Food and the U.S. Military: Past, Present and Future

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Opening Session Keynote Presentation: Securing Our Future, Reimagining our Industry

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Samueli Institute
Applying Science to Healing and Wellbeing

THROUGH
- RESEARCH
- INNOVATION
- EDUCATION

FOR
- INDIVIDUALS
- SERVICE MEMBERS
- SYSTEMS

TO
- Achieve and maintain wellness
- Prevent illness
- Ameliorate chronic disease
- Improve performance
Samueli Institute Background

- **Non-profit, 501(c)3 research organization**
  - Major supporters of holistic and integrative health care research
  - Significant supporters of research and education – over $25 million to date

- **Government Colleagues and Partners (60% DoD, VA)**
  - DARPA, USUHS, DCoE, TATRC, MRMC, Office of CJCS, CDMRP
  - Army, Navy, Air Force OTSG ‘s DoD Pain Task Force, multiple Veterans Affairs
  - NIH (including NCCAM, NCI, NIDA), HRSA, AHRQ. IOM, NAS, USDA, FDA, etc.

- **Academic and Other Partners**
  - RAND Corp, Rockefeller Trust, **Culinary Institute of America**
  - 50 universities including **Harvard School of Public Health**, University of California, Irvine, University of California San Diego, Johns Hopkins, University of Maryland, University of Virginia, Georgetown, USUHS, TNO (Neth), U. Viladria, LMU (Germany, Hadassah (Israel), (Other - China, India, Qatar, Africa).
International Dimensions
Health, wellbeing, performance and resilience are grounded in the life space, tapping into our inherent healing capacity.
The TFF model recognizes that there is a continuum of functioning: one can see the red, orange, yellow, green COSC continuum on the line down.

Also like the COSC continuum, there is an emphasis to the left.

Fitness for Duty is the minimum standard just as passing the PT test is the minimum standard.

Ideally, just as we would like to develop extra physical strength, endurance, and flexibility to help people succeed in situations with extreme and sustained physical demands, we would also like to develop similar levels of extra psychological capacity.

HUMAN PERFORMANCE OPTIMIZATION
The U.S. Military’s Weight Problem

During World War II

• 40% of potential military recruits were under-nourished

• Congress passed the National School Lunch Act in 1946, calling the bill:

  “A measure of national security to safeguard the health and well-being of the Nation’s children.”

• Food as Fuel

Age-Adjusted Prevalence of Obesity Diagnosed Diabetes Among U.S. Adults

1994

- No Data
- <14.0%
- 14.0-17.9%
- 18.0-21.9%
- 22.0-25.9%
- ≥26.0%

2000

- No Data
- <4.5%
- 4.5-5.9%
- 6.0-7.4%
- 7.5-8.9%
- ≥9.0%

2010

CDC Division of Diabetes Translation

SamuelInstitute.org
The U.S. Military Weight Problem

Currently

- America’s youth are increasingly *Too Fat to Fight*

- Percent of recruits rejected for weight:
  - 12% in 1995
  - 21% in 2008
  - >25% in 2012

![Rejected Recruits Graph](chart.png)
In 1997, WHO formally recognized obesity as a global epidemic.

Obesity is a National Security Crisis

36% of American adults are obese

27% of potential military candidates cannot qualify for the military due to their weight.

National Security Impact

Obesity and poor fitness threaten to undermine DoD and society’s well-being and long-term national security.

- DoD spends ~ $1.5 billion annually for illnesses associated to obesity: diabetes, heart disease and osteoarthritis.
- Navy estimates that ~ 2,000 personnel are processed out of the Navy annually for failure to meet physical fitness standards equating to ~ $300 million in lost training investments.
- In 2010, 59% percent of females and 49% of males who took the military’s entry-level physical fitness test failed.
Mental Health and the Military

Invisible Wounds of War
Psychological and Cognitive Injuries, Their Consequences, and Services to Assist Recovery

Our thoughts and prayers are with the brave soldiers and their families.
Mental Health and the Military

Need for healing approaches that address the multiple needs: emotional, spiritual, psychological, social, biological and physiological.

Complex conditions, which are not adequately treated by the conventional medical model that works so well for things like infections and other acute conditions.

Cure is too narrow a term for the goal of medicine in these cases; healing is critical to recovery and return to some normalcy.

So we’ve recognized the need for these approaches in the key areas of pain, stress and performance optimization---resilience, resistance to breakdown, etc., empowerment of individuals to heal themselves through learned practices and lifestyle changes that facilitate healing.
Service Members and Families are Suffering Mental Illness

MORE THAN 300,000 RETURNING TROOPS SUFFER FROM PTSD OR SEVERE DEPRESSION (18%)

MORE THAN 320,000 HAVE SUFFERED A TRAUMATIC BRAIN INJURY (TBI) (19%)

154 SUICIDES FOR ACTIVE DUTY-TROOPS IN FIRST 155 DAYS OF 2012
Omega-3 as Nutritional Armor?

Omega-3s show improvement in:

• Depression
• Cognitive function
• Wound healing
• Septic shock
• Heart disease
• Inflammation
Food as Fuel Culture in the Military

Too much of the food consumed by our Service members is sub-optimal from the perspective of health:

- Too much processed food
- Too much saturated fat
- Too little access to fresh produce
- A generation that never learned to cook
- An outdated paradigm (real men eat red meat) presides
- Belief that supplements can “fix” poor nutrition
- A Growing Consensus that this status quo MUST CHANGE

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<tr>
<th>Nutrition Information</th>
<th>Military Rations</th>
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<td>Energy (kcal)</td>
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<tr>
<td>Protein (g)</td>
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<td>Carbohydrate (g)</td>
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<tr>
<td>Calcium (mg)</td>
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Eating & Exercise Among Active Duty Military

Healthy People Guidelines: **Food**

- Did Not Meet: 3%
- Met: 97%

Healthy People Guidelines: **Exercise**

- Did Not Meet: 57%
- Met: 43%

*Source: Journal of the Academy of Nutrition and Dietetics, in press*
Life Space Flourishing

- Physical
- Psychological
- Spiritual
- Environmental
- Medical
- Behavioral
- Social
- Nutritional

- Economic
- Historical
- Cultural

Admiral Michael Mullen, Former Chairman of the Joint Chiefs of Staff

Total Force Fitness
Human Performance Optimization

- Total Force Fitness
- Comprehensive Soldier Fitness
- Marine Total Fitness
- Healthy Base Initiative
- The Performance Triad
  Sleep Activity Nutrition
Polypill or Polymeal?

statin + thiazide+ beta-blocker + ACE - inhibitor + folic acid + aspirin

wine, fish, dark chocolate, fruits, vegetables, garlic, and almonds
Polypill or Polymeal?

As goes the military, so goes the nation:

From integration to green energy to complementary and alternative medicine, the US military has been at the forefront of significant social change.

Can we, Samueli Institute, CIA, Harvard School of Public Health, and you our colleagues in the food industry collaborate to change the predominant view that it is okay to eat processed, high fat, salty/sweet food and take supplements and transform from there to a new normal that is mindful of both health factors, environmental factors and costs?

President Truman signed the National School Lunch Act on June 4, 1946. Though school foodservice began long before 1946, the Act authorized the National School Lunch Program (NSLP). The legislation came in response to claims that many American men had been rejected for World War II military service because of diet-related health problems. The federally assisted meal program was established as “a measure of national security, to safeguard the health and well-being of the Nation’s children.”
Packing Produce in Rucksacks

• Researchers at N.C. State University and U.S. Army are working to create more healthful rations.

• Testing combining protein powders and flour with compounds from kale greens and muscadine grapes.

• Ingredients can be added to drinks, power bars and snacks.

Source: N.C. State University Plants for Human Health Institute, May 29, 2013
The SuperChicken Study: Changing the Food Composition in Military Operations and Health Care

Changing the composition of chicken feed to increase omega-3 levels while decreasing omega-6 significantly changes fatty acid levels in eggs and meat products.
SuperChicken Food Study

- Test if eating a diet rich in Omega-3 fatty acids results in less fatigue and increased mental performance.

- 72 people will participate in a 10-week, double blind study.

- Four-day physical fitness test after 10-week study.
Metabolically Optimized Brain

• In a current Samueli Institute study will examine the evidence for dietary composition and its relationship to mental health and optimal cognitive function.

• An expert panel will evaluate state-of-the-science and suggest next steps to optimize mental performance of military populations by nutritional means.
Nutrition in the New Military

• The culture of food in the military is about to change.
• The military is rapidly recognizing the unsustainability of the current state of food, nutrition and wellness.
• They are taking steps to change how food is managed and delivered and sought.
• This is a giant learning lab with implications for the foodservice industry.
• The Chiefs of Staff, Surgeon Generals and others are recognizing that we are Too Fat to Fight and mental health is declining - this risks national security.
• Nutrition is being recognized as a key factor in mental health, resilience, and possibly PTSD and suicide.
Leading the Next Generation of Food

• It is time for leaders to re-look at food, nutrition, and corporate dining because of rising health care costs, national security and corporate performance.
• This needs to go beyond just giving incentives, doing annual wellness screenings and education about choice.
• We must showcase how changes in dietary choices can predictably impact disease, performance and costs.
• Working with both the military and civilian early adopters, the foodservice industry has the opportunity to both lead and drive these markers in the right direction.
• Samueli Institute, CIA, HSPH are engaged in collaborations in this area of food & lifestyle enhancement.