



FORCE SCIENCE[®] NEWS

Chuck Remsberg
Editor-in-Chief

In This Edition:

- I. New study sparks debate over Tasing, brain function, & Miranda
- II. Lewinski asked to keynote major world health conference
- III. "PERF 30" continue to draw heat from law enforcement

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New study sparks debate over Tasing, brain function & Miranda

Training note: Body Cameras & Other Recordings in Law Enforcement: Critical Force Science Issues Impacting Investigations, Policy, and Incident Analysis will be conducted at the Force Science Training Center in Chicago on June 2-3, 2016. Seating is limited. Registrations are now being accepted.

For more information and directions for registering click here or visit: www.forcescience.org/camercourse.html or e-mail us at: training@forcescience.org.

Thanks.
Scott Buhmaster, Vice President of Operations, Force Science Institute



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INSTITUTE

I. New study sparks debate over Tasing, brain function, & Miranda

Does the shock from a conducted energy weapon impair a suspect's brain function to the point that he or she may not properly respond to a Miranda warning?

A CJ research team raises that question in reporting new findings that a person's cognition suffers significantly for a short period after a CEW exposure.

Their evidence is not sufficient to "call for a national policy" on post-CEW procedures, the researchers concede, but their report suggests that waiting "60 minutes before interrogating suspects who were exposed to a TASER" may be prudent.

Some TASER experts, however, argue that the new study is far too narrow and flawed and that the authors have greatly overstated the relevance of their conclusions.

The study was conducted by Dr. Robert Kane, professor and department head of criminology and justice studies at Drexel University in Philadelphia, and Dr. Michael White, a CJ professor at Arizona State University and associate director of that school's Center for Violence Prevention and Community Safety. Kane and White are co-authors of the book, *Jammed Up: Bad Cops, Police Misconduct*, and the New York City Police Department.

Their study, funded by the DOJ's National Institute of Justice and published in the journal *Criminology & Public Policy*, can be accessed in full without charge.

Click Here <https://arstechnica.com/wp-content/uploads/2016/02/taserpaper.pdf> to download a copy.

Noting that most CEW research has focused on effects of shocks on the heart, Kane and White wanted to explore "whether the device impairs a person's cognitive functioning and, if so, whether that impairment may be severe enough to threaten the 'voluntary, knowing, and intelligent' requirements for a valid Miranda waiver."

EXPERIMENTAL GROUPS. The researchers' testing involved 142 healthy volunteers "who passed rigorous screening protocols" to assure they were sober, drug-free, and clear of any mental or medical problems. Drawn from a campus population, nearly two-thirds were white and about a quarter were black or Hispanic; over three quarters were male; and 95% were in their late teens or early 20s.

Randomly they were divided among four "experimental conditions": Control (who experienced no "intervention"), Exertion (who punched a heavy bag "vigorously" for 30 seconds to "mimic resistance against police"), TASER (who received a five-second CEW exposure from certified police instructors, while face down on a mat in a laboratory setting), and TASER+Exertion (who hit the bag first, then were Tased). The CEW exposures were not across the head or near the brain.

Each participant "completed a battery of valid and reliable neurocognitive tests" at five different times: an hour before their experimental event, immediately afterward, and then an hour, a day, and a week later.

These tests, the researchers say, objectively measured "a range of cognitive dimensions, including auditory recall, verbal learning and memory, visual [perception], speed of processing, mental flexibility, and motor function."

Before and after the experiments, the volunteers were also asked to subjectively rate their personal "difficulties" with memory and concentration.

COGNITIVE DECLINE. The objective tests showed that there were "no significant differences in cognitive functioning" between the four groups before their experimental exposures, Kane and White report.

However, the researchers write, the results indicate that "TASER exposure led to significant and substantial reductions in (a) short-term auditory recall and (b) abilities to assimilate new information through auditory processes." This disruption of memory and the ability to "assimilate and synthesize new information," which lasted up to one hour before returning to normal, was "considerable," they write.

In the initial baseline testing, all the volunteer groups averaged "just above the normal range [of cognition] for healthy young adults." But immediately after being Tased, approximately one-quarter of each of the two TASER-CEW groups showed a decline in cognitive function to a level expected for 79-year-old non-demented adults--that is, "within the range of mild cognitive impairment."

Only one-fifth of each CEW group performed at or above the pre-exposure

average. In some test results, the average score in the CEW groups declined by more than 30%, the researchers note, in stark contrast to the Control and Exercise-only groups, which "did not change significantly." This is "both statistically significant and clinically important," Kane and White assert.

In addition, CEW exposure "caused significant negative change" in the volunteers' subjective self-assessment. Immediately post-shock, they reported higher levels of difficulty with concentration, anxiety, and feeling overwhelmed, although these reactions began to dissipate quickly.

So, too, did the objective measurements of decline. By the follow-up testing an hour later, scores for learning and memory had returned to baseline levels, "suggesting that the deficits in cognitive functioning [caused by CEW exposure] are short-term."

MIRANDA IMPLICATIONS? Kane and White did not test the volunteers with any reading of the Miranda caution to see specifically what impact a temporary cognitive decline might have on comprehending or waiving the warning. Instead, they evaluated participants' memory and learning based on the ability to recall strings of unrelated spoken words and numbers. In the researchers' opinion, this represented "a favorable alternative" to Miranda-specific tests, "at least in an initial study."

Nonetheless, they claim their findings suggest that "not only might our participants be more likely to waive their Miranda rights directly after TASER exposure, but also they would be more likely to give inaccurate information to investigators.

"Thus, part of our findings implicates a suspect's ability to issue a valid waiver, whereas another part implicates the accuracy of information he or she might give investigators during a custodial interrogation (e.g., false confessions or statements)."

The researchers raise the specter of innocent parties unable "to process adequately the consequences of waiving their Miranda rights" and thus becoming "susceptible to suggestibility or memory lapses" and making incriminating, inaccurate, or untrustworthy statements "based on short-term memory impairment," without benefit of counsel.

In one online news story (from Science Daily), Kane was quoted: "There are plenty of people in prison who were Tased and then immediately questioned. Were they intellectually capable of giving 'knowing' and 'valid' waivers of their Miranda rights before being subjected to a police interrogation?" The study report poses the question: "What would it cost the police under routine circumstances to wait 60 minutes after a successful TASER deployment before administering Miranda warnings and trying to obtain a waiver from suspects?"

EXPERT REBUTTAL. In a statement given to Force Science News, TASER International, Inc., manufacturer of the CEW used in the study, charged that Kane and White "make a giant leap by generalizing [their] findings to the broader question of a suspect understanding a Miranda warning. It is very difficult to take a small word-recall score difference (a change of four words out of a series of 36) and generalize that to the understanding of the Miranda warning."

The company alleges that the study:

- "over-emphasizes a few measures of those tested and ignores others," including the fact that "the TASER group showed statistically significant improvements in some of the measures immediately after exposure"
- "unfairly de-emphasized the fact that the [Exertion-only] group also had decrements in [cognitive] performance," and that the decline would likely have been even greater had the simulated resistance to police been more realistic than college students punching a bag
- "over-relies on non-objective self-reporting"
- "uses a small statistical difference on essentially one of the cognitive batteries to generalize to a statement about understanding consequences."

Two TASER consultants, Drs. Donald Dawes and Jeffrey Ho, recognized as among the world's most prolific and prominent researchers of CEW effects, have previously published findings in 2013 related to the impact of CEW exposure on brain function. They agree that shocks from a control device "will cause transient decrements in neurocognitive functioning in the immediate post-exposure period."

But, they say, their study shows that this is as true of other stressful force encounters, including realistic fighting, running from police, receiving a pepper spraying with an eye shield, and a K-9 bite in a bite suit, as it is of CEW exposure.

Dawes has written: "It is clear that all use-of-force encounters, possibly as well as other arrest stressors separate from force (fear of incarceration, etc.), can affect some areas of neurocognition as part of a generalized stress response. But that stress is not specific to one force option and does not necessarily extrapolate to an inability to understand consequences and the Miranda warning."

"It is very important to put all this into perspective," says Atty. Michael Brave, National/International litigation counsel for TASER International Inc. "Imagine the ramifications if officers were required to wait 60 minutes after every encounter involving a stressed person (exertion, emotional distress, agitation, alcohol, drugs, mental impairment, in crisis, etc.) to attempt to acquire any form of consent or waiver (including, but not limited to: Miranda rights, performance of field sobriety tests, giving of statements, consent to search, or other action requiring voluntary, knowing, and intelligent wavier or consent).

MORE WORK AHEAD. In their report, Kane and White clearly state that more research is needed to "assess more accurately the link" between CEW exposure and the informed exercise of Miranda rights. "We recommend a line of research that treats cognitive functioning with the same importance as physical and physiological health with respect to TASER exposure," they write.

In future testing, they also suggest using an experimental population that more closely mirrors the "typical" suspects likely to be Tased in the field rather than the "healthy, well-educated, sober, and drug-free" subjects recruited for the current study. Suspects who are "drunk, high, or mentally

ill and in crisis at the time of [CEW] exposure" will likely experience "even greater impairment to cognitive functioning," Kane and White speculate.

One "logical next step" is to use actual Miranda warnings--there are nearly 50 different versions in existence--in assessing post-CEW comprehension, says Dr. Michael Smith, director of the Center for Law and Human Behavior at the University of Texas-El Paso.

Meanwhile, Kane and White express the hope that their findings will "initiate a public dialogue" regarding CEWs and cognitive competence during custodial interrogation.

Our thanks to Lt. Glen Mills of the Burlington (MA) PD for first bringing this study to our attention.

II. Lewinski asked to keynote major world health conference

Dr. Bill Lewinski, executive director of the Force Science Institute, has been asked to present a keynote address next fall at the prestigious annual Leaders in Healthcare conference in Liverpool, England.

The international event is expected to attract more than 1,000 medical professionals from the United Kingdom and abroad to hear "the latest ideas and leading speakers with knowledge and solutions to support the future of healthcare leadership and management," according to its sponsors.

Lewinski is expected to speak on Human Dynamics and Situation Awareness under Extreme Stress.

The conference, running from Oct. 31 to Nov. 2, is sponsored by the professional organization the Faculty of Medical Leadership and Management, the British Medical Journal, and the National Health System of England.

III. "PERF 30" continue to draw heat from law enforcement

Letters of protest continue to arrive from our readers regarding the 30 Guidelines from PERF (Police Executive Research Forum) for retraining LEOs nationwide and reshaping American policing [See Force Science News #303 and #304]. Samples, edited for brevity and clarity:

No-shoot in high-risk encounter: A "model" response?

I attended a PERF conference at which the 30 principles were described. We were shown video of a rookie Ohio officer and his high-risk encounter with a suspect who had committed two murders. [Note: The suspect refused to remove his hand from his pocket while rushing toward the officer and at one point threatened to shoot the officer.] The officer chose not to shoot the suspect. We each make those life-or-death decisions and they all come down to the amount of personal risk an officer is willing to accept to have a no-shoot outcome.

The problem was that the presenter, a Chief Inspector from England, framed this officer's response as the "model" by which LEOs should be judging their response to similar situations. PERF's executive director Chuck Wexler was present but offered no comment on our objections to this premise.

One of my classmates explained his objection to the "model," stating that he has a wife and children at home. The inspector, if I remember right, wondered what that had to do with anything? Again, Mr. Wexler offered no comment.

While I think there are many things in the 30 principles that we could and should easily adopt, they are far too sweeping and general, along with lacking the support of thorough research, to be wholeheartedly embraced.

Ptl. Lt. Neal Maranto
North Richland Hills (TX) PD

Bagpipe time

We need to brush off our "Class A's" and check out mourning bands. These recommendations are going to lead to a bloodbath.

Ranger Al Chitwood
Lower Colorado River Authority
Austin, TX

PERF recs "invite & encourage non-compliance "Currently teaching deadly force/use of force to protective officers at a DOE national laboratory, I believe the biggest problem with some of PERF's recommendations is that they would invite and encourage non-compliance by persons who encounter the police. This puts officers and innocent third parties at greater risk of injury by dangerous persons and increases the risk that at some point an officer will need to use deadly force, thus escalating, rather than de-escalating, the situation.

PERF's recommendations fail to address the fact that the major reason officers must resort to deadly force is the failure of persons to comply with police commands.

Steven H. Surowitz
FBI Chief Division Counsel/Supervisory
Spcl. Agt. (ret.)

President, SHS Solutions LLC
Greater NYC area

Written by Force Science Institute
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