Let’s start with concept reinforcement that food and fueling is not to be treated or perceived as a luxury nor a reward, but an intentional effort towards nutritional fitness that will best support performance, physical fitness recovery, and a healthier warrior athlete within the Marine Corps.
NOTES: This program is introduced in the mess halls to 100% of Marine Recruits and Candidates due to the fact that they are all meal card holders as are >60% of permanent personnel.

In June 2016 SECNAV released the Talent Management Initiative R 121505Z JUN 15 FM SECNAV WASHINGTON DC TO ALNAV

“Finally, each Service will continue to advance nutrition efforts to provide more healthy eating options at sea and shore facilities.”

SLIDE 4

- To define a single system for product identification which enhances the Marine's ability to make healthy choices
- Establish a policy for color coding menu items within USMC mess halls for ease of use
- System intent:
  - Provide identifiable choices
  - NOT to prevent options

NOTES: This single system is a way to label foods for Marines to be able to immediately know what food choices and options are best for fueling their bodies. The system is NOT there to dictate what every Marine eats, it’s an educational tool. Marines will be able to make “informed choices” and still have all options available.
SLIDE 5

Fueled to Fight® is a collaborative partnership between nutrition and fitness designed to optimize the health of the Marine Corps community, to ensure that active duty military are mission ready, and to enhance their physical performance.

USMC F2F Mess Hall Nutrition Education Program. The DOD sponsors a nutrition education program named "Go for Green®"; considered to be a Joint Service program. DOD's "Go for Green®" program is intended to help service members select foods, in accordance with a stoplight color-coding system, that best fuel their body and mind for optimal performance. The Marine Corps' F2F® nutrition education program exceeds the requirements of DOD's "Go for Green®" program. To date, only the Marine Corps has modified and centralized its food management information system to include nutrition analysis of food items, recipes and master menus for consistency of messaging.

The F2F® program will incorporate updates and modifications to DOD Menu Standards, United States Department of Agriculture (USDA) Dietary Guidelines, and Joint Military Medical Services Nutrition and Menu Standards for Human Performance Optimization publications.

NOTES: Fueled to Fight® (FTF) is a collaborative partnership between nutrition and fitness designed to optimize the health of the Marine Corps community, to ensure that active duty military are mission ready, and to enhance their physical performance.
NOTES: Program roll-out was formalized in all USMC mess halls in March 2016. Original development and messaging to the Marine Corps was initiated in July 2012.

It will take a partnership b/t USMC dietitians and mess hall management/operations for the program to be successful.
1. DoD dietitians established the single system for product identification based on a stoplight system. Using access to the dining menus, the dietitians then analyzed each menu item and categorized it based on the standards, which will discuss in a moment.
2. Mess hall management and operations will be in charge of labeling each menu item based on MCFMIS on the serving line and posting informational materials such as posters throughout each dining facility.
NOTES: USMC is in the business of developing a completely fit and trained Marine to which nutrition plays a part. Program “color-coding” criteria is completed at the headquarters level by our warfighter and performance dietitian. Each color category serves a purpose and even the RED food components serve a purpose and can balance caloric needs for some Marines.

SLIDE 8

<table>
<thead>
<tr>
<th>Program Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Green</strong></td>
</tr>
<tr>
<td><strong>Nutritional Quality</strong></td>
</tr>
<tr>
<td><strong>Vitamin/Mineral</strong></td>
</tr>
<tr>
<td><strong>Fat</strong></td>
</tr>
<tr>
<td><strong>Carbohydrate</strong></td>
</tr>
<tr>
<td><strong>Protein</strong></td>
</tr>
</tbody>
</table>

NOTES: Remind audience what color coding is:
* This criteria will guide the Marine Corps “training table” concept for performance fueling.
* Quick, simple guide to choose higher density quality foods
* Structured systemic program
USMC is moving in a very positive direction with performance fueling.

SLIDE 9

Macronutrient Education

Healthy Eating
80/20 Rule

- Each meal and snack is an opportunity to fuel your body optimally.
- Choose the foods that are best for you 80% of the time.
- Incorporate some of those foods that may not be the best, but are your favorites, 20% of the time.
- All foods can fit into a nutritional fitness plan.

NOTES: Ask the audience if “I never told you to have one of your favorite foods again, what would you do/how would you feel?”
Our job is to give guidance and provide variety, but not dictate exact foods. This program is the shaping the beginning of some Marine careers and it must be realistic and effective.

Total Calories

- Marines need to consume adequate Calories to support high-intensity or long-duration training.
- This is often overlooked as there seems to be a priority placed on protein consumption rather than overall Calories.
- Inadequate Calories can result in loss of muscle mass, loss of bone density and an increased risk of fatigue, illness, injuries and poor recovery.

NOTES: It is imperative that the full time to consume the meal is provided if the nutrition and full caloric load is available at the meal “training table”.
NOTES: Use this slide as a guide to emphasize that no one food group should be eliminated and can be potentially detrimental. Don’t dismiss, if a Marine states they are hungry – they are in control of their physiological cues the body needs fuel.

SLIDE 13

NOTES: 6 – 10 gm/kg (2.7 – 4.5 gm/lb)
Needed pre-workout
- Liver glycogen
- Blood glucose
Decreases protein catabolism
Required post-workout for recovery
Replenishes liver and muscle glycogen
**SLIDE 14**

**Protein**

- Main Sources: lean meats, low fat dairy, eggs, beans/legumes
- Slows glycogen depletion, builds muscle, maintains immune system
- Protein needs increase with activity
- Never will more than 1g per pound for health or muscle gains be necessary

**NOTES:** 1.2 – 1.7 gm/kg (0.5 – 0.8 gm/lb) bodyweight
Recommended pre-workout
Slows glycogen depletion
Required post-workout for recovery
Repairs muscle

**SLIDE 15**

**Fats or Lipids**

- Main Sources: olive oil, canola oil, flax, nuts/seeds, avocado, tuna, salmon
- Healthy fats provide energy, help regulate blood sugar, improve cholesterol, and keep you feeling full.
- Omega-3 fatty acids improve cognition, decrease inflammation, and enhance heart health. Natural sources have an increased bioavailability.
- Try to get one serving of healthy fat per meal

**NOTES:** Tip of your thumb is one serving size.
20 – 35% of total energy intake or 1.0 – 1.5 gm/kg BW/day.
Energy source
Provides essential fatty acids
Carries fat soluble vitamins
SLIDE 16

Vitamins and Minerals

- Best Food Sources: fruits, vegetables, whole grains, beans, dairy, fish, eggs, nuts and seeds
- The darker in color the more vitamins and minerals a food contains
- No one food provides all the nutrients one needs
- Variety is Key!
  - Provides Antioxidants and Phytochemicals
  - Required for oxygen transfer and delivery
  - Required for tissue repair
  - Supports growth and development
  - Needed for many metabolic processes

SLIDE 17

Restorative Nutrition

NOTES: Variety is key!
**NOTES:** This visual can be used as a general guide for instructors, cadre, leadership, who oversee Marine dining and would like to provide input. The leader’s job is to enforce balance and variety and try to avoid specific food guidance. The Marine will select foods that are desirable and psychologically pleasing to them for strategic fueling.
SLIDE 20

Nutrition Science Support

- Meals/snacks are designed for versatility and practical application for a large population
  - Resupply nutrients for the next training event
  - Provide carbohydrates to maintain blood glucose and glycogen levels
  - Maximize nutrient absorption without physiological overload
  - Stress of entry-level training environment reduces nutrient absorption
  - Match body’s ability to absorb nutrients with body’s demand for fuel
  - Provided as needed based on timing and intensity requirements

- Optimize the absorption in the gut microbiome with the consideration of the impact of stress in Warfighter training

- Leverage the timing strategy for caloric distribution

- Practical application that supports a demanding training environment en masse
  
  **Goal:** Enhance performance and resilience of the Warfighter

NOTES: Not haphazard or luck, but a strategic component to training.

SLIDE 21

Phases of Timing

- The timing of “when” nutrients are consumed is just as critical as “what” nutrients are consumed.

- The timing of nutrients should be viewed as three very distinct phases:
  - Recovery or maintenance.
  - Exercise when energy stores are being depleted.
  - The refueling interval (RFI), or critical period after exercise.
Phases of Timing

- During exercise the environment is “catabolic” so that energy can be delivered to the working muscles.
- After exercise the environment must become “anabolic,” so the process of recovery, restoring and building up what was lost begins.
- Thus, immediately after exercise, when glycogen stores are low and muscle protein synthesis are suppressed, is the critical time to provide what the body or muscle needs: CHO with a small amount of protein.

NOTES:  Catabolic phase: Insulin, an important hormone for promoting muscle protein synthesis, is not released during exercise because it is not needed.
Anabolic phase: Insulin release must be stimulated. Ingestion of CHO stimulates “insulin.” Insulin promotes the uptake of glucose into glycogen stores in preparation for the next training event.

Timing of Nutrient Intake

Carbohydrate = Re-Fuel  Protein = Re-Build
SLIDE 24

- PENS was implemented via 2011 TECOM message.
- This provision is recommended for individuals engaged in rigorous physical training and targeted for training cycle events where a recovery fuel was validated.
- Timing of this nutrient bar is paramount within 30-45 mins after exercise which is the most critical time for recovery.
  - Based on strong evidence from numerous studies
  - Comprised of a ~4:3 ratio of CHO:PRO

**NOTES:** RFI – refueling interval mentioned earlier in this section
PENS is the concept and Clif/Luna bars are the product used today.

SLIDE 25

**AN ATHLETE’S GUIDE TO EVERYDAY NUTRIENT TIMING**

**NOTES:** Meals and snacks are opportunities for replenishment and refueling to increase resilience and decrease unnecessary injury as it relates to nutritional fitness.

****Materials can be ordered for the installations on the Human Performance and Resource Center website.
**NOTES:** **Hot and Cold Beverage Support**
Hot and cold beverage support is provided to Marines engaged in rigorous outdoor activity. Units requesting support will provide insulated containers for storing and transporting beverages. Requests are provided to the Food Service Technical Representative to approve. The Contractor shall fill the containers with the requested number of hot and cold beverage support rations, and provide appropriate disposable cups in quantities sufficient to support the number of rations requested. The Contractor shall clean and sanitize the beverage containers before and after use.

**Fruit Support**
At the local TR’s direction, fruit support for Recruits, Candidates and Marines in student status assigned to School of Infantry (SOI) shall be provided, two pieces of fruit per Marine who are authorized to subsist at government expense.
Troubleshooting Tips

<table>
<thead>
<tr>
<th>Problem</th>
<th>What should you do?</th>
<th>Food sources</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low energy; sluggish; easily tired</td>
<td>Eat foods rich in CARBOHYDRATES</td>
<td>Whole wheat bread, cereal, potatoes, rice, peas, corn, carrots, peas, water</td>
<td>Carbohydrates provide fuel for muscles and brain</td>
</tr>
<tr>
<td>Muscle aches, injuries; slow to recover</td>
<td>Eat good food sources of PROTEIN</td>
<td>Chicken, fish, beef, cheese, milk, nuts, seeds, peanut butter</td>
<td>Faster recovery from injury; repair muscles</td>
</tr>
<tr>
<td>Trouble sustaining energy output</td>
<td>Eat healthy FAT sources</td>
<td>Nuts, seeds, peanut butter, olive oil, avocados, fish, canola oil, avocado</td>
<td>Greater energy output; build muscle more efficiently;</td>
</tr>
<tr>
<td>Constipation</td>
<td>INCREASE FIBER in diet</td>
<td>Whole grain bread &amp; cereal, beans, peas, lentils, and vegetables</td>
<td>Relief</td>
</tr>
<tr>
<td>Difficult maintaining body temperature: low energy</td>
<td>Increase IRON rich food sources</td>
<td>Beef, chicken, turkey, fish, spinach, kale, beans, peas, fortified breakfast cereal and juice</td>
<td>Greater energy; better tolerance to cold</td>
</tr>
<tr>
<td>Broken bones, stress fractures; brittle teeth</td>
<td>Increase CALCIUM rich foods; Increase VITAMIN D food sources</td>
<td>Milk, yogurt, cheese, salmon, broccoli, kale, calcium fortified foods, V8 fortified milk, eggs, seaweed, fortified cereals</td>
<td>Strengthen bones and teeth; Vitamin D helps body absorb calcium and phosphorus which prevents fractures and bone weakness</td>
</tr>
<tr>
<td>* Increase muscle mass</td>
<td>INCREASE CALORIES and PROTEIN rich foods</td>
<td>Fish, chicken, lean beef, pork, milk, eggs, cheese, yogurt, peanuts, nuts/seeds, beans, lentils</td>
<td>Protein intake must be combined with weight training to build muscle mass.</td>
</tr>
</tbody>
</table>

*Please note that some of these symptoms may require medical advice in addition to nutrition troubleshooting.*

---

**SLIDE 29**

Performance Hydration

Thirst is not the first indicator the body needs water.
SLIDE 30

**Functions of Water**

- Necessary for maximum performance
- Plays a critical role in regulating body temperature
- Carries nutrients throughout the body
- Improves digestion
- Eliminates waste and toxins from the body
- Majority of muscle is comprised of water

**NOTES:** Water and hydration levels are critical for maximum performance. Hydration is the most limiting factor involved with physical performance. Even small amounts of dehydration will hinder performance and can give your opponent the edge.

SLIDE 31

**Symptoms of Dehydration**

- **Moderate**
  - Thirsty
  - Headache
  - Dry Mouth
  - Dry Skin
  - Fatigue
  - Dizzy

- **Severe**
  - Chills
  - Increased Heart Rate
  - Muscle Cramps
  - Nausea/vomiting
  - Swollen stomach
  - Confusion

**NOTES:** Pay attention to the signs and symptoms of dehydration and stay hydrated. Severe dehydration can be life threatening.
NOTES: Note for staff: Taking vit/min or dietary supplements will impact urine color.

NOTES: Just small amounts of dehydration can greatly affect performance. A 150 lb boxer with a water loss of just 3 lbs. can have reduced performance by 10 – 20% and their effort will feel harder than normal.

With a water loss of just 4½ pounds: reaction times, judgment, concentration and decision making ability are negatively affected. Temperature regulation and brain function are also impaired.
**SLIDE 34**

**Water Requirement**

- The first step to being well hydrated is to drink fluids and eat foods high in water content throughout the day.
- Try to drink half your body weight in fluid ounces per day.
  
  For example, 150 lbs / 2 = 75 fluid oz.

Half Gallon = 64 ounces
1 Gallon = 128 ounces

**NOTES:** How much water do you need? Take your weight and divide by two. This is the number of ounces of water per day you should be drinking, NOT counting exercise. For most of you, that means between \( \frac{1}{2} \) and 1 gallon of water per day.

**SLIDE 35**

**Water and Exercise**

- With Exercise add approximately:
  
  - 16 ounces \( \rightarrow \) 2 hours prior to exercise
  - 4-8 ounces \( * \) \( \rightarrow \) 10 minutes prior to exercise
  - 4-8 ounces \( * \) \( \rightarrow \) every 20 minutes during
  - 16-24 ounces \( \rightarrow \) after exercise
  
  - \( * \) For most people, 1 large gulp = 1 ounce

**NOTES:** With exercise: Drink before, during and after training. This slide shows how much water to consume for best hydration and performance. If you weigh yourself before and after exercise, and lose weight, be sure to replace that water loss.

This is an estimation of needs during exercise, to be more exact - calculate sweat rate

1 large gulp = \( \sim \) 1 oz. You can experiment and measure out exactly how many ounces your gulp is.
ENGINEERED FOOD PRODUCTS WHICH PROVIDE:

- 20 to 50 milligrams of potassium per 8 ounces
- 12 to 24 grams of carbohydrate per 8 ounces
- 110 to 170 milligrams of sodium per 8 ounces

NOTES: Engineered food products which provide:

- 20 to 50 milligrams of potassium per 8 ounces
- 12 to 24 grams of carbohydrate per 8 ounces
- 110 to 170 milligrams of sodium per 8 ounces

TROUBLESHOOTING

<table>
<thead>
<tr>
<th>Environment</th>
<th>Consideration</th>
<th>Hydration Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Environments</td>
<td>The warmer the air generally increases the risk for dehydration and heat stress.</td>
<td>Suggested fluid intake: 1 to 2 liters daily. Tip: Drink more as needed by working at night. During daytime hours, sweating rates can be reduced by wearing the skin with light, open-patterned clothing. If and when possible, drink COLD water and space drinks.</td>
</tr>
<tr>
<td>Wet and Humid</td>
<td>Relative humidity can increase water requirements, independent of temperature. The humidity makes the evaporation of heat off the skin difficult, which increases the body's ability to cool. The increased risk for dehydration and heat stress.</td>
<td>Suggested fluid intake: 1 to 2 liters daily. Tip: Drink more as needed by working at night. During daytime hours, sweating rates can be reduced by wearing the skin with light, open-patterned clothing. If and when possible, drink COLD water and space drinks.</td>
</tr>
<tr>
<td>Arid</td>
<td>The addition of cold to arid climates can cause greater risk for dehydration because of the stress placed on increased sweating, levels of fluid replacement, and intensity of feeling is natural clothing to shades.</td>
<td>Suggested fluid intake: 1 to 2 liters daily. Tip: Drink more as needed by working at night. During daytime hours, sweating rates can be reduced by wearing the skin with light, open-patterned clothing. If and when possible, drink COLD water and space drinks.</td>
</tr>
<tr>
<td>High Altitude</td>
<td>The addition of cold to high altitude can cause greater risk for dehydration because of the stress placed on increased sweating, levels of fluid replacement, and intensity of feeling is natural clothing to shades.</td>
<td>Suggested fluid intake: 1 to 2 liters daily. Tip: Drink more as needed by working at night. During daytime hours, sweating rates can be reduced by wearing the skin with light, open-patterned clothing. If and when possible, drink COLD water and space drinks.</td>
</tr>
</tbody>
</table>
Sports Drinks are NOT energy drinks; Energy Drinks are NOT good recovery drinks

If your training requires over 60 minutes of exercise, sports drinks may be beneficial.

Do NOT dilute sport’s drinks

What to look for:

- 20 to 50 milligrams of potassium per 8 ounces
- 12 to 24 grams of carbohydrate per 8 ounces
- 110 to 170 milligrams of sodium per 8 ounces
SLIDE 40

Overhydration?

- No more than 12 quarts (1 canteen = 1 quart)/day
- Hyponatremia – low sodium level in the blood
- Adequate salt exists at USMC training table meals
- Master menus meet the MDRI sodium requirement

NOTES: Athletes likely to experience a sodium imbalance caused by extreme sodium loss are slow marathoners, triathletes, and weekend warriors who may have a higher sweat loss and therefore a sodium loss than their fit counterparts.

SLIDE 41

Rhabdomyo-what?

- Rhabdomyolysis: Rapid breakdown (lysis) of skeletal muscle (rhabdomyo) due to injury to muscle tissue.
- Destroys muscle tissue and can lead to kidney failure.
- What increases your chances?
  - Eccentric movements
  - Ego – Doing more than your body can handle
  - Heat
  - Dehydration
  - Over-exertion – Heavy weight, fast-paced

"Rhabdomyolysis is the breakdown of muscle fibers resulting in the release of muscle fiber contents (myoglobin) into the bloodstream."
SLIDE 42

What to look for?

- Muscle pain
- Weakness
- Range of motion deficits
- Muscle tenderness (doughy feeling)
- Parathesis (pins and needles)
- Absence of deep tendon reflexes
- Redness
- Edema/swelling
- Ecchymosis (bruising)

SLIDE 43

Prevention

- Know your body and its limits.
- Continually work on improvement by setting new and higher training stimuli.
- Do not ramp up training too fast.
- Smart training is the only way to strengthen muscles and the body as a whole, thus reducing the risk of this disease.
- Health always comes first!
NOTES: A dietary supplement is a product taken by mouth with one or more "dietary ingredients" which include: vitamins, minerals, herbs or other botanicals, amino acids, or other substances found in the human diet, such as enzymes. The Food and Drug Administration (FDA) has no comprehensive list of supplements on the market and is only responsible for post market surveillance. Supplements have to be proven to cause harm before they can be removed from the market. No proof of quality or efficacy is required before a supplement can be sold. Energy drinks, are extremely common among service members of all ages, can contain excess calories, sugars, caffeine and other stimulants. Too much caffeine can lead to increased anxiety, upset stomach, shakiness, headaches, and sleep issues. Excessive caffeine use can cause medical problems such as high blood pressure, irregular heartbeat, and possibly seizures. Energy drinks are not the same as sports beverages and should never be used for hydration or a meal replacement.
Supplements:

- Are not FDA regulated – No Government testing required
- Are expensive
- Often don't work
- Don't come close to what whole food offers

NOTES: Definition of a supplement: a product that is taken by mouth that contains a “dietary ingredient” intended to supplement the diet.
- Supplements are vitamins, minerals, herbs, botanicals, amino acids, protein powder, enzymes, organ tissues, gland tissues, or secretions.
- NO GOVERNMENT TESTING REQUIRED.
- Supplements are not banned until AFTER reports of illness, liver damage, heart problems, and death have occurred
- No online buying – Don’t know what you are getting and may pop positive on drug test
Ephedra banned due to severe illness and death
Hydrocute banned due to liver damage
Tyrptophan banned due to contaminant in processing that caused severe illness
Note: we tend to be a gullible society, easier to take a pill/powder
Bioavailability of said nutrient is higher and more recognizable in real food sources.
Notes:

- Supplement do not undergo the same level of testing and scrutiny as do drugs.
- A multi-vitamin mineral supplement can be taken for added insurance, but a pill will never take the place of whole food and is missing many healthy components.
- Whey protein can be taken after a workout, but you can simply eat a food high in protein with some carbs for a lot less money (i.e. chocolate milk.)
- Small amounts of caffeine can increase alertness. (Does not apply to entry level environments where caffeine is not provided)
- Take in recommended doses. More is not better.
- Always check with your doctor or registered dietitian before taking supplements
NOTES: Dietary Supplement Guidelines. If an adequate eating plan is followed, dietary supplements are not needed. Whole foods are superior to supplements and should be consumed as the first option.

1. Eat regular meals and snacks (don’t skip meals).
2. Get 7-8 hours of sleep.
3. Be active throughout the day.
4. Limit caffeine intake. Whole food sources are a powerhouse of ingredients that promote energy, muscle growth, weight loss, and enhanced libido while providing antioxidants, phytochemicals (anti-cancer agents), and natural sources of vitamins, minerals, proteins, amino acids, and fiber.

It is always better to used food because supplements:
1. Are not tested or approved by the FDA prior to market.
2. Often are unnecessary.
3. Can be dangerous.
4. Can be expensive.
Guidelines for Evaluating DS

- What is in it?
- Does the label conform to FDA rules?
- Is it the right stuff?
- Is it safe?
- Does it make sense?
- Does it work?
- Does it reach its target?
- What other sources exist?
- Why take it?

High Risk Supplement List can be found at: http://hprc-online.org/dietary-supplements

NOTES: If you decide to use a supplement:
(1) Use well-known brands.
(2) Take no more than the recommended serving size.
(3) Look for evidence of third-party testing on the label.
Third-party testing ensures:
(1) What's on the label is inside the bottle.
(2) Quality of manufacturing.
Every Marine needs to focus on nutritional fitness the same way as physical fitness.

Objectives Review

- USMC Fueled to Fight* program
- Macronutrient Education
- Nutrient Timing Considerations
- Performance Hydration
- Operation Supplement Safety (OPSS)
NOTES:

OTHER SERVICES INCLUDE:
Tobacco cessation
Injury prevention
Sexual health and responsibility
Weight management
Chronic diseases
Physical activity
Nutrition
OPSS
Questions??