Nutrition for Runners
The 5 Biggest Nutritional Mistakes Runners Make

- Excess hydrating
- Too much simple sugar
- Training on too few calories
- Not consuming enough calories after workouts
- Swayed by the “magic bullet”
Essential Nutrients
categorized as

1. MACRONutrients (fuel nutrients)

2. MICRONutrients

3. Water
MACRONutrients

Carbohydrates

- energy source
- cell maintenance
- heat production

Protein

- build & repair tissue
  (muscles, organs, bones)
- work with enzymes
- work with antibodies

Fat

- as a source of energy
- to transport fat soluble vitamins (A,D,E,K)
- supply essential fatty acids
- thermal regulation
- cell membranes
MICRONUTRIENTS
Vitamins and Minerals

Substances essential for normal body metabolism, growth, and development; required in very small amounts to help chemical reactions; help regulate body functions:

- Regulate muscular and nervous tissue excitability
- Regulate blood clotting
- Regulate normal heart rhythm
- Maintain water balance
- Maintain acid-base balance

Vitamins - Organic substances
- Humans need 13 vitamins

Minerals - Inorganic compounds
- 17 essential minerals
Water

The most important nutrient in the chemistry and function of the human body

Involved in every vital body process

- digestion
- absorption
- circulation
- excretion
- transportation
- temperature regulation
Fluid First

daily hydration essentials

- The importance of water and daily hydration strategies
- Sweat and dehydration
- Electrolytes
- Diuretics
- Hyponatremia
The Daily Training Diet

The importance of your daily diet
- Variety, moderation, balance, & quality

Suggestion for balancing a sports diet

- Grains: 35%
- Fats: 25%
- Fruits and Veggies: 20%
- Dairy: 5%
- Protein: 15%

Learn about nutrition and how to read and interpret food labels (See Figure 1).
Creating the Optimal Training Diet

Serving Recommendations for Various Calorie Levels

<table>
<thead>
<tr>
<th></th>
<th>~1,800</th>
<th>~2,200</th>
<th>~2,500</th>
<th>~2,800</th>
<th>~3,300</th>
<th>~3,800</th>
<th>~4,200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grains</td>
<td>8</td>
<td>9</td>
<td>11</td>
<td>14</td>
<td>18</td>
<td>22</td>
<td>24</td>
</tr>
<tr>
<td>Veggies</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Fruit</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Dairy</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Meat</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3-4</td>
<td>4-5</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Fats</td>
<td>No recommendations. Enjoy foods from this category if you can afford the Calories after eating the recommended servings from the five food groups</td>
<td>No recommendations. Enjoy foods from this category if you can afford the Calories after eating the recommended servings from the five food groups</td>
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<td>No recommendations. Enjoy foods from this category if you can afford the Calories after eating the recommended servings from the five food groups</td>
</tr>
<tr>
<td>Oils</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweets</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Sources of Carbohydrates
- Grains, breads, cereals, rice & pasta
- Fruits and fruit juices
- Vegetables

Sources of Protein
- Milk and yogurt
- Meat, poultry, fish, cheese & eggs
- Soy, dried beans & lentils

Sources of Fat
- Fat, oils, nuts & seeds
# The Daily Training Diet

simple suggestions for stocking your kitchen

<table>
<thead>
<tr>
<th>For the Frig</th>
<th>For the Freezer</th>
<th>For the Pantry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh fruit</td>
<td>Chicken tenders</td>
<td>Pasta</td>
</tr>
<tr>
<td>Fresh veggies</td>
<td>Lean ground beef</td>
<td>Rice</td>
</tr>
<tr>
<td>Juices</td>
<td>Lean pork filets</td>
<td>Couscous</td>
</tr>
<tr>
<td>Milk</td>
<td>Cubed meat for stir-fry</td>
<td>Pilaf</td>
</tr>
<tr>
<td>Jogurt</td>
<td>Soy &amp; garden burgers</td>
<td>Canned beans</td>
</tr>
<tr>
<td>Eggs</td>
<td>TVP</td>
<td>Canned tuna</td>
</tr>
<tr>
<td>Reduced fat cheese</td>
<td>Variety of breads</td>
<td>Peanut butter</td>
</tr>
<tr>
<td>Pre-washed salad greens</td>
<td>Waffles</td>
<td>Instant stuffing mixes</td>
</tr>
<tr>
<td>Mini carrots</td>
<td>English muffins</td>
<td>Low fat crackers</td>
</tr>
<tr>
<td>Oranges, apples, bananas</td>
<td>Muffins</td>
<td>Variety of cold cereals</td>
</tr>
<tr>
<td>Lean deli meats</td>
<td>Tortillas</td>
<td>Oatmeal</td>
</tr>
<tr>
<td>Fresh pasta</td>
<td>Frozen veggies</td>
<td>Dried fruit</td>
</tr>
<tr>
<td>Soy and rice milk</td>
<td>Stir-fry mixes</td>
<td>Granola bars</td>
</tr>
<tr>
<td>Sauces and condiments</td>
<td>Frozen fruit</td>
<td>Canned soup</td>
</tr>
<tr>
<td>Salsa</td>
<td>Per-cooked pasta</td>
<td>Nuts and seeds</td>
</tr>
<tr>
<td></td>
<td>Egg substitute</td>
<td>Pretzels</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fig newtons</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seasoning mixes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Instant soup</td>
</tr>
</tbody>
</table>
### Nutrients for Optimal Performance

**a balance of supply and demand**

<table>
<thead>
<tr>
<th>Supply</th>
<th>Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Body Fuel Stores</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Carbohydrate Stores</strong></td>
<td></td>
</tr>
<tr>
<td>Blood glucose</td>
<td>80</td>
</tr>
<tr>
<td>Liver glycogen</td>
<td>400</td>
</tr>
<tr>
<td>Muscle glycogen</td>
<td>1,400-1,800</td>
</tr>
<tr>
<td><strong>Fat Stores</strong></td>
<td></td>
</tr>
<tr>
<td>blood fatty acids</td>
<td>7</td>
</tr>
<tr>
<td>Serum triglycerides</td>
<td>75</td>
</tr>
<tr>
<td>muscle triglycerides</td>
<td>2,700</td>
</tr>
<tr>
<td>adipose tissue triglycerides</td>
<td>80,000</td>
</tr>
<tr>
<td><strong>Protein Stores</strong></td>
<td></td>
</tr>
<tr>
<td>muscle protein</td>
<td>30,000</td>
</tr>
</tbody>
</table>

**Calories**
Nutrients for Optimal Performance

a balance of supply and demand

**Carbohydrate (60% of total calories)**
- Training 1 hour a day – 3 grams per pound of body weight
- Training 2 hours a day – 4 grams per pound of body weight
- Training 3 hours a day – 5 grams per pound of body weight

**Protein (15% of total calories)**
- 0.55 to 0.75 grams per pound of body weight

**Fat (25% of total calories)**
- Approximately 0.5 grams per pound of body weight
Nutrients for Optimal Performance

a balance of supply and demand

Use the numbers of grams derived to estimate daily caloric needs:

Grams of carbohydrate x 4 Calories/gram
+ Grams of protein x 4 Calories/gram
+ Grams of fat x 9 Calories/gram

= estimated total daily calories
Nutrients for Optimal Performance

Example
Estimated daily caloric needs of a 150 pound runner

Carbohydrate
- Training 1 hour a day – 3 grams per pound of body weight
  3 grams / pound x 150 lbs = 450 grams of carbohydrate
  450 grams of carbohydrate x 4 Calories/gram = **1800 carbo Calories**

Protein
- 0.55 to 0.75 grams per pound of body weight
  0.75 grams / pound x 150 lbs = 112 grams of protein
  112 grams of protein x 4 Calories/gram = **448 protein Calories**

Fat
- Approximately 0.5 grams per pound of body weight
  0.5 grams / pound x 150 lbs = 75 grams of fat
  75 grams of fat x 9 Calories/gram = **675 fat Calories**

**estimated total daily calories = 2923 Calories**
Eating for Training and Competition

Nutrition before training and competition
Carbohydrate loading
The day before the event
The day of the event
  - 3 to 4 hours before exercise
  - 1 hour before exercise
  - During the event
    - Sports drinks vs. water
    - Concentration
    - Volume of fluid
    - Intestinal absorption
    - Timing of consumption
    - Form
Eating for Optimal Recovery
do it quickly

- Rehydrate: Remember fluids first
- Replenish Carbohydrates - the recovery fuel
  - Consume high glycemic carbos immediately after workouts
- Protein for recovery
Weight and Body Composition
becoming lean and strong

Body composition and performance

Changing your body composition
– Strategies for losing weight
– Strategies for gaining weight

Disordered eating
Do Sport Nutrition Products Fit in a Healthy Diet?

- **Real food vs. Engineered food**
- Fill in or round out your diet with energy products but don’t make them the main part of it.

### Practical Uses for Sports Nutrition Products

<table>
<thead>
<tr>
<th>Sports Drinks</th>
<th>Sports Gels</th>
<th>Sports Bars</th>
<th>High Carbo Energy Drinks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consume 16-24 oz. in the hour before exercise</td>
<td>Consume 1 packet in the hour prior to workout</td>
<td>Consume as part of pre-exercise meal</td>
<td>Consume 16-32 oz. 1-2 hours prior to exercise</td>
</tr>
<tr>
<td>Consume 4-8 oz every 15-20 min. during exercise</td>
<td>Consume 1 packet with 20 oz. of water during exercise when well hydrated</td>
<td>Consume in the hour before racing if tolerated</td>
<td>Consume for post-exercise recovery</td>
</tr>
<tr>
<td>Consume after exercise with a more concentrated Carbo source</td>
<td></td>
<td>Consume as part of immediate post-exercise recovery nutrition plan</td>
<td></td>
</tr>
</tbody>
</table>
Supplements and Ergogenic Aids
Do they help? Are they Safe? Are they legal?

- Arginine, Lysine, Ornithine
- BCAA
- Bicarbonate
- Caffeine
- Carnitine
- Chondroitin Sulfate
- Chromium
- Cijuiwa
- Colostrum
- Co-Q10
- Creatine
- DMG
- Energy Bars

- Energy Gels
- Fluid Replacement Drinks
- Ginseng
- Glucosamine
- Glutamine
- Glycerol
- HMB
- MCTs
- Phosphate
- Phosphatidylserine
- Polylactate
- Pyruvate
- Ribose
- Sodium Citrate
Discussion ?
Comments ?
Q & A

Thank You