

# Police Officer Critical Incident Stress: Sources and Outcomes

Gregory S. Anderson, Ph.D.  
University of the Fraser Valley



## What We Know About Police Officers

During a normal shift and critical incident...

### Policing is primarily sedentary

- Sitting
- Standing
- Walking





### Police work can be physically demanding


- Police work can be extremely physically demanding for short periods of time
- Critical incidents
- Running, pushing, pulling etc.







### Police work can be stressful

- Physical stress
- Running, pushing, pulling etc.
- Psycho-social Stress
- Anticipation
- Suspect contact
- Organizational





### Six Seconds...




## Previous Research

- Police work is not more stressful than other occupations  
(McLaren et al., 1998; Hart & Wearing, 1995; Anson & Bloom, 1988)
- Police work is one of the most stressful occupations  
(Anshel, 2000; Brown & Grover, 1998; Violanti & Aron, 1995)




## Understanding Stress

- A combination of a stressor and stress reactivity; a stimulus and response
- Physical stress – response to the physical demands of police work
- Psycho-social stress – response to the self-perceived imbalance between demands and resources

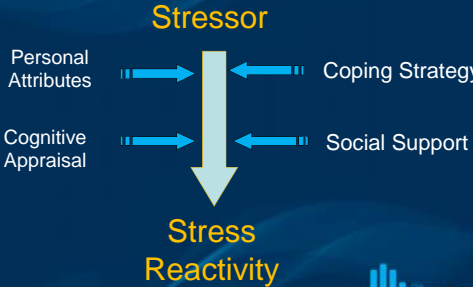


## Acute vs Chronic Stress

- Acute stress – sudden onset of a critical nature, resolved quickly
  - i.e. a critical incident
- Chronic stress – builds over time, lasting over long periods
  - i.e. organizational stress



## Stress: Stressor and Stress Reactivity




Stressor

Personal Attributes    Coping Strategy


Cognitive Appraisal    Social Support

Stress Reactivity



## Stressors

- Anything that leads to stress reactivity
  - Situations perceived as threatening or challenging
- Past research focuses on perceived stress and stressors
  - Self-report data using questionnaires
  - Lacks frequency data
  - Repression




## Stress Reactivity

Ready for Action!

### Nervous System


- Sympathetic Nervous System
  - Increase heart rate, cardiac output
  - Blood FFA
  - Muscle contractility
  - Blood distribution
  - Ventilation



## Stress Reactivity


Ready for Action!  
Hormones

- Catecholamines
  - (eg. adrenalin)
  - Increase heart rate, cardiac output, FFA, contractility, ventilation
- Glucocorticoids
  - (eg. cortisol, thyroxin)
  - Increase metabolism, protein turnover, blood pressure, reduce WBC



## Critical Incidents

Anderson, Plecas and Segger (2001). Police officer physical abilities testing: Re-validating a selection criteria. Policing: An International Journal of Police Strategies and Management. 24(1): 8-31.



## Critical Incidents

- 37% Observed
- 50% Dispatched

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- 31% Result of investigation
- 12% Domestic violence
- 10% Social violence
- 43% Something else (not predictable)

N = 278



## Critical Incidents

Can occur at any time, almost anywhere, and without warning


- 89% Involve a suspect
  - 20% 2 suspects
  - 12% 3 suspects
  - 06% 4 or more suspects



## Controlling the Problem:

Subject Characteristics


	#1	#2	#3	#4
Suspect	89%	77%	77%	77%
Male	88%	77%	87%	91%
Violent	60%	30%	45%	38%
Under the Influence	15%	12%	21%	19%
Mentally Unstable	11%	10%	10%	6%
Average + Fitness	84%	85%	74%	89%



## Controlling the Problem:

Relative Size and Age


- 39% of the suspects **weighed** more than the officer
- 41% of the suspects were **taller** than the officer
- the average **suspect** (mean = 26 y) was younger than the **officer** (mean = 29 y)



### Controlling the Problem:


Resistance Encountered


	#1	#2	#3	#4
Push/Pull Officer	57%	34%	42%	24%
Grasp Officer Clothes	28%	17%	16%	18%
Wrestled Officer	26%	15%	6%	18%
Grasped Object	23%	9%	23%	12%
Struck Officer	23%	9%	16%	6%
Other Resistance	14%	19%	10%	29%



## Physical Evidence of Police Officer Stress


Anderson, Litzenberger and Plecas (2002).  
Physical evidence of police officer stress.  
*Policing: An International Journal of Police Strategies and Management*, 25(2): 399-420.



- ## Direct Observation
- 75, 867 minutes of observed data
  - 121 ride-a-longs over 12 months
  - Time-matched observational and heart rate data
  - Above resting heart rate and % heart rate reserve
- Anderson et al., *PIJPSM*, 24(1): 8-31, 2001
- 


## Evidence of Anticipatory Stress

	Above Resting Heart Rate		%age Heart Rate Reserve	
	Mean	SD	Mean	SD
First 15 minutes	29	14	22 %	10 %
First 30 minutes	27	13	21 %	10 %
First 60 minutes	25	13	20 %	9 %
Last 60 minutes	19	12	15 %	10 %
Average Shift	22	12	17 %	9 %




## Evidence of Psycho-social Stress

	Above Resting Heart Rate		%age Heart Rate Reserve	
	Mean	Max	Mean	Max
Hand on Gun, No Suspect	29	52	15 %	29 %
Hand on Gun, Suspect	40	52	31 %	43 %
Snap Open, No Suspect	45	49	31 %	31 %
Snap Open, Suspect	49	49	35 %	30 %
Average Standing	27		21 %	




	Above Resting Heart Rate		%age Heart Rate Reserve	
	Mean	SD	Mean	SD
• Code 1, assigned	20	11	15 %	7 %
• Code 1, back-up	21	12	16 %	7 %
•• Code 2, assigned	25	11	18 %	8 %
•• Code 2, back-up	27	12	21 %	9 %
••• Code 3, assigned	28	17	21 %	13 %
••• Code 3, back-up	41	10	32 %	7 %



### Evidence of Physical Stress


	Above Resting Heart Rate		%age Heart Rate Reserve	
	Mean	Max	Mean	Max
Wrestling	65	97	51 %	73 %
Tussle	58	107	46 %	85 %
Full Fight	54	112	43 %	85 %
Handcuffing	45	88	34 %	72 %
<b>Average Shift</b>	<b>23</b>	<b>93</b>	<b>18 %</b>	<b>95 %</b>



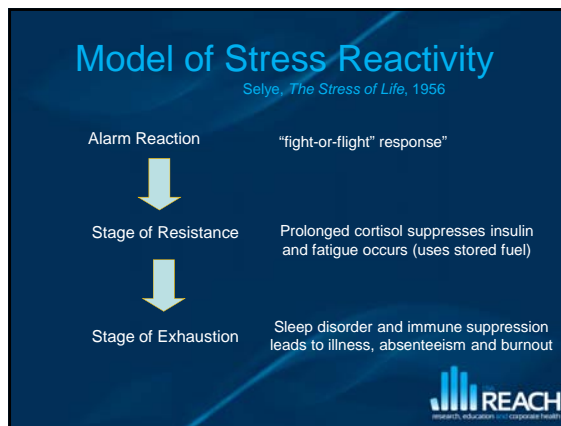
- ### Lack of Recovery
- Comparing heart rates in the last hour for **those in a critical** to those not in a critical
    - Talking to suspect **35 : 24**
    - Normal driving **27 : 18**
    - Standing **31 : 21**
    - Sitting writing **28 : 20**
    - Average all activities **29 : 20**
- 

	30-60 min Prior		During a Critical		30-60 min After	
	HR	% HR	HR	% HR	HR	% HR
Talk to Suspect	22	20 %	52	40 %	45	35 %
Driving	23	18 %	35	28 %	38	29 %
Standing	33	26 %	48	38 %	46	35 %
Sitting	20	16 %	29	23 %	32	25 %
Average All	26	20 %	45	35 %	38	30 %



- Demonstrated physiological and psycho-social (including anticipatory stress)
  - Many sources of stress-reactivity, many of which officers are unaware of
  - Lack of complete recovery after a critical, with officers leaving work with stress
  - Slow recovery from critical incidents
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## Impact of Stress

### Dr. Kevin Gilmartin

Emotional Survival for Law Enforcement

- Safety requires cynicism not complacency
- Risk leads to hypervigilance
  - sympathetic nervous system
  - fight or flight
  - alive, alert, engaged
  - down side to every up side




### Stress and Health

- Frequency, duration, intensity of stress related to illness
- Effort without distress  $\Rightarrow$  catecholamines
- Negative affect, distress  $\Rightarrow$  cortisol
 


*Frankenhaeuser, Ann. Behav. Med. 13: 197-204, 1991*
- Chronic over-production of cortisol linked to immunosuppression
 

*Saplosky, IN: Behavioral Endocrinology, 1992*



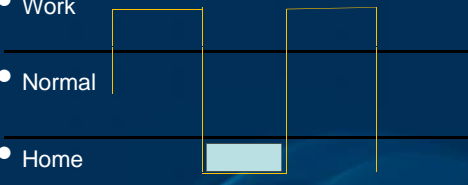
### Stress Hormones and Health

Catecholamines	Cortisol
<ul style="list-style-type: none"> <li>• Increased CHD</li> <li>• Hypertension</li> <li>• Heart attacks</li> <li>• Slows digestion</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced lymphocytes</li> <li>• Immunosuppression</li> <li>• Link to illness</li> <li>• Link to cancer?</li> </ul>



### For every action there is an equal and opposite reaction...

- Alive, alert, excitement, engaged
- Work
- Normal
- Home
  - tired, detached, isolated, apathetic



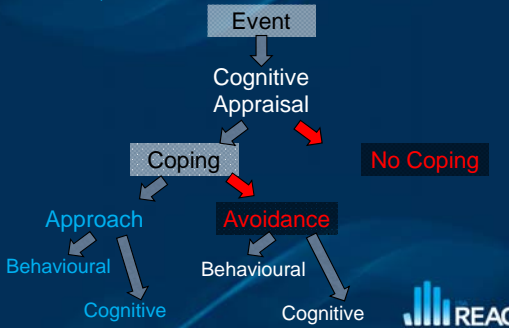

### Stress and the Organization

What are the organization's responsibilities?




### Conceptual Model for Coping

Anshel, 2000




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graph TD
    Event[Event] --> Appraisal[Cognitive Appraisal]
    Appraisal --> Coping[Coping]
    Appraisal --> NoCoping[No Coping]
    Coping --> Approach[Approach]
    Coping --> Avoidance[Avoidance]
    Approach --> ApproachBeh[Behavioural]
    Approach --> ApproachCog[Cognitive]
    Avoidance --> AvoidanceBeh[Behavioural]
    Avoidance --> AvoidanceCog[Cognitive]
    
```




## Approach Coping

- Process information to control situation
- Improve understanding
- Resourcefulness in dealing with stress
  - Thoughts – approach cognitive
  - Actions – approach behavioral




## Preferred method when...

- Situation is controllable (ie arrest)
- Source of stress is known (ie speeding ticket)
- Person is receptive to discussion
- Person possesses good communication skills
- Adequate time to resolve the situation
- Failure to resolve may escalate the situation
- Person possesses good self-confidence




## Approach Coping

<p><b>Approach-Behavioural</b></p> <ul style="list-style-type: none"> <li>• Questioning</li> <li>• Use of authority in stance, posture and eye contact</li> <li>• Giving commands</li> <li>• Drawing a weapon</li> <li>• <i>High stress; high control</i></li> </ul>	<p><b>Approach-Cognitive</b></p> <ul style="list-style-type: none"> <li>• Analyzing (thoughts)</li> <li>• Planning; Imaging</li> <li>• Self-statements</li> <li>• Psyching up</li> <li>• Re-appraisal</li> <li>• <i>High stress; high control</i></li> </ul>
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## Avoidance Coping

- Remove oneself from stress source
- High demand and low control
- Increase time to react
- Replace unpleasant, non-constructive thoughts
  - Maintain attention and focus




## Preferred method when...

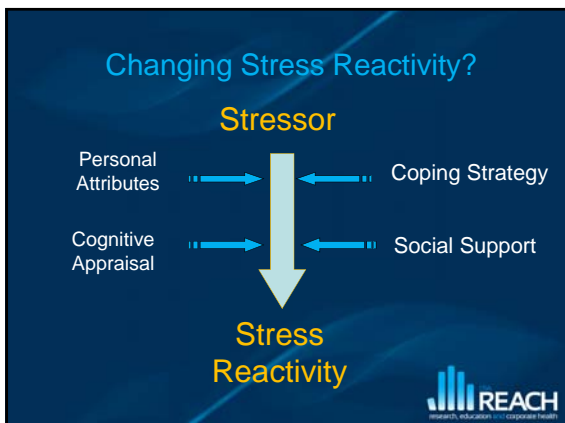
- Situation is not controllable (ie aggression)
- Officer's emotional resources are limited
- Information overload must be reduced
- Source of stress is unclear
- Time is needed to assimilate information
- Little chance of resolving the issue



## Avoidance Coping

<p><b>Avoidance-Behavioural</b></p> <ul style="list-style-type: none"> <li>• Physically removing one's self</li> <li>• Eliminating thoughts of unpleasant stress</li> <li>• Can be adaptive or mal-adaptive</li> <li>• <i>High stress; low control</i></li> </ul>	<p><b>Avoidance-Cognitive</b></p> <ul style="list-style-type: none"> <li>• Distracting thoughts</li> <li>• Denial</li> <li>• Rationalization</li> <li>• Humor</li> <li>• Psychological distance</li> <li>• <i>High stress; low control</i></li> </ul>
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- ### Places for Intervention
- Personal Attributes
    - Hiring and psychological and sociological screening
  - Cognitive Appraisal
    - Education, simulation, appropriate cues, locus of control
  - Coping Strategies
    - Education: How to... When to... Why to...
  - Social Support
    - Organization, mentors, debriefing,
    - (Peer) Counselling, family
- REACH  
research, education and corporate health

- ### Organizational Responsibility
- | Physical            | Psycho-Social         |
|---------------------|-----------------------|
| • Recruitment       | • Recruitment         |
| • Time to train     | • Debriefing          |
| • Training programs | • Counseling Services |
| • Education         | • Family Services     |
- REACH  
research, education and corporate health

- ### Workplace Wellness Programs
- Reduce health care costs
  - Increase productivity
  - Reduce absenteeism
  - Reduce employee turnover
  - Positive return on investment
- REACH  
research, education and corporate health

