

Sports Nutrition for the Serious Youth Athlete



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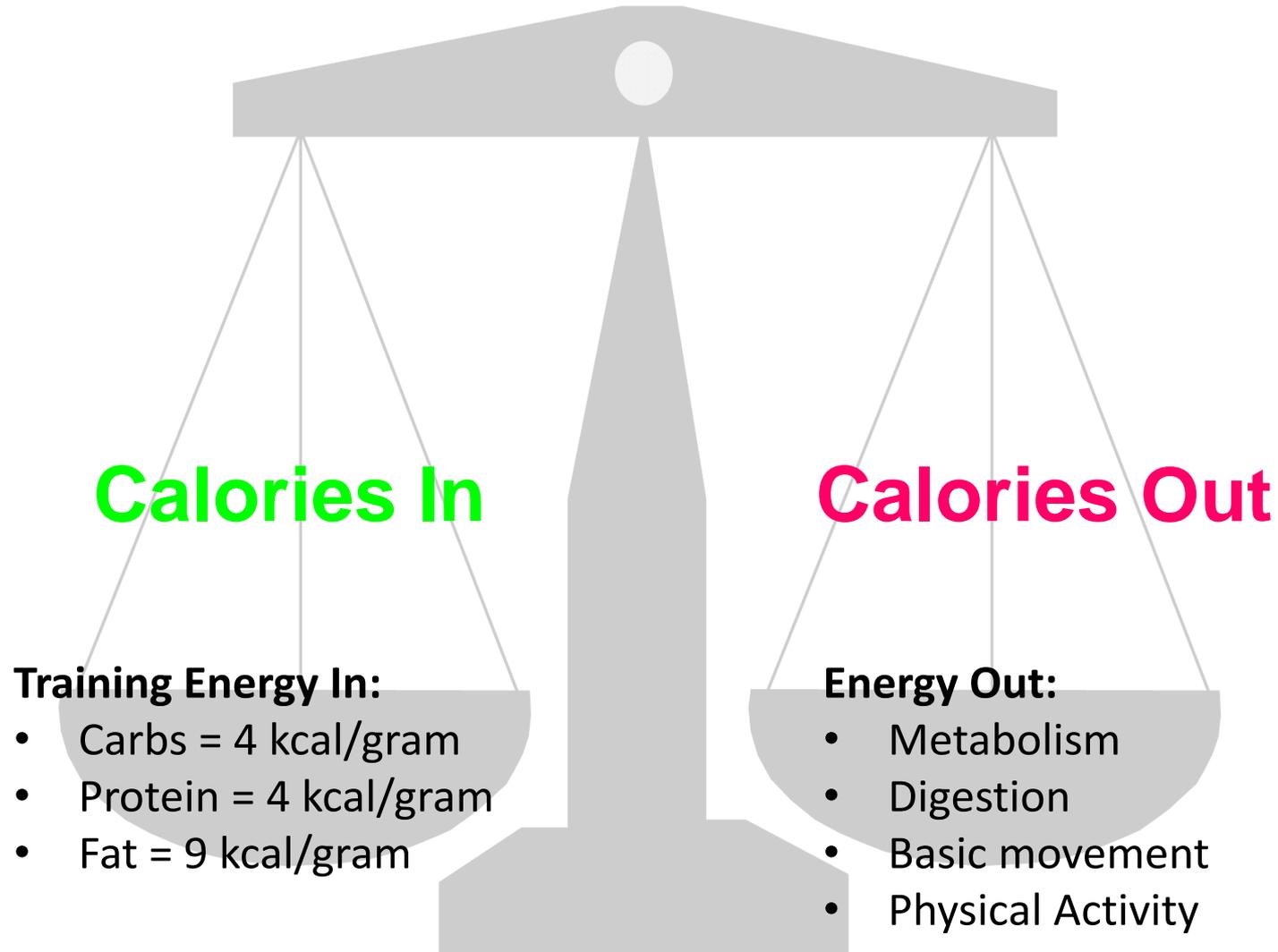
USYOUTHSOCCER.ORG

Key Sports Nutrition Issues for Youth Athletes



- Consuming adequate calories
- Getting a good balance of foods/nutrients (carbohydrate, protein, & fat)
- Eating consistent meals
- Fuel timing
- Drinking enough & appropriate fluids
- Inappropriate use of sports/energy drinks and bars

Focus On Energy Balance



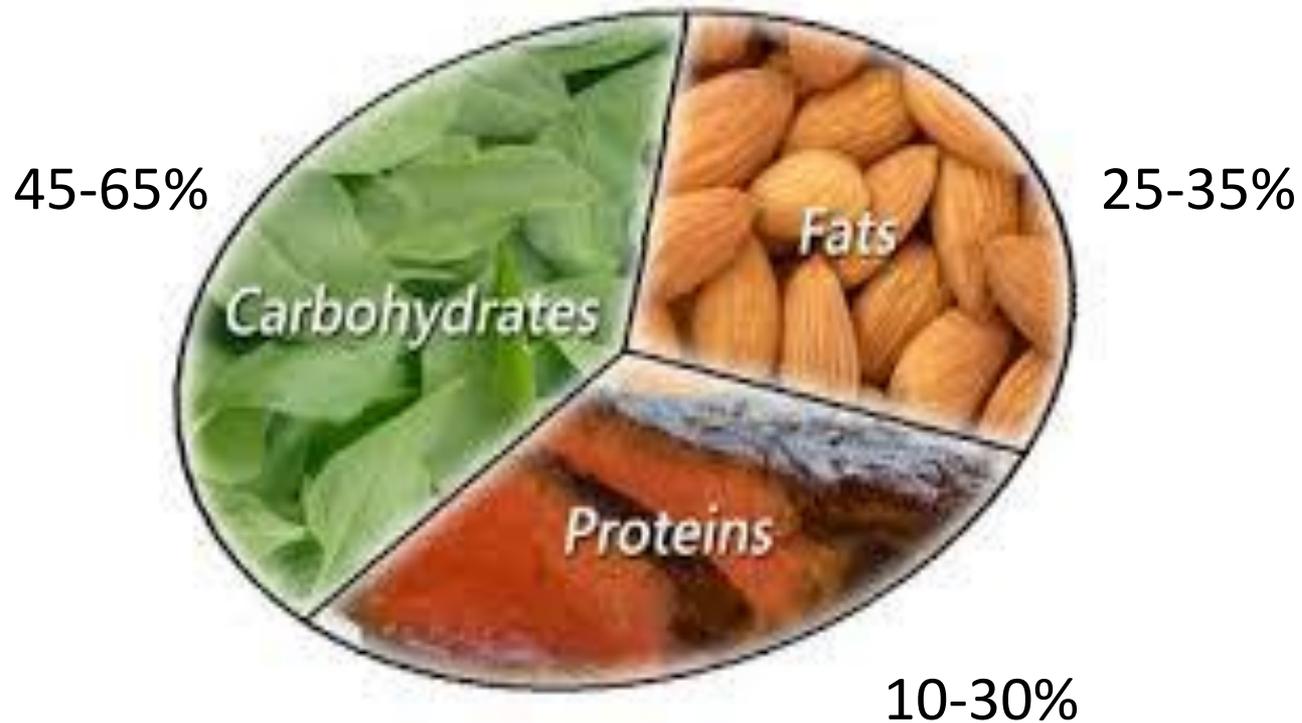
Estimated Calorie Requirements by Age and Activity Level

Gender	Age	Sedentary Activity	Moderate Activity	Active
Young child	2-3	1,000	1,000-1,400	1,000-1,400
Female	4-8	1,200	1,400-1,600	1,400-1,800
	9-13	1,600	1,600-2,000	1,800-2,200
	14-18	2,000	2,000	2,400
Male	4-8	1,400	1,400-1,600	1,600-2,000
	9-13	1,800	1,800-2,200	2,000-2,600
	14-18	2,200	2,400-2,800	2,800-3,200

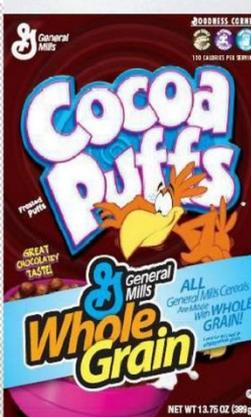
Institute of Medicine Dietary Reference Intakes, 2002



WHAT TO EAT?



MINIMIZE THIS



HEALTHY EATING PLATE

Use healthy oils (like olive and canola oil) for cooking, on salad, and at the table. Limit butter. Avoid trans fat.



The more veggies—and the greater the variety—the better. Potatoes and french fries don't count.

Eat plenty of fruits of all colors.



STAY ACTIVE!

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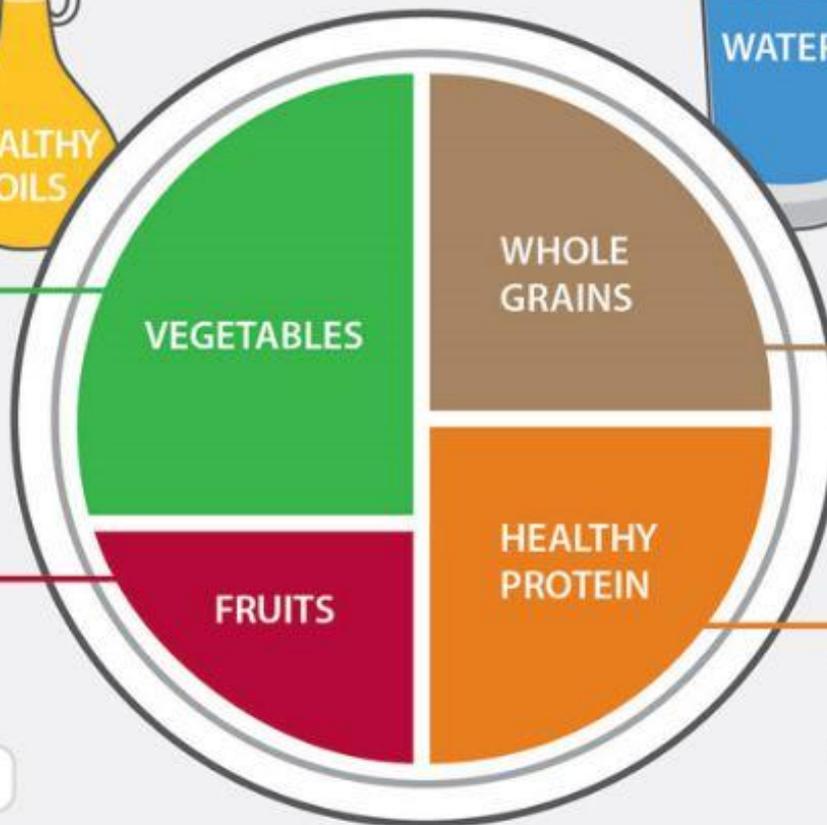
Harvard School of Public Health
The Nutrition Source
www.hsph.harvard.edu/nutritionsource



Drink water, tea, or coffee (with little or no sugar). Limit milk/dairy (1-2 servings/day) and juice (1 small glass/day). Avoid sugary drinks.

Eat whole grains (like brown rice, whole-wheat bread, and whole-grain pasta). Limit refined grains (like white rice and white bread).

Choose fish, poultry, beans, and nuts; limit red meat; avoid bacon, cold cuts, and other processed meats.



Harvard Medical School
Harvard Health Publications
www.health.harvard.edu



Take Carbs Seriously



- Major source of energy, particularly during high-intensity exercise
- Exclusive energy source for the nervous system
- Synthesized into muscle and liver glycogen

The Truth About
Carbohydrates



Body Stores of Fuels and Energy

	<u>g</u>	<u>kcal</u>
Carbohydrates		
Liver glycogen	110	451
Muscle glycogen	250	1,025
Glucose in body fluids	15	62
Total	375	1,538
Fat		
Subcutaneous	7,800	70,980
Intramuscular	161	1,465
Total	7,961	72,445

Note. These estimates are based on an average body weight of 65 kg (143 lb) with 12% body fat.

Relationship Between Pre-exercise Muscle Glycogen Content and Exercise Time to Exhaustion

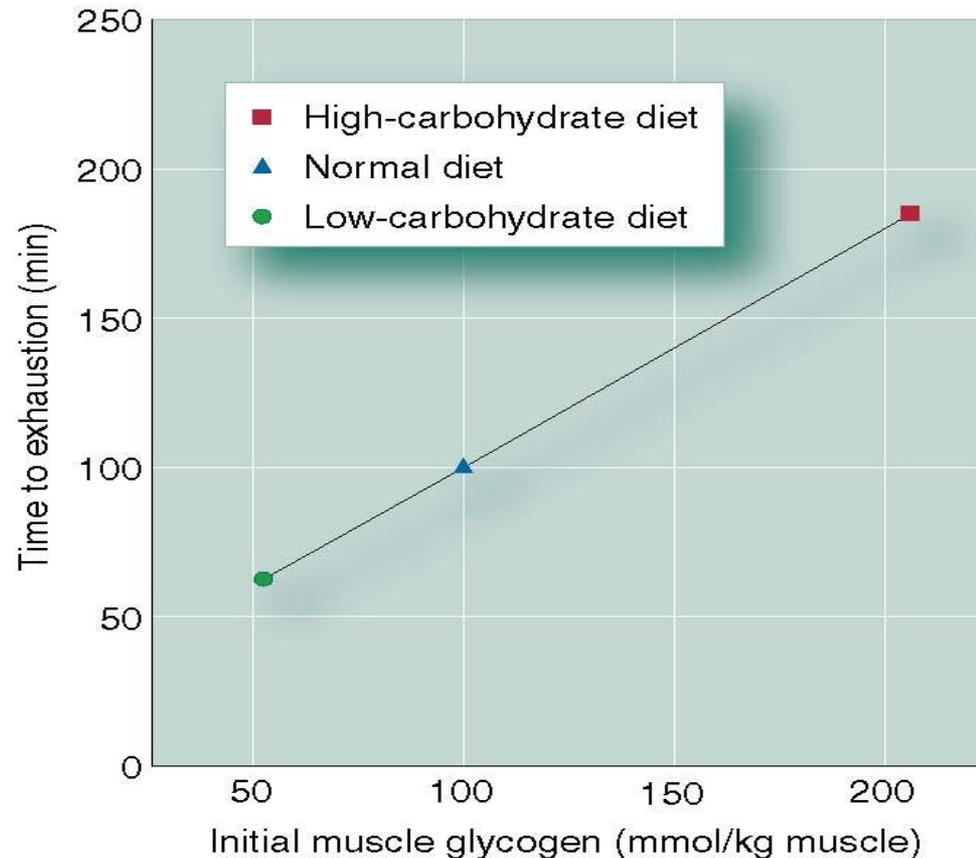
Exercise at 75% max

Carb Intake:

Lo: 15% CHO

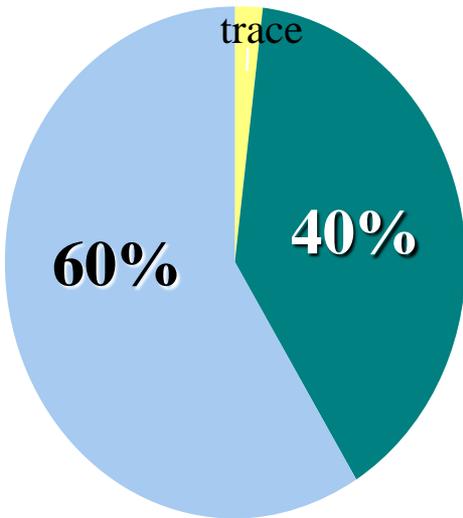
Normal: 55%

High: 60-70%

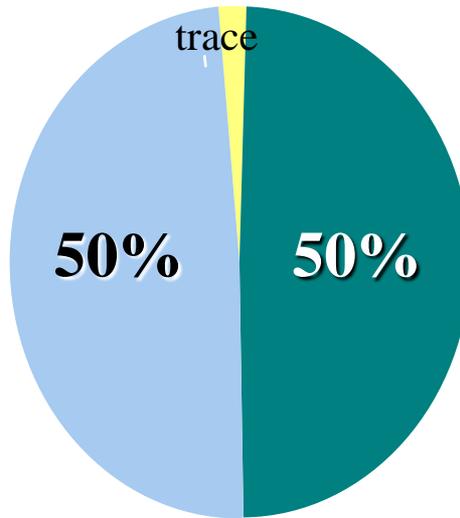


Fuel Requirements During Exercise

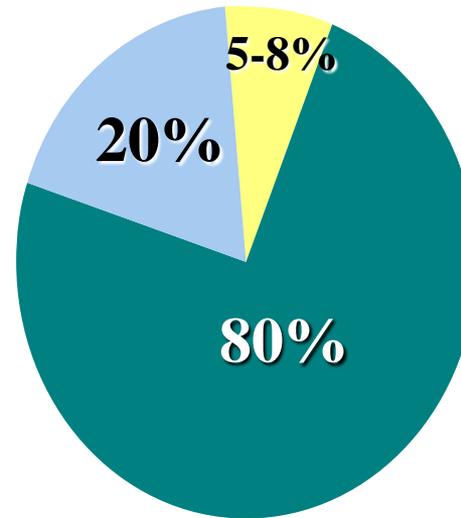
Rest



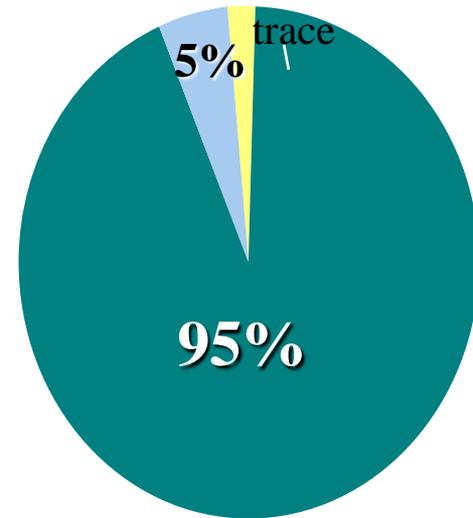
Mild Intensity-Endurance
(50% VO₂ max)



High Intensity-Endurance
(70-80% VO₂ max)

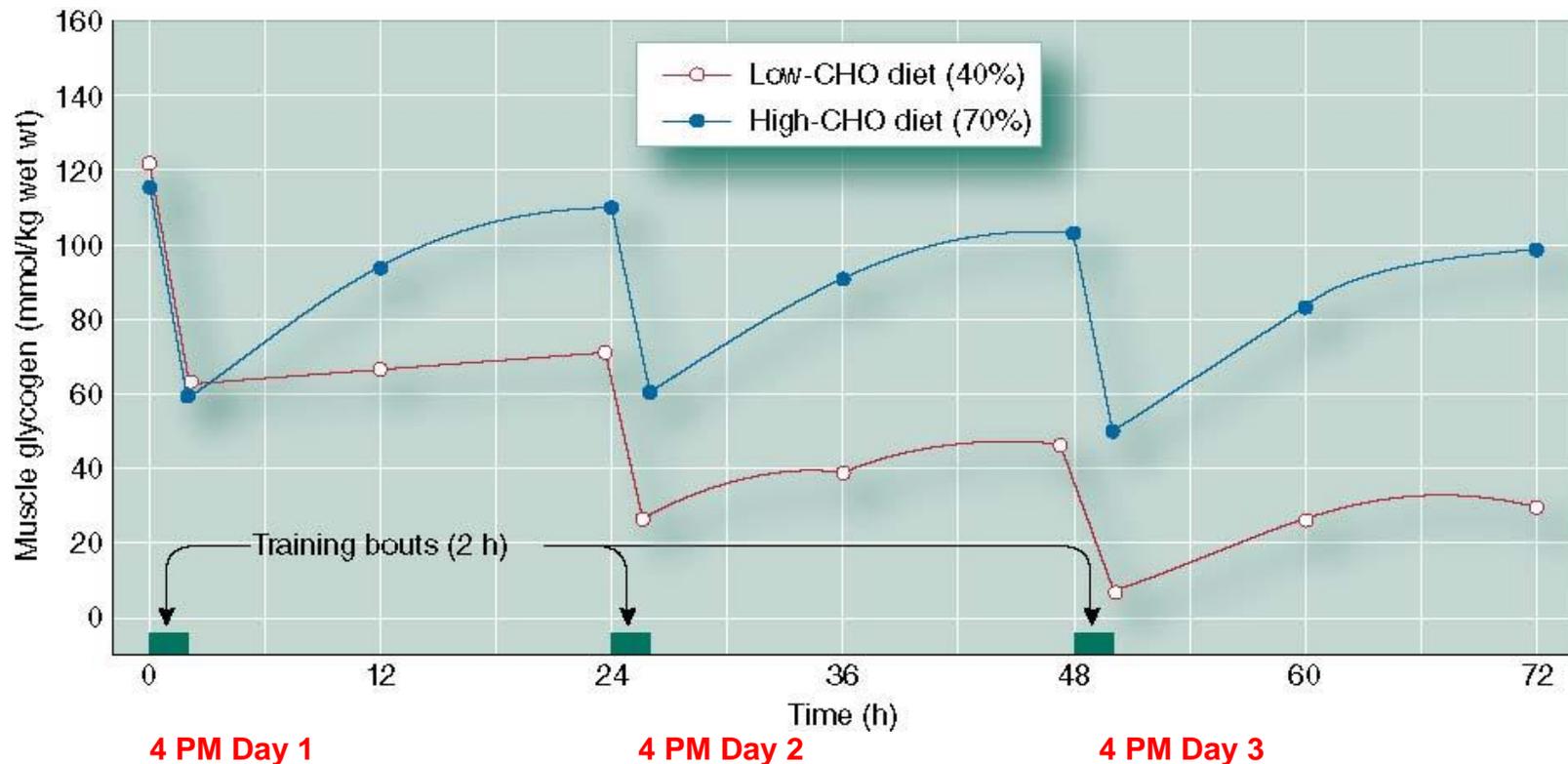


High Intensity-Short Duration
(90-95% VO₂ max)



■ Protein ■ Carbs ■ Fats

Influence of Carbohydrate Intake on Muscle Glycogen Stores During Repeated Days of Training



Protein Needs



- RDA for protein is 0.8 g/kg per day
 - 70 kg person (154 lbs) = 56 grams of protein/day
- **Strength athletes** need 1.6 to 1.7 g/kg per day
- **Endurance athletes** need 1.2 to 1.4 g/kg per day
- Diets exceeding 1.7 g/kg per day have not been proven to provide additional benefits

Protein Needs: 0.8-1.2 g/kg/day

Recommended Dietary Allowance for Protein

	Grams of protein needed each day
Children ages 1 – 3	13
Children ages 4 – 8	19
Children ages 9 – 13	34
Girls ages 14 – 18	46
Boys ages 14 – 18	52
Women ages 19 – 70+	46
Men ages 19 – 70+	56



Protein In Foods

10 g protein is provided by:

- 1 c breakfast cereal
- 1 c oatmeal
- 2 small eggs
- 1¼ c cow's milk
- 1/3 c cheese
- 1 c yogurt (Greek ↑)
- 35-50 g meat, fish or chicken (1/2 chicken breast)
- 4 slices bread
- 2 c broccoli
- 2 cups cooked pasta
- 3 cups rice
- 1¾ c soy milk
- ½ c nuts or seeds
- ½ c tofu or soy meat
- ½ c legumes or lentils
- ¾ cup fruit smoothie
- 2 c spinach
- ½ c quinoa
- ¾ c farro



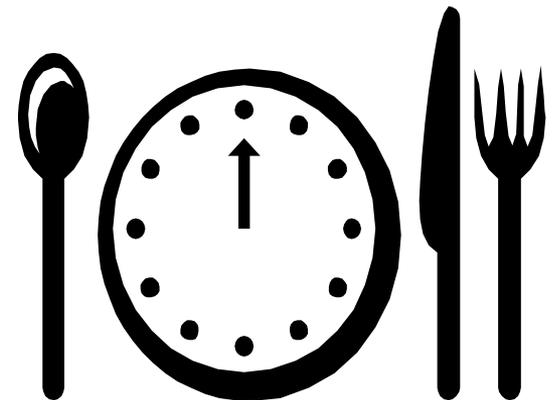


Help Your Athletes to Plan Meal and Snack Times Wisely



Foods Before Exercise

- Ensures a normal blood glucose concentration and prevents hunger
- ~200 to 500 kcal - mainly carbs that are easily digestible
- Consumed 1-2 hours before exercise
- Limit fat, fiber
- Tried & true familiar foods!!



Before Exercise: Examples of Carbohydrate Foods (Moderate-high Glycemic Index)

- Most breakfast cereals
- Whole-wheat breads
- Banana

Foods usually not eaten in isolation – added fat/fiber/protein to these contingent on:

- 1. how much time prior to exercise foods eaten*
- 2. intensity of exercise*
- 3. exercise mode*



Great Snack Ideas – Before Exercise or Between Games

- Milk and 12 crackers, 2 tbsp. peanut butter (54 g)
- Banana and yogurt (56 g)
- Bagel with jelly and juice (83 g)
- Cereal (1 oz.) and milk (34 g)
- Juice and pretzels (50 g)
- Sports drink, 16 oz (30 g)
- Sports bar or granola bar and water (20-50 g)
- Fresh fruits such as oranges or bananas (15-25 g)
- Vegetable soup, chicken noodle or tomato and crackers (40-50 g)
- Fig bars and milk (45 g)



Foods During Practice/Extended Games

Greater than 60 Min → 30-60 grams of Carbs/Hour

- 16 ounces of a sports drink (30 g)
- 1 packet sports gel (25 g)
- 1 block (24 g)
- ~ ½ sports bar (30 g)
- 1 large or 2 small bananas (30 g)
- 1 slice of bread and jam/honey (30 g)
- 1 Orange (17 g)



Carbohydrate Consumption After Exercise

- Improves glycogen re-synthesis rates
- May be enhanced by the addition of protein
- Most effective when given during the 30-60 minutes of recovery



Post-Exercise Recovery Snacks

High CHO, moderate protein and nutrient dense

- Yogurt, almonds and fruit
- Banana with peanut butter
- Sports bar + orange slices
- Nut butter on whole grain toast
- Veggies and hummus
- *Chocolate milk?*



Meals

- Whole-grain breakfast cereal, milk, and fruit
- Meat/cheese and veggie sandwiches on whole grain pita
- Salad and hard boiled egg
- Quinoa salad with roasted veggies

Hydration

BEFORE – Water!

- 1-2 hours before: 2-1/2 cups (20 oz.)
- 15-30 min before: 1-1/2 cups (12 oz.)



DURING 8 oz every 15-20 min

- diluted fruit juice, sports drinks (6-8%) **IF** exercise is >60 min

AFTER – Water is best

Drink 2 cups for each pound lost

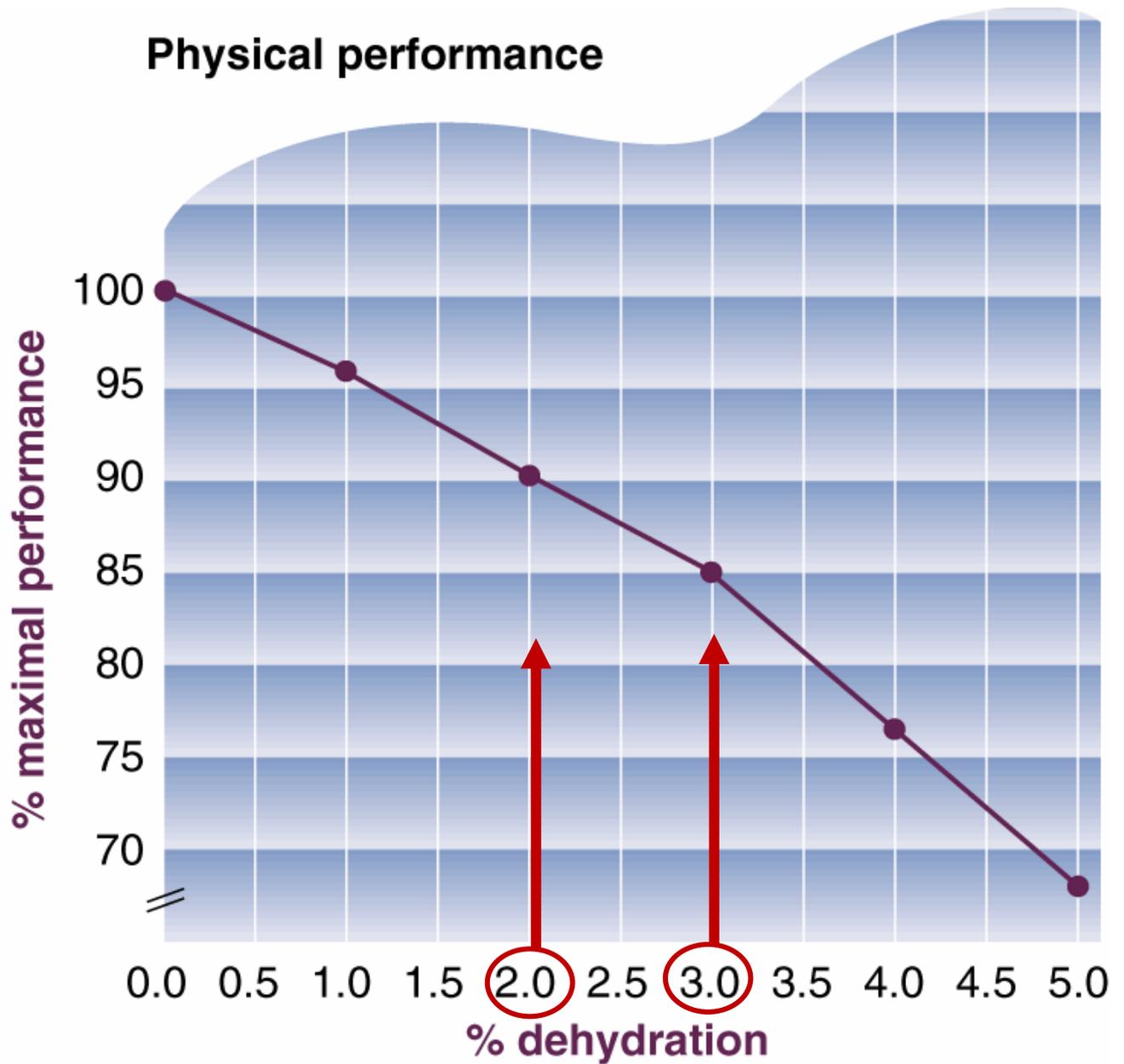
- Weigh yourself before and after exercise
- Don't trust thirst
- Avoid caffeine

Thermal Stress in Youth Athletes

- Children rely more on convection and radiation, which are enhanced through greater peripheral vasodilation
- Evaporative heat loss is lower because of reduced sweat rates
- Children have greater ratios of surface area to mass
- Acclimatization to heat is slower kids than in adults



Water is critical for endurance performance!



And What About All Those Drinks???



Sport Drinks



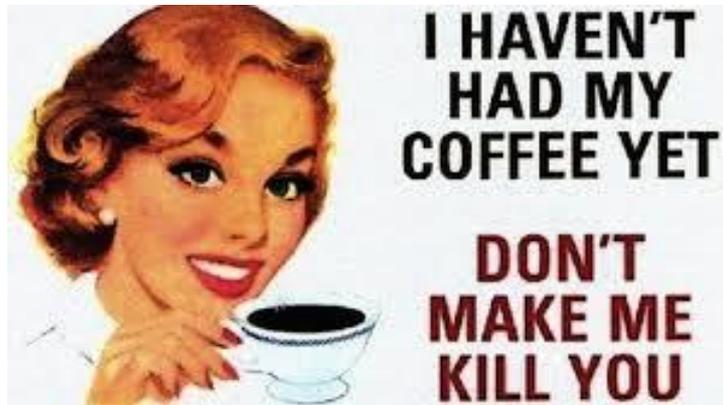
- Uniquely designed to meet both energy and fluid needs of athletes
 - for activity > 60 minutes in duration
- Composition influences gastric emptying
 - Carbohydrate solutions empty more slowly
- Most sports drinks contain:
 - 6-8% CHO in the form of glucose and glucose polymers
 - 20-60 mmol/L sodium
- Adding glucose stimulates sodium and water absorption
- Palatability

Who Really Needs Sports Drinks?

- American Academy of Pediatrics:
 - “If children are participating in prolonged vigorous physical activity in hot, humid conditions for more than one hour, small amounts of sports drinks may be appropriate”
- 2010 National Youth PA & Nutrition Study
 - 16% drank at least one serving/day
 - 9% drank at least two servings/day
- Participation in varsity sports: 33% (girls)
37% (boys)



Is Caffeine the *Good Guy* or *Bad Guy*?



Pros and Cons of Caffeine

Benefits

- Mental alertness
- ↑ Ventilation
- Antagonizes in adenosine receptors in brain
 - ↑ Catecholamine release
 - Decreases fatigue & perceived exertion
- Improves endurance performance

Potential side-effects

- Gastrointestinal distress
- Tremors
- Insomnia
- Nervousness/Anxiety symptoms
- Increased BP
- Irregular heart rate/rhythm



And What About All Those Bars???



The Energy Bar/Snickers Bar Dilemma

- What is your goal?
 - Energy, recovery, meal
- What to look for:
 - Sugar - <10-12g
 - Protein – 5-10g
 - Great ingredients:
 - Seeds, nuts, peanut butter, whole grains, dried fruit

Better Choice



KIND Healthy Grains Bar

Dark Chocolate Chunk
 Calories: 150
 Total Fat: 5g
 Saturated Fat: 1.5g
 Total Carb: 23g
 Fiber: 2.5g
 Sugars: 8g
 Protein: 2g

✓ Whole grains
 Low sugar
 No high fructose corn syrup



LUNA

Chocolate Pecan Pie
 Calories: 180
 Total Fat: 5g
 Saturated Fat: 3g
 Total Carb: 25g
 Fiber: 3g
 Sugars: 8g
 Protein: 10g

✓ High amount of protein
 High iron



Quest

Coconut Cashew
 Calories: 170
 Total Fat: 6g
 Saturated Fat: 1.5g
 Total Carb: 24g
 Fiber: 17g
 Sugars: 2g
 Protein: 20g

✓ Almonds, coconut and whey protein isolate
 Excellent source of fiber



Pure Ancient Grains

Triple Berry Nut
 Calories: 160
 Total Fat: 9g
 Saturated Fat: 1g
 Total Carb: 17g
 Fiber: 2g
 Sugars: 8g
 Protein: 5g

✓ Whole grains
 Low saturated fat



thinkThin Lean Protein & Fiber Bar

Chocolate Almond Brownie
 Calories: 150
 Total Fat: 6g
 Saturated Fat: 2g
 Total Carb: 19g
 Fiber: 5g
 Sugars: 5g
 Protein: 10g

✓ Good source of protein and fiber

Go With the SNICKERS



Clif Bar

Chocolate Almond Fudge
 Calories: 250
 Total Fat: 6g
 Saturated Fat: 1.5g
 Total Carb: 42g
 Fiber: 5g
 Sugars: 23g
 Protein: 10g

⊘ High sugar content
 Main ingredient: brown rice syrup
 Better Clif option: Mojo bars



PowerBar Performance Energy Bars

Peanut Butter
 Calories: 240
 Total Fat: 4g
 Saturated Fat: 1g
 Total Carb: 44g
 Fiber: 1g
 Sugars: 26g
 Protein: 9g

⊘ High sugar content



PROBAR

Peanut Butter Chocolate
 Calories: 390
 Total Fat: 22g
 Saturated Fat: 1.5g
 Total Carb: 43g
 Fiber: 6g
 Sugars: 21g
 Protein: 11g

⊘ High calorie content
 Main ingredient: brown rice syrup



LARABAR ALT

Chocolate Chip Macaroon
 Calories: 270
 Total Fat: 13g
 Saturated Fat: 6g
 Total Carb: 30g
 Fiber: 4g
 Sugars: 20g
 Protein: 10g

⊘ High calorie content
 Added sugar
 High saturated fat



Snickers Marathon Energy

Chewy Chocolatey Peanut
 Calories: 210
 Total Fat: 8g
 Saturated Fat: 3g
 Total Carb: 26g
 Fiber: 3g
 Sugars: 15g
 Protein: 13g

⊘ Main ingredient: caramel
 High fructose corn syrup

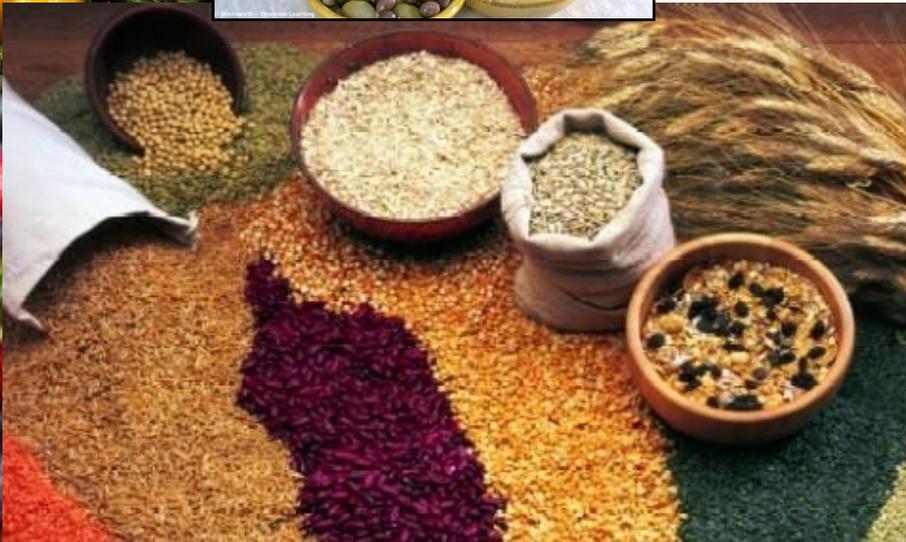
Nutrition Facts



- Athletes need:
 - to eat FOOD for FUEL
 - carbohydrate, protein and fat-containing foods daily
- Be supportive of your athletes needing to be selective about the foods they eat
 - Practice and game times
 - Refueling necessary during?
 - Foods on the road



MAXIMIZE Overall Good Nutrition



Bottom Line!!

To Have a *Winning & Fueled Up* Team....



- Food, fluid, and rest are essential for peak mind and body performance
- Food choices, timing, and amounts matter
- Foster POSITIVE environments



FUEL UP!



And THANK YOU!!

childobesity180
reverse the trend.

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