Evaluating Resilience: A Worksite Intervention in Police

Sandra L. Ramey PhD, RN
Funded by the University of Iowa Healthier Workforce Center for Excellence
Figure 2. Diagram of Research Trajectory

- 2002 Dissertation CVD Risk n=2,818
- 2004 MPD CVD Risk n=650
- 2003–2006 MPD Academy CVD Risk n=150
- 2008–2009 3 Local Depts DXA Cytokines n=95
- 2009-2011 DMPD PCSD Sleep Vital Exhaustion n=450
- 2010–2011 DMPD MPD 3 Local HCPD Physical Activity Monitoring n=119

1 Iowa Department of Public Safety
2 Milwaukee Police Department
3 Des Moines Police Department
4 Polk County Sheriffs Department
5 Hawaii County Police Department
Stress and CVD

- Stress related directly to CVD
- Indirectly via effects on
  - Blood pressure
  - Cholesterol
  - Physical activity
  - n=2,850 officers 9 depts. (Ramey, et al., 2002)
Why Resilience?

- Decrease the high suicide rate
- Reduce risk and CVD morbidity
- Modify response to critical incident and org stress
- Reduce health care and absenteeism costs
- **Reduction Disability related to stress**
- Improve Heart Rate Variability r/t death
- Increase family involvement
Resilience Training Program Reduces Physiological and Psychological Stress in Police Officers

This study explored the nature and degree of physiological activation typically experienced by officers on the job, and the impact of the Coherence Advantage training on a group of police officers from (two high crime) districts of the Milwaukee Police Department, Milwaukee, WI.

N = 20 police officers
Qualified Instructor for Coherence Advantage

IHM can train members of your department to deliver the Coherence Advantage Workshop and sustainability modules.
Short term Goals

• Modify how officers react to stress
  • Improve autonomic response
  • Decrease risk factors for CVD
• Save money on stress disability
Long term Issues

- Reduce citizen complaints
- Improve family dynamics
- Reduce fatigue and burnout
- Improve the organizational climate
Study Design Protocols

- Data collection 3 times Sept/Dec/Feb
- Heart rate monitor for 3 time points for 24hrs
  - 1 work 1 off day
- Class ~ 1 ½ hr
- tele-mentor booster class (approx 1 hour)
- Em wave 2 practice device
Coherence Advantage Program Objectives

Learn to strengthen operational stress resiliency through research-based tools that help you:

✓ Leverage your ability to think clearly under pressure and discern appropriate solutions to problems.
✓ Increase your ability to maintain situational awareness.
✓ Diminish symptoms of operational stress such as sleep disturbance and fatigue.
✓ Improve reaction times and coordination.
✓ Increase personal resilience and stress tolerance.
Resilience

The capacity to prepare for, recover from, and adapt in the face of stress, challenge or adversity.

• It’s especially important for preventing stress build-up and wasted time and energy.
Dimensions of Resilience

- Physical Flexibility
  - Strength
  - Endurance

- Mental Flexibility
  - Sustained focus
  - Rational/intuitive
  - Incorporate multiple points of view

- Emotional Flexibility
  - Positive outlook
  - Self-regulation

- Spiritual Flexibility
  - Commitment to values
  - Tolerance for others’ values and beliefs
Intelligent Energy Management

Resilience, optimal performance and health are grounded in the intelligent management of our energy expenditures.

10% source & 90% reaction
The Physiology of Optimal Function
<table>
<thead>
<tr>
<th>Sympathetic</th>
<th>Parasympathetic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dilate</td>
<td>Constrict</td>
</tr>
<tr>
<td>Stop secretion</td>
<td></td>
</tr>
<tr>
<td>Secrete saliva</td>
<td></td>
</tr>
<tr>
<td>Dilate bronchioles</td>
<td>Constrict bronchioles</td>
</tr>
<tr>
<td>Speed up heartbeat</td>
<td>Slow down heartbeat</td>
</tr>
<tr>
<td>Secrete adrenaline</td>
<td>Increase secretion</td>
</tr>
<tr>
<td>Decrease secretion</td>
<td>Increase motility</td>
</tr>
<tr>
<td>Decrease motility</td>
<td>Empty colon</td>
</tr>
<tr>
<td>Retain colon contents</td>
<td>Empty bladder</td>
</tr>
<tr>
<td>Delay emptying</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Spinal cord
Sympathetic ganglion chain
Parasympathetic
Adrenal gland
Stomach
Bladder
The Heart-Brain Relationship

- The heart has its own complex nervous system – the “Heart Brain”.
- The heart sends far more information to the brain than the brain sends to the heart.
- The heart signals especially affect the brain centers involved in abstract thinking, reaction times, and self-regulation.
Heart Rate Variability: The Hearts Rhythm
Heart Rate Variability (HRV)

• Abnormally low HRV, is a strong and independent predictor of future health and behavioral problems.

• HRV is an important indicator of psychological resiliency and ability to adapt to stress.

• Higher level of resting HRV are associated with superior performance on tasks requiring executive functions.

• HRV coherence: used for optimal state training to support learning of the self-regulation tools and improved mental functions.
Heart Rhythms

Incoherence: Impairs Performance—Amplifies Energy Drains

Inhibits Brain Function (Incoherence)

Coherence: Promotes Optimal Performance—Builds Resilience

Facilitates Brain Function Coherence

Heart Rhythms
A Police Officer During a Domestic Violence Scenario

- Encounters Angry Man
- Officer Shifts and Resets
Coherence Significantly Improves Brain Function

- Increased ability to self-regulate  
  (Bradley, 2010; Bedell 2010)
- 40% improvement in long-term memory
- 24% improvement in short-term memory  
  (McCraty, 2010)
- Increased ability to focus  
  (Lloyd, 2010; Ginsberg, 2010)
- Increased ability to process information  
  (Ginsberg, 2010)
- Increased reaction times  
  (McCraty, 2010)
- Higher test scores  
  (Bradley, 2010)
- Improved ability to learn  
  (Bradley, 2010)
The Coherence Advantage Program in the Military

“I had the opportunity to visit with our Sailors in Afghanistan last fall and the leadership told me that the program is clearly helping the Sailors that use it and they had a number of compelling examples. A common theme was improved sleep, and ability to sustain their composure in high stress interactions with the detainees.”

— CAPT Laraway
Operation Stress Control Officer, US Navy
The HeartMath® Tools

The HeartMath techniques induce a coherent physical and mental state which increase mental clarity and emotional stability, especially in challenging situations.

The process of shifting into a coherent state is facilitated by assistive technology—the emWave.
emWave 2 is a portable resilience-building technology that provides immediate feedback on coherence levels.
The Three Keys to Building Resilience

• **PREP** to be more coherent and reduce stress reactions before upcoming events or going on duty.

• **Sustain** your coherence throughout the day by establishing regular practices and remembering to refresh your composure in between activities.

• **Reset** by shifting to a coherent state as soon as possible after a stress reaction so you minimize the energy drains.
Officer Feedback

- All the feedback was positive
- Changes in B/P at 3 months
- Shared the device with family members
- “I think I am calmer now”
- “I can mentally step back”
- Applies to family stressors, money, time mgt
- Awareness of “just how stressful one really is”
Officer Feedback

• “I used before sleep to help get more uninterrupted sleep”

• “Before working out to cultivate intensity”

• “I used on the off days to help stop thinking”
Pre lim Results

(Post Intervention **Physiological Variables**)

- B/P improvement
- **LDL** decrease (significant change)
- Significant Correlations with amount of change in coherence BMI and Waist Circumference
Prelim Results (Con’t)
Post intervention Psychological Variables

• Perceived Stress Scale 21.2 to 19.5
• Emotional Stress (POQA)
• Physical Stress (POQA)
• Correlations with coherence improvement
  – Impact Events (PTSD)
  – Vital Exhaustion
A Comprehensive and Sustainable Approach

- Community Capacity (after the researcher is gone)
- Leadership Mentoring (Sgt. Level)
- Pocket Guides for police
- Personal Resilience Mentoring
- **Cost savings if as few as 1-3% modify one risk factor**
  - $1,500 to $2,000 per year per officer
  - ($50-100K for 1 disability case)
- Resilience Building Resources for Family Members
Increasing Coherence in the Work Environment

• Enhances teamwork and performance
• Improves communication and shortens meeting times
• Reduces stress, drama and energy drains
This special section of our website is currently being shared with service members, veterans and their families.
Current Projects with Resilience

- San Diego CA similar results
- Army & Navy positive results
- Saudi Arabia clinical trials (n = 2,000)
- Army trained Wellness Centers (2014)
- Will reach > 200,000 soldiers

WHY NOT POLICE?
Thank You for Attending
Questions

Contact information:
Sandra L. Ramey, PhD, RN
Assistant Professor
University of Iowa, College of Nursing and College Of Public Health