Fuel Your Machine

Introduction- KANC

• Registered Dietitians
• Individual nutrition appointments
• Resting metabolic rate, body composition
• Diet analysis
• Cooking classes and demonstrations
• Cookbooks
• Programs
  - Date Night Cooking Class
  - Dining with Diabetes
  - Healthy You

Nutrition overview: A Sports Centered Diet

• A healthy overall diet will help your performance
• Think of your body as a machine
• There is no one size fits all recommendation

Carbohydrates

Outline

• Nutrition Overview: A Sports Centered Diet
• Water and Hydration
• Pre, During & Post Exercise Nutrition
• Debunking Myths about Fuel and Refueling
• Exercise & Nutrition Scenarios

Carbohydrates: Your “Premium” Fuel Source

Food ➔ Glucose ➔ Immediate Energy ➔ Glycogen ➔ Muscles
                   ➔ Liver
                   ➔ Adipose
Benefits of a Carb-Based Diet

An athlete’s diet based on high quality carbohydrates:
- Fuels muscles
- Improves stamina
- Delays fatigue
- Promotes mental clarity
- Enhances strength and cardio training
- Promotes overall health (antioxidants, phytochemicals, fiber)

Good Quality Carbohydrates

- Fruit – apples, bananas, raisins
- Vegetables
  - Green, orange, red, yellow
  - Starchy vegetables: corn, potatoes
- Legumes (dried beans, lentils)
- Wheat – whole grain bread, pita, pasta
- Oats – oatmeal, granola bars
- Brown rice, couscous, barley
- Breakfast cereal, popcorn, pretzels

Carbohydrates

- It is the only nutrient that muscles store for energy use
- Your muscles need carbs to make glycogen, which stores the fuel that supports exercise until it is needed.
- Stores determine the intensity and duration you can exercise

Fat

- Fat contains more calories than carbohydrates, but it is not as readily used for energy like carbohydrates
- Why is fat essential?
- Fat should make up 20-35% of your daily diet
- Too much in the diet may decrease the amount of carbohydrates consumed

Have you ever “hit the wall” or “bonked?”
Fat
• Monounsaturated
• Polyunsaturated
• Saturated
• Trans Fat

Healthy Fats
Monounsaturated
• Olive oil
• Canola oil
• Nuts
Polyunsaturated
• Avocados
• Fish
• Soybeans

Unhealthy Fats
Saturated Fats
• Animal fats
• Butter, cream, whole milk, whole milk yogurt
• Coconut oils
Trans Fats
• AKA “Hydrogenated oil”
• Mainly found in processed foods
• Especially baked goods, fried foods, snack foods

Protein

True or False
• Extra dietary protein increases muscle strength and muscle mass

The problem with too much protein
• Too much protein = excess is burned for energy or stored as fat.

• If you eat too much protein:
  o Displaces carbs
  o Poorly fueling the muscles
  o Can be high in saturated fat & cholesterol
High Quality Protein Picks
• Lean meats, chicken & fish
• Eggs
• Low-fat dairy products
• Tofu
• Nuts
• Beans
• Hummus

Vitamins & Minerals
• You need enough vitamins and minerals to activate enzymes, release energy & transport oxygen
• Athletes eat more calories so generally get more micronutrients if they are eating nutrient dense foods

A balanced eating pattern is key!
• Make half your plate fruit & vegetables
• Go lean with protein
• Make half your grains whole grains
• Include dairy
• Find the right fats

Water and Hydration

True or false?
Athletes, including competitive and recreational, need supplements to improve their performance.

Water
• The body’s most essential nutrient
• Makes up about 70% of our body weight
• Involved in nearly all processes that take place in our body
• Essential for optimal performance
Dehydration

• Dehydration is a loss of fluids from the body
• It can have great impact on performance
  o Decreases muscle strength, speed, stamina, energy, and cognitive skills
  o Increases risk of injury and perceived effort of exertion
• Performance declines with a 1% loss of body weight

Pre-Exercise Nutrition

Signs of Dehydration

• Headache
• Fatigue
• Dizziness
• Dark urine

The Pre-workout Meal

• Emphasis on carbohydrates
• Less emphasis on protein and fat
• Low in fiber
  o Minimizes stomach discomfort
• Experiment

True or false?

Thirst is a good indicator of dehydration.

What would you eat before a workout if it is....

• First thing in the morning?
• Middle of the afternoon?
• After 5:00 pm, but before dinner?
True or false?
Coffee is the best beverage to drink before exercise.

Nutrition During Exercise
- Carbohydrates if workout is ≥ 1 hour
  - Not practical or necessary to ingest calories if <60 minutes
  - Can delay fatigue and improve performance
  - Maintains blood sugar
  - Choose simple carbs that are easy and quick to digest
  - Little to no protein, fat, or fiber
  - Sports bars, gels, drinks; diluted juice

Carbohydrate During Exercise
- Not necessary or practical
  - Water is best
- Small amounts of sports drinks or simple carbohydrates
  - 30-60 g carbohydrates/hour
  - Starting 20-30 min into activity
  - Delays fatigue by 30-60 min

< 45 min
- 45 - 75 min HIT
- 1 - 2 ½ hours

Post-Exercise Nutrition
- Refueling is part of training
  - First hour is critical
- Reduces muscle soreness
- Carbohydrates are important for restoring muscle and liver glycogen
- Protein is important for recovering muscles
- Liquid or solid
What would you eat after a workout if it is....

• First thing in the morning?
• Middle of the afternoon?
• After 8PM or after dinner?

Exercise & Nutrition Scenario 2
Your workout is at 9:00 pm, you ate dinner at 7:00 pm, and you go to bed at midnight.

a) Have a handful of whole grain crackers and a couple slices of cheese after your workout
b) Eat nothing after your workout since you are going to bed soon
c) Have dessert after your workout

Exercise and Nutrition Scenarios

Exercise & Nutrition Scenario 3
Your workout is at 5:30 am and you head to work or school right afterwards.

a) Roll out of bed and grab a latte after your workout on your way to work or school
b) Snack on a banana before your workout and bring a berry and yogurt smoothie for after your workout
c) Eat nothing, just wait until lunch time to eat

Exercise & Nutrition Scenario 1
Your workout is at noon and you wake up at 9:30 am.

a) Skip breakfast and wait until after your workout to eat
b) Eat an egg omelet with no cheese
c) Eat a bowl of oatmeal with a serving of fruit and nut butter

Resources

• [www.mayoclinic.org](http://www.mayoclinic.org)
• [www.scandpg.org](http://www.scandpg.org)
• [www.eatright.org](http://www.eatright.org)
• [www.choosemyplate.gov](http://www.choosemyplate.gov)
• [www.ext.colostate.edu](http://www.ext.colostate.edu)
• [www.liveeatplay.colostate.edu](http://www.liveeatplay.colostate.edu)