

# FORCE SCIENCE<sup>®</sup> INSTITUTE, Ltd.

## Force Science<sup>®</sup> News #64

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### **Cell Phones & Accidents: New Study Gets Underway**

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#### **I. NEW, FREE ON-LINE LAW JOURNAL FOR POLICE, CORRECTIONS**

You can now browse and click your way free of charge to a valuable new resource on legal issues for LE, thanks to Americans for Effective Law Enforcement. AELE, the nation's foremost provider of information about court decisions and legal interpretations pertaining to policing and corrections, has just launched an on-line Monthly Law Journal on its website at <http://www.aele.org/law/index.html>

Each issue, accessible without cost, will contain in-depth articles on court rulings and legal opinions regarding issues of LE liability, public service employment law, and jail and prisoner legal matters.

The Journal for February, for example, includes extensive explorations of these sometimes perplexing topics:

–Civil liability and pursuit driving, including specimen policies, an important U.S. Supreme Court ruling that is expected by next summer pertaining to ramming, a survey of

federal case law on vehicle chases and liability risks under state law.

–Legal limitations on regulations about grooming and appearance for public safety workers, including issues of tattoos, piercings, jewelry, dental ornamentation, cosmetics and religious headwear.

–Civil liability related to in-custody suicides, including the relative risks under federal civil rights standards and state wrongful death laws, an examination of recent case law and helpful resources such as suicide prevention programs designed by the Federal Bureau of Prisons.

In most cases where specific rulings are cited the entire court decision can be accessed.

“It has long been my goal to disseminate legal information directly to first responders and detectives,” says Wayne Schmidt, AELE’s executive director. “Internet-based publications now make that possible.”

At the AELE website, you can also gain free access to the organization’s 3 outstanding monthly publications, Law Enforcement Liability Reporter, Fire & Police Personnel Reporter, and Jail & Prisoner Law Bulletin. Each contains the latest court decisions in its specialty area.

The organization’s vast law library is fully searchable by topic. You’ll also find a listing and registration information for AELE’s excellent seminars, including its upcoming 3-day Lethal and Less-Lethal Force program featuring representatives of the Force Science Research Center. (See Force Science News “Extra” Transmission sent 1/19/07.)

## **II. FROM OUR EMAIL IN-BOX....**

Our mailbox has been active of late, with readers posing questions and expressing provocative views on recent topics covered by Force Science News. We share this sampling to prompt reflection and discussion about important law enforcement issues. Some letters have been edited for length and clarity.

## DO HIGH HEART RATES REALLY HURT FINE MOTOR SKILLS?

We all know that during a lethal-force encounter the heart rate rises dramatically and the loss of fine motor skills occurs around 175 bpm and above. Our firearms trainers feel that racking the slide of your pistol with a grasping motion (slide between the bottom of the palm and fingertips) to load a round or clear a malfunction is better than hitting the slide release lever with your thumb. That's because large muscle groups are involved in the grasping motion rather than the fine motor skill of using the thumb.

Is there really that big a difference? My trigger finger has no problem pulling the trigger under high stress. Why wouldn't my thumb respond the same way? I have used the thumb release method for years and years, but I don't know if it will work under high stress. Any thoughts?

Heath Appleton  
Deputy Probation Ofcr. II  
Gang Intervention & Suppression Unit Kern County (CA) Probation Dept.

DR. BILL LEWINSKI, Executive Director of the Force Science Research Center at Minnesota State University-Mankato,  
RESPONDS:

The idea that a high heart rate causes a loss of fine motor skills is a myth. The culprit is fear or anger, not heart rate per se.

It's true that if you reach a very high heart rate through physical exertion and are trying to both sight a handgun and breathe, for example, you may experience some MINOR issues with fine psychomotor skills. However, keep in mind that well-trained biathlon athletes fire accurate shots with a pulse of 180 bpm, and even mediocre sandlot basketball players under the high pulse rates of a very competitive game make pretty good shots.

We much more noticeably lose psychomotor skills under fear or anger, primarily because of our inability to focus attention properly when distressed. The key is training. With a proper training program that allows you to repeatedly

practice your skills while under a high degree of stress, you will build your confidence and reduce the impact of negative emotions so that you can maintain your fine-motor dexterity when faced with real-life challenges. In other words, good training can help you build a history of successful performance under high stress.

Heath, don't worry about your thumb.

## BLOOD PRESSURE, SLEEP LOSS CAN IMPACT OIS STATEMENTS

Regarding the experiments about stress during simulation training [See Transmission #61, 12/15/06], was a measurement of the officers' blood pressure taken?

When I met one officer at the hospital over an hour after a shooting, his blood pressure was extremely elevated, even though he is fit. High stress and genetics play a role.

Forcing officers to make statements soon after a critical event when blood pressure is elevated, along with negative chemical effects on the body and mind, is counterproductive and fraught with issues.

Also holding officers to reporting without sleep can only produce flawed results. I once spoke with a sergeant who, after being up for 36 hours, was required to make a report on a shooting. Care to guess how that went? Any statement from an individual known to be under the influence of drugs or alcohol would be suspect. Yet some agencies mandate officers to make statements when under the influence of stress-reaction chemicals and when having had no sleep for extended periods.

We send officers out on the street to fight violent criminals. When they do, we should treat them with respect and be certain that the process of investigation is valid and that those who do the investigation are competent.

Chief Jeff Chudwin  
Olympia Fields (IL) PD and president of the Illinois Tactical Officers Assn.

LEWINSKI COMMENTS: No, the blood pressure of participating officers was not taken as part of the experiments described,

but you are right in identifying it as an important issue.  
This is a measurement we hope to examine in future research.

## IS STRESS TRAINING GETTING UGLY?

In Transmission #61 [12/15/06], reference is made to simulation training providing a “stress inoculation” for officers. In my opinion, many trainers do not know how stress inoculation training should be put together, so they just “stress people out.”

One teaching philosophy advocates that we allow people to “win” at their scenarios. Another says we allow them to get “killed,” etc. Which one an academy uses is pretty much dependent upon who is in charge at that academy.

We need experts to tell us, step by step, how to put together stress-inoculation training that is best for the recruit/officer. What does science tell us about how we learn best? When we find the answer to that, we need to train our trainers in that methodology of stress inoculation.

In my opinion, we are entering an area within police training which can have a very ugly impact on officers—in their ability to perform or not perform well—because we have created scars of fear, defeat and hesitation in them by our training methods. (I am speaking in general here, not with any one agency or academy in mind.)

This can be likened to the poor training methodology of the '70s when we were busy policing our brass and shooting a target once and believing it to be killed. Cops were then found dead in gunfights with their brass policed and they would be killed by nonfatal wounds because they learned in training that a bullet “kills” a subject. The damn suspects never went through this training and when they were shot they continued to fight on. We need to understand the value of stress-inoculation training but we MUST know the proper methodology of doing it.

Mark Zbojniewicz  
Training Specialist,  
AZ POST Board Chairman, Def. Tactics Subject Matter Expert Cmte.

LEWINSKI OBSERVES: You are absolutely correct. Mere stress exposure—getting a trainee hyped up to the fraying point with no positive outcome—is not proper stress inoculation. Failure is not necessarily helpful.

It is primarily when we SUCCESSFULLY perform at a higher-than-familiar stress level that inoculating effect begins to occur. Unfortunately some trainers focus on the high stress level and forget the successful performance.

LE personnel in pre-service and in-service training do not need to be pampered, but confidence and competence—the 2 elements required for great performance under stress—are not gained by stress drills that primarily result in failure. As to an exact training methodology that best results in preparation for a life-threatening encounter, that is a subject that the FSRC is seeking to better illuminate through a number of current and planned long-term research experiments.

DR. ALEXIS ARTWOHL, a member of FSRC's National Advisory Board who has an extensive background in police psychology, ADDS:

I don't believe "killing" recruits during training is necessary or even advisable. We certainly want to point out errors that could get them shot, stabbed, etc., and give them the opportunity to improve their performance. But telling them they were "killed" or otherwise having them "practice" being killed is not even necessarily accurate, based on FBI research which shows that "it is impossible to predict how a human being will react to being shot."

People can be shot center mass and even in the head and not only continue to respond but also survive the wound. Even if someone has a fatal wound, it may not stop their behavior immediately; in fact, they can often continue to respond for many seconds.

So an instructor pretending to know that any shot would be "fatal" or, even if it was fatal, would actually stop the trainee from continuing to respond for quite awhile, is simply operating out of ignorance.

## SENSORY TUNNELING IS LIKE AN OVER-BURDENED COMPUTER

Allow me to offer a different way of explaining tunnel vision and tunnel hearing [see Transmission #61, sent 12/15/06].

We are all exposed to computer operation, which sometimes can be frustrating because of limited capacity. Yet the fact remains that each computer we use has a fixed and finite performance capacity—it can only do so much.

When our computer is assigned to do some very intense work, like copying a large file, rendering a video or doing a system-wide virus scan, this activity tends to bog down the computer, making fewer resources available for other activities. Suppose during one of these intense activities, you ask your computer to check your email. You will probably notice hangs and delays in accessing email software, logging onto your email server, and storing, retrieving and displaying downloaded emails. This is because much of your computer's finite resources are busy doing something else that you have assigned as a higher priority.

“Tunnel senses” may work like your computer. Under a stress situation, your mind may assign a high priority to obtaining and processing all detail of a particular stimuli<sup>8</sup>, thereby obligating a considerable chunk of your personal “processing performance.” When that happens, the processing of other stimuli may bog down, happen slowly or not at all, just like with your computer.

Being both a student of use-of-force issues and a veteran computer user, this analogy makes perfect sense to me.

Gary Marbut  
President,  
Montana Shooting Sports Assn.; author, Gun Laws of Montana

LEWINSKI COMMENTS: The more ways we have of explaining tunnel vision and tunnel hearing to people who have never experienced these phenomena, the better. Thank you for providing another means of illustration.

### **III. CELL PHONES & ACCIDENTS: NEW STUDY GETS UNDERWAY**

Colorado state troopers have started asking drivers involved in vehicle accidents if they were using cell phones, in hopes of determining whether the devices are a threat to public safety. Responses are recorded on investigation forms and results will be announced next year, according to the Associated Press.

“This is a great opportunity to study the concepts of tunnel vision and tunnel hearing in the civilian population,” says FSRC’s executive director, Dr. Bill Lewinski. “From a law enforcement perspective, we have been conducting studies about the focus of attention and the difficulty of rapidly and effectively processing what you ‘see’ right in front of you when you are focused on auditory stimuli.

“Our research in London concerns officers being distracted during armed confrontations and does not directly involve cell phone use. But based on the principles we’re confirming and assuming that drivers answer honestly, the Colorado study should show that cell phones do constitute significant distractors when driving.”

[For details about the similarity between drivers on cell phones and LEOs in shootings, see FSN Transmission #54, sent 9/22/06.]

### **IV. LOOKING FOR A CAREER CHANGE?**

Interested in teaching in an outstanding Law Enforcement program and working closely with the Force Science Research Center in the bargain?

Applications are currently being taken for 2 openings on the LE faculty at Minnesota State University-Mankato, headquarters of the FSRC. One, a tenure-track position, requires a PhD and CJ experience. The other, a 1-year commitment with possibility of renewal, demands a master’s degree. Both offer a unique opportunity to also participate in the valuable work of FSRC.

For more information go to the MSUM website at:

[http://www.mnsu.edu/humanres/MSU-VAC\\_NOT/VacHP.html#faculty](http://www.mnsu.edu/humanres/MSU-VAC_NOT/VacHP.html#faculty)

and click on the Law Enforcement entries in the list you'll find there.

Mankato's LE program is recognized as one of the best. It offers a strong emphasis on practical line-officer skills as well as a solid foundation in LE theory. Graduates leave with all the academic and clinical components necessary for licensure in Minnesota.

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Written by Force Science Institute  
January 26th, 2007 at 6:53 pm