

Innovation Award

RYAN LEE SCOTT

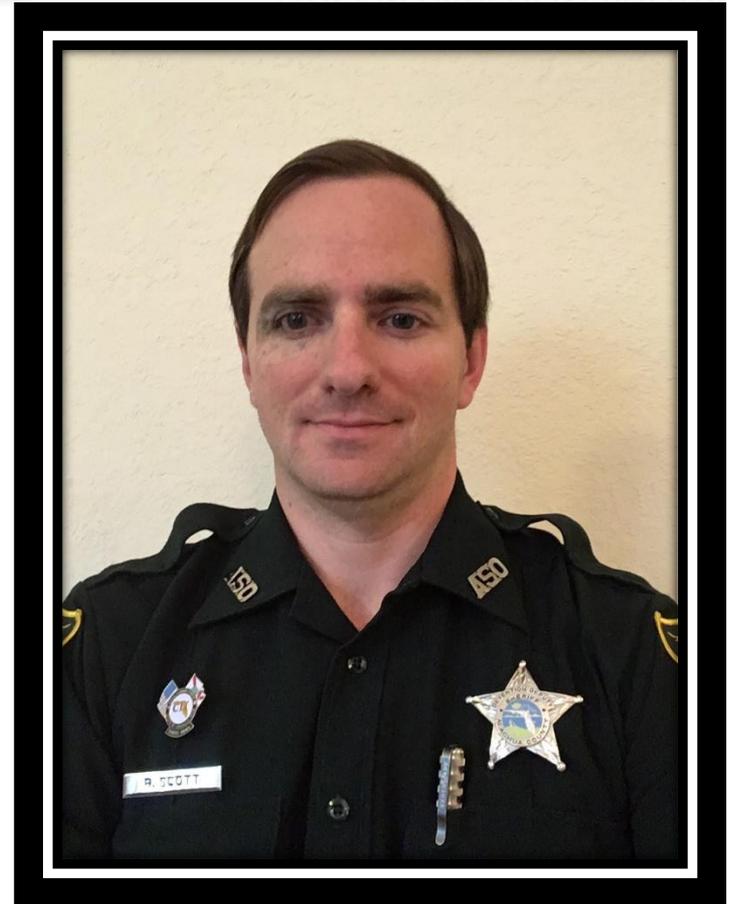


February 24, 2017



Ryan Lee Scott

- Deputy with the Alachua County Sheriff's Office in Gainesville, FL.
- 7 years of law enforcement experience
- Concerned with understanding the exposures from impulse noise, and protecting against NIHL.



Law Enforcement



- One of ~806,400 police officers nationwide.
(Bureau of Labor Statistics, 2015).
- Required to qualify with firearms training as part of the job.



THE PROBLEM



- Law enforcement training is full of high-liability response topics. Many of these trainings are conducted regularly and designed to prepare officers for many different types of dangerous situations they might encounter on-duty.
- Unfortunately one of the higher liability areas – **Firearms training – provides almost no education on hearing loss prevention or hearing protection devices.**

CURRENT SITUATION



- Most law enforcement officers are thrown an old pair of ear muffs and told to spend the next 8 hours on the firearms range. There are no earplugs, fit testing, no comprehensive strategy to provide adequate hearing protection devices (HPDs). During this time they could be accruing hundreds to thousands of rounds of exposure to firearms impulse noise.
- This training frequently occurs 4 times a year for the standard patrol officer, every month for the typical special teams or SWAT team member, or perhaps 20 times a month for the agency's firearms instructors!!



MISSING THE TARGET AUDIENCE



- While the literature on NIHL and HPD protection strategies is quite prevalent in the audiology and hearing science community, there is almost no understanding of this information within the law enforcement community.
- There are inadequate law enforcement resources to bridge the divide between the scientific community and the public safety end user.

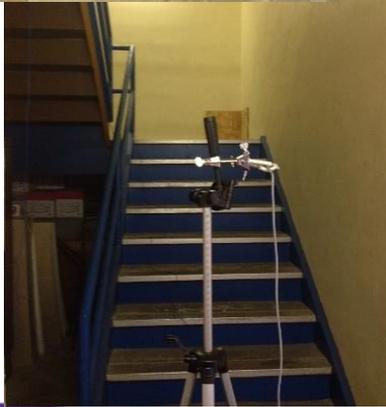


EARLY BEGINNINGS



- Initiated contact with University of Florida audiology regarding impulse noise levels of police firearms used under varying conditions.

UNIQUE ENVIRONMENTS



SUPPRESSORS FOR HEARING PROTECTION?



INNOVATION: Educational Outreach to Law Enforcement



INNOVATION:

Bridging research into educational application for field users.



Proper fit earplugs, properly fit earmuffs, safety glasses, radio integration into earmuffs for range commands from firearms instructors.

INNOVATION: 2016 Efforts

Educational Program

- 1 hour formal lecture
- Firearms range hours/practice
- HPD purchasing follow--up



Expanded target audiences:

- Police trainers
- Law enforcement administrators
- Firearms instructors
- Field users

INNOVATION: Training Topics



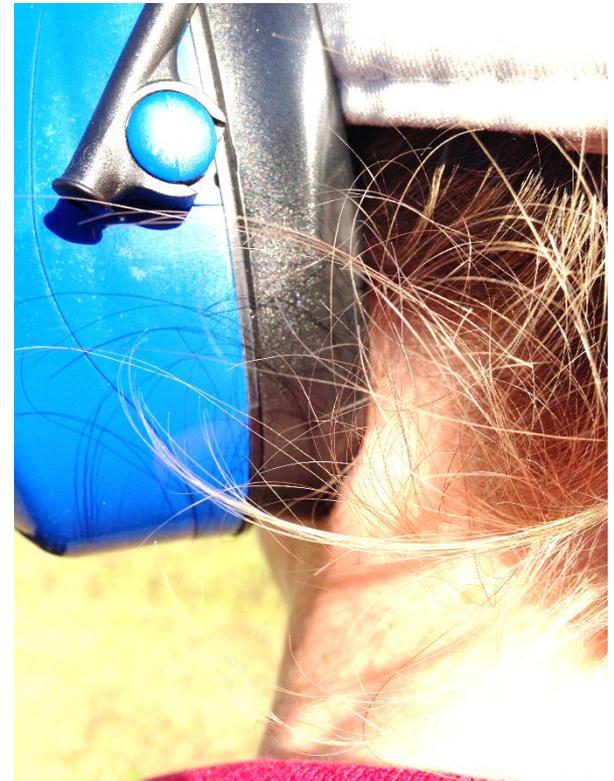
- Discussed proper selection of earmuffs / NRR
- Analyzed types of earplugs and fitting issues



INNOVATION: Training Topics



- Demonstrated protective eyewear issues / concerns of earmuff seal



INNOVATION: Training Topics

- Importance of integrated radio communications into protection strategy to maintain sufficient comprehension of range commands from firearm instructors.
- Availability of HPDs at a reasonable price-point was also key consideration.



INNOVATION: Training Topics



- Discussed benefits of reducing firearms noise at the source – firearm suppressors.
 - Peak sound pressure levels at various locations around AR-15s
 - Differences in peak SPL for right versus left-handed shooter
 - Differences in suppressor acoustic performance
 - Integration of suppressors into the agency’s policy and tactical gear



INNOVATION: Training Topics



- Indicated the need for agencies to adopt a comprehensive hearing conservation plan which best protects the different subsets of end users within their organization.



PRELIMINARY OUTCOMES



Survey of University of Florida Police Department

PRIOR to Training

--- 69/100 of employed officers responded ---

- **87-89%** had never had training regarding hearing loss or proper HPD use and fit
- **90%** did not know what the decibels levels were for the handguns and rifles they shoot
- **63%** felt that “better” hearing protection devices should be used for firearm training
- **35%** reported difficulty understanding speech or having muffled hearing after firearms training
- **53%** reported tinnitus (ringing) in their ears during or directly after firearms training

PRELIMINARY OUTCOMES



AFTER Training

- 90% stated they “learned a great deal” or “a lot” from the 1 hour session
- 100% believe that other law enforcement officers should receive the course
- 100% responded that hearing protection device training should be provided during the police academy training for new recruits
- 20% believe they should be using dual hearing protection (earplugs and earmuffs) during firearms training and 70% believe they should use dual hearing protection and suppressors during firearms training
- 75% believe they may have been under-protected during past law enforcement firearm training.

FUTURE OF THE INNOVATION: Short Term



- Freely share outreach to other police agencies
- Provide Hearing Protection section in written form for Police Recruit textbook on firearms training
- Compile scientific hearing protection survey of most Florida law enforcement agencies
- Additional outreach to state and national police unions
- Present comprehensive program to International Association of Chief's of Police– 2017
- Working on statistical analysis of 30 years audiogram data from municipal police agency
- Collaborative efforts into comparison of LEO subset of speech intelligibility issues.

ULTIMATE OUTREACH GOALS



- For all law enforcement agencies to understand the damage which extreme sound pressure levels cause their employees.
- That law enforcement agencies design and implement very specific hearing conservation plans to better protect their employees.
- To see that officers – as end users - are better educated about the proper fit and sizing of their HPD.
- Encourage agencies to provide the right combinations of protection – circumaural earmuffs, earplugs, and firearm suppressors.

LESSONS LEARNED



- It is quite difficult to break through to the law enforcement community!
 - Lecture, hands-on experiences with HPDs and firearms range time is needed to allay concerns and solve equipment integration issues.
- There are significant deficiencies in the law enforcement community's understanding of hearing conservation AND this group has an incredible exposure to noise!
- Long term changes will require buy-in of top law enforcement agency administrators, solution integration with accepted training / equipment procedures, educating of end-users, and likely involvement of law enforcement worker advocates – unions!

SIGNIFICANCE OF THE AWARD



- This award has provided additional awareness and acceptance of this topic within the law enforcement community.
- With this greater awareness, more opportunities to share this information at additional venues and with larger audiences will occur.
- Has elevated agencies commitment to timely purchase of additional HPDs.

CLOSING THOUGHTS



- Although my primary job is as a law enforcement officer and as an instructor at the police academy, I feel compelled to offer whatever assistance, sharing of information I can with fellow law enforcement officers / agencies to help combat NIHL which is pervasive in the law enforcement workforce.
- And although much hearing damage has likely already accrued for many police officers nationwide, perhaps through steadfast determination we can provide this profession with the training, awareness, and new procedures to leave the profession a little safer for the next generation of officers who will replace those whom are currently working tirelessly to improve America's safety.



CONTACT INFORMATION

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