FUELING FOR PERFORMANCE
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YOU vs. Sports Car
What’s in Your Food?

**Macro-nutrients:**
- Provide fuel (calories)
- Protein
- Fat
- carbs

**Micro-nutrients:**
- Do not provide energy
- Help you body to run smoothly
- Vitamins, minerals
- Fiber
- Phyto-nutrients

Goal: provide your body with the right combination of both!
Rule #1: Eat a quality diet

- Whenever possible, choose foods that are high in micronutrients. This includes foods such as vegetables, fruits, legumes, nuts/seeds, whole grains.

- A good meal should combine a combination of protein, carbohydrates, and healthy fats.

- Foods high in processed sugar, trans/saturated fats, are pro-inflammatory and delay recovery from exercise.

- Provide *enough* fuel to accomplish your training, while keeping in mind goals for body weight.

- Question:
  - Are you overusing supplements?
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PERFORMANCE PLATE:

- **Grains:** Pasta, Rice, Potatoes, Cereals, Breads
- **Lean Protein:** Poultry, Beef/Game/Lamb, Fish, Eggs, Low-Fat Dairy, Soy (e.g., Tofu, Tempeh), Legumes/Nuts, Cooked Veggies, Veggie Soups, Raw Veggies

- **FATS:** 2 Tablespoons, Avocado, Oils, Nuts, Seeds, Cheese
- **Fresh Fruit:** Stewed Fruit, Dried Fruit
- **Water/Dairy/Nondairy:** Milk, 100% Fruit Juice
- **Sport Drink Flavored Beverages:** Coffee, Tea

**FLAVORS:** Salt/Pepper, Herbs, Spices, Vinegar, Salsa, Mustard, Ketchup

USOC & UCCS Sport Nutrition Graduate Program; Dr. Nanna Meyer, PhD, RD, CSSD, FACSM
Rule #2: Practice Good Hydration

- Human body is composed of 55-60% water. Muscle is ~75% water

- Functions of Water:
  - Regulate temperature, deliver oxygen and nutrients (blood), lubricate joints and shock absorption for brain and spinal cord, etc.

- The thirst mechanism only kicks in when you have lost ~1-2% of body weight in sweat?

- A weight loss of 2-3% of body weight will translate to significantly reduced performance.
  - (fatigue, poor concentration, high perceived exertion, cramps, delayed recovery, etc)
Rule #2: Practice Good Hydration

• How Much do I need?
  • A starting point is ½ your weight in ounces
  • Females: 11 cups of water per day
  • Males: 15-16 cups per day

• Fluid timing/replacement:
  • Enter workouts hydrated
    • 2-4hr before have ~1-2 cups
  • During:
    • 4oz every 15 minutes
  • After:
    • Weigh yourself before and after runs
    • Replace every # lost with 16-20 oz
  • Better to drink small amounts over time than a single large volume

Q: do I need a sports drink?
If you are exercising for 1hr or less, you do not need a sports drink
Rule #2: Practice Good Hydration

- **Track your hydration:** dehydration can occur if 2 of the 3 are met:
  - Thirsty
  - >1% weight change upon waking
  - Urine color

*This color chart is not for clinical use.*
# Daily Hydration Plan

<table>
<thead>
<tr>
<th>Time</th>
<th>What’s happening</th>
<th>Fluid Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>7am</td>
<td>Breakfast</td>
<td>Drink ~1-2 cups of water along with other fluids</td>
</tr>
</tbody>
</table>
| 9am    | Training          | Use body weight change during training to calculate fluid requirements  
1lb loss in weight = 16 oz or 2 cups of sweat loss. Aim to replace ~80 - 100% of sweat losses. For long session consume sport drinks or water with gels or chews (note: these typically do not contain much sodium) |
| 10:30am| Post training     | Consume fluid to replace 150% of sweat lost in training  
Drink some low fat milk or flavored milk (see USOC Recovery Fact Sheet) |
| Midday | Lunch             | Sip regularly. Drink water, diluted fruit juice, low fat milk |
| 3pm    | Mid-afternoon     | Drink 1-2 cups (8-16 oz) of tea, ice tea, water, or sport drink (if you have another workout) |
| 7pm    | Evening meal      | Drink ~2 cups (16 oz) of water                                               |
| 9-10pm | Before bed        | Drink 1 cup (8 oz) of water herbal tea, or low fat milk                      |

Note: Athletes should take the same precautions with sport drinks as with other sugar-containing beverages to prevent cavities and these include, 1) not swishing the sport drink and using a straw, 2) following intake with sugar free gum or any dairy products and 3) brushing teeth when possible
Rule #3: Choose the Right Fuel

- **Carbohydrates:**
  - Preferred energy source for the body
  - Carries vitamins and minerals and fiber
  - 45-65% of daily calories

- **Proteins:**
  - Provides 1-5% of energy during exercise
  - LBM, enzymes, immune cells, bone
  - 10-35% of daily calories

- **Fats:**
  - Energy, cell membranes, hormones, vitamin absorption
  - 20-35% of calories (most often adjusted when increasing carb intake)
Rule #3: Choose the Right Fuel

Total Daily Carbohydrate Needs (grams):
• Light: 3-5g/kg
• Moderate (~1hr): 5-7g/kg
• High (endurance 1-3hr/d): 6-10g/kg
• Very High (>4-5hr/d): 8-12g/kg

Example:
• 140lb runner (63.6kg)
• 1hr running
• 380 grams carb per day
• If she was consuming 2400cal/day, this would represent 63%
Rule #3: Choose the Right Fuel

Total Daily Protein Needs (grams):

- Endurance Exercise: 1-1.6g/kg, longer duration on the upper end

- Strength/Power exercise: 1.6-2g/kg

- Intermittent activities (i.e. soccer): 1.4-1.7g/kg

Example:
- 140lb runner (63.6kg)
- 1hr running
- 64-102 grams carb per day
- Best if spread in 4 meals/snack throughout the day, ex: 20-30g per meal/snack
Rule #4: Time your Fuel

• **Throughout the day**
  - Start with a good breakfast, at least 1/3 of your calories
  - Avoid “back-loading” of calories

• **Before**
  - Consume meal/snack containing high carbohydrate, adequate protein, low in fat/fiber, easily digestible
  - 3-4hrs prior to training

• **During**
  - Not necessary if <60 minutes
  - If >60 minutes, consume 30-60grams of simple carb per hour

• **After**
  - Consume combination of carbohydrates and 15-20g quality protein within 30 minutes
Rule #5: Know Your Body

• Turn yourself into a science experiment!

• Start practicing your fueling strategies now

• Train your body to accept new fueling techniques

• Avoid implementing new techniques on race day
Thank you!

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