helpful in efforts to educate your community.

(Some of these points are elaborated on in greater depth during the Force Science Certification Course. Visit www.forcescience.org for information on the course. An earlier report on body cam limitations appeared in Force Science News #145, sent 3/12/10. You will find online it at: www.forcescience.org/fsnews/145.html)

1. A camera doesn't follow your eyes or see as they see.

At the current level of development, a body camera is not an eye-tracker like FSI has used in some of its studies of officer attention. That complex apparatus can follow the movement of your eyes and superimpose on video small red circles that mark precisely where you are looking from one microsecond to the next.

"A body camera photographs a broad scene but it can't document where within that scene you are looking at any given instant," Lewinski says. "If you glance away from where the camera is concentrating, you may not see action within the camera frame that appears to be occurring 'right before your eyes.'"

"Likewise, the camera can't acknowledge physiological and psychological phenomena that you may experience under high stress. As a survival mechanism, your brain may suppress some incoming visual images that seem unimportant in a life-threatening situation so you can completely focus very narrowly on the threat. You won't be aware of what your brain is screening out.

"Your brain may also play visual tricks on you that the camera can't match. If a suspect is driving a vehicle toward you, for example, it will seem to be closer, larger, and faster than it really is because of a phenomenon called 'looming.' Camera footage may not convey the same sense of threat that you experienced.

"In short, there can be a huge disconnect between your field of view and your visual perception and the camera's. Later, someone reviewing what's caught on camera and judging your actions could have a profoundly different sense of what happened than you had at the time it was occurring."

2. Some important danger cues can't be recorded.

"Tactile cues that are often important to officers in deciding to use force are difficult for cameras to capture," Lewinski says. "Resistive tension is a prime example.

"You can usually tell when you touch a suspect whether he or she is going to resist. You may quickly apply force as a preemptive measure, but on camera it may look like you made an unprovoked attack, because the sensory cue you felt doesn't record visually."

And, of course, the camera can't record the history and experience you bring to an encounter. "Suspect behavior that may appear innocuous on film to a naïve civilian can convey the risk of mortal danger to you as a streetwise officer," Lewinski says. "For instance, an assaultive subject who brings his hands up may look to a civilian like he's surrendering, but to you, based on past experience, that can be a very intimidating and combative movement, signaling his preparation for a fighting attack. The camera just captures the action, not your interpretation."

3. Camera speed differs from the speed of life.

Because body cameras record at much higher speeds than typical convenience store or correctional facility security cameras, it's less likely that important details will be lost in the millisecond gaps between frames, as sometimes happens with those cruder devices.

"But it's still theoretically possible that something as brief as a muzzle flash or the glint of a knife blade that may become a factor in a use-of-force case could still fail to be recorded," Lewinski says.

Of greater consequence, he believes, is the body camera's depiction of action and reaction times.

"Because of the reactionary curve, an officer can be half a second or more behind the action as it unfolds on the screen," Lewinski explains. "Whether he's shooting or stopping shooting, his recognition, decision-making, and physical activation all take time — but obviously can't be shown on camera.

"People who don't understand this reactionary process won't factor it in when viewing the footage. They'll think the officer is keeping pace with the speed of the action as the camera records it. So without knowledgeable input, they aren't likely to understand how an officer can unintentionally end up placing rounds in a suspect's back or firing additional shots after a threat has ended."

4. A camera may see better than you do in low light.

"The high-tech imaging of body cameras allows them to record with clarity in many low-light settings," Lewinski says. "When footage is screened later, it may actually be possible to see elements of the scene in sharper detail than you could at the time the camera was activated.

"If you are receiving less visual information than the camera is recording under time-pressured circumstances, you are going to be more dependent on context and movement in assessing and reacting to potential threats. In dim light, a suspect's posturing will likely mean more to you immediately than some object he's holding. When footage is reviewed later, it may be evident that the object in his hand was a cell phone, say, rather than a gun. If you're expected to have seen that as clearly as the camera did, your reaction might seem highly inappropriate."

On the other hand, he notes, cameras do not always deal well with lighting transitions. "Going suddenly from bright to dim light or vice versa, a camera may briefly blank out images altogether," he says.

5. Your body may block the view.

"How much of a scene a camera captures is highly dependent on where it's positioned and where the action takes place," Lewinski notes. "Depending on location and angle, a picture may be blocked by your own body parts, from your nose to your hands.

"If you're firing a gun or a Taser, for example, a camera on your chest may not record much more than your extended arms and hands. Or just blading your stance may obscure the camera's view. Critical moments within a scenario that you can see may be missed entirely by your body cam because of these dynamics, ultimately masking what a reviewer may need to see to make a fair judgment."

6. A camera only records in 2-D.

Because cameras don't record depth of field — the third dimension that's perceived by the human eye — accurately judging distances on their footage can be difficult.

"Depending on the lens involved, cameras may compress distances between objects or make them appear closer than they really are," Lewinski says. "Without a proper sense of distance, a reviewer may misinterpret the level of threat an officer was facing."

In the Force Science Certification Course, he critiques several camera images in which distance distortion became problematic. In one, an officer's use of force seemed inappropriate because the suspect appears to be too far away to pose an immediate threat. In another, an officer appears to strike a suspect's head with a flashlight when, in fact, the blow was directed at a hand and never touched the head.

"There are technical means for determining distances on 2-D recordings," Lewinski says, "but these are not commonly known or accessed by most investigators."

7. The absence of sophisticated time-stamping may prove critical.

The time-stamping that is automatically imposed on camera footage is a gross number, generally measuring the action minute by minute. "In some high-profile, controversial shooting cases that is not sophisticated enough," Lewinski says. "To fully analyze and explain an officer's perceptions, reaction time, judgment, and decision-making it may be critical to break the action down to units of one-hundredths of a second or even less.

"There are post-production computer programs that can electronically encode footage to those specifications, and the Force Science Institute strongly recommends that these be employed. When reviewers see precisely how quickly suspects can move and how fast the various elements of a use-of-force event unfold, it can radically change their perception of what happened and the pressure involved officers were under to act."

8. One camera may not be enough.

"The more cameras there are recording a force event, the more opportunities there are likely to be to clarify uncertainties," Lewinski says. "The angle, the ambient lighting, and other elements will almost certainly vary from one officer's perspective to another's, and syncing the footage up will provide broader information for understanding the dynamics of what happened. What looks like an egregious action from one angle may seem perfectly justified from another.

"Think of the analysis of plays in a football game. In resolving close calls, referees want to view the action from as many cameras as possible to fully understand what they're seeing. Ideally, officers deserve the same consideration. The problem is that many times there is only one camera involved, compared to a dozen that may be consulted in a sporting event, and in that case the limitations must be kept even firmer in mind.

9. A camera encourages second-guessing.

"According to the U. S. Supreme Court in *Graham v. Connor*, an officer's decisions in tense, uncertain, and rapidly evolving situations are not to be judged with the '20/20 vision of hindsight,'" Lewinski notes. "But in the real-world aftermath of a shooting, camera footage provides an almost irresistible temptation for reviewers to play the coulda-shoulda game.

"Under calm and comfortable conditions, they can infinitely replay the action, scrutinize it for hard-to-see detail, slow it down, freeze it. The officer had to assess what he was experiencing while it was happening and under the stress of his life potentially being on the line. That disparity can lead to far different conclusions.

"As part of the incident investigation, we recommend that an officer be permitted to see what his body camera and other cameras recorded. He should be cautioned, however, to regard the footage only as informational. He should not allow it to supplant his first-hand memory of the incident. Justification for a shooting or other use of force will come from what an officer reasonably perceived, not necessarily from what a camera saw."

[For more details about FSI's position on whether officers should be allowed to view video of their incidents, see Force Science News #114 (1/17/09). You will find online it at: www.forcescience.org/fsnews/114.html]

10. A camera can never replace a thorough investigation.

When officers oppose wearing cameras, civilians sometimes assume they fear "transparency." But more often, Lewinski believes, they are concerned that camera recordings will be given undue, if not exclusive, weight in judging their actions.

"A camera's recording should never be regarded solely as the Truth about a controversial incident," Lewinski declares. "It needs to be weighed and tested against witness testimony, forensics, the involved officer's statement, and other elements of a fair, thorough, and impartial investigation that takes human factors into consideration.

"This is in no way intended to belittle the merits of body cameras. Early testing has shown that they tend to reduce the frequency of force encounters as well as complaints against officers.

"But a well-known police defense attorney is not far wrong when he calls cameras 'the best evidence and the worst evidence.' The limitations of body cams and others need to be fully understood and evaluated to maximize their effectiveness and to assure that they are not regarded as infallible 'magic bullets' by people who do not fully grasp the realities of force dynamics."

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About the author

The Force Science Institute was launched in 2004 by Executive Director Bill Lewinski, PhD. - a specialist in police psychology -- to conduct unique lethal-force experiments. The non-profit Force Science Institute, based at Minnesota State University-Mankato, uses sophisticated time-and-motion measurements to document-for the first time-critical hidden truths about the physical and mental dynamics of life-threatening events, particularly officer-involved shootings. Its startling findings profoundly impact on officer training and safety and on the public's naive perceptions.

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