Sports Nutrition

By: Leslee Hasil

Outline

- Why is nutrition important?
- What is Sports Nutrition?
- Macronutrients
- Fibre
- Other nutrients
- Game day vs practice
- Hydration

Why is Nutrition Important?

- Kids and teens are not just smaller adults
- They need enough energy and nutrients to sustain growth, development, repair and physical activity!

Sports Nutrition

- Food and fluids to support the additional daily activity and training of athletes.
- Goal of sports nutrition is to support the athletes training plan and recovery.

Where does fuel come from?

- Our nutrition is made up of carbohydrates, protein, fat, vitamins and minerals!

Carbohydrates

- Carbohydrates are the most readily available source of energy for the exercising muscle, the primary fuel source for high intensity exercise, and the exclusive source for the brain and nervous system.

- Carbohydrates are stored in the muscle and liver as glycogen. Stored muscle glycogen resulting from carbohydrate consumption pre-exercise may help delay fatigue during exercise

Some Examples of Carbohydrates to Choose more Often

Whole Wheat	Beans/Peas	Starchy Vegetables
Pasta Rice Bread Pita Tortillas English Muffins Bagels Cereals Oatmeal	Dried beans and peas Black beans Kidney beans Garbanzo beans Lentils	Squash and zucchini Eggplant Corn Carrots Green beans/peas Sweet potatoes

Fruit
Apples Bananas Grapes Nectarines/peaches Oranges/grapefruit Peaches Plums

Some examples of carbohydrates to choose less often

Breads	Vegetables	Fruits
Muffins Biscuits Cinnamon rolls Coffee cake Croissants Danish pastries Doughnuts Pies	"Corn" chips Onion rings French fries Potato chips Vegetables cooked in butter Vegetables in creamy sauce	Fruit pastries Fruit canned in syrup High sugar "fruit" juices Fruit salad with creamy sauce

Fibre

- Fiber is a dietary substance that helps keep food moving efficiently throughout the body and is an important part of a healthy diet.
- Fiber is found in whole grains, beans, fruits, and vegetables.
- Consuming fiber from a variety of sources is suggested to gain the maximum benefit from your meals.

Are these items the same?

Protein

- Protein is an important component of an athlete's diet
- It is critical for building and repairing the body's cells and boosting the immune system.

Space protein throughout the day!

Protein Sources

Meat *choose baked, roasted, grilled, broiled, poached*	Dairy and Eggs	Vegetarian
Chicken Turkey (Lean roast beef >85% lean meats Trimmed pork chops Fish Lean baked ham Canned tuna - in water	Milk Dried milk Greek yogurt Yogurt (regular or low-fat) Cheese Eggs or egg whites	Dried beans and peas Lentils Black beans Kidney beans Chick peas Peanut butter Nuts/seeds Soy products

Fat

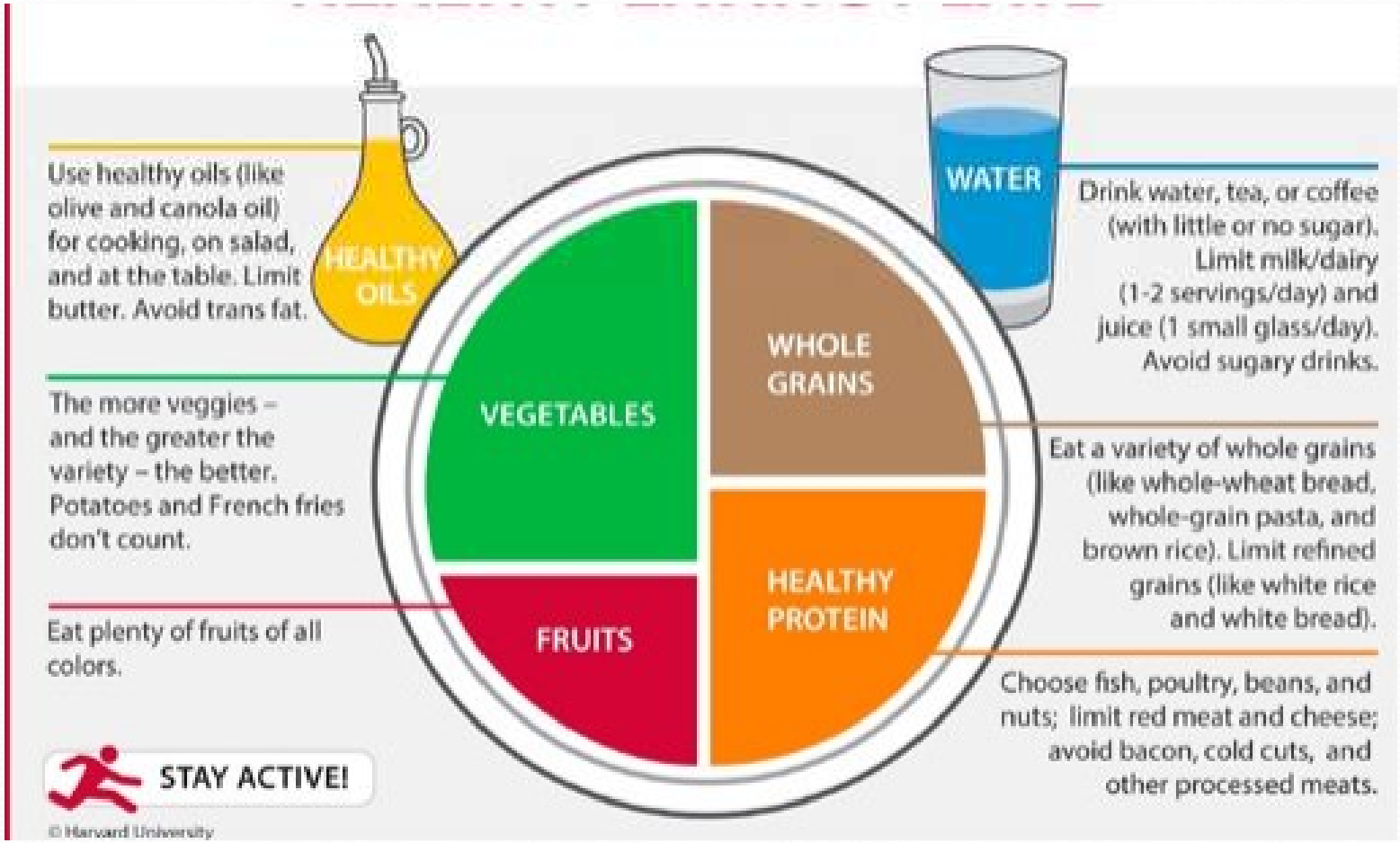
- Fat is the major fuel source for low and moderate intensity exercise!

- Dietary fat is also important for the absorption of fat-soluble vitamins (A, D, E and K) and for optimal immune function, which is important to prevent fatigue and illness.

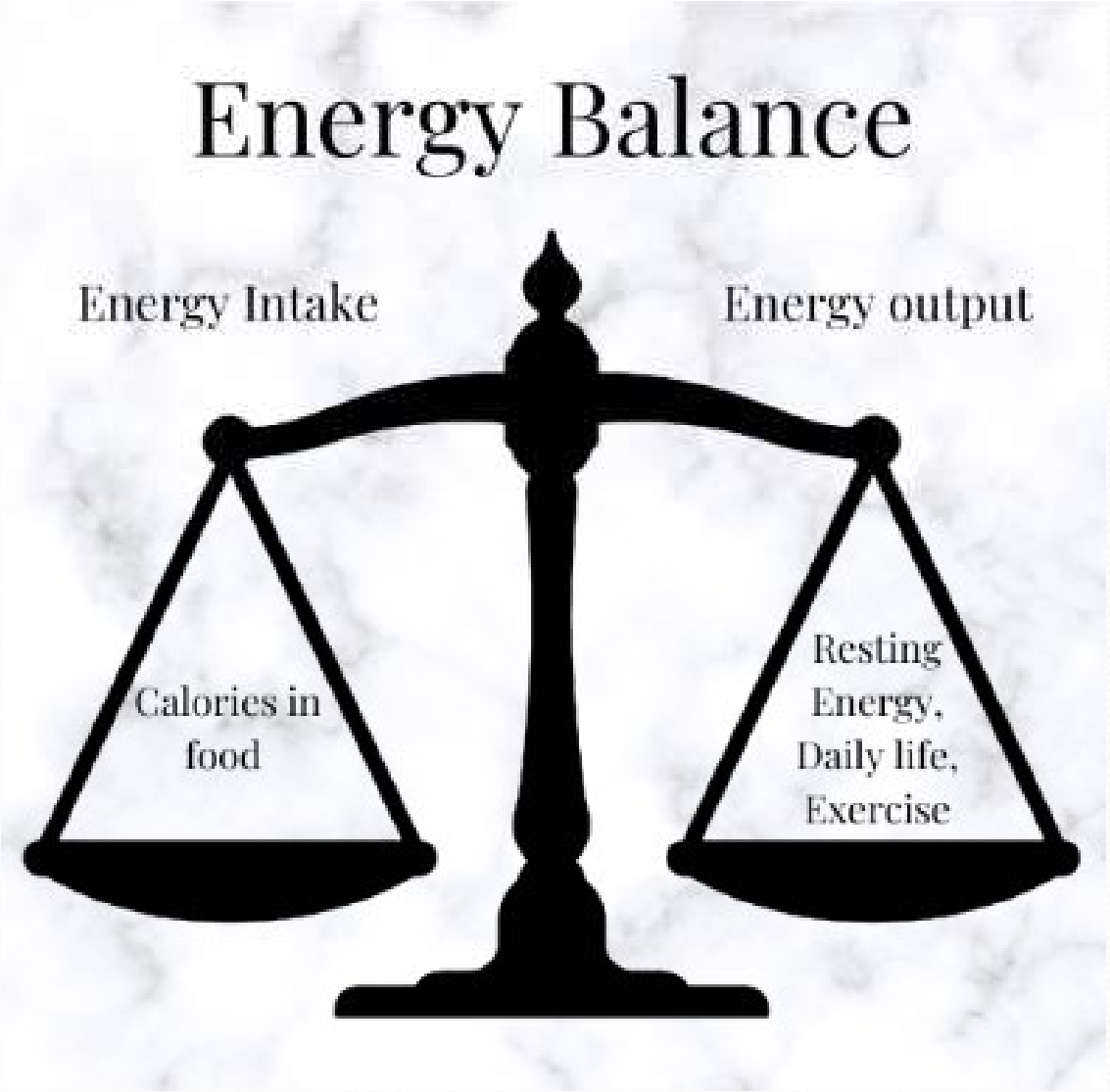
Which sources should you consume more often?

Nuts and nut butters Olives Avocados Almonds Walnuts Tuna Salmon Foods cooked with olive or vegetable oils	French fries Chips Doughnuts Commercial/packaged baked goods Foods cooked in coconut or palm oil Cream Butter Fried foods Fatty meats (bacon, sausage, pepperoni, bologna, salami)

Putting it Together



Energy Balance



Other nutrients to be aware of!

Iron

What does iron do in the body?

- Transport oxygen around the body
- Red blood cell production
- Involved in enzymes that release the energy for exercise
- Maintain a healthy immune system and fight infection

Why are athletes at risk of iron deficiency?

Athletes are at risk of developing iron deficiency due to a combination of factors including:

- Increased requirements (training stimulates production of red blood cells)
- Growth increases the demand for iron to produce new tissues and blood cells
- Low energy intakes or restricted dietary patterns can make it difficult to eat sufficient iron

What are the best sources of iron?

- Heme iron found in animal protein (e.g. beef, lamb, seafood, pork, poultry, liver) is the most readily absorbed form of iron in food
- Many breads and commercial breakfast cereals have added iron (iron-fortified)
- Legumes, some green vegetables, dried fruits, and nuts can have good amounts of iron, however the iron found in plant foods (non-heme iron), is less well absorbed than iron in meat sources (heme iron)

CALCIUM AND VITAMIN D

- Calcium and vitamin D are important nutrients for good bone health.
- Calcium requirements for adolescent athletes are no different from that of non-active adolescents!
- Calcium requirements are greater than that of adults due to growth.

How much Calcium?

Age	Years
4-8	1000 mg/day
9-18 years	1300 mg/day

Sources of Calcium

Dairy Foods	Serving	calcium (mg)
Milk, whole, 2%, 1% skim	1 cup	291-324
Milk, evaporated	1/2 cup	367
Buttermilk	1 cup	300-370
Kefir	1 cup	267
Cheese, hard	50 g	370 (average)*
Processed cheese spread	4 Tbsp	348
Cheese, processed slices	50 g	276
Cottage cheese, 1 or 2%	1 cup	156
Cottage cheese, <0.1%	1 cup	51
Pudding or custard made with milk	1/2 cup	150
Yogurt, plain	3/4 cup	290 (average)*
Yogurt, fruit bottom	3/4 cup	233 (average)*
Frozen yogurt, soft serve	1/2 cup	110
Ice cream	1/2 cup	97

*calcium content varies, check label

Beans and Bean Products		
Tofu, medium firm or firm, made with calcium sulphate	150 g	347
Tofu, firm or extra firm, made with calcium sulphate and magnesium chloride	150 g	234
White beans	3/4 cup	119
Navy beans	3/4 cup	93
Black beans	3/4 cup	75
Pinto beans, chickpeas	3/4 cup	58

Nuts and Seeds		
Tahini (sesame seed butter)	2 Tbsp	130
Almonds, dry roast	1/4 cup	93
Almond butter	2 Tbsp	88
Sesame seeds kernels, dried	1/4 cup	50

Meats, Fish, and Poultry		
Sardines, Atlantic, canned with bones	75 g	286
Sardines, Pacific, canned with bones	75 g	180
Salmon, canned with bones	75 g	208

Grains	Serving	calcium (mg)
Bannock	1 med (37g)	84
Oats, instant, regular, no sugar added	1 pouch	82
Non Dairy Drinks		
Fortified rice or soy beverage	1 cup	319**
Orange juice fortified with calcium and vitamin D	1/2 cup	185
Regular soy beverage	1 cup	98

**added calcium sometimes settles at the bottom of the container; shake well before drinking

Vegetables (all measures for cooked vegetables)		
Turnip greens	1/2 cup	104
Chinese cabbage/bok choy	1/2 cup	84
Okra	1/2 cup	65
Mustard greens	1/2 cup	55
Kale	1/2 cup	49
Chinese broccoli/gai lan	1/2 cup	46
Broccoli	1/2 cup	33
Fruit		
Orange	1 med	52
Other		
Blackstrap molasses	1 Tbsp	179
Asian Foods		
Dried fish, smelt	35 g	560
Daylily flower	100 g	301
Tempeh, cooked	100g	96
Fat choy (black moss), dried	10g	88-122
Soy bean curd slab, semisoft	100 g	308
Soy bean milk film, stick shape	100 g	77
Seaweed, Wakame, raw	1/2 cup	63
Seaweed, dry (agar)	1/2 cup	50

How much vitamin D?

Age	Amount
1-70 years	600 IU/Day

Sources of Vitamin D

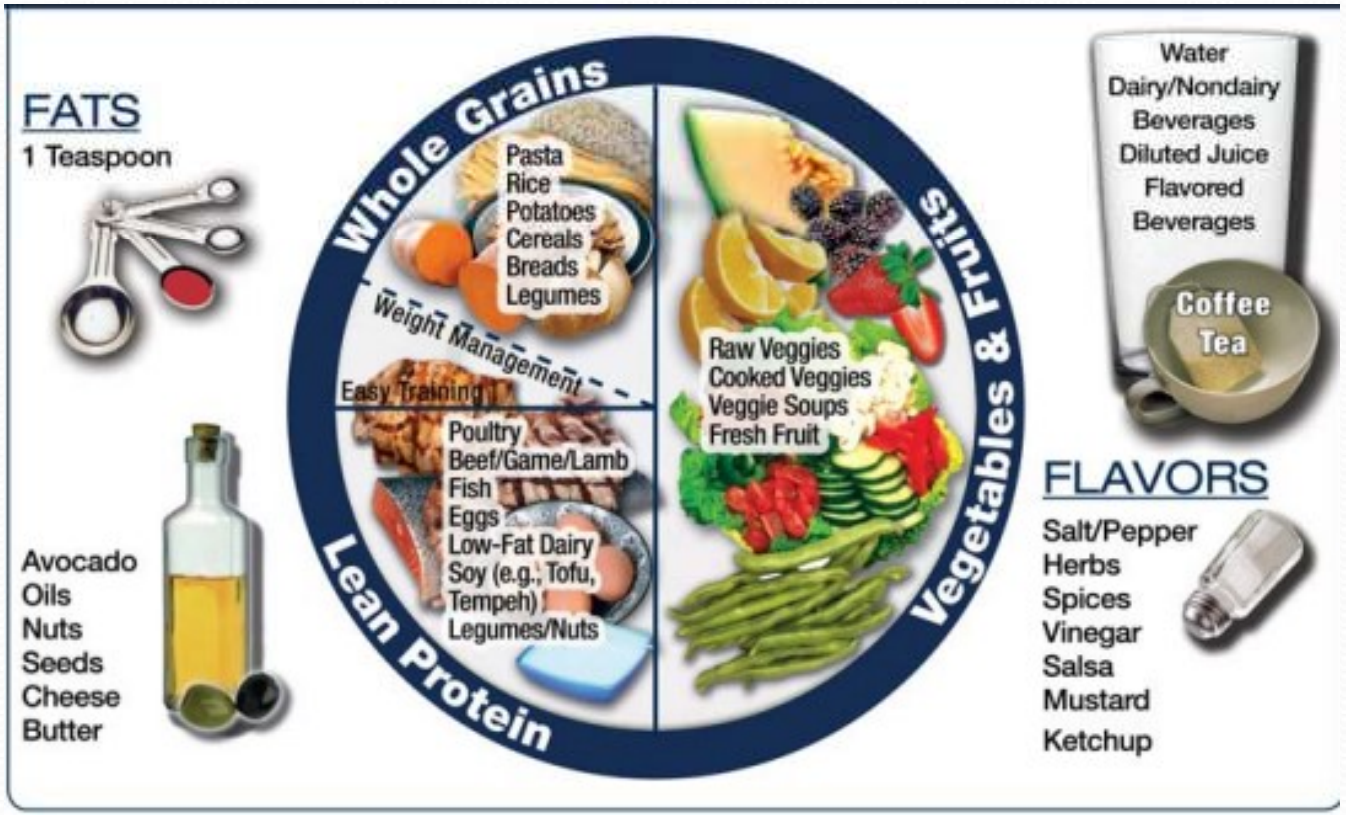
Food Sources of Vitamin D

Food	Serving	Vitamin D (IU)
Milk	1 cup	103
Fortified rice or soy beverage	1 cup	88
Fortified orange juice	1/2 cup	53
Fortified margarine	2 tsp	51
Egg yolk	1	25
Herring, cooked	75 g	162
Trout, cooked	75 g	210
Mackerel, cooked	75 g	81
Salmon, Atlantic, cooked	75 g	246
Salmon, chum, canned	75 g	168
Salmon, pink, canned	75 g	435
Salmon, sockeye, canned	75 g	585
Sardines, Atlantic, canned	75 g	70
Sardines, Pacific, canned	75 g	360
Tuna, canned, light or white	75 g	44
Tuna, yellowfin (albacore, ahi), cooked	75 g	105
Tuna, skipjack, cooked	75 g	381
Tuna, bluefin, cooked	75 g	690

Do You Need To Eat Differently For Training Days?

Fueling Daily Activity

Easy workout days!



Fueling Daily Activity

Fueling Daily Activity

Fuel for Activity

The Night Before

Teriyaki bowl	Spaghetti and meat sauce	Soft tacos
Brown rice	Whole wheat pasta and garlic bread	Whole wheat tortillas
Chicken	Sauce	Rice
Mixed vegetables	Lean beef	Grilled chicken or ground meat
Low fat milk	Salad with low fat dressing	Cheese
		Lettuce, tomatoes, onions

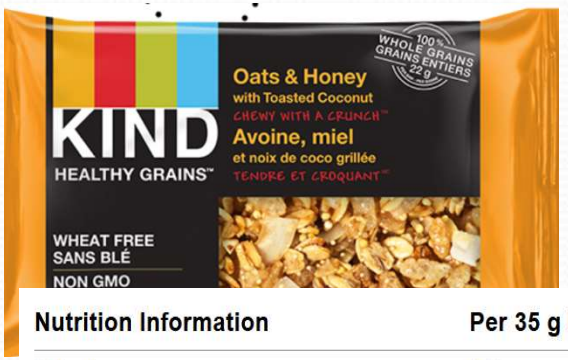
The morning of the event

- Scrambled Egg or omelet, with two slices of whole-wheat toast and fresh fruit
- A bagel topped with turkey and scrambled egg whites and low-fat cheese, served with fresh fruit
- A smoothie made from one cup of fruit, one cup non-fat Greek yogurt, two tablespoons peanut butter, banana and one tablespoon ground flax or chia seed
- Greek yogurt with banana and almond slices

Pre-exercise meals or snacks

- The purpose of a pre-exercise meal or snack is to increase energy stores (liver and muscle glycogen) before a game or practice. You want the athlete to be comfortable and not feeling hungry or too full.
- Typically, a high carbohydrate and low fat meal or snack that is easily digested should be consumed.
- High fat and fiber meals should be avoided to prevent delayed stomach emptying and resulting cramps.

Granola Bars



Nutrition Facts

Serving size 1 bar (36g)

Calories per serving **150**

Amount/serving	% DV	Amount/serving
Total Fat 5g	6%	**Sodium** 105mg
Saturated Fat 1g	6%	**Total Carb.** 24g
Trans Fat 0g		Dietary Fiber 2g
Cholesterol 0mg	0%	Total Sugars 10g

Vit. D 0mcg 0% • Calcium 15mg 2% • Iron 1mg 4% • Potassium 81

Amount/serving	% DV
Incl. 9g Added Sugars	17%
Protein 2g	

3% • Phosphorus 4% • Magnesium 4%

Serving Size	**1 Bar (24g)**
Amount Per Serving	
Calories	**100**
	% Daily Value*
Total Fat 4g	**5%**
Saturated Fat 1g	**6%**
Trans Fat 0g	
Polyunsaturated Fat 1g	
Monounsaturated Fat 1.5g	
Cholesterol 0mg	**0%**
Sodium 75mg	**3%**
Total Carbohydrate 17g	**6%**
Dietary Fiber 3g	**10%**
Total Sugars 5g	
Includes 5g Added Sugars	**10%**
Sugar Alcohol 0g	
Protein 1g	

Nutrition Information	Per 35 g bar
Calories	150
Fat	5 g (8 % DV)
Saturated Fat	1.5 g (8 % DV)
Trans Fat	0 g
Cholesterol	0 mg (0 % DV)
Sodium	95 mg (4% DV)
Carbohydrate	23 g (8 % DV)
Fibre	2 g (8 % DV)
Sugars	6 g
Protein	3 g
Vitamin A	0 % DV
Vitamin C	0 % DV
Calcium	2 % DV
Iron	6 % DV

Make your own

To get started, combine the following in a large bowl:

- 2 cups (312 grams) of oats
- 1 cup (200 grams) of nuts (almonds, walnuts, pecans, pistachios, etc.)
- 1 cup (220 grams) of packed dates
- 1/4–1/2 cup (65–130 grams) of nut butter
- 1/4 cup (60 ml) of maple syrup or honey (optional)
- mix-ins, such as dried fruit, coconut flakes, or chocolate chips

Be sure to pulse the dates in a food processor for about one minute and warm the nut butter and maple syrup or honey in a saucepan before adding them to the mixture.

Stir the ingredients together, add the mix to a lined baking dish or loaf pan, and allow it to set in the freezer for 20–25 minutes. Then slice, serve, and enjoy.

Post Exercise snack

For optimal performance, remember the three R's:

Refuel, **R**ehydrate, **R**eplenish

- Have a snack within 30-60 minutes and that is well-balanced
- The purpose of fuel following exercise is to support the recovery and repair of a youth athlete's growing body and to replace liver and muscle glycogen stores that were lost during exercise!!

Snack Idea post exercise

Idea 1

Smoothie

Ingredients:
2 cups milk (or milk alternative of choice)
1/2 banana
1/4 cup frozen pineapple
1/4 cup frozen mango
Handful fresh baby spinach
3 tbsp hemp hearts
2 tbsp plain kefir

Idea 2

Sandwich/wrap:

- Turkey and avocado
- Egg salad
- Ham & cheese
- Chicken salad
- Salmon sandwich

Competition Day

- Choose familiar foods eaten during training
- Eat a balanced meal 3-4 hours (larger snack 2 hours before).
- Adding protein to your meal can help delay the onset of hunger during competition.
- Then top up familiar and easy to digestible carbohydrates within 15-60 minutes of competing, such as a fruit, cereal bar or sports drink.


GAME DAY FUEL
3-4 hours
SIT for Pre-Game meal
sit down for a full quality meal
50% starch - 25% protein - 25% veggies
1-2 hours
SNACK
small amount protein & carbs
15-60 mins.
SIP
slow sipping water or sports drink
GAME
Hydrate - Refuel
8-12oz. water or sports drink every 20 minutes
30-90 mins.
Post-Game Meal
2:1 complex carbs to protein

Example of day of eating

Breakfast	Lunch	Supper	Snacks
Greek yogurt with sliced banana and granola	Wrap with turkey, lettuce, tomatoes, cucumbers hummus and a grapes	Beef Stir fry Mixed vegetables Rice	-Greek yogurt with berries -Apple and peanut butter -Cottage cheese and peaches

Hydration

How do fluids get lost?

Fluid loss mainly happens four different ways:

- **Exercise Intensity:** Exercising for hours (like in endurance sports or high intensity like sprints) means a greater need for fluids.
- **Sweating:** Some athletes sweat more than others, and those that sweat a large amount are at a greater risk of dehydration.
- **Temperature:** Exercising in hot weather increases the amount of fluid lost through sweating. Conversely, exercising in the cold can impair the ability to recognize dehydration and also increases the amount of fluid lost through breathing.

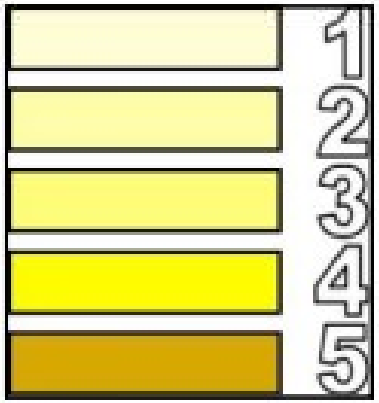

HYDRATION
HOCKEY PERFORMANCE

Importance of hydration

- Enhances the body's ability to regulate temperature and cool efficiently while avoiding unnecessary elevation in heart rate
- Improves ability to recover quickly from training and competition
- Minimizes muscle cramps
- Enhances mental function, decision making, concentration, and motor control
- Supports effective immune defenses

Hydration

Your pee color!



<1.009	Well-hydrated
1.009-1.020	Hydrated
1.021-1.025	Minimal dehydration
1.026-1.030	Significant dehydration
≥1.031	Severe dehydration

HOW MUCH WATER YOUTH ATHLETES SHOULD DRINK?

- Before activity, athletes should consume 400 mL to 600 mL of water 2 h to 3 h before their event.
- During sporting activities, athletes should consume 150 mL to 300 mL of fluid every 15 min to 20 min.
- **For events lasting less than one hour**, water is sufficient.
- For events lasting longer than 60 min and, sports drinks containing carbohydrates and sodium chloride are recommended to replace energy stores and fluid/electrolyte losses.
- The consumption of sodium-containing fluids and snacks after exercise helps with rehydration by stimulating thirst and fluid retention.

Energy Drinks

Energy drinks claim to "energize" you and make you more alert for short periods of time.

They should **NOT** be confused with sports drinks which rehydrate the body.

Why to avoid energy drinks

- They contain caffeine and other products that are not recommended for children and youth.

Possible Side Effects of Caffeine:

- Anxiety / nervousness
- Overstimulation / jitteriness
- Mental confusion
- Elevated resting heart rate
- Restlessness
- Inability to focus
- Gastric irritant
- Mild diuretic
- Insomnia / disrupted sleep
- Addiction (from overuse and reliance)

Why can I not just drink pop For hydration?

Any Questions!