

Fueling for Performance: What, When, and How?



Whitney Gingerich, MA, RDN

Words of Wisdom

“Too many athletes show up for training, but they don’t show up for meals. They might as well not bother to show up for training.”

-Boston College Hockey
Coach

Why is a Healthy Diet Important?

- Improved:
 - Growth
 - Performance
 - Concentration



The Macronutrients

- There are 3 groups of food that give us energy (macronutrients)
 - Carbohydrates
 - Protein
 - Fat
- The two most important categories for athletes are carbohydrates and protein

Macronutrients



carbs



proteins



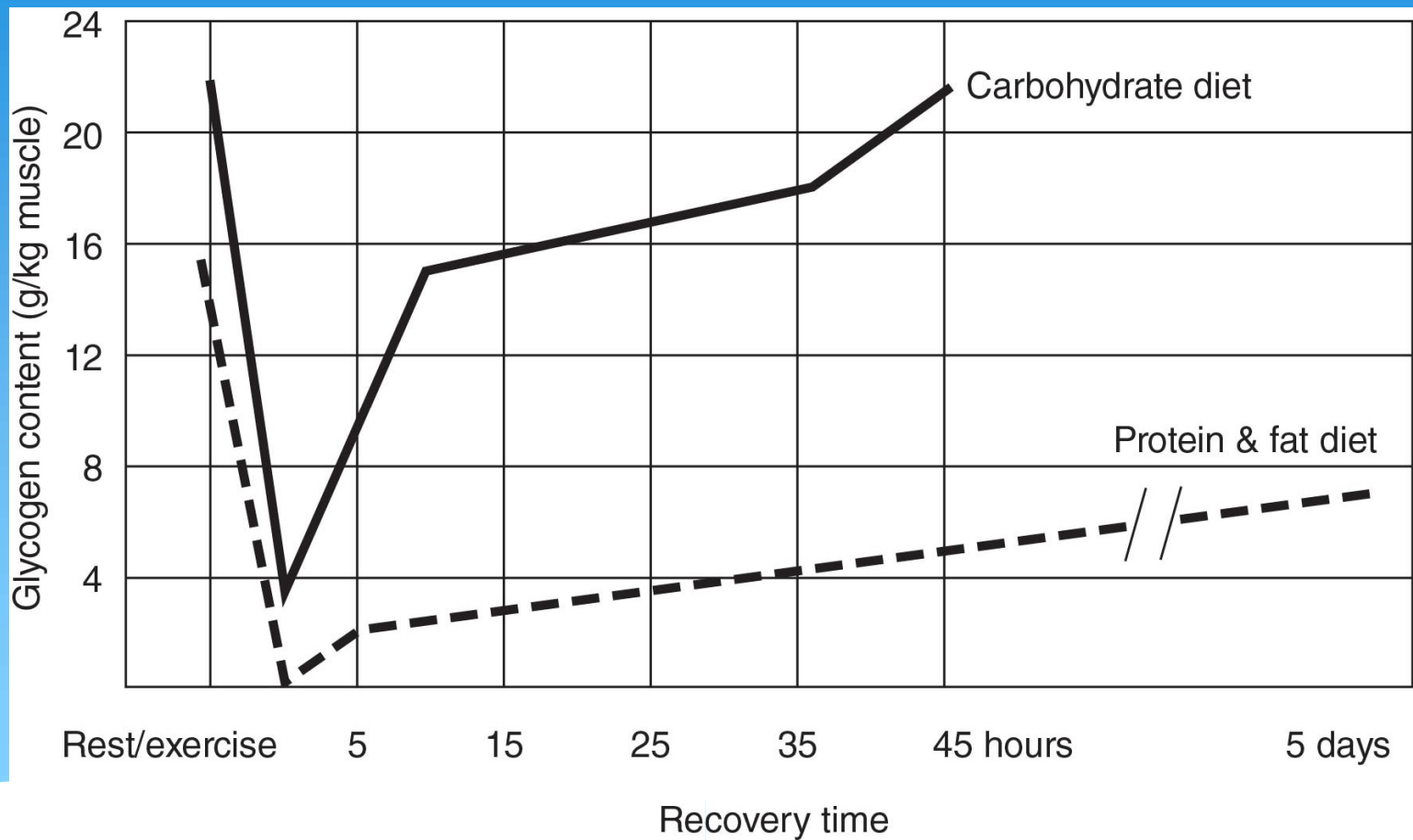
fats

What's best to eat for energy?

Carbohydrates!



Carbohydrates fuel the muscles



Reprinted, by permission, from J. Bergström, et al., 1967.

Carbohydrate-Rich Foods

- Bread
- Crackers
- Rice
- Pasta
- Quinoa
- Oats
- Corn
- Sugar
- Milk
- Vegetables
- Winter Squash
- Beans
- Yogurt
- Fruits (antioxidants)
- Pretzels
- Potatoes



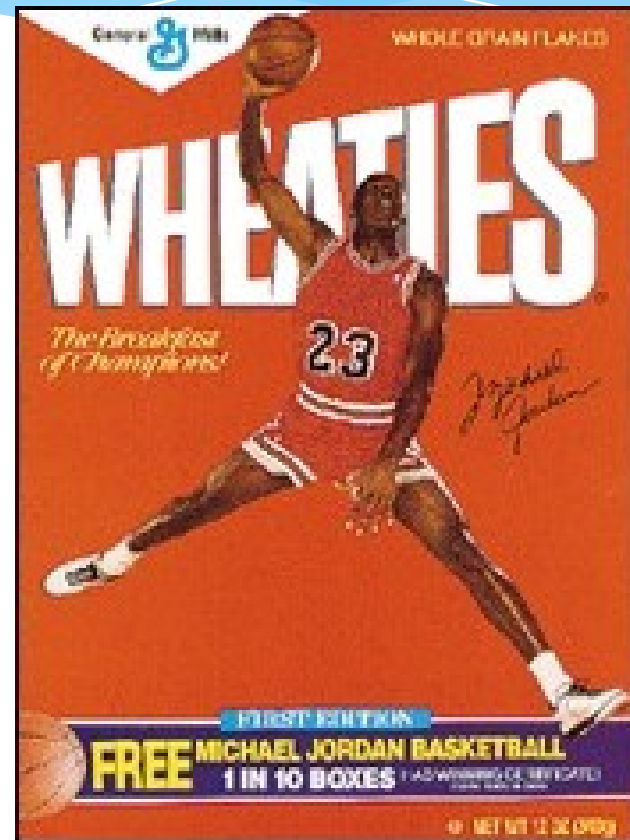
**At least half your grains should be whole grains*

What kinds of carbs should I eat?



Grains, Beans, Starches = Quality Carbs

- A staple with every meal!
 - Granola, cereal, oatmeal
 - Whole grain breads, tortillas and pastas
 - Whole grain crackers
 - Chili, lentil soup, hummus, refried beans
 - Potato and (brown) rice



Fruit and Vegetables = Quality Carbs

EAT LESS: Refined Sugars

- * Soda
- * Sports drinks
- * Candy
- * Artificial fruit Juice

EAT MORE: Natural sugars

- * Fruits
- * Vegetables
- * Natural fruit or vegetables juice/smoothies

****Natural fruit-sugars are preferable to refined sugars***

What's best to repair and build muscle?

Protein!



Why Do I Need Protein?

- Our muscles are made of protein
- Adequate protein intake can improve muscle growth for young athletes and improve performance



Protein-rich foods



- Chicken
- Turkey
- Fish
- Lean beef
- Lean pork
- Lamb
- Lamb
- Milk, yogurt, cheese
- Eggs
- Nuts and nut butter
- Lentils, beans, tofu

* Get a portion at each meal

So How Much Protein and
Carbohydrate Should I Eat?

ATHLETE'S PLATE

HARD TRAINING / RACE DAY:

FATS

2 Tablespoons



Avocado
Oils
Nuts
Seeds
Cheese
Butter



Grains

Pasta
Rice
Potatoes
Cereals
Breads



Fresh Fruit
Stewed Fruit
Dried Fruit



Water
Dairy/Nondairy
Beverages
Diluted Juice
Flavored
Beverages



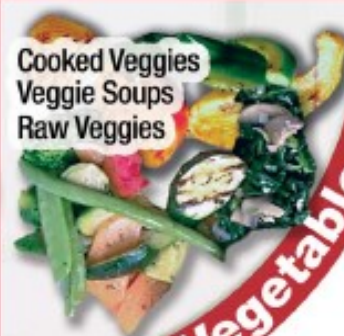
Coffee
Tea

Lean Protein

Poultry
Beef/Game/Lamb
Fish
Eggs
Low-Fat Dairy
Soy (e.g., Tofu,
Tempeh)
Legumes/Nuts



Cooked Veggies
Veggie Soups
Raw Veggies



Vegetables

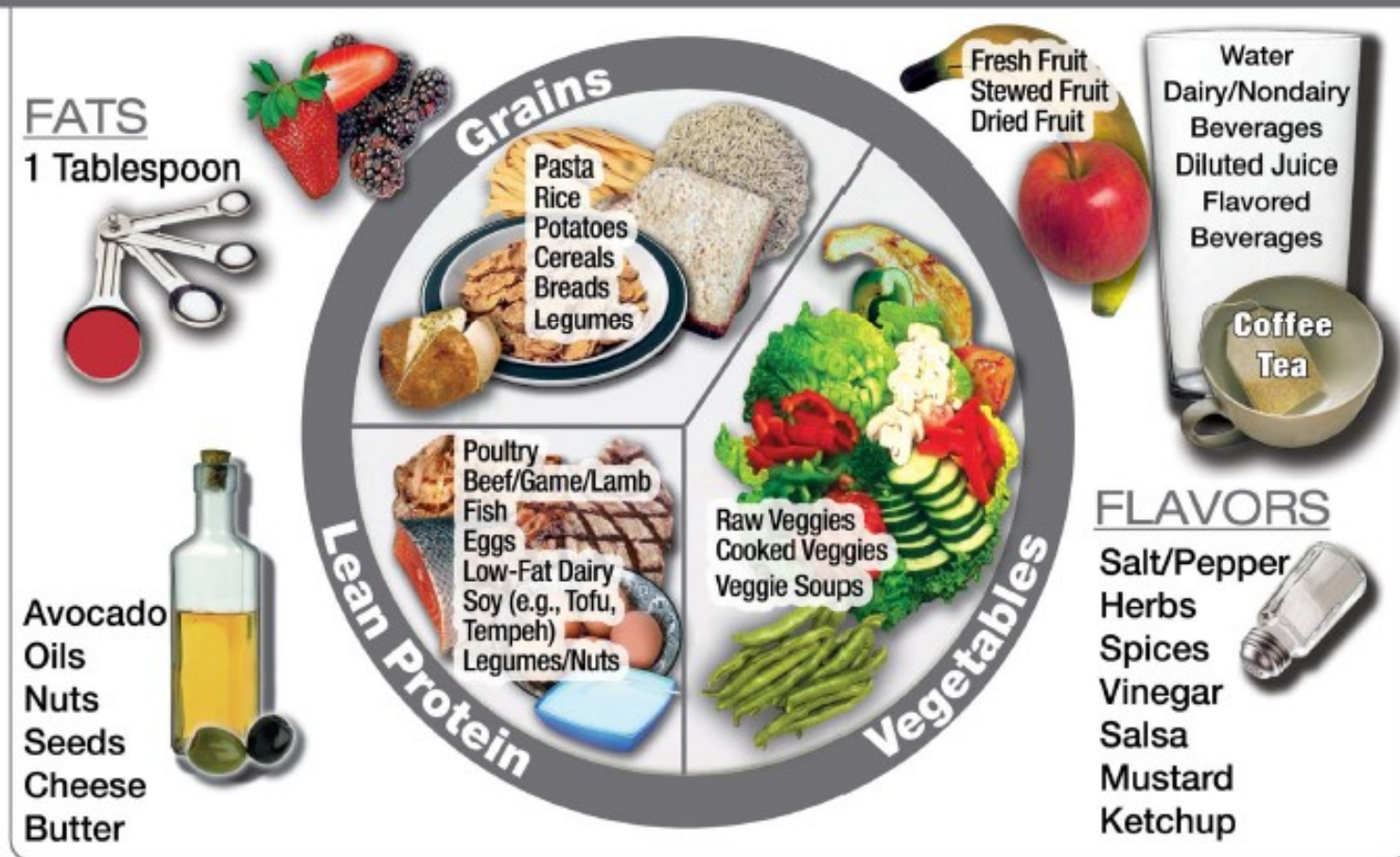
FLAVORS

Salt/Pepper
Herbs
Spices
Vinegar
Salsa
Mustard
Ketchup



ATHLETE'S PLATE

MODERATE TRAINING:



The Athlete's Plates are a collaboration between the United States Olympic Committee Sport Dietitians and the University of Colorado (UCCS) Sport Nutrition Graduate Program.

For educational use only. Print and use front and back as 1 handout.

Breakfast: Low vs High Carb

Eggs, 2 fried

Bacon, 2 slices

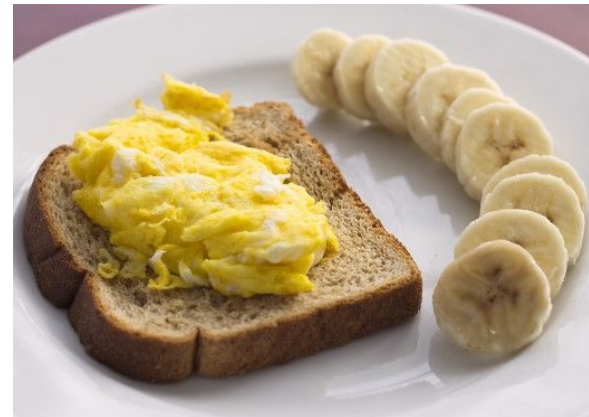
Buttered toast, 2 slices



Eggs, 2 Fried

Banana, medium

2 slice whole wheat toast



Lunch/Dinner: Low vs High Carb

- ½ cup pasta
- 8 meat balls



- 2 cups whole wheat pasta
- 3-4 meatballs
- Sautéed vegetable



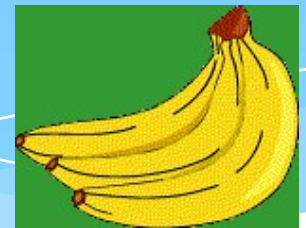
When should I eat before I exercise?

- Large meal: 4 - 6 hours
- Snack: .5 - 1 hour
- *Timing varies with:*
 - Intensity of exercise
 - Personal tolerance to food



Pre-exercise food guidelines

- Carbohydrate-based
- Low fat (<5g/fat/serving)
- Low to moderate protein
- Extra fluids
- Appropriate portions (trial and error)
- Tried and true



Pre-Exercise Foods

- * Cereal with low fat milk
- * Oatmeal
- * Banana
- * Yogurt
- * English muffin
- * Bagel (with a little peanut butter)
- * Graham crackers
- * Animal crackers
- * Granola bar



Foods/drinks for exercise or between heats

- 4-8 oz fruit juice
- 4-8 oz sports drink
- Fruit
- Fruit Purees
- Yogurt
- *If you have < 1 hour to before exercise again, stick with liquids or purees for quick digestion*



Recovery foods

Carbohydrate: Refuels muscles

Protein: Builds & repairs muscles

	Carb (g)	Pro (g)
Yogurt, flavored, 6 oz	26	8
Cheerios w/ milk	32	11
Pasta + meat sauce	80	20
Fruit smoothie with Greek yogurt	45	15
Chocolate milk	24	8

Carbohydrate-loading for Meets



How to Carbo-Load



- **Maintain** carb-based training diet
 - *Choose high quality carbs for foundation of each meal*
- **Exercise less- TAPER!!**
 - *With less exercise, the muscles can store extra calories of carbs to load the muscles.*

What's best for fluids?

- Most of the time, water is best!
- Small amounts of sport drinks (1/2 the bottle) can give you energy during long practices or meets
- Drink water throughout the day

Fluid goals

- ***Prevent*** dehydration
- Drink ***before*** you are thirsty!



Symptoms of dehydration

- Dark urine
- Small volume of urine
- Elevated heart rate
- Headache

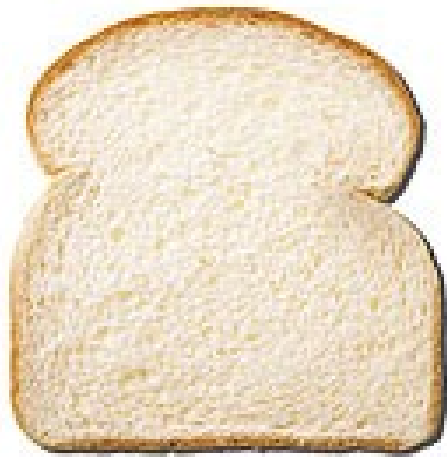


Urine Color Chart*

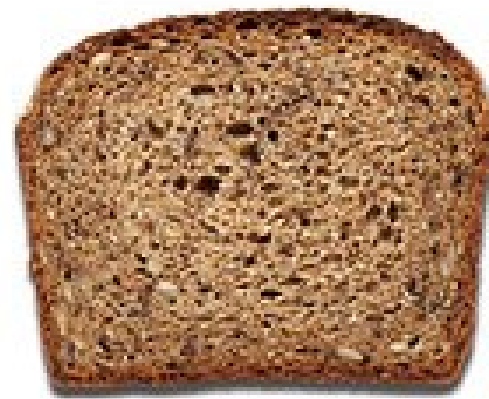
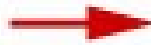
1-3 = adequately hydrated

*Source: L. Armstrong PhD

Bread Demonstration



White bread



Whole grain bread

Choose the Best Option!

Soda



Orange Juice



Choose the Best Option!

Potato Chips



Whole Wheat Crackers



Choose the Best Option!

Cookies



Graham Crackers



Choose the Best Option!

Fruit Leather

Gummy Bears



Choose the Best Option!

Yogurt



Pudding Cup



Resources

- The presentation was adapted using material written by Nancy Clark, MS RD