

# Sport Nutrition For Swimmers

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# Agenda

- Sport Nutrition Guidelines -Introduction
- Healthy Eating for Daily Training
- Energy Balance
  - Carbohydrate
  - Protein
  - Fat
- Fluid & Hydration
- Before, During & After Events
- Travelling & Eating Out



# Introduction to Sport Nutrition

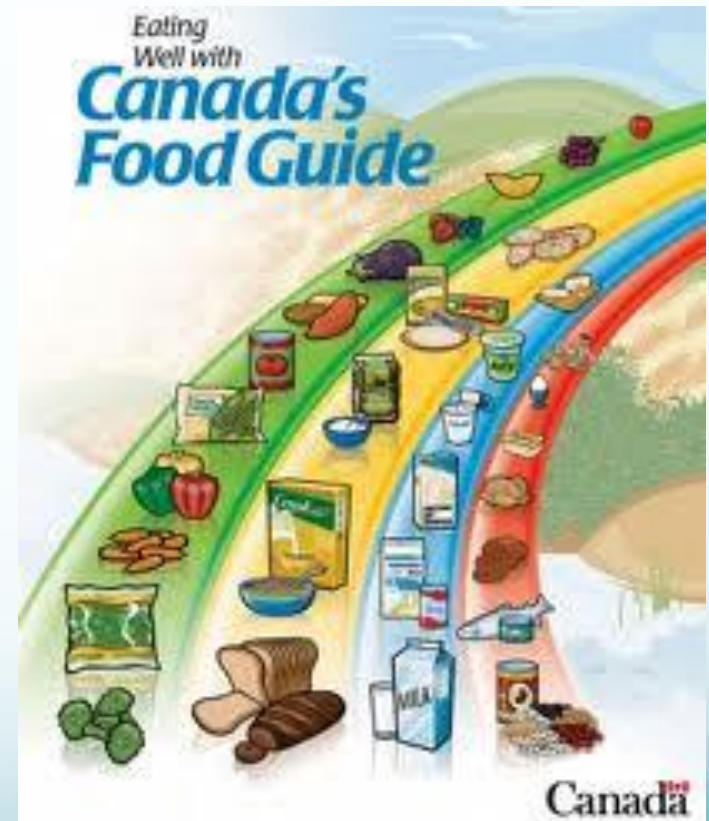
## Why Sport Nutrition?

- Food impacts your growth and development, immunity and ability to think
- Food impacts your ability to train, compete and recover
- Fuel with **WHAT** you need, **WHEN** you need it.
- Understand **HOW** to make decisions about food and fluid

# Food Group Activity

# Daily Nutrition Basics

- Balance energy from all four food groups
- Choose lower fat foods
- Eat 3-4 food groups at each meal and 2 food groups at snacks
- Limit low nutrient food choices: ie) sugary foods, fatty or salty snacks and beverages



# A Days Meals: 9-13 yrs old

250 mL (30 g) Cheerios™

250 mL milk (2 % M.F.)

1 Banana

Granola bar (28 g)

60 mL dried apricots

Water to drink

2 slices whole grain bread

1 egg for sandwich filling

250 mL lettuce for salad

175 g fruit yogurt

Water to drink

1 Apple

¼ cup trail mix

Water to drink

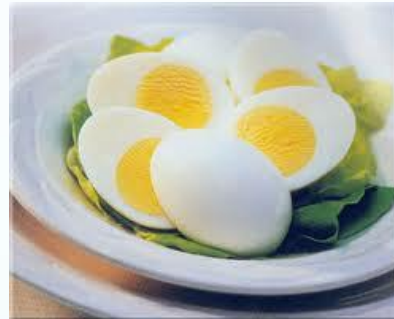
250 mL cooked pasta

125 mL tomato sauce

½ chicken breast (50g)

1 medium raw carrot

250 mL milk (1%)



# Energy Balance

Energy  
Needed

Energy  
Consumed

Growth &  
Development

Type of Sport

Intensity of Sport

Food as Fuel

Quality & Quantity  
(macro and micro  
nutrients)



# What makes Great Food?

- Great/ Good/ Poor Choices
- Clues about Quality
  - Do you know the origin of the food?
  - Is it highly processed?
  - Does it contribute to health and well being?





# Myth or Truth?

- Athletes who eat carbohydrate don't feel as tired during intense sport events

**TRUTH**



# Carbohydrate: A Major Fuel

- High carb diets:
  - May make you have more energy for longer time
  - Faster times
  - Feel training is easier
  - Important for aerobic activity like swimming
- High fat diets:
  - Feel tired and lazy
  - Training feels harder



# Sources of Carbohydrate

- Fruits and vegetables
- Grain products
- Milk and alternatives
- Legumes



# Healthy vs Unhealthy Carbs

- Unhealthy Carbohydrate?
  - High in sugar, salt or fat
  - Low in nutritional value
  - Low in fiber
    - le) pop, candy, chips, doughnuts
- Healthy Carbohydrate?
  - High in nutritional value
  - Higher in fiber
  - Low in simple sugars, salt or fats
    - le) Whole grains, beans, peas, fruits, milk products

# Myth or Truth?

- Athletes need to eat a lot of protein to be strong

**MYTH**



# Protein

- Not more important than other nutrients
- Protein:
  - For making new muscle fiber
  - Too much doesn't help performance
- Low Carb Diets:
  - Not recommended for athletes
  - If used long term = decreased performance
  - your body prefers stored glycogen (CHO)



# Healthy vs Unhealthy Protein

- Unhealthy Protein
  - Higher in sugar, salt and fat
  - Low in protein or iron
    - le) processed meats like hot dogs, salami, balogna...
- Healthy Protein
  - High Biological Value: Protein from animal sources
  - Combining two protein sources can increase biological value
  - High in iron
  - Low in salt and fat
    - le) chicken, fish, egg, legumes, pork, beef, wild meats

# Myth or Truth?

- Athletes should eat as little fat as possible to be healthy

**MYTH**





# Fat

- An important nutrient
- Fat soluble vitamins/minerals
  - A,D,E,K
- Makes up 20-35% of diet
- We need more fat than protein
- Choose good quality fats, and limit unhealthy sources
- Fat is easy to get enough of



# Healthy vs Unhealthy Fats

- Unhealthy Fats
  - Offer little or no other nutrients
  - Are Trans fats or saturated fats ie) animal fats (solid fat)
  - Are combined with other less healthy foods/nutrients
    - ie) chips, fries, deep fried items, animal fats, processed cakes, cookies, pastries or muffins
- Healthy Fats
  - Offer important nutrients along with the fat
  - Are unsaturated (liquid fat)
  - Are combined with other healthy food items
    - ie) avocado, cheese, milk, meats, fish and eggs, vegetable oils.

# Fluid & Hydration

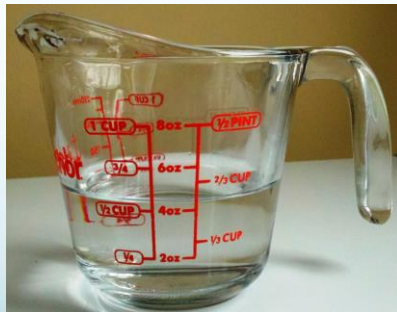
- Goal – prevent dehydration
- Replacing fluids = improved performance
- Water works just as well as sport beverages
- Adding CHO may be an additional benefit
- Flavoured drinks may increase likelihood of drinking
- Factors that affect hydration in the pool:
  - Air temperature
  - Water temperature
  - Type, duration & intensity of activity
  - Racing suits?
  - Sweat rates in swimmers?

\*2% dehydration = impaired aerobic, mental, cognitive performance in adults – 45%



# Minimum Water for Typical Events

- Drink 125ml of water for every 10-20min activity during the event
- Drink before thirst hits
- One Water Bottle (500ml) should last how long?
  - 40min-1hr20min



# Rehydrating After Activity

- Goal: to replace 1.5x the water lost through sweat
- Swimmers: watch other signs of dehydration
  - Urine color, weight, thirst
  - Thirst is a late indicator
- Some research shows swimmers:
  - Sweat Rate of 370ml/hr therefore drink 500mls replace
  - Losses are greater in dryland and in anaerobic training



# Myth or Truth

- Energy Drinks Give You Energy.

**MYTH**



# Pester Power!

- children consistently and directly influence parents' food purchasing decisions.



# Before Training & Competition



# Pre- Event Meals & Snacks

- Drink enough in the days leading up to major events and maintain for training
- A pre-training or competition meal should:
  - Provide some fluid for hydration
  - Be rich in carbohydrate
  - Be low in fat and relatively low in protein and fiber
  - Enough to delay hunger but without leaving too much food in the stomach or intestines
  - And will top up liver and muscle glycogen
  - And will extend the time to exhaustion



# Examples of Pre-Event Meals or Snacks:

3-4 hours before	1-2 hours before	< 1 hour before
<p>Pasta (low fat/lean meat) w veg Stir Fry (low fat/lean meat) Any combination of protein, starch and vegetable ie) fish, rice and veggie Casseroles with meat and veg</p> <p>Whole Grain Cereal with Milk Yogurt with Fruit and Nuts Pancakes w cottage cheese &amp; fruit Sandwich: light cheese&amp; meat Eggs, Toast/Bagel, Fruit</p> <p>Drink 2-4 cups fluid: water, juice, milk</p>	<p>Smoothie: Fruit/Yog Cereal with Milk Hot cereal Bagel/Toast with PB Cereal Bars Yogurt Fruit Digestive cookies Dried fruit Sport Bars</p> <p>Continue hydrating slowly with 1-2 cups water</p>	<p>Sport drink Gels Fruit juice if tolerated</p> <p>Continue hydrating slowly</p>

# 2-4 hrs before Competition



# 1-2 hr or less before



# Pre-event Considerations

- Test out these meals during training
- Too nervous to eat?
  - consider beverages such as sport drinks, juices or smoothies (but try it in training first)
- The longer the time between eating and exercise, the more food can be consumed without difficulty.



During Training & Competition



# During Training and Competition

- Training needs can vary depending
  - length of the training
  - type of training
- Longer than 1 Hour - Carbohydrate is useful
  - Train longer
  - Faster performance, and more power
  - Improve motor and agility skills
  - Feel less tired
  - Keep blood sugar levels up



# Sport Drinks

- Sport drinks should have 5-15% CHO, ideally 6-8%
  - powerade and gatorade = 6% CHO
  - 2 cups = 30grams Enough to fuel 1 hour
- Are especially useful in events >90minutes
- Caution about consuming more calories than needed when it is not necessary for performance





# During Activity <60min

- Carbohydrate is not likely needed in most cases of continuous activity lasting under one hour.
- Some highly trained athletes may use Carbohydrate in activities such as repeated sprints and high intensity sports.



# During Swimming

## Training

- Training lasting >60 minutes
- May train multiple times per day
- Schedule is known
- Meals and Snacks can be planned

## Competition

- 20sec – 15min
- Events last multiple days
- Multiple races daily with prelims and finals
- Many hours at competition site
- Variable timing between sessions and events/heats



# Grazing

- Important tool for athletes involved in multiple heats
- Grazing depends on the timing between events
- If less than 1 hour, liquids or gels
- If 1-2 hours small high glycemic index/simple CHO snacks
- Any race day grazing is low in fat, fiber and protein
- During breaks of 2-4 hours light meals can include protein, some fiber and low fat



# Recovery for Training & Competition

# Post Event

- Goals:
  - Restore liver and muscle glycogen
  - Replace fluid
  - Regenerate, repair and adapt following training
- Challenges to refueling:
  - Fatigue – not hungry
  - Access to suitable fuel (venue – travel)
  - Other commitments taking priority

# Carbohydrate for Recovery

- Consume carbohydrate within 15-30 minutes and regularly for the first few hours
- Especially if training or exercising ...
  - more than once a day or
  - those who do not have a full day to recover.
- If an athlete has a full day to recover then it is less important when the carbohydrate is consumed as long as it is replenished within 24hrs



# Carbs for Recovery

- 12 year olds need about 50grams CHO to recover



1 1/2 cups & 1 cup



51 grams



6 & 1 cup



50 grams



or



50 grams



# Protein for Recovery

- important for recovery after strength training
- Timing
  - Not as time sensitive as Carbs
  - Best taken in first hour after
  - Can be taken before, during or after
  - Spread throughout the day is better than all at once
- Eat some protein with daily meals and occasional snacks



# Protein for Recovery

- Average 12 year old needs about 11grams protein for recovery



14g

- You choose!

- 2Tbsp Almonds with  $\frac{3}{4}$  cup Yogurt

or

- 1 cup milk with 1½ cup fruit

or

- 8oz Steak



11g



57g

# 50g CHO with 10g Ptn

- 1-1 ¼ cup fruit smoothie
- 2 cups low fat milk
- ¾ cup yogurt with 1 cup fruit salad
- ¾ cup yogurt or 1 ¼ cup chocolate milk with a 30-35g cereal bar
- 1 ½ - 2 cups breakfast cereal with ½ cup milk
- 1 Sandwich (with cheese/meat) and a piece of fruit or 300ml sport drink
- 2 English muffins with pb or 2 slices cheese
- 1 Large baked potato with cottage cheese or grated cheese
- 150g thick crust pizza with meat /chicken topping.



# Other Considerations

# Eating out before & during events

- consume nutritious, low fat foods, that are high in carbohydrate with enough high quality protein
- Avoid high fat, fast food
- Drink water on the road
- Pack fruit and vegetables for weekend tournaments
- Pack milk or yogurt, bags of cereal or other easy snacks for the day



# Eat out Healthier





# Travelling with Food

- A stop at the local grocery store for snacks or meals is worthwhile
- Pack Food one day in advance
  - Morning, lunch, after school snacks or after sport fluids
- Equipment
  - Mini coolers, thermos flasks, freezer-packs, packing containers and easy open containers



# Your own smoothie:

- 1 cup plain or flavoured yogurt
- 1 cup banana, frozen berries
- ½ cup orange juice
- Add nuts or seeds if desired



- Prepare all ingredients in a freezer bag. Grab a pack, toss in the blender and have a healthy breakfast or snack to go.



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# Questions?



# References

- Sports Nutrition Practice Guidance Summary, Dietitians of Canada, last updated 2009
- Training Diet: Protein Grow Food, Sport Nutrition Advisory Committee, March 2008
- Sport Nutrition for Parents, [www.coach.ca](http://www.coach.ca), 2011
- Current Issues The Inside Story: water for health and sport, March 2009
- Canadian Society for Exercise Physiology position paper: resistance training in children and adolescents; Applied Physiology, Nutrition and Metabolism, 2008, 33(3) 547-561
- Clinical Sport Nutrition – fourth ed 2014; L Burke and V Deakin
- Intensive Sport Nutrition Course – reading list 2015
- Australian Sports Commission & Sport Medicine and Science Council of SK
- Pediatrics, March 2011, VOLUME 127 / ISSUE 3, Health Effects of Energy Drinks on Children, Adolescents, and Young Adults