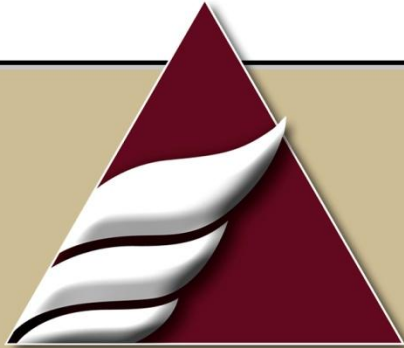


Soldier Fueling Program Evaluation

Phase I (Qualitative and Descriptive Analysis) Preliminary Results



USAPHC

ARMY INSTITUTE OF PUBLIC HEALTH

Public Health Assessment Program
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Soldier Medical Readiness Campaign Plan
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Briefing Outline

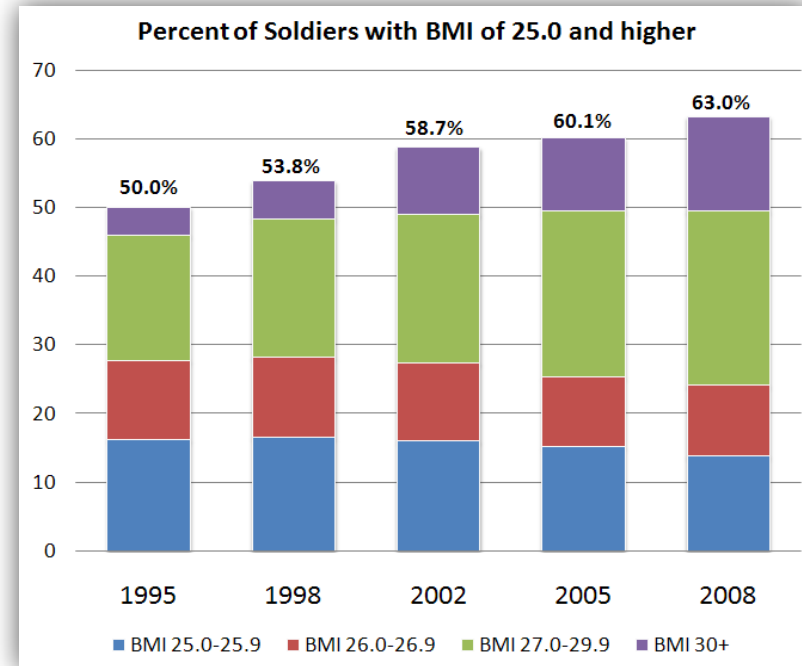
PURPOSE: To provide preliminary results regarding effectiveness, reach, and implementation of the Soldier Fueling Initiative within Initial Military Training.

1. Background
2. Evaluation Methods and Sample
3. Results
4. Summary of Key Findings
5. Conclusions
6. Questions/Discussion



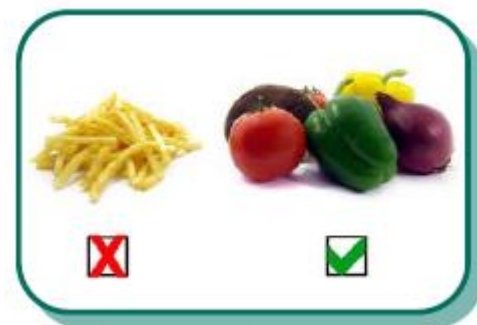
Background: Overweight and Nutrition in the U.S. Army

- The prevalence of overweight or obese 18-years old among adolescent civilian applicants to the U.S. military service has increased from 25.6% in 1993 to 33.9% in 2006 (Hsu et al., 2007)
- Excess body fat in the Army is associated with increased injury and decreased performance (Smith et al., 2009; Subcommittee on Military Weight Management, Committee on Military Nutrition research, 2004)
- Nutrition deficiencies in Initial Military Training (e.g., iron deficiency) are associated with increased injury risk (McClung et al., 2006)



Background: Recommended Nutrition Interventions

- The Centers for Disease Control and Prevention recommends nutrition strategies that fall into key areas including (CDC, 2009):
 - Promote availability of affordable healthy food and beverages
 - Support healthy food and beverage choices



Centers for Disease Control and Prevention, 2009, p. 1

- “Improving dietary and lifestyle patterns...will require a sustained public health effort...Our ultimate goals should be to structure...institutional environments so that healthy behaviors are the optimal defaults.” (Story et al., 2008)

Background: Soldier Fueling Initiative

- The **Soldier Fueling Initiative (SFI)** is an Initial Military Training (IMT) program developed to establish a feeding “fueling” standard for Soldiers in Basic Combat Training and Advanced Individual Training. (SFI Implementation Guide, 2010)
- **The SFI is a multi-component program:**
 - Modified application of Army Garrison Menu standards to promote healthier eating
 - Standardized menus, recipes, preparation methods, and portion sizes
 - Nutrition education emphasizing link between nutrition, performance, and health
 - Clear identification of healthier and less healthy options
 - Program marketing

MENU # <u>DAY 7</u> MEAL: LUN		
RECIPE NO.	ITEM DESCRIPTION	Port Cost
RG0013	Lunch Day 7	
L05101	* Chicken Parmesan	
L19500	* Beef Teriyaki	
L07500	Broccoli & Cheese Rice (E/S)	
E00505	Steamed Brown Rice	
Q04900	Obrien Potatoes	
Q02500	Vegetable Stir Fry	
Q10200	Lima Beans	
O01600	Brown Gravy	
D80400	Hot Rolls	
	Salad Bar	
	Fitness Bar	
	Soup (optional)	

Background: SFI Program Evaluation

- In 2011, the U.S. Army Institute of Public Health, in partnership with the DCG-IMT Center of Excellence, began execution of a phased SFI program evaluation.
- Primary areas of inquiry for **Phase I** of the program evaluation:
 1. Soldiers' food selection influences and Dining Facility (DFAC) experiences
 2. SFI reach and message salience
 3. Effectiveness of SFI program components (labels, class, knowledge)
 4. Importance of Cadre/leadership influence on Soldier nutrition
 5. Changes over time and potential for maintenance of healthy behaviors
 6. SFI implementation benefits and barriers

Evaluation Methods and Sample

- Mixed Methods Approach
 - Focus groups of BCT and AIT Soldiers at Fort Jackson (N~110)
 - Focus groups with DFAC staff at Fort Jackson (N~10)
 - Anonymous surveys with Soldiers at 3 installations (N=745)

Characteristics of SFI Program Evaluation Anonymous Survey Sample

	Male (%)	Female (%)	Average Age (SD)	Average BMI (SD)	TOTAL
Fort Jackson	170 (69.1)	76 (30.9)	21.9 (4.92)	24.4 (2.56)	264
Fort Eustis	228 (95.4)	11 (4.6)	20.8 (3.96)	23.7 (3.00)	239
Aberdeen Proving Ground	232 (91.7)	21 (8.3)	21.9 (5.52)	24.7 (2.97)	253
TOTAL	630 (85.4)	108 (14.6)	21.5 (4.89)	24.3 (2.88)	745

27.0% of the overall sample classified themselves as overweight prior to beginning BCT

Results:

Soldiers' Food Selection Influences and DFAC Experiences

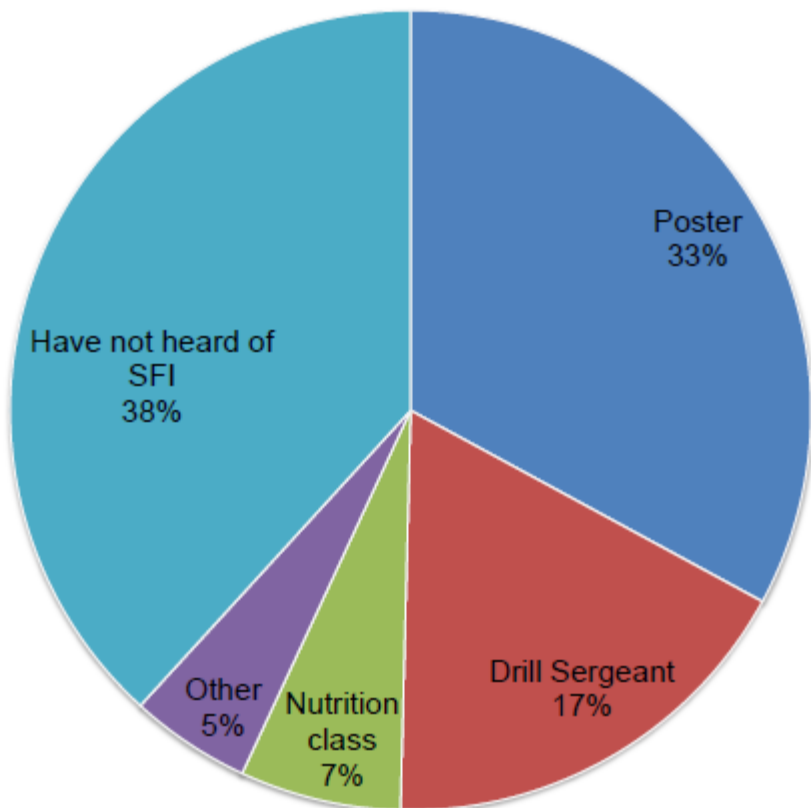
- **What influences Soldiers' food choices in IMT (top 5 from focus groups)?**
 - The day's activities
 - What will help them feel full
 - Food's appearance
 - Go for Green Labels
 - Time
- **When are Soldiers most likely to report eating for performance?**
 - When anticipating high demand for the day
 - Before PT
 - After PT
 - In the morning

...if we stack up in the morning with good cereal, bananas, you know, toast, silk and another drink like orange juice, then we feel good, we wake up a little bit you know and it lasts us like most of the day.

–BCT focus group quote

Results: SFI Reach and Message Salience

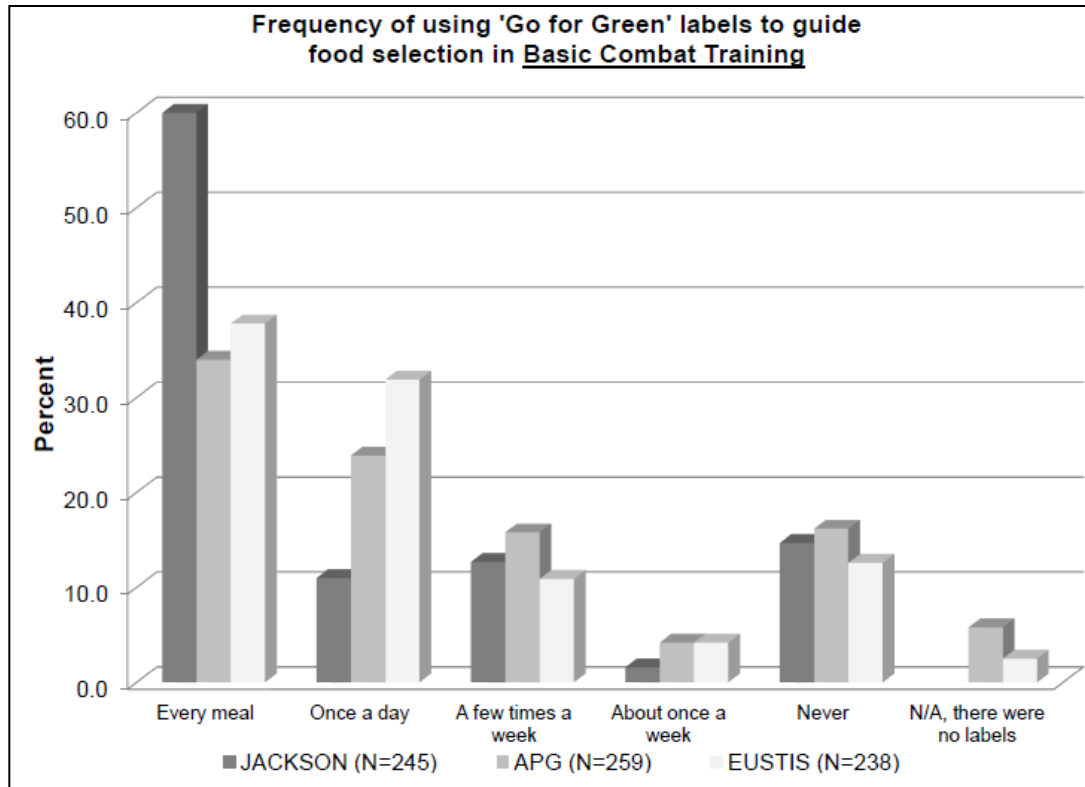
Where did you first hear of the SFI?
 (BCT surveys, N=246)



When asked, “What does the phrase Soldier Fueling mean to you” examples included:

- *[F]ueling is more of giving the Soldiers what they need to have throughout the day to keep them in shape” (AIT focus group)*
- *“It's getting the nutrition your body needs” (BCT focus group)*
- *“Okay the Soldier Fueling Initiative is healthy eating patterns for the individuals, to build up better soldiers. It consists of a nutritional feeding, less fattening foods, more food for high performances...” (DFAC focus group)*

Results: SFI Effectiveness (Labels)



Those who perceived themselves as overweight prior to joining the Army were slightly more likely to use the 'Go for Green' labels at every meal in BCT than those who perceived themselves as being a healthy weight or underweight prior to joining the Army (p=.06).

•Soldiers commonly reported using the 'Go for Green' labels to guide their food choices during BCT. Nearly two-thirds of the combined sample (66.0%) reported using them at least once a day while in BCT.

Results: SFI Effectiveness (Labels)

- Among Soldiers in BCT, there is a statistically significant correlation ($p < .05$) between the **frequency of use of G4G labels** and the self-reported **frequency of selecting various foods**:
 - Food with green labels (+)
 - Food with red labels (-)
 - Lean meats/protein (+)
 - Fruits (+)
 - Vegetables (+)
 - Salad bar (+)
 - Fruit juice (+)
- There is **no statistically significant correlation** between the frequency of use of G4G labels and the self-reported frequency of selecting the following in BCT:
 - Food with amber labels
 - Low fat dairy
 - Dessert
 - Peanut butter



Results: SFI Effectiveness (Class)

- Soldiers expressed the performance nutrition education class was generally helpful to them in making performance enhancing food choices.

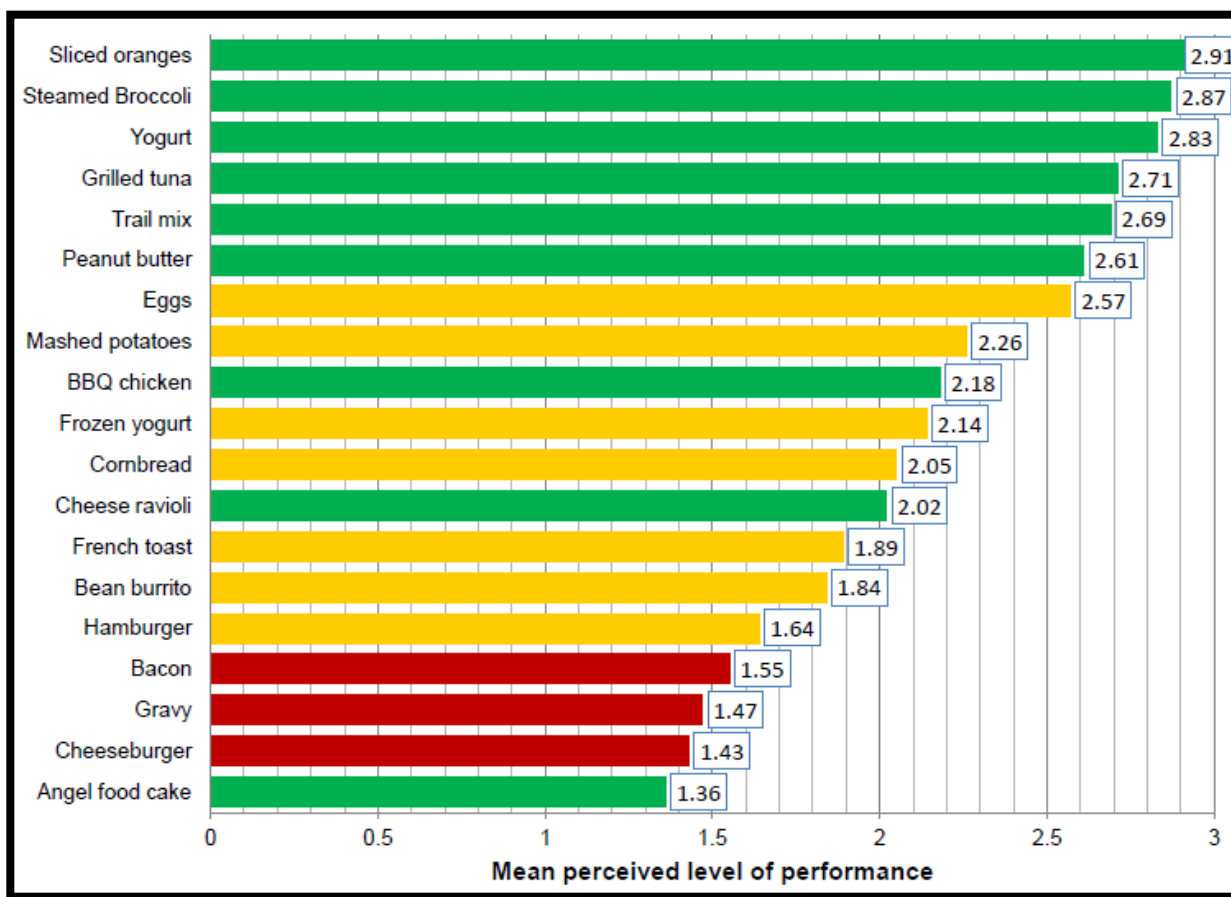


Of those Soldiers currently in BCT at Fort Jackson who remembered taking the class (n=182, 76.2%),

- 78.6% agreed or strongly agreed they thought it was useful
- 75.3% agreed or strongly agreed they used information from the class to guide their food choices
- 61.5% agreed or strongly agreed they learned something new

Results: SFI Effectiveness (Knowledge/Attitudes)

Soldiers generally have an idea of what foods are high, moderate, and low performance (per the labeling scheme). They are better able to correctly classify high and low performance foods than moderate performance foods.



As self-reported frequency of label use increased, the ability to correctly classify foods based on the labeling scheme also increased ($r=.248$, $p<.001$).

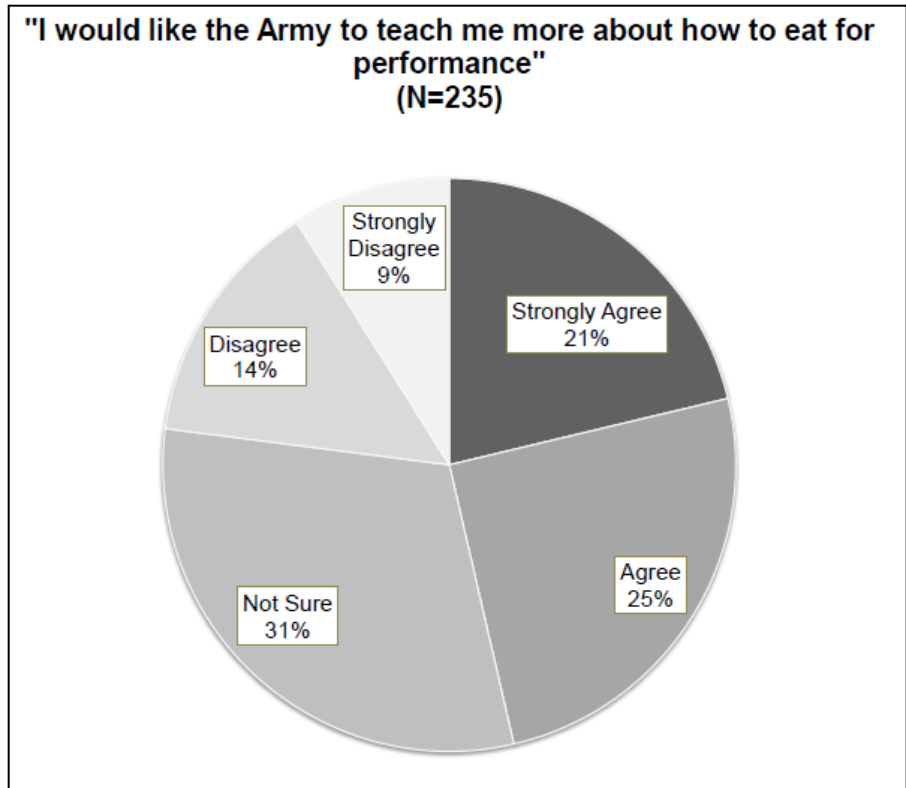
Results: SFI Effectiveness (Knowledge/Attitudes)

- What do Soldiers eat when they eat for performance?
(*number of focus group references*)
 - Carbohydrates (59)
 - Protein (34)
 - Vegetables (29)
 - Fruits (24)
 - Dairy (11)
 - General energy food (10)
 - Water (6)
 - Juice(4)



Results: SFI Effectiveness (Knowledge/Attitudes)

- **83.9%** of Soldiers in AIT at Ft. Eustis agreed or strongly agreed that they know what to eat to optimize their **physical performance**.
- **69.1%** of Soldiers in AIT at Ft. Eustis agreed or strongly agreed they know what to eat to optimize their **mental performance**.
- **46.4%** of Soldiers in AIT at Ft. Eustis agreed or strongly agreed that they wanted the Army to **teach them more about how to eat for performance**



Results:

Importance of Cadre/leadership influence

- Among AIT Soldiers at Fort Eustis:
 - 74.4% agreed or strongly agreed that their Drill Sergeant perceived it was important for them to eat for performance during BCT
 - Only 44.7% of this same sample agreed or strongly agreed that AIT Cadre perceived it was important for them to eat for performance.
- Focus group themes regarding Cadre influence on nutrition:
 - Soldiers appreciate when Cadre teach them how to eat for performance
 - Positive reinforcement works better than reprimands
 - Soldiers do not perceive that Cadre model positive eating behaviors



Results

Importance of Cadre/leadership influence

I think like at basic, it was like day 2 for us when we had it, and like the Drill Sergeants had already scared the crap out of us. Oh, we're not your friends, blah, blah, blah, but then, they sat down with us and they talked to us like we were a human being, and told us, you know, this is good for you. This isn't good for you. They let us ask questions. They joked around with us about certain foods like energy drinks and stuff like that. So, they were more active with us...it was good.

43.6% of Soldiers in the combined survey sample reported their Drill Sergeant had taught their performance nutrition class (n=317)

- When compared to Soldiers who had received the class by another instructor or who had not received the class, these Soldiers reported statistically significant differences in:
 - Perceived helpfulness of their Drill Sergeant in assisting them in making performance enhancing food choices ($p<.001$)
 - Agreement that their Drill Sergeant in BCT believed it was important for them to eat for performance ($p<.001$)

Results:

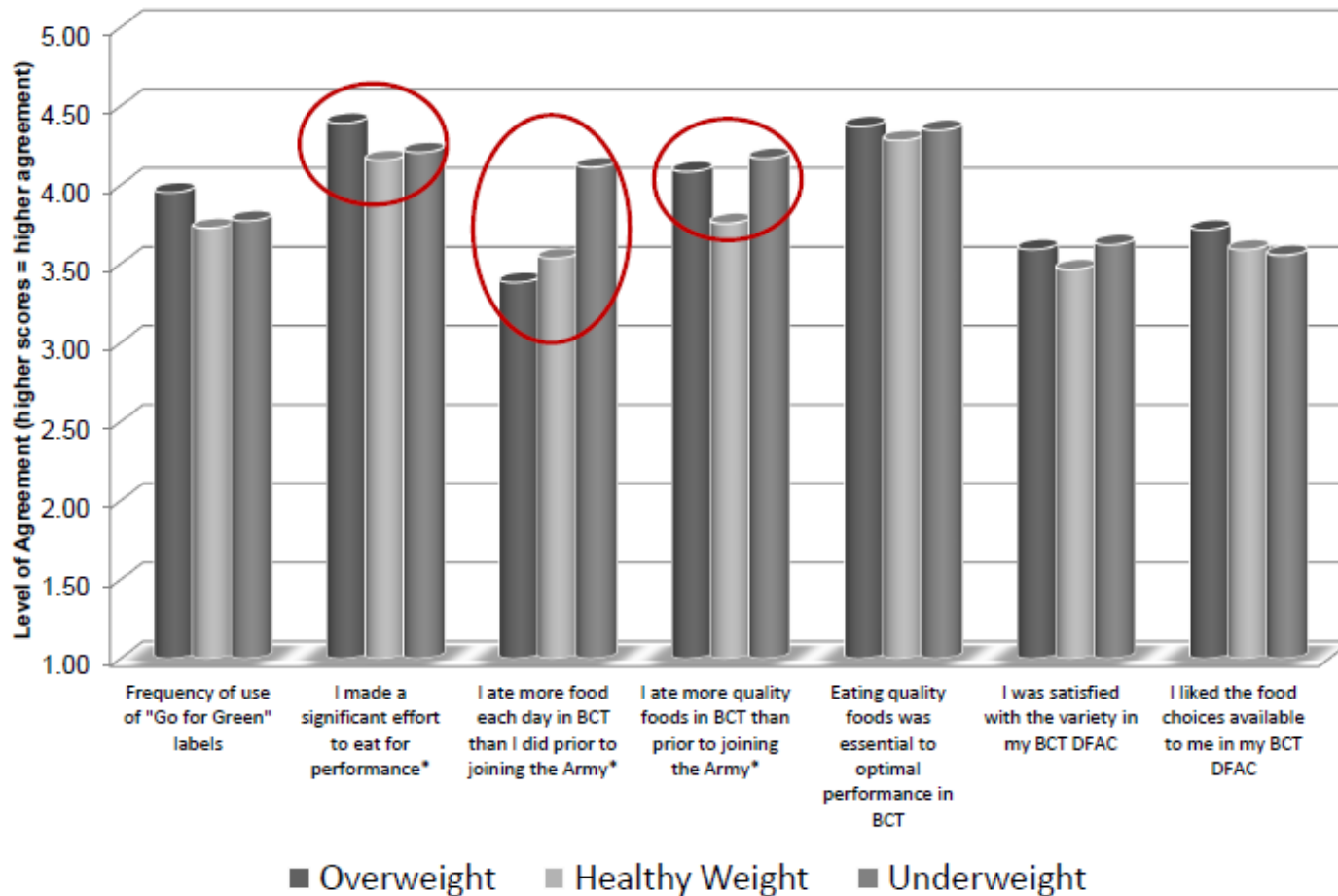
Changes over time and potential for maintenance of healthy behaviors

- 81.3% of Soldiers reported positive changes to their physical performance in BCT
 - About one third of Soldiers in the sample reported positive changes in physical performance in both BCT and AIT
- 89.5% of Soldiers who identify as being overweight prior to entering the Army reported losing weight in BCT
 - Of those who were overweight prior to joining the Army and who lost weight in BCT:
 - 44.1% gained weight in AIT
 - 40.7% stayed the same weight from BCT to AIT
 - 15.3% lost additional weight in AIT
- Soldiers who ate in the DFAC 3 or more times a day were slightly more likely to report gaining weight in AIT than those who report eating in the DFAC less than three times per day (OR: 1.43, 95%CI: 0.98-2.08)

Results:

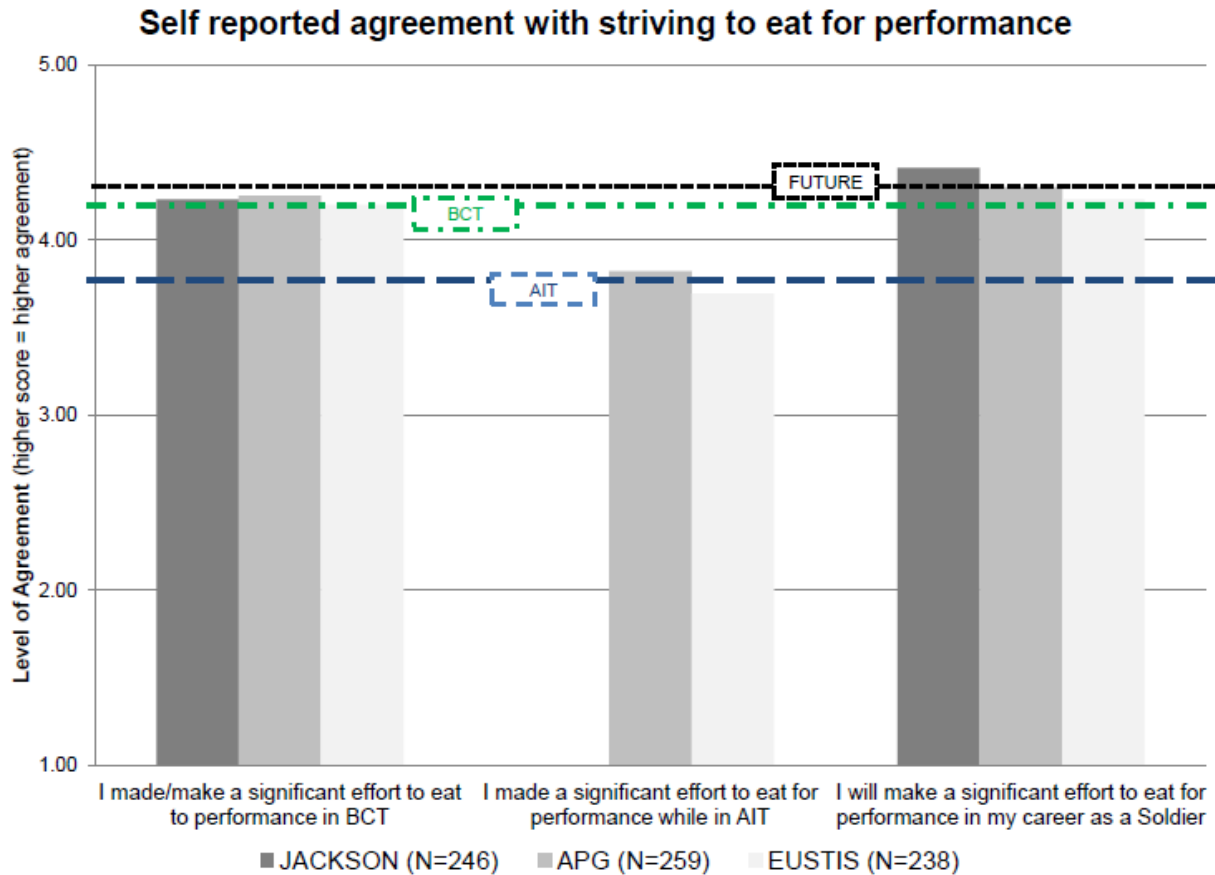
Changes over time and potential for maintenance of healthy behaviors

Self reported attitudes by weight status prior to entering the Army
 (N=740)



Results:

Changes over time and potential for maintenance of healthy behaviors



*Soldiers agree that they strive to eat for performance, particularly in BCT. They also intend on striving to eat for performance in their careers. However, **efforts to eat for performance appear to decrease slightly in AIT.***

Results:

Changes over time and potential for maintenance of healthy behaviors

- *“My grocery shopping habits are going change, because in civilian world when I shop, I got like a lot of microwavable stuff because I know I wouldn’t be home long enough to eat it, but now, I don’t want to keep putting that junk food inside of myself.” (AIT focus group)*
- It is, its healthier cause a lot of the stuff that I learned here and a lot of the cooking that I’ve done here, I take home and apply it too. I have four kids so you know the healthier they are and they’re sports oriented, so the healthier they are the better they are as well. So, I mean it’s good.” (DFAC focus group)
- “I’m not lactose intolerant or nothing but when I first went to basic they served that silk stuff...When I first tried I said wow this is actually cool and I drank more ...I called my mom and told her about it, she is lactose intolerant so I told her about it and she said this is like really good stuff, thank you for letting me know that. So you know now me and my mom are starting to drink that stuff, you know. It’s really cool stuff.” (BCT focus group)
- *“It definitely changed how I’m going, how I am going to eat food when I get back home.” (AIT focus group)*

Results:

SFI Implementation (Soldier Perspectives)

- There appears to be significant variation with which SFI is implemented within and across IMT sites.
 - According to the surveys:
 - 13-31% of Soldiers claimed “I did not have the class” across BCT sites
 - 0-6% claimed “There were no labels” across BCT sites
 - Several Soldiers noted the labels are not changed regularly

“There was a problem in our DFAC though, like they wouldn’t update those signs, so you would go through and the pizza would be like high performance. And you are like, that’s definitely, that’s not even right.” (AIT focus group)

“In the DFAC it’s confusing though because ...they have the labels on it, but then again the labels are wrong” (BCT focus group)

The cottage cheese is always three different colors, I don’t know, it’s always red, yellow or green one day. It’s always different colors” (BCT focus group)

“At least change out like the green, yellow, and red tabs so you actually know if it’s a good food or not.” (BCT focus group)

Results:

SFI Implementation (DFAC Staff Perspectives)

- **Benefits**

- **Better performance of Soldiers**

- *So I feel like it's always a benefit for the Soldiers...if anything that is going to make them feel better, more healthier...I'm all for it.*
- *We have to build a better Soldier to be able to go out there and protect the United States.*

- **Learning something new**

- **Increased job satisfaction**

- *When you finish your product and put it out there the greatest reward to me is to see them enjoy what I put out there and that's the biggest reward to me....”*

- **Personal impact**

- **Ownership**

- **Challenges**

- **Learning curve**

- **New food preparation standards require different equipment**

- *We worked it for a long time up until we went from February til May working them six ovens with all them baked items. But once we got more ovens, the problem went away*

- **Confusion due to new recipes and serving standards**

- *We don't have a picture of the menu items, the entrees.... That would be a plus because I can make it by the recipe but I have no clue as to know exactly what it's supposed to look like as a finished product*

- **Perceived Drill Sergeant resistance to the menu changes**

Summary of Key Findings

1. The SFI is well received among Soldiers and the message of “eating for performance” resonates with them.
 - There may be differences in message impact depending on performance level.
2. In BCT, Soldiers perceive the labels as most helpful in making performance enhancing food choices, followed by their Drill Sergeants and the nutrition class.
3. Drill Sergeants and other Cadre impact Soldiers’ food selection; in addition to teaching them about how and what to eat for performance, Soldiers expect them to lead by example.
4. Self-reported frequency of label use is correlated with the selection of a variety of performance enhancing foods and the ability to correctly identify foods per the “Go for green” labeling scheme; this suggests the labels are an effective teaching tool.
5. The level of program benefit in BCT may be moderated by Soldiers’ weight status prior to joining the Army.
 - Those Soldiers who self identify as overweight prior to joining the Army may experience greater changes in attitudes and behaviors than those who identify as healthy weight or underweight prior to joining the Army

Summary of Key Findings

6. Many Soldiers remain unaware of the Soldier Fueling Initiative; posters appear to be a useful method of advertisement.
7. The reach of the SFI may extend beyond the Soldier population to Soldier and DFAC staff families; additional study is needed to understand this impact.
8. There are significant and discernible differences in attitudes and behaviors between Soldiers in BCT and AIT. Further study of Soldiers' nutrition in AIT is warranted and necessary.
 - Targeted education and follow on in AIT will be necessary to maintain any positive changes in attitudes and behaviors observed in BCT.
9. Inconsistencies in SFI implementation likely preclude its optimal effectiveness.
10. Several limitations of this preliminary evaluation (e.g., cross sectional design, convenience sample, self report) limit conclusions and ability to assess potential unintended program consequences (e.g., supplement use).
 - A prospective, longitudinal evaluation will provide insight into program effectiveness and impact over time.

Conclusions



- Consistent with literature, public health theory, and documented best practices, the SFI is a multi-component program that creates an environment where “healthy choices are the optimal default”.
 - No one program component is likely to work in isolation
 - It is the combination of complementary program components that makes this initiative unique and poised to have impact
- Preliminary evaluation results show great potential for the SFI to impact knowledge, behaviors, and health
 - Given its stage of development (early implementation), the program should focus on improving and sustaining operations
- According to the Army Institute of Public Health Guidelines to Promote Evidence-Based Public Health Practice, the SFI is an **emerging** public health initiative.

Questions/Alibis

