

Notes from Force Science Institute / Nashville, Tn
May 6 -10, 2019

44 million cameras in operation every min in America today

One Good Turn / onegoodturn.com / Dr. Ann Meeser

Perspectives of police shootings

Judicial

Legally Constructive

Legally Defensible

Legally Controversial

Unlawful

Society's Response

Praise / Gratitude

Acceptance

Challenge

Prison / Ruin

Misunderstood Police Shooting:

Threaten Officer Survival

Damages Investigations

Misleads Civilian Reviewers (Jury)

Encourages Lawsuits

Fosters Criminal Charges

Broadly Affects Communities and the police

URBAN UNREST

Goals at Force Science:

Greater Understanding of force

Safe, more tactical / legal decision making on the street

More responsible investigations and reconstructions

Better informed defenses of officer / agencies in court

Enhanced reality-based training, reflecting the latest scientific findings

More reliable data for media and public

Anxiety based stress vs exercise-based stress

Anxiety Based Training - Virtu reality-based training simulator

Dr. Ann Messer from Austin, Texas:

Forcing Anatomy and Physiology on you

Goal:

Develop a basic understanding of the anatomy of the brain and heart.

#1

Neuro Anatomy:

Peripheral Nervous Systems

Cranial Nervous System

Central Nervous System

#2

Perception

Vision and visual effects

Memory and its distortion

Cognitive Bias

Mental Shortcuts (Heuristics)

Spinal reflex / Doesn't actually connect to the brain, a sensory motor nerve loop to the spinal cord, which is why faster, example grabbing hot pot.

Trained reflex:

Improve response time by practice based on prediction, anticipation, and repetition.

An automatic motor movement "out of habit" is 300 milliseconds faster

Involved the lower brain so we are not fully conscious of details of action

If the actual event is different than practiced event everything slows down

Damage to Temporal lobe can lead to problems with memory, speech perception, and language skills.

The cerebellum does motor coordination like catching football

During processing of a threat our surroundings are less apparent (inattention blindness) focused on a threat.

Frontal Lobe:

Reasoning / Judgement, behavior, impulses

Higher level of thinking

Expressive language

Ideas

Damage to frontal lobe can lead to "de-inhibition" risk taking, changes in sexual habits, socialization and habits

Motor command cortex is at the back of the frontal lobe: Integrates info from all the brain areas and then directs our motor activity.

Parietal Lobe:

Control your action – going pee (Somatosensory Cortex)

Process your incoming sensory information: pressure, touch, pain, temper

Answers awareness questions. Where is it? When interpreting information.

Gives us our personal sense of where we are in space using vision and motion

Temporal Lobe:

Assigns name to item

Damage can lead to problems with memory, speech perception, and language skills.

Neurotransmitters:

Endorphins: Handles pain

Gaba: Provide pleasure

Serotonin: Helps Depression

Acetylcholine: Triggers movement, (and if it blocked, we are paralyzed aha, part of anesthesia its used so we don't move during surgery).

Sympathetic Nerves:

Pupils dilate

Heart rate increase

Sweat glands sweat

Blood flow surges to the muscles

Digestive system shuts down

Opens airways and lungs

Does not make feel sleepy or fatigued

Parasympathetic Nerves:

Pupils get smaller

Salivary glands / stomach secretions

Heart rate slows

Lungs relax

Sweating stops

Adrenal Glands:

Adrenaline / Speed up heart / gives us jitters / butterfly feelings

Cortisol (Keeps you grinding away when tired) Long term / high cortisol from chronic stress can be bad for both memory and attention.

Thalamus Lobe: Memory and emotions / fight flight or freeze / not involved in motor coordination

Hypothalamus: Our personal advocate / turns on our alarms / hunger, anger, thirst, sex satisfy, response to pain, aggressive behavior.

Hippocampus:

Notates events in short term memory

Memories are put in by attention

Easily overwhelmed and can register memory incorrectly under stress

Damage can result in inability to form new memories. Long term memories unaffected.

Part 2: Vision

Inattentional Blindness: (Test)

Brain focuses on one item to the exclusion of all else

Often used by defense lawyers representing police when critical events are missed while in pursuit

Prosecuting attorney's claim their lying

Subconscious Filters:

Objective vs. Subjective

Important to describe things objectively not subjectively ignoring any bias or preconceived ideas.

Our senses Strengthen our memory

Visual memory

Auditory Memory

Touch Memory

Smell

Short term memory is facilitated by attention (Important Test)

Memory is not stored in one place

Human memory

Long term

Explicit – repetitive (conscious)

Episodic- Events, experiences, something you did connected to an emotion

Semantic -Facts and concepts

Filters

Perceptual Filters:

How we see the world is influenced by;

Learned bias / Experiences / what we know and expect / culture and race / values /
Our perceptions are unique to each of us

Implicit - Unconscious

Procedural Memory (something you do over and over procedural memory) you do not know or
remember how you did something

Influences of Memory

Interference

Sleep Stress

Emotional Associations

Heuristic (shorts cuts)

Opposite of well thought out decisions

No time to weigh all options

No one to consult

Little in your training prepared you for this

Part 3: Heart

Sudden cardiac arrest:

Blocked arteries that feed the heart / fatty plaques rips off and shuts of the arteries shutting off
blood flow

Electrical factor is disruptive (arrhythmias)

Normal sinus rhythm is normal

Cardiomyopathy:

Sick heart, hypertrophic thick walls (athletes, high bp)

Dilated – cocaine

Pregnancy

Sudden cardiac arrest (Test)

Heart attack

Arrhythmia (abnormal heart)

Cardiomyopathy (Sick heart)

Risk factors (obese / diabetes / lipid disorders / hypertension / genetic

Human Dynamics

Sgt. Jamie Borden Henderson PD (Retired)

Define:

Spilt Second

Immediate

Fast

Quick

Instantaneous

A flash

Crisis Defined:

A condition of instability or danger

A stage in a sequence of events at which the trend of all future events, especially

Stress Defined:

Cause: A threatening situation – Time compression, uncertainty, unpracticed aspect of a situation

Effects: Physiological and / or psychological responses. Unfavorable to officers in field

Anxiety:

Distress or uneasiness of mind caused by fear of danger

We examined:

The threats

Time / distance / motion / decisions

Illustrations

95% of officers injured by weapons have come from suspects waistband

Threats we examined:

The person / type of action / accuracy / speed

Survival Challenge #1:

Training by Hollywood

Survival Challenges #2:

Cop Killers

Note: Why do officers touch a trunk? No car made for 30 years that you can't open from inside.

If you have to touch a trunk, you stop right there and speak to suspect from that position.

Never saw it coming. It takes 3/10ths of a second for us to react.

FBI Behavior Science

Study number 3

FBI Study – Violent Encounters

Offender fired first

Offender's distance to officer 14-15 feet

Offender hit officer 91% (1997) to (2006) 68%

Offender did not use sights

Offender's personality and willingness to kill

Hit Probability Study:

Latest study – 55% of officers killed had fatal wounds to the head and neck

Police science and management

Hit probability Study

Naïve shooter – Accurate to the head

Shots further out / further out / to center mass / go to the body and then head

First round under a second (on target)

3 rounds to head in under 1.7 seconds (on target)

Survival Challenge #3:

Action vs Reaction

Speed of assaults

Physical Charge .37 (3ft) to .73 (6ft)

Punch or kick .20 -.25

Sticks .18-.25

Edged weapon .14-.20 (step .37)

Gun .25-.50

15 subject behaviors

Actions

Attention (Speed of assault)

Military guy on freeway shooting video (Truck in background) Training video

Traffic Stop Study

Difference distance remembered vs. actual

Assault time .34 seconds

Officer reaction.37

Discharge of gun 2.17

Observations:

No positions thwarted rounds

Clearly officer is behind curve

No officers called for hidden hands

Officers did not enforce putting hands on wheel

What effect did that have on command presence

3-4 rounds in 3/25 of seconds

Positions shooting stances

No use of sights

Memory

(Test) Dynamic of movement says a human can turn their head 180 degrees in .18 of a second

Cannot predict assailants speed and movement

Indexing positions of finger

Straight on frame

Curved near finger

Finger on frame

Finger low on trigger guard

Average time .11 seconds

Go / No-Go Decision-making with trigger pull

.56 seconds

.35 seconds to stop shooting once first round is fired

Average time it takes someone to hit ground from point of being struck 1.23 seconds

(.31 balance inertia / .92 fall time)

Practical illustrations of these principles

Attention

Perception

Reaction

Notes from May 7, 2019:

**The Psychology of Crisis Encounters
Officers and Offenders / John Azar-Dickens PHD**

A great Athlete and Officer
Studies the game
Recognizes patterns
Understands competition

Who kills cops?
No Specific profile
General Information
No specific or singular profile of an individual who would assault, attempt to kill or kill a police officer.
Only similar variable / each one has attacked or killed an officer

Qualifying Aspect:
Gangs
Early exposure to violence
Alcohol and or drugs

Offenders:
“Offenders are constantly assessing people including law enforcement officers”
Pinizzotto

Offenders assess and reassess to determine their next move

Anyone can kill or assault an officer.

High risk violence Risk:
Antisocial / psychopath
Emotionally disturbed
Paranoid psychotic on drugs
Dependent personality

Antisocial and Psychopath biggest concern for LE

Antisocial personality disorder is a mental illness / Someone who violate the rules or laws over and over / might not be violent but can be.

Psychopathy:
Not a mental disorder
A cluster of traits
Great number of traits, the greater risk for violence.

Elements differing Antisocial and Psychopath (Test)

Antisocial:
A mental disorder that is primarily behavior in nature
Lacks focus on the underlying emotional and cognitive components of functioning

Psychopath:
Not a mental disorder
A cluster of traits
Greater number of traits, greater risk for violence

Common understanding on those who kill cops (Test)

Life, family, and future means nothing to them

Paranoid Delusions with Intoxication:

The delusions serve to distort the subject reality
Paranoid Elements drives their suspicion of officer
Intoxication lowers their inhibition and negatively impacts control mechanisms

Dependent Personality:

Officer takes someone or something they depend on

Crisis Encounters and Officers Reactions:

PTSD vs. Post Traumatic Injury

Anatomy of a traumatic event:

Traumatized Brain / Trauma can alter brain function important change occurs in:

Prefrontal cortex

Anterior cingulate cortex

Amygdala

Pre-frontal cortex:

Rational thought

Problem solving

Planning

Empathy

Self-awareness

Anterior Cingulate Cortex:
Regulating Emotional

Amygdala:
Fear center
Recognizes threat

Test: Section 5 Crisis Encounters:

What is the common factor understanding about those that kill police?
No identifiable pattern

What are the elements differing the Antisocial from Psychopath?
Antisocial is mental illness and lacks a focus of understanding
Psychopath not a mental illness, cluster of traits, more traits greater risk for violence

What might be the impact of officer involved shootings on an officer?
Trouble managing emotions, overreaction of small things, trouble letting small things go

Most important goals of psychological debriefings?
Education and support

Why are psychological debriefing important?
Resiliency, Positive coping, growth potential

What happens to the brain during a traumatic incident?
Thinking and emotional centers are underactive. Fear is overactive

How are various elements of the brain influenced by trauma?
See above

What are the general criteria for PTSD and how long must symptoms exist?
Re-experiencing avoidance, negative changes in mood or thinking, increased arousal
Lasting 4 weeks and great a significant impairment in function.

What are important functions of the prefrontal cortex, anterior cingulate cortex, and amygdala?
Prefrontal – Rational thoughts
Prefrontal – Regulates emotions
Amygdala – Recognizes threat

What is the significance of “bottom heavy brain” in reference to trauma?

Activations of lower, more primitive areas, including the fear center are high, while higher areas are under activated

LASD says best way to cope with potential PTSD?

Talking to peers / reviewing incident in one’s mind / talking to family

What role does Amygdala play in emotional arousal?

None – it recognizes threat / Anterior cortex regulates emotion

Characteristics of a psychopath and their mode of operation?

No emotions, lack social skills

Does everyone in traumatic incident develop PTSD?

No

Vision:

Charles Lawrence

Attention lies between sensation and perception

Difference between what you think is critical and what they see during an incident might be different, but not critical. Don’t focus on small details not relevant.

Action is always faster than reaction

Our memory can be amazing if the information is consolidated

You have a reason to keep it

Reflection

Rehearsal

Meaning

Lens Accommodation:

When we want to see at close distance our lens becomes fat or thick. TO see at distance lens becomes thin.

Shifting near to far takes .3 to .9 seconds

You cannot see two distances at once

The more you watch the more you see video for training

Fundamentals of Human Performance

Charles Lawrence

All reaction times are not equal

Draw reaction time .25 seconds

Reaction time:

Measure of time from the arrival of a suddenly presented and unanticipated signal to the begin of the response to it.

Movement time:

Time interval from the first movement in response to the end of that movement

People walk at 2.5 -4.0 mph

Response time:

Reaction to plus movement time equals Response time

Motor Programs:

1.4 seconds to stop if you have it predetermined, you're going to stop

.6 seconds to pull a trigger

Degrees of freedom when firing a pistol

6

Up & Down

Back and forward

Left and right

Pitch

Yaw

Roll

"4-barrel gun misaligned at off center .49 inches

@ 5' bullet strike off by 4.25 inches

@ 10' bullet strike off by 8.38 inches

How many shots does it take?

Most common reaction to being shot is NO Reaction

Absent a hit to NCS a mortally wounded subject can continue to function up to 15 seconds

Expertise requires 10K hours of deliberate practice

2080 hours / yr. (40 hours x 52 weeks)

5 years of deliberate practice will equal 10k hours

Police get 100 hours academy Firearms and DT plus 8 hours a year
Equals 44.5 years

Biomechanics of Lethal Force:

Dr. Bill Lewinski

Less than Lethal

Taser: Human factors time to press trigger / blast doors open

Average eye blind .3 seconds / sniper .18 seconds

Officer behind b pillar suspect will take .25 seconds to draw and fire at officer at 180 degrees

Also, can take from console in same time

If they have to turn (suspect) can shot in .5 seconds

Edged weapons training

Physical threats

Time / Distance / Motion

Tuller came up with 21' rule

FS 31-foot rule

200 officers assaulted by edged weapons a year, most occur in residence or structures

Average person 5-6 strides cover 5-6' in a ¼ second .25 seconds up to 15 mph

Sprint Study:

Acceleration

Untrained subjects can move fast they can cover 25 ft in 1.67 seconds / average officer will take

1.8 seconds to draw and fire one round from level 2 holster

Time to close and stab

5 ft in 1/3 seconds

9 ft in 2/3 seconds

Time to make 90-degree turn

Person can do a 90 degree turn in .36 seconds on average / fastest .22 seconds

Time to escape the path of danger of an oncoming vehicle

.70 seconds to first step seconds step .27 seconds

To step to left with weight belt .86 first step second step .27 seconds (Suspect can cover close to 11 feet before first step and slash)

Officers has difficulty or cannot predict assailants' movements and speed in a gun fight

Traffic lights amber before the red light as a warning because nobody can stop immediately

Sudden in Custody Deaths:

Dr. Christine Hall

When force is used its 30 yr. old men
85% OF THE TIME drunk or high
Stuns and strikes majority of the time

Adults who are not breathing do not have a pulse / child are different

Arrest related deaths are rare / Use of Force is used .1 percent of the time

In FS study 1 in every 50000 dies during use of force / 99.9% of people force is used on lives

ARD (Arrest related Deaths)

Neck Restraints

Positional Asphyxia

OC / Pepper Spray

Taser

Excited Delirium (On drugs or mental)

Neck Restraints (VNR)

Neck restraint legal began in Canada / untrained security guard applied an arm bar

Carotid Hypersensitivity – Causes fainting in Old people (over 50) /

How does VNR work?

Close off both carotids out within 7.5 seconds

Not out in 15 seconds not going to happen

Investigating a VNR

Is it trained / taught / loss of conscious during incident /

Tachydysrhythmia (fast heart rhythm)

Cardiac events (I can't breathe)

Don't VNR elderly, children, people with down syndrome, pregnant women

OC Spray

OC doesn't alter respiration / injuries to cornea is common when directly sprayed in eyes

Positional Asphyxia

No oxygen unable to expand chest or neck to get air / takes 5 minutes

Began in LE in early 90's

Taser (CEW)

Separate taser training from Arrest related deaths
Discuss arrest related deaths in use of force training

Not all CEW is Taser
Each brand is evaluated on its own merit

Probe has most potential for harm

Key to Great Responses:

Paul Taylor

Attention:

Attention is a limited resource.

How much attention do we really have?
Limited

We select subconsciously or consciously what we want to pay attention to.
Selective attention
Selective visual attention

Issues with selective visual attention
Perceptual alterations / selective attention / tunnel vision or tunnel hearing / clarity & focus

Perceptual Alterations
Tunnel Vision / Auditory distortion (Tunnel Hearing)

Tunnel Vision:
Narrow focus of attention
Tunnel Hearing (Auditory distortion)

Attention:

You think you know what you saw but you don't know what you didn't see.

4 quadrants of attention:

Narrow / Broad

Internal

External

Narrow	Broad
Focused on the feel of the gun in hand	Recoiling in shock to the threat
Focused on the sight picture or specific action of suspect	Focused on the general movement of suspects

Quadrant of attention:

Focused on the feel of the gun in your hand (Internal and Narrow)

Recoil in shock to the threat (Internal and Broad)

Focused on the front sight or subject actions (External and Narrow)

Focused on the general movements of suspect (External and Broad)

Selective attention is not just an attention it's a brain issue. Not and eye or ear issue.

In a use of force officers might miss other issues because they are focusing their attention on their task. Intention shift in focus.

We can focus our attention to touch / hearing / and vision, but one takes away from another.

Selective attention applied to everyone all the time

You can't do two things at once

Selective Attention

When we focus on one thing, we don't see things other than what we are focused on

Inattentional blindness / once you intently focus on anything it's hard to focus on other things

Principles of Vision

Focal vision

Saccades - .06 sec

Fixations - .2 - .35 sec

Transitions - angle dependent

Pursuit tracking - less than .1 sec

It's easy to miss something you're not looking for.

Attentional resources can be taken up by doing a task like talking.

The immediate need to get the job done can get jeopardize safety

The key to selective attention and intentional blindness is where the person is focusing their attention

Peripheral vision vs focal vision

Viewing something peripheral then focusing on it can change the object

Influences of crossing visual angles & judgment of speed

Near vs far / Motion Parallax (how close we are and perception of speed)

It takes .31 of a second process change in environment

What components of the brain attend to stimulus and decision making? Frontal lobe

It takes 3 weeks of exposure until your no longer paying attention to your just driving

Heart rate has very little to do with performance

Performance has everything to do with where we focus our attention

During an OIS officer can remember the just of what they said but not verbatim

Psycholinguistic

Alpha Command (Calm Command)

Beta Command (Loud demanding)

If you want to train for selective attention and inattention blindness you have to train for that in that environment

The Attention Study by Force Science

Study was used to study performance and what was important to them during the event

Findings

Anticipatory Anxiety

Psychological distress

Automatic Behavior

Heart rate and performance

Performance anxiety

With the study found that by far most officers selective attention external and narrow

.11 / 100 of a second from low ready to on target is the difference in time

Eye shift 3/100's of a second

The eye tracking project

Patterns are predictable

In order to break that change the pattern

***How do athletes use their eyes? Quite eye ***

Quite eye study

Novices

Fundamental Skills – Excellent

Slow to recognize threat and react

Shots fired after assailant draws

Attention paid to the tool

Attention (Drawing to sight picture)

Primarily used context cues

Judgement impaired

Shooting accuracy impaired

Expert

Fundamental Skills – Excellent

Quick to recognize threat and react

Shots fired before assailant

Attention paid to threat

Attention (Drawing to sight picture)

Primarily used threat cues

Judgement excellent

Shooting much more accurate

Train automatic behavior not stimulus response behavior

Choking failure to perform under pressure / occurs when we shift of attention to what we are not doing / it also comes thru psychological distress

Self-focus problems

Distractions

Psychological distress

Cognitive distress

Process vs outcome

We need to train to an automatic level so we can divert attention to other things

Addressing problems

Experience / practice

Implicit automatic routines

Do it with little conscious effort

Low and high emotional intensity

External narrow focus training

Unintentional discharges:

Reason why the finger unintentionally pulls the trigger (137 people – 171 people)

Contact 7% 9.3

Medical condition 1% - 0

Muscle Co-activation 24% - 24.1

Routine firearms task 59% (To comfortable) 47.4

Startle Response 0% - 3.6

Unfamiliar firearms 11% - 11

21/137 resulted in injury

1 death

Slip and capture error – You slip into doing a movement that you are used to doing but are doing it with new gear.

Behaviors that create greatest probability for contact with the trigger

Jumping motion

Abrupt loss of balance

Single leg kicks

Pushing or pulling with non-gun hand

Why finger unintentionally pulls trigger
Loss of balance
Contra lateral contraction
Startle reaction
Biomechanical manipulation of the gun
Yips (hold a position for a long period of time)
Hand confusion (cross hands over body) flash light use

Contagious gunfire (Hear)
Vs
Synchronous gunfire (making a determination on what you see)

The unarmed "Victim"

Frequency gambling- a response that is most common to us. We are told they have a gun, but they produce a cell phone.

Contextual clues – patterns we are seeking out to determine situation in front of us
Influence on judgement and memory

Contextual cues match the behavioral cues, leads to shooting unarmed people

Schemas (Brain blueprints) what it is we think is happening, developing pattern to figure out what will happen next

Hicks law = To many choices will slow you down

Contextual cues help develop and identify Schemas

Schemas influence our judgement, performance, memory

Making a decision

Investigator need to understand how officers recognized and assessed situation
Help officers provide descriptive accounts at a cognitive awareness level

Officer tend to go to a satisfying decision or safe response instead of analytical response (processed)

Identify tough decisions

Use open ended, probing questions

identify cues, concerns, goals (what was the officer planning to do)

Identify options and timelines

OODA Loop / All occur at once / you are constantly observing, orientating, deciding and acting in a crisis

What do people really do in time risk critical environment

Time compressed - immediate respond needed

Changing and or unpredictable dynamic circumstances

Ambiguous or incomplete info

Ill-defined and unstructured

Ill-defined goals

“Process while in the middle of a crisis, decisions are quick, almost intuitive.”

Gary Kline

Human error

Implication of RPD

Workable – not optimal solutions

Non-conscious information processing

Non-conscious decision making

Rules / alternatives not considered

In RPD - Undesirable decisions are usually a result of poor situational assessment rather than poor choices – **time compression**

Officers shoot about 1000 people a year. 30% error factor in those events

Process while in the middle of a crisis there are two types of errors

Decision and performance

James Reason book – A life full of errors

Decisions Errors = Mistakes of system and person (Knowledge and rule-based errors)

Errors in the system

Performance errors = Lapses, slips, and captures

Skill based errors

Lapses error when a step is skipped in a series of steps.

Slip and Capture= Do something you were trained to do with one piece of equipment, but you are using a different type at the time. Often overridden under time compression and stress

**No documented incident of taser confusion when taser is drawn with non-dominant hand
When it occurs, it is Performance Error / slip and capture**

Performance errors occur when things are confused – frequency / similarity of action
Speed / urgency of situation causes this confusion

Memory Quirks

Focus and memory study by FS

1. Heart rate 180 bpm
2. Officer ran out of gas at 55 seconds
3. Memory impaired for events before during and after

Shots fired factor off by 2. Meaning if they fired 2, they actually fired 4.

Exhaustion ties up attention / Unable to solve complex problems

No such things of recalling the officers state of mind. Only a memory of the officer's state of mind.

Nature of the officer will affect the outcome of an incident.

Two types: Officer wanting to be first thru the door and officer excited when they walk into an electronics store. Officer two doesn't pay attention to tactics in academy and training

Building Shooters by Dustin Salomon (Book)

Memory Aids

Recall (Open ended) Essay vs Recognition (Specific questions) Multiple choice

Average response time with rifle is .8 seconds

Con of 3x scopes at close range. Suspect actions are so fast that you cannot see motion or movement once on sights

Without contact you can't establish control, without control you can't establish rapport, without rapport you can't establish influence

Shooting at a moving vehicle:

During a traffic stop, officer standing at a b pillar and vehicle pulls away wheel turned to the right, vehicle closes 3 feet towards officer during acceleration

Tempe police researched this matter and advised officers in training to step to the rear of the vehicle

1.466 fps (Average vehicle coverage)

You can influence the driver but not stop the vehicle

The Cognitive Interview
Edwards Geiselman PHD

85% of what an officer does all day is talk to people. Ram Corp

We store bits and pieces of events in our memory. When we want to recall them, we reconstruct or reassemble them

The invisible gorilla website / theinvisiblegorilla.com

The Three Phases of Memory:

Encoding:

Reinstate context of the event / where were you? What were you doing? Etc.

Storage:

2 negatives (Forgetting / contamination)

Retrieval:

Lingering Stress / Sleep deprivation (24-36 hours) Wont fully understand question

During an interview people not comfortable will be:

15% of the time people are deceptive

85% of the time they are evasive

Cognitive interview is used with willing people

Core Recall

1. Forward Recall (Free recall) tell me what happen
2. Selective recall (Chucks of time)
3. Reverse (Free recall)
4. Sectioned recall (by places or people)

Sequence of full CI

Introduction (Build rapport)

Open ended narration

Probing memory scenes

Review Interview

Closing the Interview

Use of Force Case law based on these cues:

Apparent threat
Pre-assault cues
Reasonable belief
At that moment

Totality of the circumstances
Address state of mind (not just the facts)
Address threat assessment (not just the facts)
Use of force checklist for these matters
Questions for layperson (not cop jargon)

URL:

Spd1849.org\geiselman
User FSI
.25seconds

Officer Involved Shootings: The Aftermath

Laura Scarry

Following an OIS, Officers desires;
Not be treated like a criminal
To be well informed
Someone there to look after their interest

End of day notes:

In a 5 step stride an average person can cover 5 feet in $\frac{1}{4}$ of a second

Go/no go decision time is .56 seconds

Time to stop shooting .3521 seconds

Advantages of adrenaline are increased speed, strength, ability to ignore pain

Closed open motor program is slower than open loop. Open loop you have no time to stop and process information. Closed you have time for muscle feedback. Closed loop greater than .2 second / open .2 seconds or less

During deadly force saccades are tracking

Under extreme stress your visual system, information being processed, and hearing are affected.

Open skills are things like hockey, driving, cuffing, Skills that have to adapt to the environment. Not static line shooting on the range

FS Study:

Average officer takes 2.15 seconds to move back one step, draw and fire at suspect who shot them. Suspect can shoot from most positions in .25 seconds and second round .31 seconds In study officer would take 8 rounds in 2.5 seconds before they fired gun.

We need to process information while in the middle of a crises.

Play pattern recognition helps recognize patterns (Fast and frugal)

Practice (force on force or scenarios) help you become good at pattern recognition. You can become fast.

Most officers Satisfy / sacrifice to make fast decision.

Contextual Cues

Shapes "Patterns" Suspect behavior

Prime – Officer response

Based on mental maps (what did the officer think was going to happen – Blueprint in their head) Schemas.

During RPD a pattern or problem is ID, Solution is ID mentally and molded forward. Serial, not parallel, evaluation of option (shift). The first solution is implemented or as time allows modified and implemented or scrapped all together.

Test Review:

Forcing Anatomy and Physiology on you

1. What facilitates short term memory? Attention
2. What are some possible causes of sudden cardiac death?
Heart attack / arrhythmia / cardiomyopathy
3. What issues results when discharges from the sympathetic nervous system occur?
Fight or flight / pupils dilate / heart rate increase / sweat glands sweat / blood flow surges / digestive system shuts down / lungs open up.
4. What are some influences on the way we see/interpret the world around you?
Learned Bias, experiences, what you know and expect, culture & race, values, and perceptions are unique to each of us.
5. What processes is the limbic system involved in?
Connects memories to emotions
6. What is inattentional blindness?
Brain focus on only one item / while processing of a threat; our surroundings are less apparent.

Vision

1. What are the most important parts of the human eye and visual system?
Lens aligning with the fovea / All parts of the eye are important
2. Humans are able to see clearly using what system over how many degrees of visual angle? Fovea using 1-3 degrees of angle
3. What is the main difference between the function of rods and cones in the visual system? Rods see shades of grey / Dim light vision. Cones sees colors supports daylight vision.
4. What is the term for when the gaze is held stable on one location or object in space within 3 degrees of visual angle or less for at least 100 milliseconds?
Fixation .2 seconds - .35 seconds
5. The focal system is specialized for the detection of _____?
Visual Angles / Detection of lines and field of depth / Focal vision shifts to your interest
6. The parafovea area of the human eye extends from 2 to 10 degrees of visual angle.
7. What is the purpose of ambient vision?
Vision outside the center of gaze
Detects peripheral information, motion, and balance in low light
8. What happens to information during rapid saccades?
The brain suppresses information / Jerks from one item to another
9. What happens or does not happen when eye movements are less than 15 degrees of visual angle?
You won't see head movement
10. How do people generally perform when making estimations of speed and distance?
Generally, people perform poorly

11. What is the term for when an object approaches the viewer and its image on the retina grows systematically and exponentially?
Looming
12. When an object approaches a viewer in a direct or nearly direct line towards them, the angle of approach is said to be _____?
Shallow / Depth Plane
13. When an object approaches a viewer in a direct or nearly direct line towards them, the object may appear _____.
Larger / Doubles in size in half the time /This is huge during vehicle shooting. Car coming at an officer.

Fundamentals of Human Performance

1. Why is it important to account for human performance factors in law enforcement?
So you can use them appropriately during an evaluation of a use of force.
2. How are reaction-time, movement time, and response defined?
Reaction time:
Begins with a stimulus to the response of movement
Measure of time from the arrival of a suddenly presented and unanticipated signal to the begin of the response to it.

Movement time:
Time interval from the first movement in response to the end of that movement

Response time:
Reaction to plus movement time equals Response time
3. Which sense conveys stimuli to a subject in the shortest time?
Touch
4. Which sense conveys stimuli to a subject in longest time?
Sight
5. What happens to reaction time when people correctly anticipate a signal both temporary and spatially?
Reaction time goes down

6. What determines reaction time?
Time between a Stimulus a person's response to it. **Movement**
Complexity of event / stress / focus of attention
7. What is the inverted U-Principle?
As stress increases so does a person's performance. At some point it bottoms out and they begin to perform poorly.
8. What are the defining features of an open loop motor program?
No time for muscle feedback / happens so fast that response is instant / No time to think or divert / occurs in less than .2 seconds
9. What are the defining features of a closed loop motor program?
Able to divert / Generally over .2 seconds / Time for muscle feedback

Sudden in Custody Death

1. What is excited Delirium?
A condition that presents with psychomotor agitation, delirium, and seating may include violence, strength, and very high body temper
2. Delirium is a recognized medical condition that includes_____?
Disregard of surroundings, memory impairment, sudden mood change, trouble communicating, neurological side effects, and hallucinations / delusions.
3. When can Excite Delirium be recognized?
Whenever you do, you will hear or see the symptoms
4. Why should police officers know about ED?
Potential risk of injury to officer and or suspect. All use of force techniques are less effective with suspect. Increased struggle with suspect for prolonged time.
5. What are potential causes of ED?
Psychiatric illness / drugs / Combo of both
6. What should police officers do in response to person with ED?
Control suspect / have medics sedate / take to hospital
7. When dealing with a suspect with ED, police response is dictated by ____?
Suspects actions and behavior

8. Why don't suspects in state of ED obey police pain compliance techniques?
They don't feel pain / They cannot make cognitive decisions
9. ED is currently not listed as a medical diagnosis because _____?
We don't understand the underlining cause of it
10. What can police officer expect from a subject in the state of ED?
Fail to obey orders / high pain tolerance / Bizarre irrational behavior / dry or sweaty skin
/ skin might be hot

The Emotional Component of Crisis Encounters and Investigatory Implications

1. What is the common factor understanding about those that kill police?
No pattern
2. What are the elements differing the Antisocial from Psychopath?
Antisocial is mental illness and lacks a focus of understanding
Psychopath not a mental illness, cluster of traits, more traits greater risk for violence
3. What might be the impact of officer involved shootings on an officer?
Trouble managing emotions, overreaction of small things, trouble letting small things go
4. Most important goals of psychological debriefings?
Education and support
5. Why are psychological debriefing important?
Resiliency, Positive coping, growth potential
6. What happens to the brain during a traumatic incident?
Thinking and emotional centers are underactive. Fear is overactive
7. How are various elements of the brain influenced by trauma?
Emotion regulation center is under attack / fear is overactive
8. What are the general criteria for PTSD and how long must symptoms exist?
Re-experiencing avoidance, negative changes in mood or thinking, increased arousal
Lasting 4 weeks and great a significate impairment in function.

9. What are important functions of the prefrontal cortex, anterior cingulate cortex, and amygdala?
Prefrontal – Rational thoughts
Anterior Cingulate Cortex– Regulates emotions
Amygdala – Recognizes threat
10. What is the significance of “bottom heavy brain” in reference to trauma?
Activations of lower, more primitive areas, including the fear center are high, while higher areas are under activated
11. LASD says best way to cope with potential PTSD?
Talking to peers / reviewing incident in one’s mind / talking to family
12. What role does Amygdala play in emotional arousal?
It recognizes threats, fear, anger and sadness
13. Characteristics of a psychopath and their mode of operation?
No emotions / lack social skills
14. Does everyone in traumatic incident develop PTSD?
No

Investigative Interview Techniques

Biomechanics of Lethal Force

1. What is attention? List some examples of when attention might be important to LE?
Items or events we consciously or subconsciously see. You can only focus on one thing at a time. Tunnel vision forces an officer to focus on the threat, but not events around them.
2. What are Quadrants of attention?
Selective attention across all areas of senses
3. In the Attention study performed by FS, the vast majority of the observations made by officers were in which quadrant?
External / Narrow
4. What are biomechanics?
Parameters of the human mechanical movement

5. What is the relationship between action time and reaction time?
Action time is faster. Action time- Time an act takes / Reaction time – how long it takes to react to stimulus
6. How many trigger presses can occur during the time it takes to stop shooting?
2 / it takes .3521seconds to stop shooting
7. In the Attention study performed by FS, what details were participants able to remember?
Ones important to them / trying to shoot someone shooting them
8. When an officer is giving commands in high stress life and death encounter, what details of the command might they remember?
What they were trying to say. Not what they actually said.
9. What is the average movement time to rotate a head 180 degrees while engaged in running and shooting?
.15-.18 seconds
10. The shot cadence of an average officer is?
.25 seconds a round
11. An average young subject running a good pace can cover over 5 feet in every stride at a stride time of.
.14 seconds
12. What phenomenon occurs in tandem with, but is opposite of selective attention?
Inattentional blindness
13. Greens summary of literature on braking (stop driving) reaction was that an unexpected signal to stop resulted in stopping reaction time compared to when stop was expected.
1.2-1.4 plus .8 seconds (action) and .6seconds plus .2 (.8) when expected
14. What happens to decision making process of an officer who is suddenly confronted with a rapidly evolving life threatening situation?
Usually not rationale, sacrifices safety for outcome, rules out alternative choices.
RPD (Recognition Primed Decision Making)
15. In a duty belt how long did it take an officer to complete 90 degree turn and complete one step, which would represent the officer attempting to evade edged weapon or vehicle?
.15 seconds

16. A person could slash or stab an officer if they took one step forward in $\frac{1}{3}$ of a second, at what distance?
5 feet