



**2022 NSCA TACTICAL ANNUAL TRAINING** #NSCATactical22

# *CONFLICT OF INTEREST STATEMENT*

I have no actual or potential conflict of interest in relation to this presentation.

# More Calluses, Less Blisters - Building Resiliency in Tactical Operators



Joel J. Raether, MAEd, CSCS,\*D, TSAC-F,\*D, RSCC\*D  
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## **Discussion**

**1.How do we improve operational resiliency?**

**2. Identification of Duty Specific Tasks**

**3.Nonnegotiable Standards & Scenarios**

**1.Train up**

**2.Prepare**

**4.Strategies**

**5.Q&A**

**Hard - Doesn't always mean better**  
**Harder - Isn't always appropriate**  
**Hardest - Too often glorified as best practice**

## **Duty Specific / Nonnegotiable's**

**1.Minimal Standards**

**2.Operational Specifics**

**3.Underlying Considerations**

**4.Training Integrations**

## **Strategies / Considerations**

### **1.Load Carriage**

- 1.Unstable Loads**
- 2.Unbalanced Loads**

### **2.Durations**

### **3.External Environment**

- 1.Contouring**
- 2.Uneven Surfaces**
- 3.Barriers**
- 4.Variable Surfaces**
- 5.Footwear**

## **Integrity**

### **1.Structural**

### **2.Awareness**

### **3.Durability**

- 1.Extending Traditional Parameters**
- 2.Exploring Load Specifics**

- ▶ Prior to 18<sup>th</sup> Century very few soldiers carried > 15kg
- ▶ Progressively Increased to today
- ▶ Today some loads exceed 40Kg

Knapik, J. J. et al: Soldier Load Carriage: Historical, Physiological, Biomechanical, and Medical Aspects. *Military Medicine*, Vol 169. Jan 2004

# LOAD INTEGRATION

- Fighting load - Only what is worn = 36.9 pounds
- Fighting light - Worn plus the assault pack = 59 pounds
- Approach march - Worn plus the rucksack = 72.9 pounds
- Everything - Worn plus the rucksack and assault pack = 95 pounds

SFG Ehrlich R. J. Soldier's Load and Combat Readiness. *Globalsecurity.org*



# U.S. ARMY DEVELOPMENT & EMPLOYMENT AGENCY

- ▶ Proposed in 1987
- ▶ 5 Prong approach
  - ▶ Decrease load by 6%
  - ▶ Soldier load planning model (risk analysis basis)
  - ▶ Specialized equipment
  - ▶ Re-evaluate current doctrine (marksmanship)
  - ▶ Employ enhanced training



# INJURY CONSIDERATIONS

- ▶ Foot Blisters
- ▶ Back Pain
- ▶ Metatarsalgia
- ▶ Sprains
- ▶ Knee Pain
- ▶ Foot Contusion
- ▶ Stress Fractures
- ▶ Palsy



# POP CAN TEST

# BIOMECHANICAL CONSIDERATIONS

- ▶ Load type
- ▶ Load placement
- ▶ Load amount
- ▶ Duration or load requirement
- ▶ Surface(s) encounters



# LOAD TYPE

- ▶ Posterior
- ▶ Anterior
- ▶ Leg Load
- ▶ Hip Belts
- ▶ Hand Load
- ▶ Double Loaded
- ▶ Unbalance / Unilateral



# ENERGY EXPENDITURE

- ▶ 1 kg increase to foot = 7-10%
- ▶ 1 kg increase to thigh = 4%
- ▶ Hand load vs. Torso load

CV Expenditure



# APPROACH TO LOAD TRAINING

- ▶ Spine & LPH
- ▶ Cognitive positional awareness
- ▶ Develop a systematic approach to spinal stability / reactive trunk
- ▶ Tissue quality & length/tension relationships

# SPINAL STABILITY

- ▶ Vertically
- ▶ Laterally
- ▶ Contralaterally
- ▶ Ipsilaterally
- ▶ Torsionally
- ▶ Multidimensionally



# POOR ALIGNMENT W/ LOAD

- ▶ Compression
- ▶ Pinch / Avulse
- ▶ Shear
- ▶ Torque
- ▶ Displacement



# STARTING POINTS

- ▶ Ground based (positional specific)
- ▶ Stance based
  - ▶ Kneel (1/2 or full)
  - ▶ Even (neutral / int rot / ext rot)
  - ▶ Stagger (lunge / angles / foot position / width)
  - ▶ Single Leg
- ▶ Isometric
- ▶ Dynamic / Traditional
- ▶ Reactive / Tempo Specific

# COACHING

- ▶ Rule of 3 P's
  - ▶ Position
  - ▶ Posture
  - ▶ Perform
- ▶ Create awareness (tactile / visual ref)
- ▶ Correct and protect
- ▶ Tissue Tolerance

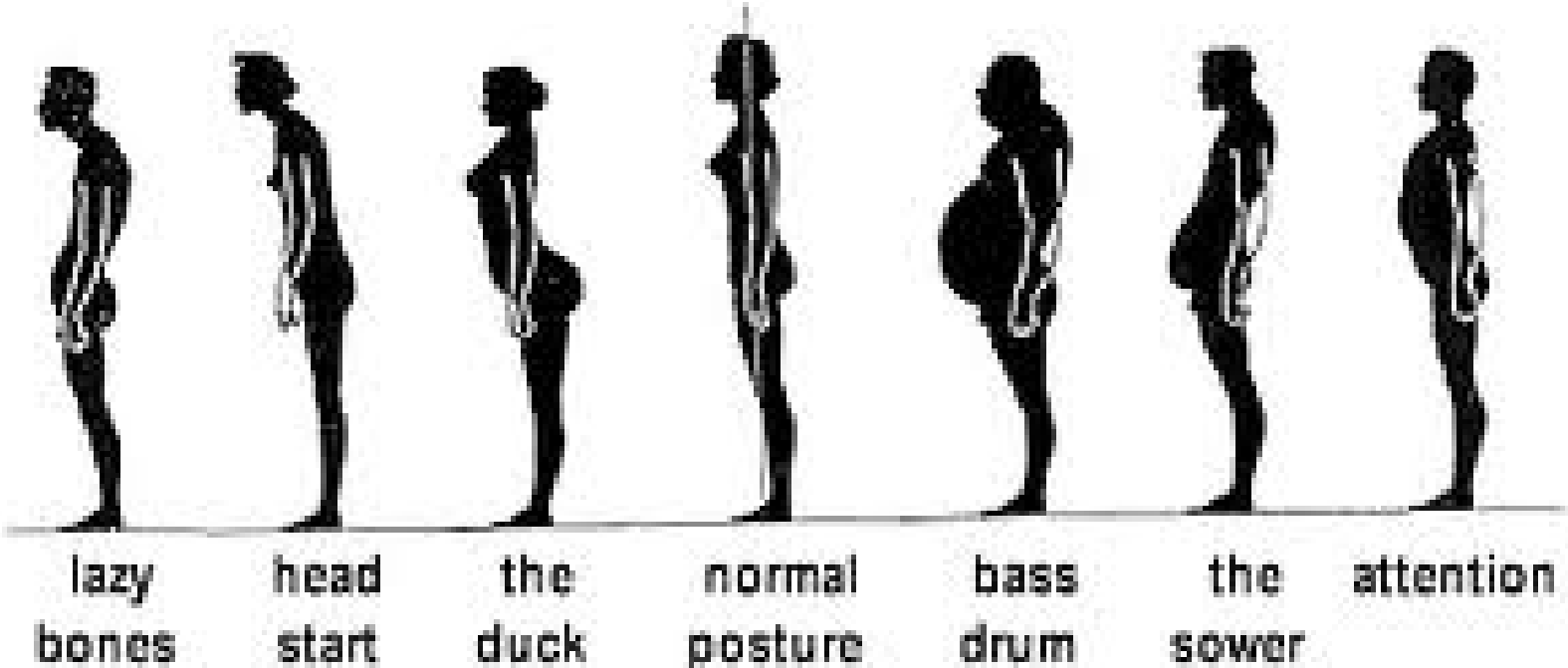
# HARDWARE & SOFTWARE



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# REMEMBER!



# DIGGING IN!

- ▶ Plank Series
- ▶ Glute Series
- ▶ Palloff's
- ▶ Bear Crawl Series
- ▶ Chop & Lift
- ▶ Push / Pull
- ▶ Load / Carry
- ▶ Reactive



# PLANK SERIES

- ▶ Lateral

- ▶ Hip Lift
- ▶ Iso hold
- ▶ Star (variants)
- ▶ Adductor
- ▶ Flex / Extend
- ▶ Top leg cycle
- ▶ Prone/side transitions

- Plank

- Prone

- w/ reach
- March
- Contralateral
- Up / downs
- Oscillation

# GLUTE SERIES

- ▶ Hold
- ▶ March
- ▶ Single Leg
- ▶ Oscillation
- ▶ Driver
- ▶ Leg Drop

# CHOP & LIFT

- ▶ Develop Contralateral stability patterns w/ load
- ▶ Ground up
- ▶ Slow / Fast
- ▶ Integrated Variations

# STRENGTH

- ▶ Develop traditional load patterns
- ▶ Progress into special strength needs
- ▶ Challenge Positions and postures relative to duty tasks
- ▶ Build tissue tolerance

# REACTIVE TRUNK TRAINING

- ▶ Patterning
- ▶ Positioning
- ▶ Tactile input
- ▶ Perturbation
- ▶ Partner training
- ▶ Med Ball Work



# SPECIAL STRENGTH / STABILITY

- ▶ Cables
- ▶ Bands
- ▶ Med Ball
- ▶ Sleds / Sled Barrow
- ▶ CrossCore
- ▶ Sandbags
- ▶ Kegs
- ▶ Tires

# METABOLIC CONSIDERATION

- ▶ Load Under Fatigue
- ▶ Build Complexes
- ▶ Controlled Rucks
- ▶ Inoculation Training



# COACHING

- ▶ Be Critical
- ▶ Remember the 3 P's
- ▶ Progress
- ▶ Develop Load
- ▶ Develop Volume
- ▶ Challenge Positional Capability & Awareness

“IT'S NOT THE LOAD THAT  
BREAKS YOU DOWN.  
IT'S THE WAY YOU CARRY IT.”  
- C.S. Lewis

# QUESTIONS / DISCUSSION

- ▶ Inform, Instruct, Inspire

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