

Meal Planning for Swimmers

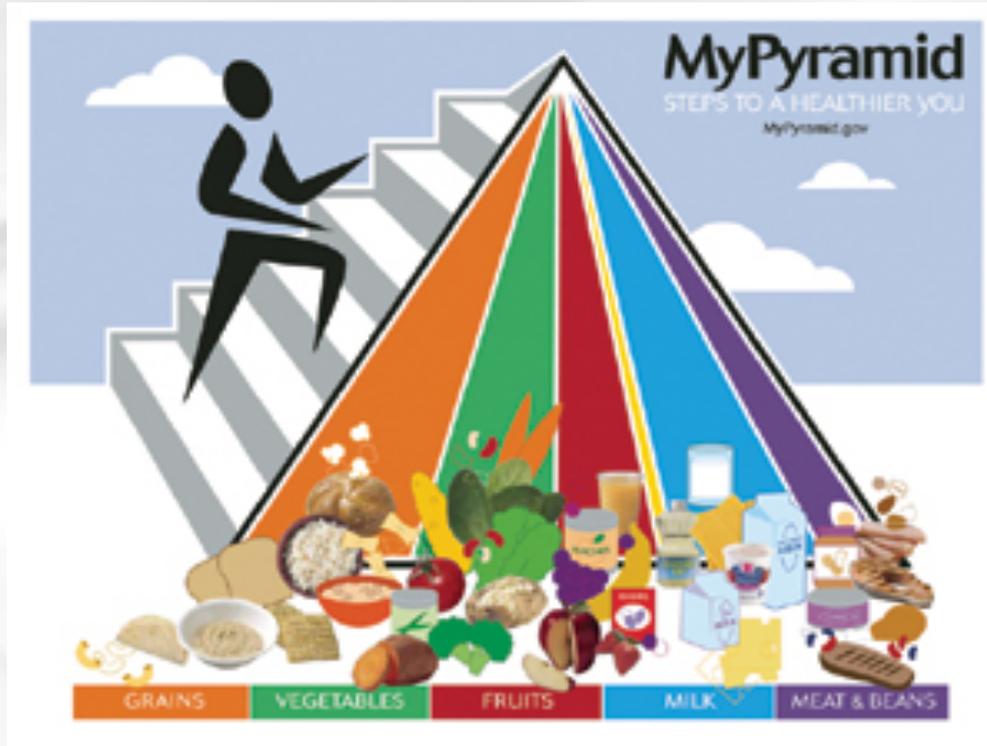
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What a Swimmer Needs

- Carbohydrates
- Protein
- Fat
- Hydration
- Vitamins
- Minerals
- Rest



Food Guide Pyramid for Athletes



Food Guide Pyramid

- **Food**
 - Grains
 - Vegetables
 - Fruits
 - Dairy
 - Meat/protein
 - Fats
- **Servings**
 - 9-11
 - 3-4
 - 2-3
 - 3-4
 - 2-3
 - Sparingly

What counts as a Serving?

- Bread: 1 slice, $\frac{1}{2}$ bun/bagel, 1 oz. cereal, $\frac{1}{2}$ c. cooked cereal, rice or pasta
- Vegetable: 1 c. raw leafy, $\frac{1}{2}$ c. chopped, cooked or canned, $\frac{3}{4}$ c. vegetable juice
- Fruit: 1 medium fresh, $\frac{1}{2}$ c. canned, $\frac{3}{4}$ c. fruit juice
- Milk: 1 c. milk or yogurt, 1 $\frac{1}{2}$ oz. natural cheese, 2 oz. processed cheese
- Meat: 2-3 oz. cooked, $\frac{1}{2}$ c. cooked beans, 1 egg, 2 Tb. Peanut butter

Carbohydrates: the Energy Booster

- Carbohydrates = ENERGY
- Simple versus complex
- Carbohydrates are not fattening
- Load with carbohydrates before games
- Need carbohydrates and protein after exercise
- 60-65% total calories from carbohydrates
- 4 calories/gram
- Average 225-300 gm/day
- Sources: breads, pasta, rice, potatoes, fruit, vegetables, dairy, legumes

Bread, Potato, Cereal, Rice, Pasta (6-11 servings a day)

- Why?
 - Fiber
 - Energy
 - B vitamins
 - Iron
 - Magnesium
 - Zinc
 - Folate
- Healthy Choices:
 - Whole grain cereal
 - Whole grain bread
 - Bagels
 - Pasta
 - Potatoes
 - Brown rice

Fruits (2-4 servings a day)

- Why?
 - Fiber
 - Vitamin C
 - Vitamin A
 - Energy
 - Potassium
 - Phosphorus
- Healthy Choices:
 - 100% juice
 - Fresh fruit
 - Canned in juice
 - Canned in light syrup
 - Dried
 - Frozen

Vegetables (3-5 servings a day)

- Why?
 - Fiber
 - Energy
 - Vitamin A
 - Vitamin C
 - Vitamin K
 - Potassium
 - Folate
- Healthy Choices:
 - 1 c. leafy greens
 - Fresh veggies
 - Cooked/steamed veggies
 - Canned (drain salt)
 - Frozen

Dairy (3-4 servings a day)

- Why?
 - Calcium
 - Vitamin D
 - Protein
 - Carbohydrates
 - Fat
 - Riboflavin
 - Phosphorus
- Healthy Choices:
 - Low fat/ fat free milk
 - Low fat yogurt
 - Ice cream
 - Frozen yogurt
 - Cottage cheese
 - String cheese
 - Soy/ Rice milk

Protein: the Body's Building Blocks

- Maintains and builds muscle
- Makes hemoglobin to help bring oxygen to tissues
- Forms antibodies to fight infections
- Produces enzymes and hormones
- Can supply energy when needed
- High protein diets
- Protein supplements
- 12-15% total calories from protein
- 4 calories/gram
- Average: 60-100 gm/day
- Sources: meat, poultry, fish, eggs, dairy, legumes, soy

Meat, Poultry, Fish, Beans, Eggs, Nuts (2-3 servings a day)

- Why?
 - Protein
 - Fat
 - Iron
 - Niacin
 - Vitamin B6
 - Vitamin B12
 - Zinc
- Lean deli meat
- Grilled chicken
- Lean Turkey
- Fish
- Beans/ legumes
- Nuts
- Peanut/almond butter

The Fat Attack: Second Source of Fuel

- 3 main kinds
- Stored energy form in organs, muscles and skin
- Aid in absorption of fat soluble vitamins
- Essential fatty acids are necessary for growth
- Menstrual function
- Reserve energy source
- 20-25% total calories should come from fat
- 9 calories/gram
- Average 60-75 gm/day
- Sources: butter, oil, peanut butter, nuts, avocados, desserts, candy

Fats, Oils and Sweets (sparingly)

- Why?
 - Empty calories
 - Extra calories
 - Taste
 - Vitamin E
- Healthy Choices:
 - Olive oil
 - Canola oil
 - Soft margarine
 - Pudding
 - Ice cream/shakes
 - Popsicles
 - Baked chips

Vitamins and Minerals

- Best source is a balanced and varied diet
- Can't cure the common cold
- Do not produce energy
- Supplements cannot be used to replace foods
- Taking extra vitamins will not make a child mature faster
- Some are toxic at high levels
- Of interest: CALCIUM, IRON, ZINC, VITAMIN A, VITAMIN C, VITAMIN E

Good Food Sources

- Meat, poultry, fish: Iron, phosphorus, potassium, zinc, niacin, riboflavin, thiamin, B6, B12
- Nuts and seeds: Copper, magnesium, phosphorus, A and B12
- Beans, peas, lentils: Iron, magnesium, phosphorus, potassium, folate
- Cheese: Calcium, phosphorus, A, B12
- Milk, yogurt, ice cream: Calcium, phosphorus, potassium, riboflavin, A and D
- Bread, cereal, rice, pasta: Iron, thiamin, riboflavin, niacin, copper, magnesium, E
- Fruit: Potassium, folate, C, A
- Vegetables: Iron, magnesium, potassium, folate, riboflavin, A, C, K, E, B6

The Calcium Connection

- Adequate intake: 1000-1200 mg/day
- Female athletes: 1500 mg/day
 - Increases bone mineral density
 - Osteopenia and osteoporosis
 - Stress fractures
- Average American intake: 650 mg/day
- Sources: dairy, orange juice, waffles, frozen yogurt, cereal, hot chocolate
- Supplements:
 - Carbonate vs. citrate
 - Vitamin D and K
 - 500 mg max.



Iron

- Increased need for athletes
- Increased need for females
- Recommendations:
 - 10 gm/day: men
 - 18 gm/day: women
 - 30 gm/day: pregnancy
 - 27 gm/day: anemia
- Sources: cereals, bread, red meat, and, green veggies
- Supplements: MVI or FeSO_4



Average Calorie Needs: Boys

- 6-10 y.o:
1600-2200 calories
- 10-13 y.o:
2300-2700 calories
- 14-18 y.o.:
2500-3000 calories
- Swimmers: range
from 2200-5000
calories



Average Calorie Needs: Girls

- 6-10 y.o: 1400-1800 calories
- 10-13 y.o: 1900-2200 calories
- 14-18 y.o.: 2200- 2500 calories
- Swimmers: 2000-2800 calories

Calorie Assessment

- Sedentary people: 30kcal/kg
- Athletes: range from 30-60 kcal/kg
 - Swimmers: average 45-55 kcal/kg
 - Calories expended: 450-1000 kcal/ workout
 - Can also calculate calories:
 - Harris Benedict for gender
 - VO₂ max



Problems

- Overeating or under-eating
- Overuse injuries
- Fatigue
- Dehydration



How to meal plan:

- Timing of meals
- Eating enough
- Proper food selection
- Planning

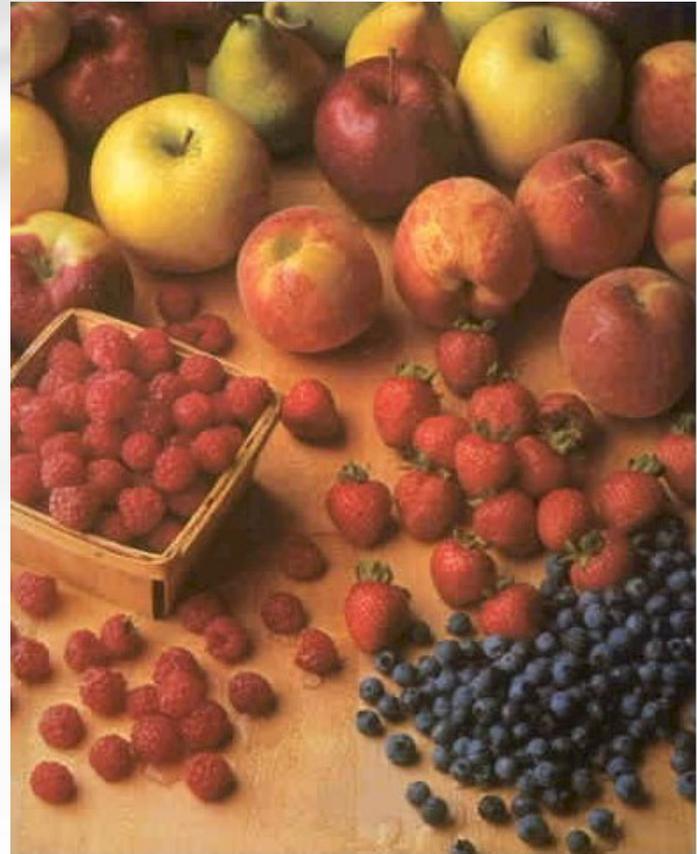


Precompetition Meals

- Easy to digest foods
- Familiar and comfortable foods
- High carb. Low fat foods
- Avoids concentrated sweets
- Moderate amounts of protein
- Limit dairy

Examples: Precompetition meals

- Yogurt
- Fruit
- Oatmeal
- Dry cereal
- Juice or sports drinks
- Granola bars
- Muffins



Timing: Precompetition Meals

- 1 hour before: light snack
 - Fruit and pretzels, gatorade/ water
- 2-4 hours before: light meal
 - Bagel with peanut butter, fruit, water
- >4 hours: meal
 - Cereal with milk, toast x2 with peanut butter, fruit, juice or water

Recovery Meals

- Most important meal!
 - Replenish glycogen stores
 - Prevents overuse injuries
 - Prevents fatigue



Timing: Recovery Meals



Right away!

**Within 1 hour of
finishing practice/
meet**

Recovery Meals: What is Needed

- 4:1 ratio of Carbohydrates to Protein
 - Hydration
 - Easy to digest foods
 - Familiar foods
 - Low fat



Recovery Meals: Examples

- Smoothie (fruit, protein powder, yogurt)
- Peanut butter sandwich with Fruit juice
- Baked potato with broccoli, cheese, and glass of milk
- Pasta with meat sauce, garlic bread, water

All Day Competition

- Balance calories
- Small frequent meals
- Easy to digest foods
- Low fat foods
- Hydration



All Day Competition: Breakfast

- Depends on timing and events
 - Examples:
 - Bagel with peanut butter and jelly, fruit, water
 - Banana with peanut butter, yogurt with fruit, water
 - Pizza (2 slices), fruit, water
 - Waffles/pancakes, light syrup, yogurt with fruit, water
 - 1 egg, 2 slices whole wheat toast with light butter, fruit, water

All Day Competition: Lunch

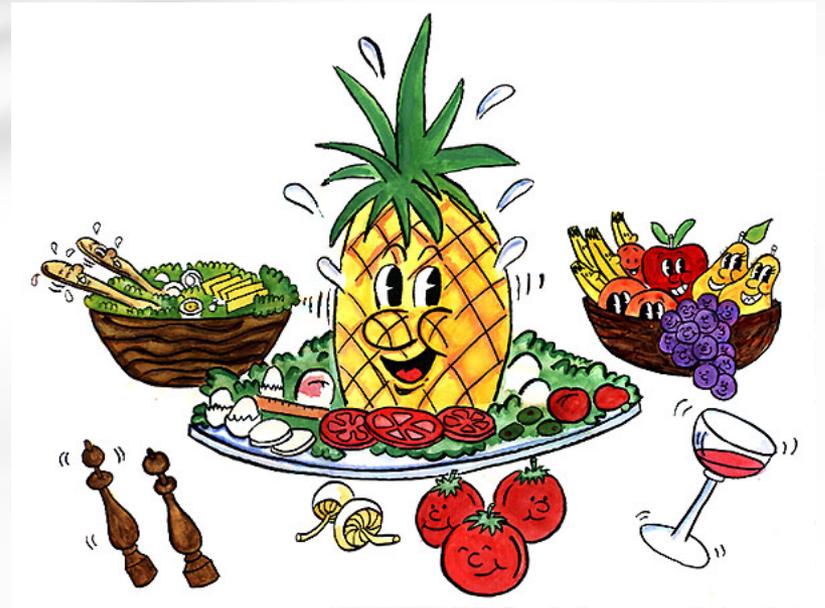
- Depends on events:
 - Space eating 1/2 -1 hour between events
 - Examples:
 - Pretzels, yogurt with fruit, fruit, sport drink
 - ½ sandwich (peanut butter, or lean meat), fruit, sport drink
 - Granola bar/sports bar, fruit, crackers, sports drink
 - Trail mix (cereal, pretzels, nuts, dried fruit), V8 juice or V8 splash

All Day Competition: Dinner

- Recovery Meal
 - Wait to done with events
 - Eat light right away followed by full meal
 - Examples:
 - Granola bar/sports bar+ string cheese; pasta with meat sauce and garlic bread
 - Trail mix + juice; grilled chicken sandwich with small milk shake (soup is available)
 - Peanut butter and crackers+ water; sub sandwich with baked chips/soup, juice

All Day Event: Snacks

- Light; easy to eat and digest
 - Sport bars
 - Trail mix
 - Pretzels
 - Chex mix
 - Crackers
 - Fruit
 - Rice Krispie Bars



All Day Events: Fast Food

- Dairy: frozen yogurt, ice milk, low fat milkshakes, low fat milk
- Starch: bagels, muffins, pancakes, waffles, pasta, rice, bread sticks, potatoes
- Meat: chicken, deli meat, chili, hamburgers, veggie pizza, sub sandwiches
- Salad bar: veggies, pasta salad, fresh fruit, soup, low fat dressings
- Condiments: ketchup, mustard, BBQ sauce
- Beverages: juice, lemonade, milk

Hydration

- Athletes need more:
 - Body temperature increases
 - Temperatures of training
 - Length and intensity of training



Hydration: what is needed

- Guidelines:
 - Before:
 - 10-14 oz. 1 hour before
 - 8-10 oz. 15 minutes before
 - During:
 - 4 oz. every 15 minutes
 - After:
 - 16 oz. for every pound lost

Hydration: what to drink

- Limit caffeine
- Limit high fructose beverages
- Limit carbonated beverages

- Water, diluted juice, sports drinks



Summary

- Planning
- Use food as fuel
- Correct calorie assessment and balance
- Recovery Meals
- Try foods first
- Involve parents

Questions

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