



PERFORMANCE NUTRITION FOR SPORT - BUILDING A HEALTHY ATHLETE

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Pulse

Outline



- Basics of Healthy Eating
 - Building the foundation for sports performance
- Sources of Fuel: Carbs, Protein and Fats... and Water!
 - What are they and what are their roles in sports performance
- Meal timing and performance
 - What to consume before, during and after training and competitions
 - How to adjust for training/performance at various times
 - How to adjust for multiple session days
- Competition Day!

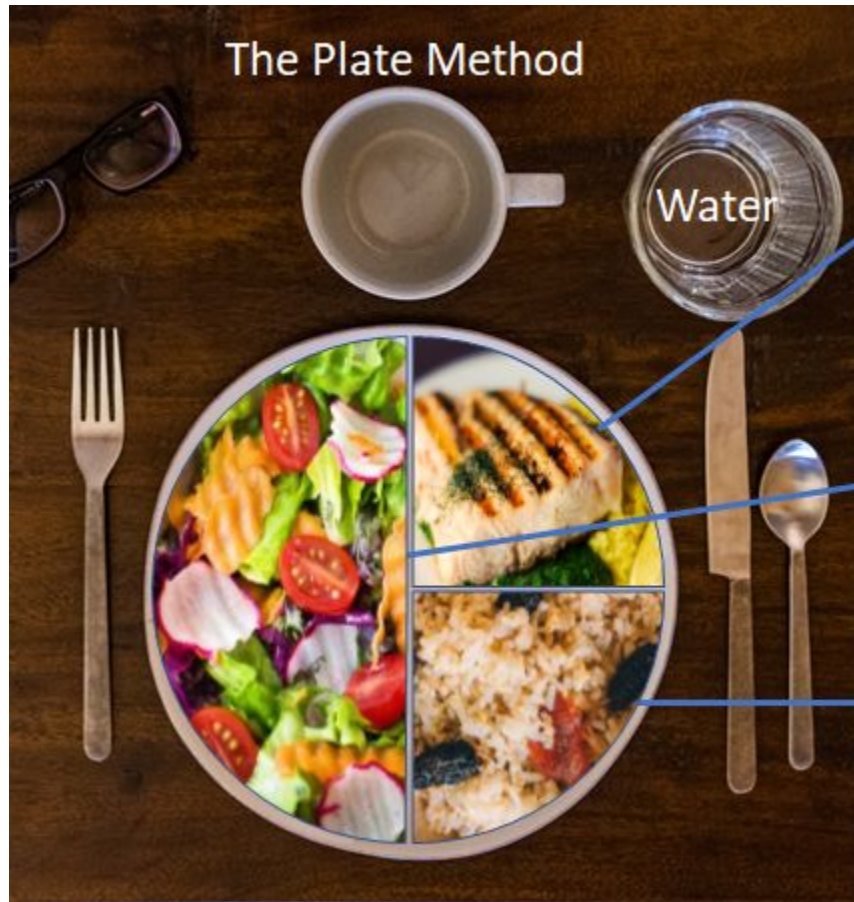
Basics of Healthy Eating



- ✓ Make most food homemade
- ✓ Limit highly processed foods
- ✓ Have at least 7 servings vegetables + fruit per day (antioxidant power!)
- ✓ Include a source of protein at every meal and snack (recovery/muscle building)
 - Lean poultry, fish, eggs, dairy, legumes, nuts and seeds
 - Only exception is right before performance
- ✓ Choose whole grains most of the time (energy enhancers!)
- ✓ Include healthy fats (vitamins, immunity & flavour)
- ✓ Drink water (hydration)

It's like building a house, this is your foundation!

Building Balanced Meals & Snacks



Protein

- Tempeh/tofu
- Fish
- Eggs
- Low fat yogurt
- Nuts and legumes

Vegetables and Fruit

- Leafy greens (spinach, kale etc.)
- Carrots, beets
- Apples, oranges, bananas

Whole Grains

- Quinoa
- Brown/ wild rice
- Any bread product that lists whole grains as one of the first ingredients

•The Plate Method for Snack:

- $\frac{1}{4}$ Protein: Grilled baked/broiled/grilled, beef, turkey, fish, eggs, tofu, yogurt, cheese etc.
- $\frac{1}{4}$ Grains: granola bar, cereal, whole grain crackers, bagel, rice, potatoes, pasta etc.
- $\frac{1}{2}$ Fruit and Vegetables: apples, carrots, broccoli, spinach, green beans, blueberries etc.

Athlete's Plate - Fueling for Performance!

EASY TRAINING / WEIGHT MANAGEMENT:

FATS
1 Teaspoon



Whole Grains
Pasta
Rice
Potatoes
Cereals
Breads
Legumes

Weight Management

S & Fruits
Raw Veggies
Cooked Veggies
Fruit Soups

Water
Dairy/Nondairy
Beverages
Diluted Juice
Flavored
Beverages

Coffee
Tea

ATHLETE'S PLATE

MODERATE TRAINING:

FATS
1 Tablespoon



Grains
Pasta
Rice
Potatoes
Cereals
Breads
Legumes

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

Vegetables
Raw Veggies
Cooked Veggies
Veggie Soups

Fresh Fruit
Stewed Fruit
Dried Fruit

Water
Dairy/Nondairy
Beverages
Diluted Juice
Flavored
Beverages

Coffee
Tea

FLAVORS
Salt/Pepper
Herbs
Spices
Vinegar
Salsa
Mustard
Ketchup

Avocado
Oils
Nuts
Seeds
Cheese
Butter

HARD TRAINING / RACE DAY:

FATS
2 Tablespoons



Grains
Pasta
Rice
Potatoes
Cereals
Breads

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

Vegetables
Cooked Veggies
Veggie Soups
Raw Veggies

Fresh Fruit
Stewed Fruit
Dried Fruit

Water
Dairy/Nondairy
Beverages
Diluted Juice
Flavored
Beverages

Coffee
Tea

FLAVORS
Salt/Pepper
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Macronutrients: Sources of Fuel



- Carbs, Protein, Fat and Water
- Contribution to energy and performance during sport
- Digestion and nutrient timing

Carbohydrates

- ✓ Primary source of energy in the body
- ✓ Brain's main source of energy and muscle fuel during activity
- ✓ Sources: grains, starchy vegetables, fruits, legumes, some dairy
- ✓ Important to choose WHOLE grains over processed grains
 - ✓ Less sugar, more fibre, more vitamins and minerals
 - ✓ Choose grain products with more than 5 grams fibre per serving, and less than 10 grams of sugar
- ✓ Eat whole fruits and vegetables more often
- ✓ Include carbohydrates before and after training and competition
- ✓ ***Get in ASAP for multi-event days***



Carbohydrates - Types

- ‘Simple’ Carbohydrates:
 - Sugars
 - Found primarily in fruit, some in dairy (lactose)
 - **QUICK ENERGY**
- ‘Complex’ Starchy Carbohydrates
 - Chains of sugars stuck together
 - Starchy vegetables (potatoes, sweet potatoes), grains (oats, wheat, corn) and legumes (chickpeas, beans)
 - **TIME RELEASED ENERGY**
- ‘Complex’ Fibers
 - Complex chains of starch stuck together in such a way that our body can’t break them down → ‘feed’ the bacteria in our large intestines
 - Vegetables (lettuce, broccoli, cabbage, etc), whole grains, legumes, nuts and seeds
 - IT’S ABOUT HEALTH :-)

Fat

- ✓ Energy dense
- ✓ Provides essential fatty acids and fat soluble vitamins
- ✓ Important for vitamin absorption and hormone support
- ✓ Have a small amount of healthy fats at every meal and snack (flavour + satiety)
- ✓ Don't have too much right before or right after activity
- ✓ Good fat vs. unhealthy fat



Good Fat vs. Fats to limit



Monounsaturated Fats



Trans Fats



Polyunsaturated Fats



Saturated Fats

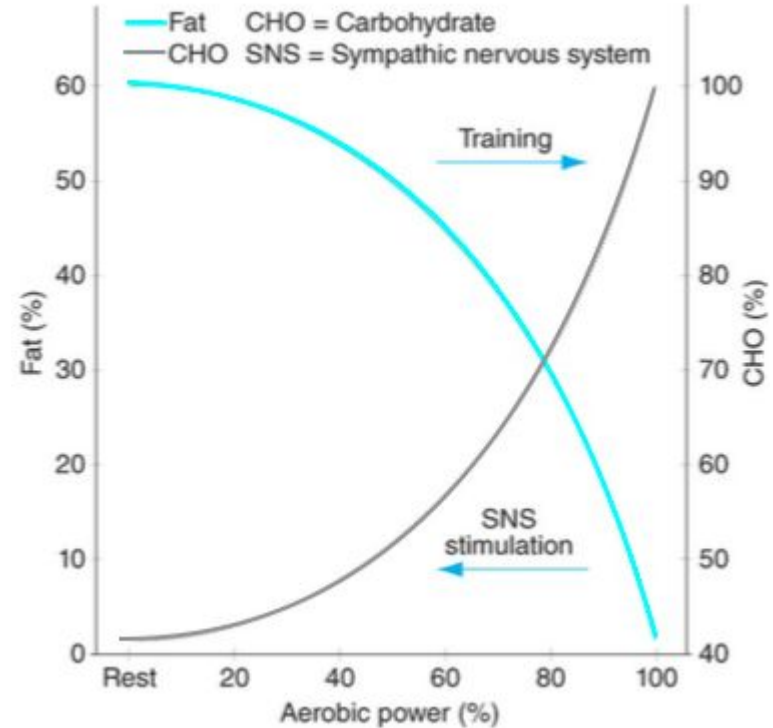
Carb vs. Fat For Fuel

As intensity increases → CARBS are the fuel source

As intensity decreases → FATS are the fuel source

What sport do you play?

- Swimming is MOSTLY high % aerobic activity, verging on anaerobic at times
- ***Most of the time you can ONLY use carbs for energy!***



Protein

- ✓ Made up of chains of amino acids
- ✓ Need for muscle growth, repair and maintenance
- ✓ Helps build and maintain muscles and other body tissues
- ✓ Have protein at every meal and snack
 - ✓ 10-15 grams at snacks
 - ✓ 20-30 grams at meals
- ✓ Sources include: chicken, turkey, fish, some dairy, nuts and seeds, eggs, beans and pulses, legumes
- ✓ Animal proteins are key sources of iron
 - ✓ Iron helps the body use and carry oxygen to active muscles
 - ✓ Vitamin C increases iron absorption of animal and plant sources of iron
- ✓ Protein supplements: not necessary but can be helpful



Protein in Food

Food	Portion	Approximate Content (g)
Milk	1 cup (250 ml)	9
Greek yogurt/ cottage cheese	175 mL ($\frac{3}{4}$ cup)	18
<i>Fortified soy beverage</i>	<i>1 cup (250 ml)</i>	<i>7</i>
Eggs	1 egg	6
Meat, fish or poultry, cooked	75 g (2 $\frac{1}{2}$ oz) / 125 mL ($\frac{1}{2}$ cup)	21
<i>Dried beans, peas or lentils, cooked</i>	<i>175 mL ($\frac{3}{4}$ cup)</i>	<i>12</i>
<i>Firm Tofu</i>	<i>175 mL ($\frac{3}{4}$ cup)</i>	<i>21</i>
<i>Nuts and Seeds</i>	<i>60 mL ($\frac{1}{4}$ cup)</i>	<i>7</i>
<i>Peanut butter or other nut/seed spread</i>	<i>30 mL (2 Tbsp)</i>	<i>6</i>
<i>Quinoa</i>	<i>125 mL ($\frac{1}{2}$ cup)</i>	<i>3</i>

Protein & Energy Production



- Our bodies do NOT want to use protein (amino acids) for energy
 - Need to be conserved for body tissues, ie muscle and organs
- If carbohydrates are limited/not available for higher intensity exercise, our bodies will use protein
- IMPORTANCE OF CONSUMING CARBS!



Water



- Essential for EVERY process in our body
- Fluids and high water content foods
 - Fruit and vegetables
- Do not provide energy to our body
- Minimum of 2 litres per day outside of sport

Digestion of Macros



Note: we want energy going to our muscles, not food in our stomach for performance!

Macronutrient	Rate of Digestion	Before Exercise	After Exercise
Carbohydrates - simple carbs	Very quick, instant source of energy	Can provide quick energy without lingering in stomach Have 0-60 minutes prior to exercise	Helps to replenish glycogen stores Have within 60 minutes of exercise
Carbohydrates - complex starches	Moderate, time released source of energy	Takes time to digest, but provides more of a continuous supply of energy Have 1-3 hours before exercise	Have with a balanced meal within 2 hours of exercise
Carbohydrates - complex fibre	Very slow, digested in our large intestines	Limit/avoid high amounts 2-3 hours before exercise	Have with a balanced meal 2 hours after exercise

Digestion of Macros



Note: we want energy going to our muscles, not food in our stomach for performance!

Macronutrient	Rate of Digestion	Before Exercise	After Exercise
Protein	Very slow, high protein meals take 2-3+ hours to digest	Have a meal with moderate protein 3-4 hours before Optional snack with less protein 2 hours before	Helps to repair muscles, have within 60 minutes of exercise and again at a balanced meal within 2-3 hours
Fats	Very slow, high fat meals take 3-4+ hours to digest	Have a meal with moderate fat 3-4 hours before Optional snack with less fat 2 hours before	No specific role in recovery, have as part of healthy balanced meal

Digestion of Macros



What about DURING sport?

- ✓ For exercise lasting less than 60 min:
 - Consume adequate water to maintain proper hydration
- ✓ For exercise lasting longer than 60 min:
 - ~30 to 60 grams of carbohydrates per hour of activity
 - consume in small amounts
 - This can be achieved by:
 - ~1-2 servings of fruit or starch per hour
 - OR carbohydrate electrolyte solution (sports drink)
 - Example: 250mL of Gatorade every half hour
 - Begin consumption shortly after starting exercise

WATER +/- CARBS +/- ELECTROLYTES

Fluid and Electrolytes

- ✓ Water and electrolyte loss can impair exercise performance, the ability to do work, and overall health
 - Key Electrolytes in the body include: sodium, chloride, potassium, magnesium etc...
- ✓ During exercise, the amount of water lost as sweat can increase to 1-2L/hr
 - Main electrolytes lost: sodium and potassium, replace during exercise if exercising more than 60 minutes or in a hot environment
- ✓ Swimmers have a decreased sweat output and may need less, but is still important
 - Train your tummy!
 - As little as 1% dehydration can significantly impact performance and energy levels



Fluid Needs



- Before exercise

- Goal: to begin exercise in a well-hydrated state
- Consume 500-1000 ml (2-4 cups) in the 4 hours before exercise
- Monitor urine colour and volume to determine level of hydration

- During exercise

- For exercise over 40 minutes → drink what you can
- Choose water when active for an hour or less
- Only need sports drink when sweating for more than 1 hour
 - replaces blood sugar and mineral (electrolytes) losses

Drink	Carbohydrate (CHO) g per 250 mL	Sodium mg per 250 mL	Potassium mg per 250 mL	Caffeine, Natural Health Products, Sugar Substitutes	Carbonated
Goal Range	8–20	115–173	19–49	No	No

- After exercise

- Goal: replace fluids and electrolytes lost during activity
- Volume of fluid needed should be greater than the amount of sweat lost

Overview - Summary

Timing	Protein	Fats	Carbs	Hydration
2-6 hours before	Moderate (20-30 grams)	Moderate (10-20 grams)	Medium to low glycemic 50-100 grams	300-600 ml water
60-0 minutes	Low (<10 grams)	Low (<5 grams)	Medium to high glycemic 30-60 grams	250-500 ml water
During	None	None	30-60 grams per hour sport beverage or gels	250-500 ml per hour
Immediately post (within 30 minutes of training)	Moderate to high, easily absorbable (whey or similar)	Low (<5 grams)	Medium to high glycemic 50-75 grams	Replace fluids lost, can use sports beverage

Example

Timing	Protein	Hydration
2-6 hours before	Build A Bowl: 1 cup rice, ½ cup each chopped spinach, peppers, cucumbers and tomatoes, palm size of chicken, chopped avocado + 1 piece fruit	300-600 ml water
60-0 minutes	Granola bar + 1 cup fruit	250-500 ml water
During	None	250-500 ml per hour
Immediately post	Smoothie Bowl: ¾ cup Greek yogurt, 1 frozen banana, blend and top with berries and granola; chocolate milk; pb&j sandwich, trail mix etc.	Replace fluids lost, can use sports beverage

How to Adjust for Timing



- AM Practices/Games
 - Have carbs + water before (oats with berries, toast with 1-2 tbsp PB and jam, cereal with milk + WATER)
 - Have a high carb and protein meal afterwards (shake with fruit, oats with fruit and yogurt, eggs with toast and fruit)
- After school Practices/Games
 - Have a higher carb lunch (at least 1 cup starch/ ½ plate carbs) and a snack with carbs + small amount of protein 1-2 hours before (granola bar and fruit, yogurt and fruit, wrap with PB and banana) + HYDRATE
- After dinner Practices/Games
 - Increase starch at dinner to about ½ plate, reduce veggies, keep it lower in fat (pasta with turkey meatballs and small side salad; baked potato with chicken and sliced carrots) *REMEMBER to make up veggies elsewhere in the day*
 - Have a high protein snack before bed (Greek yogurt and berries, smoothie)

Micronutrient Needs

- Athletes have higher needs for **ALL micronutrients** → eat more nutritionally dense foods
 - Protein foods, whole grains, nuts and seeds, fruits and vegetables

Iron:

- Needed for performance
- Delivers oxygen to our muscles and supports our immune health
- Most common nutrient deficiency in athletes
- Needs increase at menses
- Food Sources of Iron:
 - Lean red meat, poultry or fish, Iron-fortified breakfast cereals, nuts, and legumes
 - Combine with citrus fruits (contain Vitamin c) to enhance iron absorption



Micronutrient Needs

Vitamin D:

- “Sunshine vitamin”
- Needed for maintaining bone strength, injury recovery, immune function and assists in explosive movements
- Food sources: Wild salmon, cod liver oil, mackerel, ahi tuna, fortified dairy products, soy milk, orange juice, egg yolks and fortified cereals
- Supplementation may be needed

Calcium:

- Very important for bone health
- Food sources; dairy & alternatives (cow’s milk, yogurt, cheese, soy beverage etc)
- Other sources; fortified tofu, white beans, almonds etc.
- Aim for 3 servings of dairy & alternatives per day



Let's Get Practical!



- AM Practice / Game

Time & Activity	Nutrition	Notes
5am - Wake up	1 cup cooked oats, topped with 1 sliced banana and 2 tbsp chopped almonds	HYDRATE! Water is fine Omit almonds if needed Remember to bring your after-practice nutrition if going straight to school/have a long drive
6-7am - Swim Practice	Water!	Consider sports drink only if longer than 60 minutes
7am - On the way home/to school	250 mL chocolate milk Whole grain wrap with 2 Eggs Banana	HYDRATE! Water is fine

Let's Get Practical!



- After School Practice

Time & Activity	Nutrition	Notes
12pm - Lunch	Balanced Meal: whole grain wrap with turkey, cheese, lettuce, tomato, hummus Sliced veggies Apple Milk or yogurt	HYDRATE!
3pm	Balanced Snack: cheese and apple, yogurt and granola *Add some veggies and hummus*	
4-5 pm	Dinner: 1-1.5 cups rice/potatoes, lean poultry, keep veggies to about 1 cup max	Make sure you had your veggies another time in the day!
7pm - Practice	Water!	Consider sports drink only if longer than 60 minutes
After practice	Snack with protein and carbs: Yogurt parfait, smoothie, left-over dinner	

Let's Get Practical!



- Multi-event days

Time & Activity	Nutrition	Notes
7am - Wake up	High carb, balanced breakfast: 1 cup cooked oats, topped with 1 sliced banana and 2 tbsp chopped almonds, 2 eggs or $\frac{3}{4}$ cup yogurt	Focus on higher carb meals
9am - Event 1	Water if possible	Consider sports drink only if longer than 60 minutes
11am - Post Event1	250 mL chocolate milk Or smoothie Or high protein bar + fruit **Just carbs if events are less than 60 minutes apart**	HYDRATE! Water is fine
1pm - Lunch	Higher carb, moderate protein and fat: 2 slices whole grain bread with chicken, lettuce, tomato and hummus, baby carrots and a banana	Consider limiting protein if game 2 is within 1 hour

Let's Get Practical!



- Multi-event days

Time & Activity	Nutrition	Notes
3pm - Snack	High carb: dried fruit/fruit bar, 10 almonds (optional)	Focus on higher carb, fat/protein optional Remember to pack with you HYDRATE
4pm - Event 2	Water if possible	Consider sports drink only if longer than 60 minutes
6pm - Post Event 2	250 mL chocolate milk Or smoothie Or high protein bar + fruit	HYDRATE! Water is fine
6:30pm - Dinner	Higher carb, moderate protein and fat: 1.5 cups pasta with ground turkey tomato sauce + fruit salad	
8/9pm - Snack	Yogurt parfait, cereal with banana and milk	Bedtime snack for recovery!

Let's Get Practical!



- But I don't like the food outlined/offered??
 - Focus on eating for performance
 - Eating for enjoyment is important, but so is eating for purpose! Food is fuel for athletes!
 - Try things many times and in many ways
 - Get involved in planning and prep

What to Eat on Competition Day?

- Don't introduce new foods/routines
- Avoid high fat, high fibre and large meals
 - Eg no pizza lunch :-)
- Follow recommendations from previous in presentation regarding timing, hydration, etc.
- Pack foods with you – make your own go to food pack

Practice like it's competition
and compete like it's another
day on the practice court.

Karsh Kirby

Example: Athlete's Cooler

- 3-4 pieces of fruit
- Trail mix (almonds, dried fruit, granola, dark chocolate chips)
- Sports drink or powder (Gatorade, Skratch, etc)
- Sandwich: pita or bread, lean turkey, veggies, light cheese, OR PB and jam
- Homemade power bars or bites
- Greek yogurt & granola
- Shake or chocolate milk
- WATER!

MAKE YOUR OWN CHECKLIST!

KEEP INSIDE YOUR COOLER





Thank you!



Questions?

Looking for more information?

Contact us at info@nutriprocan.ca and book your complimentary 15 minute consultation.