PERFORMANCE NUTRITION
WHAT YOU EAT FACILITATES

NUTRITION

- ENERGY LEVELS
- IMMUNITY
- BODY COMP
- FITNESS LEVELS
- Recovery
- MENTAL FOCUS
THE SHAPE OF YOUR BODY IS

50% NUTRITION
40% YOUR WORKOUT
10% GENETICS
THREE KEYS TO HEALTHFUL EATING

• MODERATION:
  – Nothing is off limits!
  – Just make wiser choices 90% of the time

• BALANCE and VARIETY:
  • Must have variety of different foods
  • Minimum of 10 different types of foods per day
Tips to Achieving Balance

• Consume 3 different food groups at each meal

• Be sure to get both Carbohydrate and Protein with meals and snacks

• Make a colorful plate

• Consume foods from each food group every day ➔ DON’T miss out on important nutrients
Calories (1)

A gram of carbohydrate or protein provides 4 calories of energy

• A gram of fat provides 9 calories

• A gram of alcohol provides 7 calories, but is not an essential nutrient
Calories (2)

- At least 60% of the diet should be in the form of carbohydrates; a minimum of 45% of these should be complex carbohydrates

- No more than 15-20% of calories should come from fat

- Approximately 20% should come from protein

**Daily energy Recommendations (normally active person):**

- **Male total calories***
  - 16-20 yrs. 2500-2900
  - 23-50 2300-2700

- **Female total calories***
  - 16-20 yrs. 2100-2300
  - 23-50 2000-2200

*If you do intense training or are very active, the above estimates may need to be increased
BALANCING ENERGY NEEDS

Energy IN = Energy OUT (weight maintenance)
Energy IN > Energy OUT (weight gain)
Energy IN < Energy OUT (weight loss)
Rule #1 Eat a Rainbow Often

- Eating a variety of fruits and vegetables in a multitude of colors will help to ensure that you are getting the variety of nutrients that you need.

- Go for color. Check you are eating a variety of colorful fruit and vegetables – think yellow, red, green and orange.

- Best fruits based on their total anti-oxidant per size, blueberries, blackberries,, raspberries, strawberries, granny smith apples, sweet cherries, and black plums.

- Best vegetables stewed tomatoes, dark leafy greens, anything that is rich in yellow, orange, an red color.
INCLUDE – Include Top Performance Foods From All Food Groups

ChooseMyPlate.gov
Get a Good Balance

Consume foods from different food groups to meet your energy and nutrient needs

Grains (especially whole grains)
  – Primarily carbohydrate, some protein and fat
  – B-Vitamins, antioxidants, iron

Fruits (look for color)
  – Primarily carbohydrate
  – Antioxidants

Vegetables (look for color)
  – Primarily carbohydrate, some protein
  – Antioxidants

Dairy (aim for low-fat)
  – Carbohydrate and protein, fat amount varies
  – Calcium, Vitamin D

Meat/Beans (think lean)
  – Primarily protein, some fat and carbohydrate (varies)
  – Iron, Zinc
INCLUDE – Include Performance Foods From All Food Groups

**CARBOHYDRATES**
- Whole grain breads
- Potatoes
- Pasta
- Brown rice
- Fruits
- Cereal
- Oats
- Beans
- Some vegetables (corn, carrots, peas)

**PROTEIN**
- Eggs
- Lean Meats
- Low-fat Cheese
- Low-fat Milk (dairy products)
- Yogurt
- Nuts
- Beans
- Peanut butter
- Meat alternatives (soy products)

**FAT**
- Include Good Fats In:
  - Nuts
  - Oils (olive oil, canola oil)
  - Peanut butter
  - Seeds
  - Fish
  - Avocado

- Limit:
  - Fast food, some restaurant food
  - Fried food
  - Condiments and toppings high in fat
RULE #2 COME BACK TO EARTH

– Choose the least processed forms of foods, specifically carbohydrates, when building the majority of your meals

– An easy way to do this on the carbohydrate side of things look at the label and amount of fiber it has. If it does not have at least 3 gram of fiber, put it back and find something that does.
Carbohydrates

- The main source of immediate energy for the body.
- Carbohydrates are the primary source when you’re exercising hard.
- Carbohydrates are sugars and starches from plants

**TWO TYPES OF CARBOHYDRATES**

- **Simple carbohydrates, or Simple sugars**
  - E.g. Fruit Juice, Sweetened Beverages, Soda, Candy, Syrup
  - Should have these in Moderation

- **Complex carbohydrates, or starches**
  - Complex (starches) E.g. Cereal, Bread products, rice, pasta, beans, fruit, vegetables.
  - Whole grain, high-fiber starches are the preferred source of carbohydrates
  - Most nutritional value
  - 45-55% of your carbohydrates should be from complex carb
  - Starches help the body maintain normal blood-sugar levels

## Carbohydrate Needs

<table>
<thead>
<tr>
<th>Category</th>
<th>Recommendation (g/kg/day)</th>
<th>Calculated range for 65kg (143 lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average population</strong></td>
<td>3-5 g/kg (1.4-2.3 g/lb)</td>
<td>260-325 grams (1040-1300 calories)</td>
</tr>
<tr>
<td><strong>Strength Athlete</strong></td>
<td>5-7 g/kg (2.3-3.2 g/lb)</td>
<td>325-455 grams (1300-1820 calories)</td>
</tr>
<tr>
<td><strong>Endurance Athlete</strong></td>
<td>7-10 g/kg (3.2-4.5 g/lb)</td>
<td>455-650 grams (1820-2600 calories)</td>
</tr>
<tr>
<td><strong>Ultra-endurance Athlete</strong></td>
<td>&gt;10-12 g/kg (&gt;4.5-5.5 g/lb)</td>
<td>&gt; 650 grams At least 2600 calories</td>
</tr>
</tbody>
</table>
# Carbohydrates In Food

<table>
<thead>
<tr>
<th>Food</th>
<th>Amount</th>
<th>Carbs (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grains, Pasta, Starches</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bagel</td>
<td>1 small</td>
<td>31</td>
</tr>
<tr>
<td>Biscuit</td>
<td>Small (2-in.)</td>
<td>15</td>
</tr>
<tr>
<td>Bread, sliced</td>
<td>1 slice</td>
<td>15</td>
</tr>
<tr>
<td>English Muffin</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>Pita</td>
<td>1 small</td>
<td>21</td>
</tr>
<tr>
<td>Waffle</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Pancake</td>
<td>3-to 4-inch</td>
<td>35</td>
</tr>
<tr>
<td>Popcorn</td>
<td>3 c. popped</td>
<td>15</td>
</tr>
<tr>
<td>Graham Crackers</td>
<td>2 squares</td>
<td>10</td>
</tr>
<tr>
<td>Saltines</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Baked Potato</td>
<td>1 large</td>
<td>50</td>
</tr>
<tr>
<td>Spaghetti, cooked</td>
<td>1 cup</td>
<td>40</td>
</tr>
<tr>
<td>Rice, cooked</td>
<td>1 cup</td>
<td>45</td>
</tr>
<tr>
<td>Ramen Noodles</td>
<td>½ package</td>
<td>25</td>
</tr>
<tr>
<td>Tortilla, corn or flour</td>
<td>5-6 inch</td>
<td>15</td>
</tr>
<tr>
<td><strong>Breakfast Cereals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raisin Bran</td>
<td>¾ cup</td>
<td>30</td>
</tr>
<tr>
<td>Granola, low-fat</td>
<td>½ cup</td>
<td>45</td>
</tr>
<tr>
<td>Oatmeal, instant</td>
<td>1 packet</td>
<td>30</td>
</tr>
<tr>
<td><strong>Dairy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fruit Yogurt</td>
<td>1 cup</td>
<td>50</td>
</tr>
<tr>
<td>Milk, 2%</td>
<td>8 ounces</td>
<td>12</td>
</tr>
<tr>
<td><strong>Fruit</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apple</td>
<td>1 medium</td>
<td>20</td>
</tr>
<tr>
<td>Orange</td>
<td>1 medium</td>
<td>15</td>
</tr>
<tr>
<td>Banana</td>
<td>1 medium</td>
<td>25</td>
</tr>
<tr>
<td>Fruit, dried</td>
<td>1/3 to ½ cup</td>
<td>60</td>
</tr>
<tr>
<td><strong>Vegetable</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beans, Peas, Lentils</td>
<td>1 cup</td>
<td>30-45</td>
</tr>
<tr>
<td>Corn</td>
<td>½ cup</td>
<td>15</td>
</tr>
<tr>
<td>Carrot</td>
<td>1 medium</td>
<td>10</td>
</tr>
<tr>
<td>Green Beans, Broccoli</td>
<td>½ cup</td>
<td>5</td>
</tr>
<tr>
<td>Salad Greens</td>
<td>2 cups raw</td>
<td>5-10</td>
</tr>
<tr>
<td><strong>Beverages</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fruit Juice</td>
<td>8 ounces</td>
<td>25-30</td>
</tr>
<tr>
<td>Gatorade</td>
<td>8 ounces</td>
<td>14</td>
</tr>
<tr>
<td>Gatorade shakes</td>
<td>1 shake</td>
<td>30-50</td>
</tr>
<tr>
<td><strong>Condiments, Desserts</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honey, Jam, Maple</td>
<td>1 tablespoon</td>
<td>15</td>
</tr>
<tr>
<td>Syrup</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frozen Yogurt</td>
<td>1 cup</td>
<td>44</td>
</tr>
<tr>
<td>Sport Bar</td>
<td>1 bar</td>
<td>40-60</td>
</tr>
</tbody>
</table>
Rule #3 The Less Legs the Better

- Typically the less legs the animal has before you actually consume it, the better source.
- Best source fish, turkey, and chicken rank high.
- You need to be more selective with dairy, red meat, and pork products. Low-fat dairy, lean cuts of pork and beef, and grass fed legged animals are best.
Protein (1)

- Essential for building and repairing muscles, red blood cells, hair, and other tissues.
- Approximately 20% of calories should come from protein.
- Proteins generally supply little of the energy the body uses, except during prolonged exercise.
- Proteins are composed of amino acids.
Protein (2)

- **Complete proteins** (usually found in meat and dairy foods)
  - contain all essential amino acids

- **Incomplete proteins** do not contain amino acids in proportions needed (plant foods)
  - Excess protein is stored as fat
  - High protein intake strains the kidneys
  - Surplus protein will not increase strength or muscle size
  - A high intake of protein, also requires a high intake of water
# Athlete’s Protein Needs

Simple calculation for quick assessment:

Weight in pounds \times 0.6 \text{ or } 0.7

Estimated Needs: 86-100 gr Protein

(I will go up to 1 gram Protein/pound body weight)

<table>
<thead>
<tr>
<th>Athlete Type</th>
<th>Recommendation (g/kg/day)</th>
<th>Calculated range for 65kg (143 lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average population</strong></td>
<td>0.8 g/kg (0.36 g/lb)</td>
<td>52 grams (208 calories)</td>
</tr>
<tr>
<td><strong>Strength Athlete</strong></td>
<td>1.6-1.7 g/kg (0.73 – 0.77 g/lb)</td>
<td>104-110grams (416-440 calories)</td>
</tr>
<tr>
<td><strong>Endurance Athlete</strong></td>
<td>1.2-1.4 g/kg (0.55 – 0.64 g/lb)</td>
<td>78-91 grams (312-364 calories)</td>
</tr>
</tbody>
</table>
# Protein In Food

<table>
<thead>
<tr>
<th>Food</th>
<th>Serving Size</th>
<th>Protein (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat, Fish, Poultry</td>
<td>4 ounces cooked</td>
<td>30</td>
</tr>
<tr>
<td>Egg (2 egg whites)</td>
<td>1 large</td>
<td>7</td>
</tr>
<tr>
<td>Tuna (canned)</td>
<td>1 can (6 oz)</td>
<td>40</td>
</tr>
<tr>
<td>Beans, Legumes, split peas</td>
<td>½ cup</td>
<td>7</td>
</tr>
<tr>
<td>Peanut butter</td>
<td>2 tablespoons</td>
<td>8</td>
</tr>
<tr>
<td>Almonds (most nuts)</td>
<td>¼ cup</td>
<td>7</td>
</tr>
<tr>
<td>Tofu (firm)</td>
<td>4 ounces</td>
<td>10</td>
</tr>
<tr>
<td>Milk or yogurt</td>
<td>1 cup (8 oz)</td>
<td>8</td>
</tr>
<tr>
<td>Cottage cheese</td>
<td>½ cup</td>
<td>14</td>
</tr>
<tr>
<td>American cheese</td>
<td>1 slice (.75 oz)</td>
<td>6</td>
</tr>
<tr>
<td>Hard cheese</td>
<td>1 oz</td>
<td>7</td>
</tr>
<tr>
<td>Rice, noodles, pasta</td>
<td>½ cup</td>
<td>2</td>
</tr>
<tr>
<td>Bread</td>
<td>1 slice</td>
<td>2</td>
</tr>
<tr>
<td>Cold cereal</td>
<td>1 cup</td>
<td>2</td>
</tr>
<tr>
<td>Peas, corn, carrots (most vegetables)</td>
<td>½ cup</td>
<td>2</td>
</tr>
<tr>
<td>Fruits</td>
<td>1 piece</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>
Rule #4 Eat Fats That Give Something Back

• The best types of fats to include are raw nuts, seeds, olive oil, and fat fish

• The forgotten fats in the US are the essential fatty acids, specifically omega-3 fatty acids

• Consume fish high in omega 3 two to three times per week
Fat (1)

- A source of stored energy (calories) that we burn primarily during low-level activity.

- **Saturated Fats (Animal fats)**
  - Contribute to heart disease and some cancers
  - E.G: butter, lard, fat in meats

- **Unsaturated Fats (Vegetable Fats)**
  - Less Harmful
  - E.G: corn oil, olive oil, peanut oil
Athlete’s Fat Needs

• Aim for 20-30% of total calories coming from fat
• Remember 1 gram of fat = 9 calories
• Based on 2700 calories
  
  $2700 \times .20 = 540 \text{ cal}/9 = 60 \text{ grams}$
  
  $2700 \times .30 = 810 \text{ cal}/9 = 90 \text{ grams}$

• Estimated Needs: 60-90 grams of fat
Rule #5 Three for Three

- Companioning the three main nutrients (carbs, protein, fat) every three hours will keep you fueled.

- Eating consistently maintains energy levels (blood glucose), keeps the body in a fed state and prevents mood swings and binging.
SCHEDULE – Schedule a Fueling Plan To Maximize Training

Focus on these Key Points to Timing It Right

✓ Eat frequently to maintain a full tank (4-8 times per day)
✓ Constant fuel, every 2-4 hours
✓ Eat Breakfast DAILY
✓ 3-4 meals/day with snacks
✓ Special focus on fueling and refueling for activity
Scheduled Eating Examples

<table>
<thead>
<tr>
<th>Time</th>
<th>Meal/Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6am-7am</td>
<td>Snack/pre-workout</td>
</tr>
<tr>
<td>7am-9am</td>
<td>workout</td>
</tr>
<tr>
<td>9am</td>
<td>post-workout recovery</td>
</tr>
<tr>
<td>10am</td>
<td>breakfast</td>
</tr>
<tr>
<td>10:30am</td>
<td>snack</td>
</tr>
<tr>
<td>1pm</td>
<td>lunch</td>
</tr>
<tr>
<td>2:30pm</td>
<td>snack/pre-workout</td>
</tr>
<tr>
<td>3-5pm</td>
<td>practice</td>
</tr>
<tr>
<td>3pm</td>
<td>snack (possible pre-workout)</td>
</tr>
<tr>
<td>5pm</td>
<td>post-workout recovery</td>
</tr>
<tr>
<td>6pm</td>
<td>dinner</td>
</tr>
<tr>
<td>6pm</td>
<td>dinner</td>
</tr>
<tr>
<td>9pm</td>
<td>snack</td>
</tr>
<tr>
<td>9pm</td>
<td>snack</td>
</tr>
</tbody>
</table>
Rule # 6 Eat Breakfast

• Most important meal of the day
• Sample meal:
  – Whole wheat bagel or toast or English Muffin
  – 2 scrambled eggs or egg whites
  – 1 piece of fruit
  – Milk or yogurt
Rule #7 Don’t waste your workout

• In order to optimize the benefits of a training session and jumpstart recovery for maximal gains, it is critical to consume a post workout recovery meal that blends both carbohydrate and protein within 45 minutes after training.

• [http://www.coreperformance.com/daily/nutrition/fuel-for-your-workout.html](http://www.coreperformance.com/daily/nutrition/fuel-for-your-workout.html)
Planning for Practice

• Never start a workout with an empty tank
• Remember, you should be eating every 3-4 hrs.

• Pre-workout meal
  ▫ 2-4 hrs ahead of time
  ▫ High carbohydrate, moderate protein, low, fat

• Pre-workout snack
  ▫ Within 1-2 hrs
  ▫ Mainly carbohydrate, some protein and fat
    • Determine what you can tolerate
    • Fruit and yogurt, Gatorade and granola bar, cereal with skim milk

http://www.coreperformance.com/daily/nutrition/fuel-for-your-workout.html
Fueling During Training

• Especially important for activity lasting greater than 60-90 minutes
• 100-250 calories (30-60 grams CHO) every hour
  – Sports drinks
  – Sports bars
  – Granola bars
  – Fruit (can be dried or fresh)
• Hydrate to minimize water loss
  (Typically 4-8 oz every 15 minutes)
You’re body will not run on an empty gas tank, you must replenish and refill the gas regularly!!

1. Recovery begins with proper fueling prior to training
2. Recovery continues with maintaining fuel levels during activity
3. Recovery’s claim to fame time is within 30 minutes after a workout
4. Recovery should continue as you prepare for the next training

Back to back training requires heavy focus on recovery nutrition...
Ideal Recovery Foods/Snacks

- Chocolate milk
- Yogurt and fruit
- Trail mix (nuts, seeds, dried fruit, cereal, etc)
- String cheese and wheat crackers
- Sports bar/shake
- Peanut butter and jelly sandwich
- Cereal with skim milk

*Include at least 2 cups water/Gatorade*
RULE # 8 HYDRATE – Hydrate To Keep The Body Cool and Running Efficiently

• Focus on hydration ALL DAY long, not only when training

• Significant decreases in performance are seen with 2% body water loss
  • for a 160 pound athlete, this would be a 3.2 # loss, weighing 156-157 or less after workout
Daily Fluids Intake

• Sedentary person needs weight in pounds x.50

• Active person needs weight in pounds x.67

• Example: 200 lb male

  » 200 x .67 = 134 oz
  » You can get from drinks, soups, eating fruit and vegetables
  » Don’t count liquid that contain caffeine or alcohol
FLUIDS REPLACEMENT FOR PHYSICAL ACTIVITY

• *Drink plenty of water even if you do not feel thirsty.

• *Drink 16-20 oz cups of plain, cool water 15 minutes before physical activity

• *Drink 7- oz cup of water every 10-15 minutes during physical activity

• *Drink 2 cups of water after physical activity for every pound lost during physical activity

• *Sports drinks have a high amount of salt and sugar, these two ingredients can negatively affect performance
  – During times of intense activity, extreme temperatures, and long duration a carbohydrate electrolyte beverage is optimal

• Urine color is an indication of hydration, if it’s yellow you are probably dehydrated.
Rule # 9
Supplement Wisely

• Supplements should “compliment” the diet and a mentality of food first supplement second should be employed

• Basic supplementation protocol
Vitamins and Minerals

• Won’t provide energy, but necessary for energy production, bone health, immune system and muscle function
  – B-Vitamins
  – Iron
  – Calcium and Vitamin D
  – Antioxidants
    • Vitamins C, E, and A
    • Iron, Zinc, Copper and Selenium
  – Electrolytes (Sodium and Potassium)
Rule # 10 Keep Record

- Track nutrition intake along with training
- Identify what works and what doesn’t
- Individualize nutrition routines
Dietary Supplements

Definition: “a vitamin, mineral, herb, botanical, amino acid, metabolite, constituent, extract or a combination of any of these ingredients.”

• Why they are used
  – Help meet nutritional goals
    • Vitamins/minerals
    • Bars/shakes
  – Enhanced Performance
    • Direct and/or psychological
      – Examples: creatine, caffeine, hormones, amino acids, anabolic steroids, HGH, etc...

• Questions/Concerns
  – Efficacy
  – Safety
  – Contamination
  – Legal/Permissable
  – Expense
  – Side effects
  – Distraction from real performance enhancing practices
Legality... Safety... Efficacy

• On the shelf or on the internet doesn’t make it safe! (US Dietary Supplement Health and Education Act)
  – DO NOT need to be proven effective
  – DO NOT need to be proven safe
  – FDA must prove it to be harmful before it can be regulated

• False Claims:
  – Marketing may only include part of the story
  – Labeling not regulated
    • Medical Commission of the IOC (2002)
    • Of 634 supplements analyzed, 94 (15%) contained substances that could lead to a positive doping test

Drug Free Sport Resource: www.drugfreesport.com/rec
Passcode for Division 1: ncaa1
Be Aware -- Top 10 Freshman Mistakes

1. Skipping Meals
2. Trying Popular Diets/ Nutrition Fads
3. Irresponsibly Using Nutrition Supplements
4. Misusing Sports Foods
5. Making Poor Choices at All-You-Can-Eat Dining Halls
6. Making Poor Drinking Decisions
7. Doing a Poor Job Hydrating
8. The Jeans Phenomenon... not accepting body changing
9. Paying Too Much Attention to the Scale
10. Late Night Junk Food
Related Sports Nutrition Links

- Nutrition | Core Daily | Core Performance
- http://orthoinfo.aaos.org/topic.cfm?topic=a00370
- http://urbanext.illinois.edu/hsnut/
- http://beta.active.com/nutrition/sports-nutrition-guide