# Assessment and Selection Nutrition Overview

# Pre-event considerations

- High in carbs
- Low in fat and fiber
- Moderate in protein
- Sufficient fluids
- Caffeine blood concentrations peak one hour after consumption
- Familiar
- Time to event: GI distress due to sympathetic activation
- Why?
  - Restore live glycogen from overnight fast, increase muscle glycogen, prevent hunger, maintain blood glucose levels, provide psychological boost

*1 day to day of the event

# PRE EVENT

## Don’t start your workout on empty!

### 1-4 hours before exercise

- 1 gram of carbohydrate per kg of body weight times the number of hours before the exercise
- Consume meal 2-4 hours prior to exercise
  - Choose long lasting carbs (oatmeal, fruit, veggie, whole grain bread) and fast digesting proteins (roasted chicken, egg whites, turkey, lean ham)
  - Avoid high fat foods
  - Drink 2-3 cups of water
  - Ex: Oatmeal with brown sugar and almonds + banana; turkey and cheese sandwich +fruit; lean chicken on bun + side salad + fruit and yogurt parfait

### 30-60 minutes before exercise

- Aim for 30 grams of fast digesting carbs, low fiber and fat
  - Ex: Fruit puree pouch such as applesauce, sports bar/gu or drink, piece of fruit, crackers or jam sandwich, nutrigrain bar
- Drink 1-2 cups of water or sports beverage (chose sports beverage if last meal was over 3 hours prior)

# During event consideration

- Intrawork out carbohydrates needs increase as duration of event increases
- Type of carbohydrate matters as duration of event increases (over 3 hours)
  - Glucose + Fructose
- Low fiber and fat
- Liquid calories (sports beverage) can be a good solution to avoid GI upset
- Hydration matters! Avoid under- or over- hydration
- Avoid chugging water during high intensity training to prevent GI distress
- Caffeine is an ergogenic aid, timing and dosing matter
- Consider physical weight of the product
- Individual variability and preferences are important considerations
- If you haven’t tried it in practice, don’t try it for the first time at selection
  - e.g. practice eating/drinking fluids during events and figure out what works well for you
  - Practice eating and drinking MREs while moving as well

# DURING EVENT

**Carbohydrate**

- *< 1 hour*: no need for additional carbohydrates

- *1-2 hours*: consider 30-60 grams of carbs (0.7g/kg of body weight) per hour, spaced every 15-20 minutes
  - Gels, granola bars, dried fruits

- *3 hours or greater*: 60-90 grams of carbs per hour

# DURING EVENT- Carbohydrate (powders and gel's)

The goal is to maintain stable blood glucose levels throughout














This is not an all-inclusive list and does not imply endorsement by the unit, unit dietitian, command, or DoD. For more information and custom planning, contact unit dietitian.

# DURING EVENT- Carbohydrate (chews)

The goal is to maintain stable blood glucose levels throughout








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# POST EVENT

## 3 R's of recovery

*Replenish*: 1-1.5g of quality carbs/kg of body weight

*Repair*: 20-25 g high quality lean protein

*Rehydrate*: 3 cups of fluid and electrolytes per pound of body weight lost.

Ex: 16 oz. low-fat chocolate milk, granola bar and 8 oz sports beverage, peanut butter sandwich and apple, 10 oz fruit smoothie with protein powder

Reference hotel eating handout for meal/snack ideas.

# Action Plan to Combat Dehydration

- **Drink Early and Often**
  - Drink **before** you are thirsty
  - Drink at regular intervals
- **Choose Cool/Cold Beverages**
  - Athletes consume more fluids
  - Dump warm water out of camelbacks/canteens and refill with cold/cool fluids (if available)
- **Replete electrolytes**
  - Activity **>90 minutes** (steady state) / **>60 minutes** (intense/intermittent): choose beverages that **contain electrolytes and carbohydrates**
- **Eat enough FOOD**
  - Food is another source of fluid. Plus, food has electrolytes and carbohydrates which help maintain hydration
  - Ensure foods are salted

# Action Plan to Combat Overhydration

- Consume **0.5 to 1 oz** per pound of body weight per day!
- **No more than 48 ounces per hour!**
- **No more than 384 ounces (12 canteens) per 24 hours period**
- Salt foods liberally, use an electrolyte replacement with fluids

# Electrolytes considerations

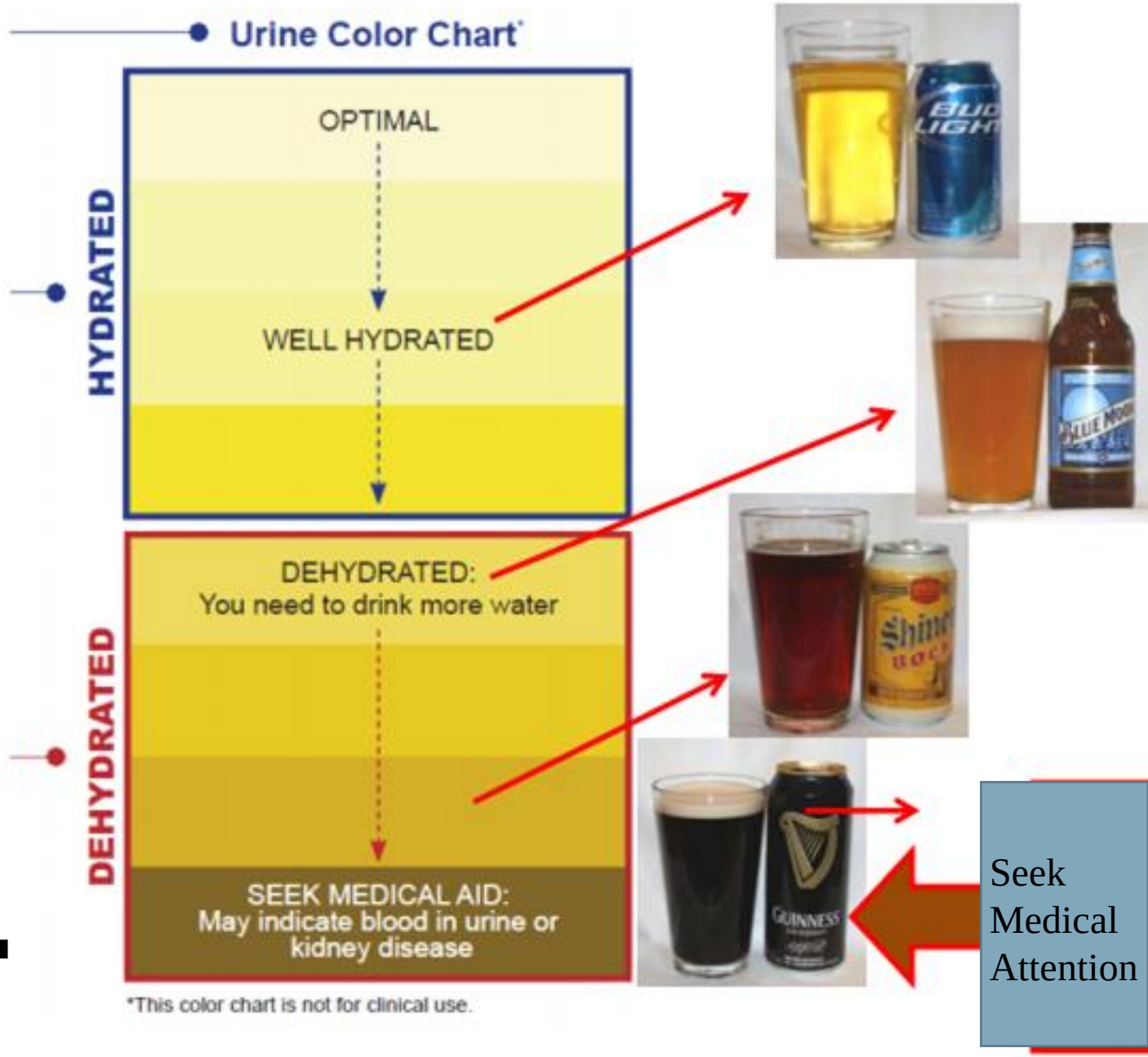
- Heat acclimatization can decrease sodium losses from sweat
- Consumption of sodium chloride during exercise can assist with maintain hydration status
- Repletion requirements for a 3hr endurance event for sodium range from 400mg to 1g per hour
- Consider the electrolytes you are getting from food/fluid



# Hydration

- Integral to performance
- Minor dehydration (1-2% of body weight) can impair performance
- Hydration for today happened yesterday, hydration for tomorrow begins today
- Monitoring of hydration status
  - Urine color: pale yellow color
  - Urine volume and frequency: every 2-4 hours
  - Sweat rate

+



# MRE and Electrolytes

# Energy Balance

## Energy Balance

### Performance Impact

- Operations in extreme environmental conditions (for example, cold, high altitude and heat), along with heavier equipment loads and terrain variances, can increase energy (kcal) needs.
- Not eating enough calories leads to weight loss, muscle wasting and decreased performance.

### Operational Ration Sources**

| Operational Ration | Avg kcal/meal |
|---|---|
| Meal, Ready to Eat (MRE) | 1300 |
| Modular Operational Ration Enhancement† (MORE) | 1000/pack |

### Recommended Daily Intake*

| Activity Level | Men (kcal/d) | Women (kcal/d) |
|---|---|---|
| Light | 3000 | 2100 |
| Moderate | 3400 | 2300 |
| Heavy | 3700 | 2700 |
| Very Heavy | 4700 | 3000 |

# Carbohydrates

## Carbohydrates (CHO)

### Performance Impact

- During moderate to heavy exercise, CHO is the main fuel source for muscle.
- More strenuous activity levels increase CHO needs.
- Adequate amounts of CHO are needed for endurance, concentration, coordination, and recovery.

**Recommended Daily Intake***

Approximately 3 grams (g)/pound of body weight (or 500 g of CHO/day for 165 pound warfighter).

### Operational Ration Examples

| | |
|---|---|
| **10-19.9 g CHO** | **Meat Entrée** (beef stew, chicken stew) or **Jam/Jelly Packet** |
| **20-30 g CHO** | **Cracker** or **Side** (potato au gratin, oatmeal) or **Pasta entrée** (chili macaroni, spaghetti w/ beef & sauce) or **Beverage** (cappuccino, cocoa, electrolyte) |
| **Greater than 30 g CHO** | **Fruit** (spiced apples, CHO enhanced applesauce, dried fruit) or **Bread** (snack bread, tortilla, filled bakery item) or **Pasta entrée** (elbow macaroni, cheese tortellini) or **Snack** (cookie, pound cake, candy) or **Beverage** (CHO fortified) |

# Protein

## Protein (PRO)

### Performance Impact

- Essential for proper refueling after physical activity to promote recovery.
- Secondary source of energy for the body.
- Adequate amounts needed to maintain muscle and recover from injuries.

**Recommended Daily Intake***

Approximately 0.7 g/pound of body weight
(or 115 g of PRO/day for 165 pound warfighter).

*When adequate calories are consumed, then protein recommendations are generally met through diet alone, without the need for supplementation.*

## Operational Ration Examples

| | |
|---|---|
| **5-9.9 g PRO** | **Spread** (peanut butter) or **Meat snack** |
| **10-20 g PRO** | **Vegetarian entrée** (cheese tortellini) or **Snack** (trail mix) or **Beverage** (chocolate protein drink) |
| **Greater than 20 g PRO** | **Meat entrée** (chicken chunks, tuna packet, barbecue beef) |

# Fat

## Fat

### Performance Impact

- During prolonged physical activity stored fat is used as energy.
- Fat helps your body absorb certain vitamins (A, D, E and K).
- Fat is the most energy dense nutrient and is essential for proper fueling.

### Recommended Daily Intake*

20-35% of calories (2500 calorie intake = 56-98 g of fat)

### Operational Ration Examples

| | |
|---|---|
| **1-4.9 g Fat** | **Fruit** (spiced apples)<br>or **Entrée** (chicken chunks)<br>or **Cracker**<br>or **Beverage** (cappuccino, cocoa) |
| **5-10 g Fat** | **Entrée** (chicken noodle & vegetable, cheese tortellini)<br>or **Bread** (snack bread, tortilla, filled bakery item) |
| **Greater than 10 g Fat** | **Snack** (trail mix, cookie, pound cake)<br>or **Spread** (peanut butter, cheese) |

# MRE tips and tricks

- Caution with MRE stripping
- Entrée usually contains most protein
- 12-15 grams of fiber PER meal ~45 grams/day
- First strike bars contain most micronutrients
- Beverage bases usually fortified
- Chewing gum can encourage digestion (it is not a laxative)

# Event specific fueling example: 12-mile road march

- Carbohydrate intake guidelines

| | BEFORE | DURING | AFTER |
|---|---|---|---|
| **2-3 hours (12 mile)** | 1 g/lb 2 hr prior<br>0.5 g/lb 1 hr prior | ~20-60g per hour | 0.5 g/lb<br><br>~90g carb/30g protein |

# Fueling examples for the 12-mile road march

## IF YOU WERE 180 POUNDS:

| BEFORE | DURING | AFTER |
| --- | --- | --- |
|    |         |   |
| ~90 grams carbs | | ~90 grams carbs, 30 g pro |

# Event specific fueling: 12-mile road march

| Time/Distance | |
|---|---|
| Dinner | Well rounded meal-salt |
| 1 hr prior | Bagel, 20 oz Gatorade |
| Mile 1 | 8 oz water |
| Mile 2 | 8 oz water<br>~15g snack |
| Mile 3 | 8 oz water |
| Mile 4 | 8 oz water |
| Mile 5 | 8 oz<br>~20g snack |
| Mile 6 | 8 oz<br>~20g snack |

| Time/Distance | |
|---|---|
| Mile 7 | 8 oz<br>~20g snack |
| Mile 8 | 8 oz |
| Mile 9 | 8 oz<br>~20g snack |
| Mile 10 | 8 oz<br>~20g snack |
| Mile 11 | 8 oz |
| Mile 12 | 8 oz |
| Breakfast | Meal-90g CHO, 30g pro<br>(salt)<br>~2 canteen |

20g of carb= half of MRE candy, or 1 tortilla, or raisins, or 20oz of Gatorade, or ½ bagel, or ½ cliff bar