





PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT





CANADIAN  
SPORT  
INSTITUTE

INSTITUT  
CANADIEN  
DU SPORT



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



CANADIAN  
SPORT  
INSTITUTE

INSTITUT  
CANADIEN  
DU SPORT



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## How can nutrition impact your swimming performance?

- Preparing & fueling your body
- Recovering between races
- Preventing gastrointestinal discomforts
- Getting high energy levels when it counts the most
- Achieving peak performance

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## Review your macros

### Carbohydrates:

- Major fuel source for high intensity exercise
- Limited storage so need for “topped up”
- Long-lasting and quick energy carbohydrate sources

### Proteins:

- Muscle repair and growth
- Timing and distribution of proteins throughout the day

### Fat:

- Moderate intakes of healthy fats are required for good health
- Slow down digestion

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## Review How to Fuel for Training

- Include carbohydrate at your main meals

Has it been greater than a few hours since your last meal?



- If YES ~60-30mins prior to training

Have a top up carbohydrate snack



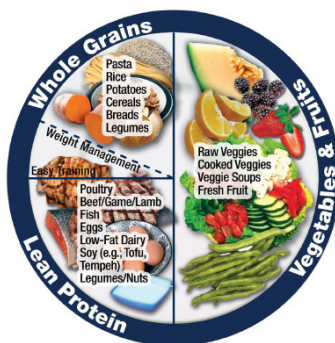
PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



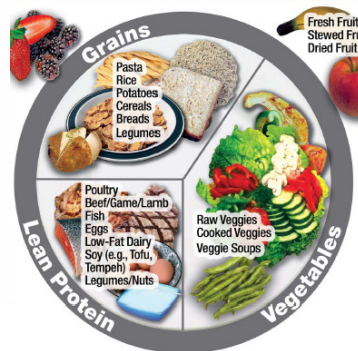
PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## Building a Meal



Light training or day off



Training day

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## Pre-Exercise

**When:** 1 – 4 hours before

**What:**

- High carbohydrate
- Moderate protein
- Fluids (250 – 500 ml 60 min before)
- Low fat
- Low fiber
- Easy to digest
- Familiar



PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## Pre-Exercise Snack Ideas

- If you have **3 hours** available before exercise:
  - Chicken and cheese sandwich on whole wheat bread, lettuce, tomatoes and 1 orange, milk
- **2 hours :**
  - Pasta with tomato sauce and some pieces of chicken, carrot sticks, water
- **1 hour :**
  - Fruit and yogurt smoothie
- **30 minutes:**
  - Applesauce or 1 banana with water

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## Activity Time!!!

- Get your pre-training snack right!
- Make 4 teams
- Read the following scenarios, think about what could be the potential issue(s) and come up with solutions to make it a better pre-training snack.

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## Scenario #1

Derek has a swimming practice at 4:30 PM. His lunch break at school is at 11 AM, and he usually eats a complete lunch. However, when he gets out of school at 3:45 PM, Derek is starving. He usually stops at a sandwich restaurant and gets a foot long sandwich that he eats on the way to the pool. He often complains of stomach pain and feeling full while swimming.

What is the main nutrition issue(s)?

- Derek is overly hungry after school because he hasn't eaten anything since lunch time at 11AM.
- Derek is eating a large meal with carbohydrates, protein and fat less than 45 minutes before the beginning of his swimming practice, which causes him gastrointestinal issues.

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



INSTITUT  
CANADIEN  
DU SPORT

## Scenario #1

Suggest solution(s) to help Derek. For example, you can suggest changes to food options or timing of food intake.

- Derek could eat a snack (e.g. 1/2 sandwich) in the early afternoon (~2PM) so he wouldn't be as hungry after school. That way he could choose a smaller snack right before training sessions. For example, 1 apple and 1 cereal bar.

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



INSTITUT  
CANADIEN  
DU SPORT

## Scenario #2

Olivia usually feels nauseous before early morning training sessions and is unable to eat solid foods. During recent morning sessions, she felt very low on energy, and she was unable to complete some of the training sessions.

What is the main nutrition issue(s)?

- Unable to eat due to nausea in the morning
- Not fueling properly before a training session impaired her training quality

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## Scenario #2

Suggest solution(s) to help Olivia. For example, you can suggest changes to food options or timing of food intake.

- Olivia can try to drink something instead of eating solid food. Liquids such as smoothies, fruit juices, liquid meal replacements and flavored milks are usually easier to consume when nauseous than solid food.
- Olivia can eat a large snack before going to bed such as 2 pieces of toast with peanut butter and a banana. This would be the equivalent of eating breakfast the night before.

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## Scenario #3

Max doesn't like to feel overfull when swimming. For this reason, he tries to eat small snacks such as a few carrots sticks 1 hour before his 4:30 PM practices. He noticed that he is light-headed during training sessions and has a hard time focusing when his coach gives instructions or advice.

What is the main nutrition issue(s)?

- Max most likely experiences low blood sugar due to insufficient fueling before the training session.
- Under-fueling for training session

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



### Scenario #3

Suggest solution(s) to help Max. For example, you can suggest changes to food options or timing of food intake.

- Max would benefit from a small snack that is easy and quick to digest but contains more carbohydrates than carrot sticks such as:
  - Cereal bar
  - Banana
  - Small yogurt
  - Fruit bar
  - Rice cakes

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



### Scenario #4

Annie likes nuts and peanuts. During the nutrition presentation she attended a few weeks ago, the sports dietitian mentioned that nuts contain healthy fats. Since then, Annie makes sure to eat at least one handful of almonds and one handful of cashews (her favorite nuts) before her big training sessions. However, she noticed that she often sluggish during these training sessions.

What is the main nutrition issue(s)?

- Nuts are excellent sources of healthy fats but these fats take a long time to digest, similarly to any high-fat foods. Additionally, nuts do not contain carbohydrates, which are the major source of fuel during high-intensity exercise.

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC





PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## Scenario #4

Suggest solution(s) to help Annie. For example, you can suggest changes to food options or timing of food intake.

- Annie could eat nuts at another time during the day that is not right before a training session. For example, nuts could be integrated in her morning snack at school or as part of her evening snacks.
- Annie would benefit from eating a snack high in carbohydrates before an important training session rather than nuts. The amount and type of food can vary depending on the timing of this snack. If she wants to incorporate nuts in her pre-training snack, she could have a nut bread, homemade muffin made with nuts or peanut butter and jelly sandwiches.

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## Nutrition during training

### Hydration

- Fluids to stay hydrated
- Electrolytes helps to retain fluids in your body

### Energy

- Carbohydrates help to keep a high level of energy

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC

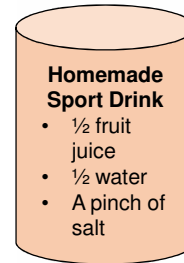


PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## Nutrition during training

- If well fueled prior to training and training under 1h30-2h, only water
- If not well fueled prior to training or training over 1h30-2h, use a sport drink or water + carbs + electrolytes



PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## Recovery from training

- What are the goals of the recovery snacks/meals?
  - Carbohydrate to replenish glycogen stores
  - Protein to repair muscle damage
  - Hydration (liquid + electrolytes)
  - To recover and be ready for the next exercise

**REFUEL**  
**REBUILD**  
**RE-HYDRATE.**  
**RECOVER**

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## Recovery from training

- How quickly after a training do you have to eat a recovery snack or meal?
  - As fast as possible, especially if next exercise is within 24 hours

**REFUEL**  
**REBUILD**  
**REHYDRATE.**  
**RECOVER**

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## Examples of high-protein snacks



PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



INSTITUT  
CANADIEN  
DU SPORT

## Example of a day with 2 trainings

5am	Pre-training snack - Fruit smoothie (berries, yogurt, fruit juice)
5:30-7:30 am	Training – homemade sports drink or water
7:30 am	Breakfast on your way to school - Chocolate milk, peanut butter and banana sandwich on whole wheat bread
10 am	Morning snack – homemade muffin
12 pm	Lunch – Quinoa salad with shrimp, peas and bell peppers
3:30 pm	Pre-training snack – Fruit + dry breakfast cereals
4:30-7pm	Training – homemade sports drink or water
7:15pm	Post-training snack – Drinkable yogurt
8:30 pm	Dinner – Rice, marinated chicken and grilled vegetables. Something sweet, if desired.

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC

GM4



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



INSTITUT  
CANADIEN  
DU SPORT

## Activity Time!!!

- It is your turn to plan how to fuel your training.
- This is how it works:
  - 1) Make sure you know when your training sessions are.
  - 2) Determine what are the nutrition goals for each eating opportunities.
  - 3) Write down the time of each eating opportunities.
  - 4) Plan what foods will meet these nutrition goals.

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC

**GM4**      add table from the handout "fuel your training"  
Genevieve Masson, 4/6/2018




PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT




CANADIAN  
SPORT  
INSTITUTE



INSTITUT  
CANADIEN  
DU SPORT

---

## Activity Time!!!




CANADIAN  
SPORT  
INSTITUTE



INSTITUT  
CANADIEN  
DU SPORT






PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT

### Fuel your training – 2 sessions/day



Time	Nutrition Goal (s)	Food
		Pre-training snack –
5:30 -7:30 am		Training –
		Breakfast on your way to school –

---


PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC

PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT

CANADIAN  
SPORT  
INSTITUTE



INSTITUT  
CANADIEN  
DU SPORT

---

## Fueling for Meet

- Principles are the same as for fuel for training:
  - Carbohydrates represent the main fuel source for muscles during high-intensity exercise
  - Staying hydrated is key to perform to your best
  - Start the recovery process quickly after each race to be ready for the next one.
- Avoiding GI symptoms is a Priority
  - Foods more likely to cause GI symptoms: high-fiber foods, cruciferous vegetables (cabbage family), beans and lentils, foods not usually consumed

---

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



INSTITUT  
CANADIEN  
DU SPORT

## Example of a schedule for a meet

6:30 am	Breakfast – 1 bowl of oatmeal prepared with milk or soy milk and cranberries, 1 orange
8-9 am	Swimming warm-up – homemade sports drink or water
9:15 am Race 1	Right after race 1 – Applesauce
10:30 am Race 2	After race 2 – yogurt + cereal bar
12 pm	Lunch at the hotel – homemade pasta salad with cucumbers, tomatoes, cooked chicken and a light dressing
3 pm	PM Snack – 1 turkey sandwich with lettuce and tomatoes
3:30 pm	Travel back to the pool – bring your water bottle and your snacks!!

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



INSTITUT  
CANADIEN  
DU SPORT

## Example of a schedule for a meet

4:30-5:15 pm	Swimming warm-up – homemade sports drink or water. A few dates or 1 banana right after the warm-up.
6 pm – race 3	Between races – homemade sports drink or water
6:15 pm – race 4	After the last race – Chocolate Milk
8 pm	Back at the hotel, Dinner– If races again the next day, spaghetti with meat sauce and green salad. Water, fruit.

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



INSTITUT  
CANADIEN  
DU SPORT

## Troubleshoot: What to do if...

- “My race is delayed by 30 minutes”
  - If it has been a while since your last snack, you might want to take a few more sips of sports drink or fruit juice.
- “I am too nervous to eat on the day of the meet”
  - Think liquid nutrition: fruit juice, sports drinks, chocolate milk, liquid meals (such as Ensure or Boost), Smoothies, soups
  - Try to eat small snacks often rather than large meals
  - Bring food that you usually enjoy
- “I have stomach cramps when swimming”
  - Maybe you ate your food too close to your swim time. Consider eating smaller snacks/meals, reducing the amount of fiber, protein or fat or giving yourself more time to digest.

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



INSTITUT  
CANADIEN  
DU SPORT

## Troubleshoot: What to do if...

- “I have muscle cramps when swimming”
  - That can be a lot of things:
    - Dehydration
    - Not enough electrolytes (sodium, potassium, magnesium)
    - Fatigue
    - Genetics
- “I tend to do very well in the morning but I don’t have as much energy during the afternoon/evening heats.”
  - Maybe you don’t eat enough in the morning/lunch and you run out of energy
  - Consider having a recovery snack right after your morning races
  - Sleep/recovery practices

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC





PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## Snacks to bring on meet days

- Homemade muffins
- Cereal (Nutrigrain) or fruit bars
- Fresh fruits, dried fruits
- Applesauce, canned fruits
- Dry breakfast cereals (low fiber options such as Rice Krispies, Special K)
- Banana with peanut butter
- Drinkable yogurt, yogurt or chocolate milk

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## And for you parents: more ideas!

### More snacks to bring on meet days

- Dates
- Energy Balls
- Rice cakes or rice crackers
- Instant oatmeal packages
- Sport drink mix
- Fruit juice
- Bagels
- PB+J sandwiches (light on the peanut butter)

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## Take Home Message

- What will you remember from today's session?

*Developing an optimal fueling strategy for training and competition takes time, some knowledge and lots of trial and errors.*

PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC



PROUD MEMBER OF THE | FIER MEMBRE DU  
SPORT INSTITUTE NETWORK  
RÉSEAU DES INSTITUTS DU SPORT



## Questions



PACIFIC | CALGARY | SASKATCHEWAN | MANITOBA | ONTARIO | QUÉBEC | ATLANTIC