

The Impact and Value of Tracking Visceral Adipose Tissue by MRI and CT as an Important Biomarker in Service Members

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Presenter

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Army Lt. Col. Sean O'Mara grew up in Fairfax County, Virginia. He attended a community college to study law enforcement and worked as a Police Officer where he worked undercover in both narcotics and organized crime. He graduated High Honors from Penn State in 1985 and went on to graduate from Villanova University School of Law in 1989. He practiced for three years as a criminal prosecutor in Philadelphia. LTC O'Mara trained as an Emergency Medicine physician during his time in the U.S. Army Medical Corps. In 2004, he was recognized as the outstanding physician of the year among all medical specialties throughout the entire U.S. Army and was the first and only Emergency Medicine Physician to have received this award.

In 2016 he was awarded a \$1.2 million grant for the National Science Foundation for research on reversing chronic disease using innovative biomarkers such as visceral and pericardial fat.

LTC O'Mara is the only physician in the world specializing in Health and Performance Optimization. He works with individuals and corporations interested in the biological optimization of humans through innovation and safe natural lifestyle strategies.

Disclosures

- Lt. Col. O'Mara was awarded a \$1.2 million grant for the National Science Foundation for research on reversing chronic disease using innovative biomarkers such as visceral and pericardial fat.
- 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 Defense, nor the U.S. Government.
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Learning Objectives

At the conclusion of this activity, participants will be able to:

- 1. Identify the importance of the visceral adipose tissue (VAT) biomarker and understand the threat it poses to Service Members' health.
- 2. Recognize the impact of the removal of VAT has on Service Members' health and performance.
- 3. Describe how VAT may be best addressed through abdominal MRI and CT scans.
- 4. Explain how the elimination of VAT is seen to correlate with resolution of other pathologies on MRI (cardial fat and atherosclerotic cardiovascular disease within the cerebral arteries).

What Clinical Measures/Metrics Do You Now Use?

- Army Readiness Standards for Retention: ACFT
- How About Clinical?
- How Much: "How Healthy from a Clinical" Perspective
- Cholesterol?
- Weight?
- Body mass index (BMI)?
- Blood Pressure?
- Chest x-ray (CXR),computerized tomography (CT), magnetic resonance imaging (MRI)?something beyond NORMAL? Super-Normal?

2015 National Science Foundation (NSF):

1. Earliest Expression of Chronic Disease

KPI

- 2. Health = Appearance + Performance
 - Appearance = Key Biological Indicators (KBI) Biometrics Biomarkers.
 - **Performance** = Key Performance Indicators ACFT/APFT, Others? Anything.
 - Is our goal to change numbers or *improve health*? Measure what matters!
 - Signal: Noise. Conventional Healthcare Signal Profitability,
 - Health Optimization: Signal Disease eradication & Improved Health, Improved Performance. BETTER Metrics: WHAT?

Visceral Adipose Tissue:

Visceral Fat aka: "Belly Fat"





The Concept of "Skinny Fat": TOFI: Thin Outside Fat Insider ^Clinical Risk



Healthy Living Matters. Prevention Works.

Imaging: Comparison Abdominal MRIs







Optimized Muscle: Fat vs. Sarcopenia



Abdominal MRI Imaging Series over 35 weeks



Week 15: VF = 3.3 pounds

Week 2: VF = 4.2 pounds

Week 5: VF = 4.5 pounds



Week 25: VF = 2.6 pounds



Week 35: VF = 1.8 pounds







Abdominal Imaging









X-ray Calipers AKA Radiology Calipers



(CenQuip.com, n.d.)



(Image courtesy of LTC O'Mara)

Available for Purchase or Make Your Own!



Visceral Adipose Tissue (VAT) Reduced from Sprinting

2/6/2017

4/3/2017





3.0 lbs. VAT





Chest MRI showing Cardial Fat





Chest MRI ^ Cardial Fat 24 y.o. female ^ Rice Diet



Imaging MRI abdomen & heart in marathoner







Imaging: Correlation between Visceral Fat to Myomeastosis









(Images courtesy of LTC O'Mara)

Healthy Living Matters. Prevention Works.

Visceral Fat Reduction

Visceral Fat Reduced 30% after stopping rice, honey & almond butter.





Video



(Video courtesy of LTC O'Mara)



Imaging Abdominal CTs A. Before operation



C. Before operation

DFOV 43.0 cm STND/+ 5.0/ kv 100 mA 349

B. 6 months after operation



D. 6 months after operation





Muscle Marbling: Myomeastosis



(adobestock.com, n.d.)

Eat a species appropriate diet: Whole Foods: Non-Processed Healthy Meat & Veggies (Fermented?)



(Image courtesy of LTC O'Mara)

Imaging Muscle: Fat in Thighs

MRI Images of the Quadricep: Age & Muscles 40 year old triathlete



74 year old and sedentary



74 year old athlete:







Skeletal Muscle Smooth Muscle



Imaging: MRA Cerebral Arteries



Non Radiographic: External Biomarkers/Biometrics

- 1. Faces
- 2. Hair
- 3. Noses
- 4. Ears
- 5. Eyes (limbal, eye lashes, eyebrows
- 6. Tongue
- 7. Skin Color, Turgor, Thickness
- 8. Telangiectasias
- 9. Peripheral Edema (NOT "Plus 1-4"....sock lines)
- 10. Nail Beds Toenails, Fingernails ("Die from our Feet First)
- 11. Sebaceous Filaments
- 12. SAD: Sagittal Abdominal Diameter....standing supine



Poor Man's MRI SAC, SAD Standing, Laying

Functional Biomarkers/Biometrics

- 1. Defecation 5-7 Seconds: Ghost Poops...Toilet Training
- 2. Voiding, Nocturia, Volume/Time
- 3. Perfusion: Visible Pulses (Turgor) Nit Ox. Sunshine, HIIT, Sauna, Fasting
- 4. GI Absorption/Perfusion/Renal Function: B Vits/Water/Liver > Urine
- 5. Balance: One Legged balance eyes closed
- 6. Stand to Sit to Standbody parts
- 7. Finger Puckering
- 8. Dead Hang
- 9. Hand Grip
- 10. Reaction Time
- 11. Range of Motion



(adobestock.com, n.d.)



(vagabondadventures.com, n.d.)

LTC O'Mara







■ dl3.boxcloud.com











(Photos courtesy of LTC O'Mara)

Muscle Tone Sarcopenia



(adobestock.com, n.d.)

Stool Chart

Automaticity, Ease, Reflex Ghost Poops: Toddler Pleasant, Silent, Effortless, Efficient Child-Like







Squat





Eyes/Hair



Limbal Rings, Very White Conjunctiva (no red vessels)

Thick healthy hair







Not Thin hair:



Arcus Senilis (an unhealthy limbal Ring) & Red Vessels:



(Adobestock.com, n.d.)





How Long a Period of Time Between Photos?



Key Strategy Takeaways



(adobestock.com, n.d.)

- **1. Eliminate Processed Foods**
- 2. Low-carbohydrate-high-fat (LCHF), Paleo, Keto, Carnivore
- 3. Fasting: Intermittent Fasting (IF), Time Restricted Eating (TRE), One Meal a Day (OMAD), Extended
- 4. High Intensity Exercise: Sprinting/Fighting
- 5. Stand & Move a lot. Don't Sit in furniture: Ground!
- 6. Stress Hormesis: That Which Doesn't Kill You Will Make You Better. (Sauna, COLD, Fasting, Altitude, BFR bands, etc.)
- 7. Optimize: Mitochondria, Microbiome, Melatonin, Melanin, Oxytocin, Nitric Oxide, Insulin Sensitivity
- 8. Use BioMetrics/Biomarkers/KBI/KPI
- 9. Reduce Visceral Fat



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- 6. You can return to the site at any time in the future to print your certificate and transcripts at: https://www.dhaj7-cepo.com/
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