



Nutrition &



The Balancing Act

Presented by

Marie Roth, RD

&

Katherine Brooking, MS RD

The Foundation of Good Nutrition

- Balance
- Variety
- Moderation





Balance



- Optimal ratio of macronutrients
- Important micronutrients
- Appropriate calorie ranges for activity levels
- Hydration



Macronutrients

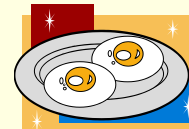
■ Carbohydrates (CHO)

- Body's preferred fuel
- Replenish glycogen stores



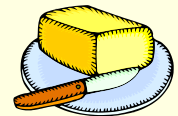
■ Proteins

- Repair & maintain muscle tissue
- Essential amino acids
- Growth & development



■ Fats

- Provide energy
- Fat-soluble vitamin absorption
- Essential Fatty acids

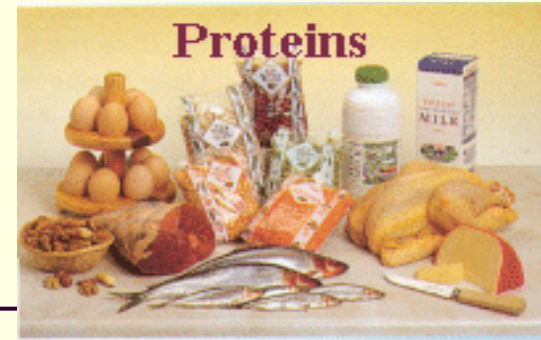


Carbohydrates



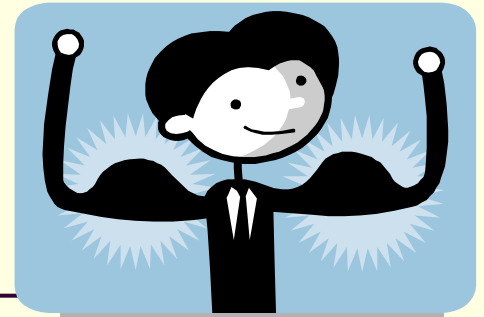
- A minimum intake is about **250 g** or 1000 kcal per day for athletes is recommended.
- Recommendations vary with the sport as well as individual metabolic needs.
- Most athletes should consume **50-60%** of their total caloric intake as carbohydrate, or about **6-10 grams** of carbohydrate per kilogram of body weight per day (3 - 5 gm/lb).
- Athletes participating in **heavy** exercise, specifically endurance athletes (bikers, marathon runners, triathlon athletes etc.), may need to increase their carbohydrate consumption **up to 70%** of the daily caloric intake.

Protein



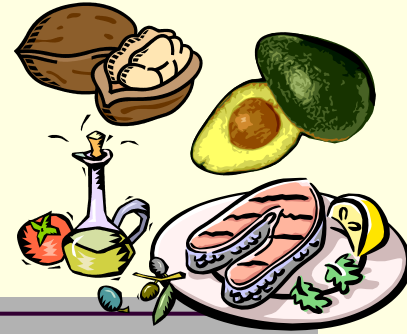
- Needs depend on the duration and intensity of exercise, and frequency of training
- 15% of total calories
- Protein intake for athletes ranges from 1.0-1.8 g/kg/day (~0.4-0.8 g/lb/day)
 - Strength training athletes need about 1.4-1.8 g/kg/day (~0.6-0.8 g/lb/day)
 - endurance runners need about 1.2-1.4 g/kg/day (~0.5-0.6 g/lb/day)
- The typical American consumes 1.5 g/kg/day (~0.7 g/lb/day)

Protein



- REMEMBER: the amount of protein that the body can utilize is limited. Large protein consumption that exceeds the body's requirement will be converted into FAT. It will NOT increase muscle mass.
- MUSCLE and STRENGTH can **only** increase as a result of physical activity and NOT excess protein consumption

Fats



- Primary fuel for low intensity and long duration activities such as marathons, triathlons, and cross country skiing
- 25-30% of total calories
- Healthy Fats include: vegetables oils, olive oil, avocado, seeds, nuts, soybeans, fish, and flaxseed

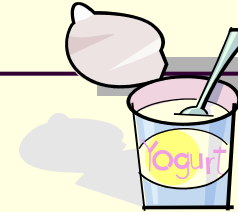


Important Micronutrients

■ Calcium

- **Bone health; ↓ fractures**

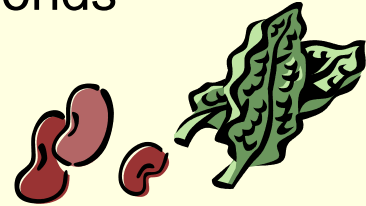
- **Sources:** dairy foods; dark green leafy veggies; tofu/soybeans; blackstrap molasses; canned salmon w/bones; almonds



■ Iron

- **Oxygen transport; energy producing enzymes**

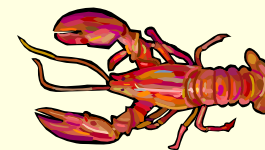
- **Sources:** fortified cereals; canned clams; oysters; red meat; baked beans; lentils; dark green leafy veggies; wheat germ; dried fruit



■ Zinc

- **Growth; energy production; tissue repair**

- **Sources:** oysters; wheat germ; beef; turkey; ricotta cheese; pecans; tahini; wild rice; lobster

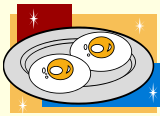


Important Micronutrients & Sources

B-vitamins

Energy production; RBC production; protein synthesis; tissue repair

- **Thiamin**: fortified cereals; pork; sunflower seeds; green peas
- **Riboflavin**: fortified cereals; milk, cottage cheese; egg; cooked spinach
- **B-6**: baked potato; banana, whole wheat bread; sunflower seeds, avocados
- **Niacin**: chicken breast; canned tuna; white rice; white mushrooms; peanuts
- **Pantothenic acid**: tropical trail mix; sweet corn; yogurt; oatmeal; potatoes
- **Biotin**: most foods; milk; egg yolks; liver
- **Folate**: black-eyed peas; lentils, spinach, asparagus; broccoli, cereals; OJ
- **B-12**: Liver; clams; red meat; halibut; yogurt w/fruit; skim milk



Important Micronutrients & Sources

Antioxidants

- **Immune function; ↓ oxidative stress**
- **Vitamin A & Beta carotene**: turkey; sweet potatoes; cantaloupe; carrots; spinach; broccoli; tomatoes; peaches
- **Vitamin E**: almonds; vegetable oils; asparagus; flounder; shrimp
- **Vitamin C**: red peppers; oranges; broccoli; strawberries; mango; kale; tomatoes
- **Selenium**: brazil nuts; snapper; halibut; scallops; salmon; wheat germ; sunflower seeds; steamed clams; oysters



Appropriate Calorie Ranges (Boys)

Ages	Reference Weight (lbs)	Reference Height (in)	Sedentary	Low Active	Active	Very Active
8	56.4	50.4	1433 cals	1672 cals	1911 cals	2205 cals
9	63	52.8	1505	1762	2018	2334
10	70.3	54.7	1576	1850	2124	2461
11	79.1	56.7	1666	1960	2254	2615
12	89.2	58.7	1773	2088	2403	2792
13	100.4	61.4	1910	2251	2593	3013
14	112.3	64.6	2065	2434	2804	3258
15	124	66.9	2198	2593	2988	3474
16	134.1	68.5	2295	2711	3127	3638
17	142.3	68.9	2341	2771	3201	3729
18	148	69.3	2358	2798	3238	3779

Appropriate Calorie Ranges (Girls)

Age	Reference Weight (lbs)	Reference Height (in)	Sedentary	Low Active	Active	Very Active
8	56.4	50.4	1340 cals	1573 cals	1790 cals	2153 cals
9	63.9	52.4	1390	1635	1865	2248
10	72.5	54.3	1445	1704	1947	2351
11	81.9	56.7	1531	1788	2046	2475
12	91.6	59.4	1592	1884	2158	2615
13	100.9	61.8	1659	1967	2256	2737
14	108.8	63	1693	2011	2309	2806
15	114.5	63.8	1706	2032	2337	2845
16	118.7	64.2	1704	2034	2343	2858
17	121.4	64.2	1685	2017	2328	2846
18	123.8	64.2	1665	1999	2311	2833

Hydration



■ 2-3 Hours before Exercise

- 400-600 mL water (12-20 ounces)



■ During Exercise

- 150-350 mL (6-12 ounces) fluid every 20 minutes (OPTIMAL)
- 30-60 g CHO/ hour (sports drinks) for events > 1 hr



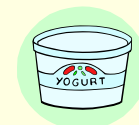
After Exercise

- 450-675 mL (16-24 ounces) for every lb. lost during exercise



Pre-game Meals/Snacks

- For the young athlete, meals should be **high in CHO and low in fat and fiber**
- Consider **timing & GI tolerance** when planning meals
 - Oatmeal, cereal or pancakes w/fruit and carrot juice
 - Peanut butter and jelly sandwich on whole-grain bread
 - whole grain bagel w/ tomato slices and low-fat cheese
 - Whole-grain pasta with a low-fat sauce
 - low-fat yogurt and fruit smoothie
 - 1 cup of banana slices in vanilla yogurt



Post-game Meals/Snacks



- Consuming CHO within the first **30 mins.** after exercise optimizes replenishment of glycogen stores.
- Consider a snack at this time containing **25-100 g** of high to moderate glycemic carbohydrate-rich foods

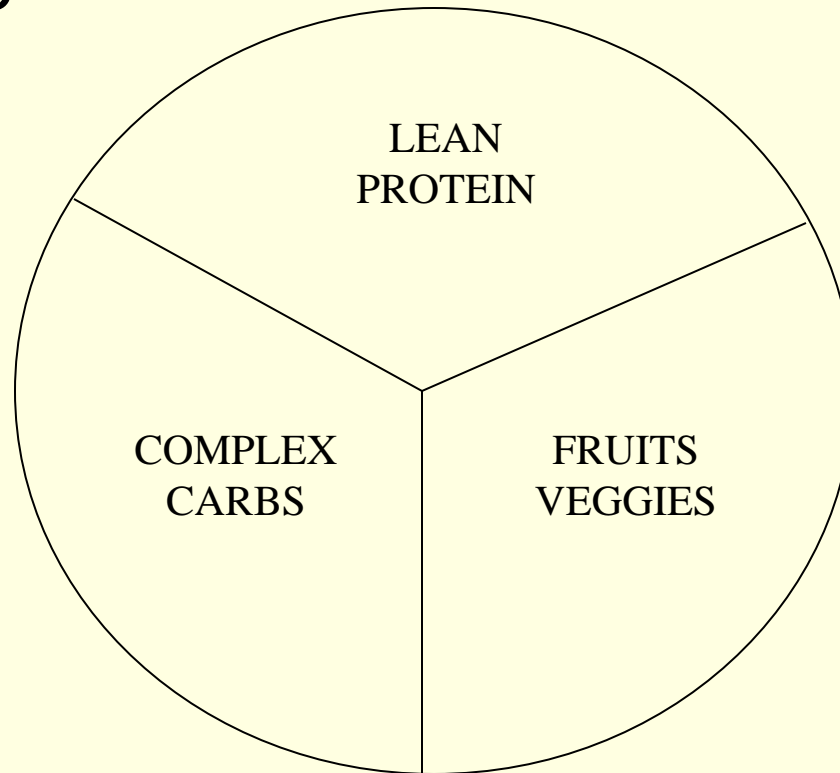
16 oz of milk, 8 oz of fruit juice, or a fruit smoothie

- Ultimately, the goal is to consume up to ~ **200 grams** of carbohydrate within **2 hours** of the training bout or competition. (adolescent thru adult)
- Combo of protein & CHO in a ratio of 4 g of CHO to 1 g of protein will most effectively replenish glycogen stores

1/3 of a plate being protein (lean chicken or fish) and 2/3 being CHO (pasta, rice, potatoes, peas, corn, and vegetables)

The Post-Game Meal

Your Plate



*1/3 of a plate being protein (lean meats, poultry or fish, nuts & seeds, & legumes)
2/3 being CHO (pasta, rice, potatoes, peas, corn, other vegetables & fruits)*

Variety & Good Nutrition



Variety is essential to a healthful diet!

- By eating healthy, **well-balanced** meals and snacks, your child will obtain the nutrients that he or she needs to perform well in sports.
- The macro and micronutrients just discussed come from a wide variety of nutrient-dense food sources. The more you can include a variety of nutrient-dense foods, the better!
- “**Nutrient-dense**” foods are foods that provide high nutritional value (vitamins, minerals, antioxidants, fiber, etc.) relative to calories consumed.

Communicating Moderation and Healthy Habits

Helping your child maintain a healthy weight does not have to be a source of conflict.

- The following slides include tips to help you discuss moderation and other healthy habits with your kids:



Communicating Moderation and Healthy Habits

1. Discuss the importance of healthy diet and lifestyle choices with your child. Remember to talk about health, not about weight.
2. Create a healthy eating plan; do not put your child on a diet.
3. Allow sweets or treats, such as candy and other snacks, in moderation rather than eliminate them.



Communicating Moderation and Healthy Habits

7. Have your child sit down, eat a balanced meal, and then move on to a fun activity.

8. Be a role model. This means:



Stay active yourself.

Avoid overeating. You might say, "This is delicious, but I'm full, so I'm going to stop eating."

Avoid being critical of your own body. Parents who are always dieting or complaining about their bodies may foster these same negative feelings in children.

9. Promote better nutrition by having regular meal and snack times. Restrict all-day snacking.

Healthy Meal & Snack Ideas

Please refer to your handout for some suggestions for creating healthy meals and snacks.

Please sample our delicious & nutritious
Yogurt Smoothies



Resources

- mypyramid.gov – official website of the new food guidance system
- www.nutrition.gov - federal portal to many nutrition and health websites
- www.nal.usda.gov/fnic - reliable nutrition resources for consumers and professionals
- How to Get Your Kid to Eat, But Not Too Much, by Ellyn Satter. Excellent resource for parents.
- www.aafp.org — Advice from the American Academy of Family Physicians
- www.eatright.org- American Dietetic Association

Resources

- www.kidnetic.com — This online resource offers tips for children between the ages of 9 and 12 and for their families, inspiring them to practice healthier lifestyles.
- www.americanheart.org — Great tips for raising healthy children.
- www.shapeup.org — Information about healthy weight management through better nutrition and increased physical activity.
- www.acsm.org - American College of Sports Medicine
- www.nata.org - National Athletic Trainer's Association
- Fuel for Young Athletes by Ann Litt, MS, RD
Macronutrients, micronutrients & recipes