

Exercise and Nutrition



Objectives

- To understand the role of nutrition in performance
- State the fuel sources required for exercise and performance
- Identify unique nutritional concerns of vegetarian athletes
- Learn nutrition principles that are applicable year round



Are YOU Fit?

- Frequency?
- Recommendations?
- Lifestyle's effect?



What is Fitness

- What is fitness?
- Components
- Fitness encompasses



Benefits of Fitness

□ Improves:

□ Reduces



Fitness Conditioning

- Overload Principle
- Response
 - Hypertrophy
 - V02 Max

Why Nutrition?

- ❑ Nutrition is the most commonly overlooked component in most athlete's training programs
- ❑ Food provides the fuel for muscle contraction
- ❑ Adequate fueling throughout the year will support training and health, prevent illness, change body weight and composition, and improve performance
- ❑ Requirements will vary throughout the year depending on training needs and goals



Fuel Sources

- Energy is stored in chemical bonds of nutrients:
- Carbohydrates:

- Lipids:

- Protein:

Energy Transfer

Transfer of stored energy from food forms ATP via:

- All systems are used simultaneously,
- Contributions vary according to:



Phosphagen System

- Initiation of system
- Types of activities fueled by this system
- Depletion



Anaerobic (Glycolysis) System

- Exhaustion of CP system
- Fuel Substrate
- Byproduct

- Types of activities



Aerobic System

- Fuel sources
- Requirements
- Types of activity utilizing this system



Factors Affecting Fuel Utilization

- Stores
- Exercise Intensity
- Exercise Duration
- Training



Glucose Use During Activity

~~□ High carb diet promotes:~~

□ Exercise Intensity

□ Exercise Duration

□ Training



Protein Use During Activity

- Diet
- Intensity
- Duration
- Training and Muscle Building



Muscle Composition

- 15-20% Protein
- 5-7% Fat, Glycogen, Minerals
- 70-75% Water



Protein in Muscle

- Content of 1 pound muscle
- To add 1 pound muscle/week:

- Additional fuel sources needed to build muscle

Protein Sources

- 12 almonds** **3 grams**
- ½ cup Beans** **6 grams**
- 2 Tbsp Peanut Butter** **7 grams**
- 1 Egg** **7 grams**
- 1 oz Cheese** **7 grams**
- 1 cup Milk or Yogurt** **8 grams**
- 3.5 oz Tofu** **11 grams**
- ½ cup Cottage Cheese** **15 grams**
- 4 ounces Hamburger** **28 grams**
- 4 ounces Chicken** **28 grams**

Protein Shake

- ❑ 1 cup nonfat milk
- ❑ ½ cup nonfat milk powder
- ❑ 1 Tbsp Peanut Butter
- ❑ 1 packet Carnation Instant Breakfast
- ❑ 1 banana

- ❑ 520 Calories
- ❑ 24 grams protein



Fat Use During Activity

- Diet
- Exercise Intensity
- Exercise Duration
- Training



Nutrient Recommendations

- Carbohydrates
- Fat
- Protein
- Carb loading



Guidelines for Vegetarians

- Energy:

- Carbohydrate:

- Protein:

- Vitamins and Minerals:



Endurance and Sports Aids

- Controversial
- Need to evaluate whole diet
- Start nutrition training in addition to physical training



Fluids

- ❑ Continuous need to prevent dehydration
- ❑ Typical fluid losses
- ❑ Thirst is only detectable after fluids stores are depleted when active
- ❑ Outside temperature should not guide fluid consumption
- ❑ Hyponatremia

Make Your Own Sports Drink

3 Tbsp table sugar

1/8 tsp table salt

Flavoring:

- 2-3 Tbsp juice or
- 1/3 packet unsweetened Kool-Aid

Put ingredients in empty 20 oz bottle

Add 10 oz water, mix well

Add remaining 10 oz water



Year Round Nutrition Principles

- Consume a balanced diet
- Choose foods high in vitamin C, beta carotene, vitamin E and zinc (i.e. fruit/veg/whole grains/lean protein)
- Select monounsaturated fats
- Consider taking a multivitamin tablet (children's chewable is sufficient)
- Pay attention to hydration and fueling before, during, and after activities



Conclusion

- ❑ Proper nutrition is paramount to optimal performance
- ❑ Meal plans need to be individualized based on exercise and performance goals, intensity and duration of activities
- ❑ Athletes should experiment with foods not only for nutritional quality but satisfaction and enjoyment