Stress inoculation and medical education

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Objectives

- The case for stress inoculation
- Stress responses/effects
- Strategies and education
Disclaimer

“The views expressed in this presentation are those of the author and do not necessarily reflect the official policy or position of the Department of the Navy, Department of Defense, nor the U.S. Government.”

I have no financial disclosures
The secret of success in life is for a man to be ready for his time when it comes.

–Benjamin Disraeli
Stress inoculation

Phase 1: Conception/education

Phase 2: Skill acquisition and rehearsal

Phase 3: Apply w/ increasing stress

Meichenbaum D., 2007
WARRIOR MINDSET

Mental Toughness Skills for a Nation’s Peacekeepers

Michael J. Asken, Ph.D.
Lt. Col. Dave Grossman with Loren W. Christensen
“For years, so many involved in military or law enforcement tactical training opted for the ‘sexier side’ of skill sets, working on deadly force, discriminative marksmanship or defensive tactics, but rarely, if ever, factoring in the mental side and it’s importance to our success”
“For years, so many involved in Emergency Medicine opted for the ‘sexier side’ of skill sets, working on difficult airways and other procedures but rarely, if ever, factoring in the mental side and it’s importance to our success”
Burnout

Payne, 2000
The rationale

- It's not intuitive
- Delay in technical skills
- Undermines patient safety
- Sub-group of individuals never excel

Warrior Mindset
Trying to figure out when I can have that meltdown that I am entitled to...
Stress

- Sudden and unexpected demands
- Consequences are immediate and severe
- Environment is complex and unpredictable
- Multiple tasks under adverse conditions

Warrior Mindset
Your brain on stress

Tunelo, Eero
Stress responses

- Selective attention
- Premature closure
- Tunnel vision
- Fine motor degradation

LeBlanc, V., 2009
> 115 = loss of fine motor skill

Stress responses

- Emotion focused
- Avoidance focused
- Problem focused

LeBlanc, V., 2009
Maladaptive responses

- Rumination and brooding
- Catastrophizing
- Safety-seeking behaviors
- Absence of self-disclosure
- Failure to access and employ social supports

Meichenbaum D., 2007
Stress

威胁 = 我没有资源

挑战 = 困难，但有资源

LeBlanc, V., 2009
Stress and memory

- Cortisol decreases working memory
- Stress can increase consolidation

LeBlanc, V., 2009
I'm so stressed out over being stressed out that I can't even remember why I'm stressed out.... and it's stressing me out!
Stress ≠ Arousal

- Pressured or loud speech
- Aggressiveness

Graph showing the relationship between emotional arousal and performance, with a peak at moderate arousal.
Consequences

- Misdiagnosis of trainee problems
  - Poor teamwork
  - Poor communication
  - Poor clinical judgement
ANTI-STRESS KIT

1. PRINT THIS SHEET
2. TAPE IT ON A HARD SURFACE
3. BANG HEAD AGAIN THE RED 'X'
4. AND YOU'RE DONE
Psychological Techniques

Realistic Fear
- Increased training
- Goal Setting
- Imagery
- Simulation

Fear of the unknown
- Imagining alternate response
- Exploration time

Anxiety
- Tactical breathing

Illogical Fear
- Self-talk

Fear of Failure
- Shaping
- Self-talk
- Counseling

Warrior Mindset
Before every shift I do the same thing. As soon as I get into my own personal vehicle, I turn off the radio and run through three things: A high speed pursuit, first aid/CPR and a barricaded person scenario.
Visualization

Before every shift I do the same thing. As I’m driving in, I turn off the radio and run through three things: a perimortem C-section, pediatric jet ventilation and an emergency thoracotomy.
Visualization

- Combine senses/emotions
- Visualize overcoming failure
- Visualization does not replace practice

Warrior Mindset
Positive self-talk

I’m good enough, I’m smart enough, and doggone it, people like me!
Simulation

- Over-learning
- Team training
- Preparatory materials
- Pre-gaming your emotions

LeBlanc, V., 2009
Stress inoculation & Sim

- Difficult consultant, nurse, family
- Failing devices
- Difficult cases
- Poor outcomes
- Multiple patients
Emotional stress and learning
6 months later, emotional group scored better on megacode.

Demaria et al., 2010.
The premise is quite simple: all training should be three-dimensional, i.e. it should blend the emotional, psychological and physical arsenals; anything you work on should connect to some sort of scenario so that, irrespective of that drill, there’s an emotional and psychological rationale for the exercise. This way the training triggers and creates connections between all three arsenals.
Knowledge alone is not enough
Stress can be positive
Stress inoculation is a necessity
References


LeBlanc, Vicki. The Effects of Acute Stress on Performance: Implications for Health Professions Education Academic Medicine, Vol. 84, No. 10 / October 2009 Supplement)


Lorello GR, Hicks CM, Ahmed SA, Unger Z1, Chandra D, Hayter MA. Mental practice: a simple tool to enhance team-based trauma resuscitation. CJEM. 2015 Apr 10;1-7.

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