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TOP FUEL

for Top Performance

TOP FUEL NUTRITION TIPS





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Want Top Performance?

Military personnel and athletes have a lot in common in their quest for Top Performance. Proper nutrition is fundamental to the “soldier-athlete”.

If you are serious about getting the most out of your workouts, it is vital that you regularly supply your body with nutritious food. Healthy eating packs a powerful punch, providing your body with the nutrients and energy to deliver maximum performance. It provides that winning edge!

This handbook will give you the up-to date, accurate information you need.



Top Fuel 101

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The human body needs many nutrients. These nutrients have been grouped into six basic ‘nutrient classes’:

- Water
- Carbohydrate
- Protein
- Fat
- Vitamins
- Minerals

These are available in the fluid you drink and food you eat.

Water is very important for most chemical reactions in your body. The human body is about 55-65% water.

Carbohydrate, in the form of blood glucose and muscle glycogen, is the main energy source for physical activity. Inadequate carbohydrate intake can lead to quicker fatigue time, lower physical and cognitive performance and potentially increase the risk of injury. **Therefore, carbohydrate is the most important source of energy.**

Protein is part of all body tissues (e.g. muscle, skin, hair), is needed for growth and repair of body tissues and is a necessary component of hormones, enzymes, the immune system and fluid balance.

Fat is a source of energy, supplies essential fatty acids and is needed to absorb fat-soluble vitamins (A, D, E and K). Because fat is absorbed slowly, it can also help reduce hunger.

Your body cannot make **vitamins** or **minerals** – you must eat them in your food. By selecting a variety of foods from four food groups, you can provide your body with all the needed nutrients.

- Vegetables and Fruit
- Grain Products
- Milk and Alternatives
- Meat and Alternatives



Carbohydrate Foods

- Bread, bagels, pita, crackers
- Cereal, oatmeal
- Pasta, rice, couscous, quinoa
- Potatoes
- Legumes (beans, split peas, lentils)
- Some vegetables (carrots, corn)
- Fruit, fruit juice
- Milk, yogurt
- Soy beverages
- Sugar, syrup
- Honey, jam
- Candy and sweets

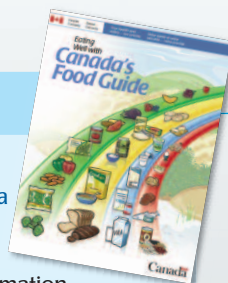


Protein Foods

- Meat, fish and poultry
- Legumes
- Tofu, soybeans
- Eggs
- Nuts, seeds
- Peanut butter
- Cheese
- Cottage cheese
- Milk, yogurt
- Soy beverage

Check it Out!

“My Food Guide” at www.myfoodguide.ca is an interactive tool that will help you personalize the information found in Canada’s Food Guide



Eat Smart Everyday!

Read the Label!

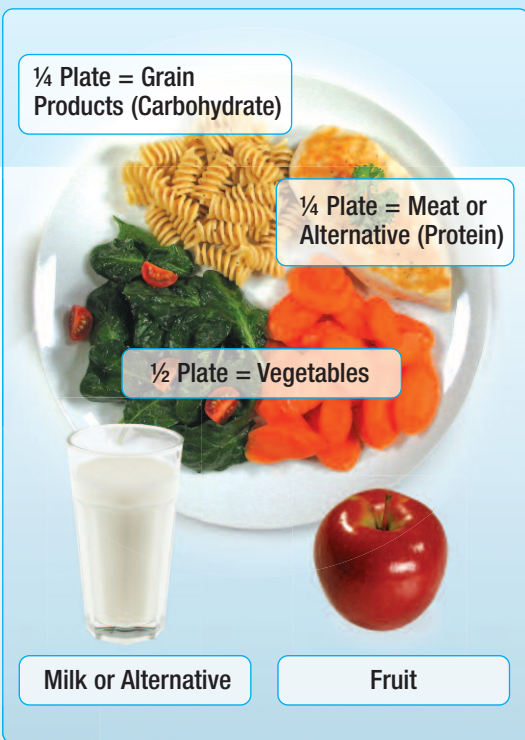
Everyday eating is the foundation for providing your body with the nutrients and energy to deliver Top Performance:

- Breakfast is the most important meal. Fuel up with quality foods.
- Stay energized throughout the day by eating smaller and more frequent meals. That means spacing your meals 4 to 6 hours apart.
- Include foods from at least 3 food groups at breakfast and all 4 food groups for your lunch and dinner.
- Choose carbohydrate and a little protein for snacks and meals. For example, a snack could be 8 crackers or an apple and 50 g cheese or yogurt.
- Drink water regularly. Drink more water in hot weather and when you are active.
- Use high fat and sugary foods in moderation.

• Rate your plate – about ½ of your plate should be covered with vegetables, ¼ with grains (carbohydrate) and ¼ with meat and alternatives (protein). Add milk and fruit to complete a balanced meal.

• For quick nutrition to go, carry portable and easy to eat items like juice boxes, dried fruit and cereal or granola bars. They are safe to eat at all temperatures.

• Remember what you eat is as important as how much you eat. Control portions to help manage your weight.



¼ Plate = Grain Products (Carbohydrate)

¼ Plate = Meat or Alternative (Protein)

½ Plate = Vegetables

Milk or Alternative

Fruit

Be a detective. Can you compare products and spot the Top Fuel options?

Compare the Nutrition Facts table on food labels and choose products that contain:

- Less total fat and saturated fat.
- No trans fat.
- Less sugar and sodium.
- More fibre, vitamins and minerals.

Check it Out!

When buying cereals, snacks and grains choose:

- 2 g* or less of saturated & trans fats
 - 3 g* or less of total fat
 - 4 g* or more of fibre
 - 5 g* or less of sugar
 - 200 mg* or less of sodium
- (* based on one serving)

Serving Size:

- The serving size listed is the amount of food on which all nutrient information is based.
- Always compare the serving size to the amount you actually eat.

Core Nutrients:

- The actual number of grams or milligrams of the specified core nutrient per serving size

% Daily Value:

- The vitamins and minerals are only given as a % Daily Value.
- Use % Daily Value (DV) to see if a food contains a little or a lot of a nutrient.

Ingredient List:

- Ingredients are listed from most to least by weight.
- The top 3 ingredients give you a good feel of what you are eating (carb, protein etc.)

Nutrition Facts

Per 4 cookies (30 g)

Amount	% Daily Value
Calories 130	
Fat 4 g	6%
Saturated Fat 1 g + Trans Fat 1 g	10%
Cholesterol 0 mg	
Sodium 80 mg	3%
Carbohydrate 23 g	7%
Fiber 0 g	0%
Sugars 6 g	
Protein 2 g	
Vitamin A 0 %	Vitamin C 0 %
Calcium 0 %	Iron 8 %

Ingredient List:

Whole grain rolled oats, sugar, canola oil, raisins, honey, juice concentrate, salt, natural flavours.



Make Your Choices Count!

Vegetables and Fruit

- Carrot, peas, green or yellow beans, celery, turnip
- Broccoli, cauliflower, cabbage
- Lettuce, spinach, kale, bok choy
- Tomato, cucumber, green or red pepper
- Squash, pumpkin, zucchini, eggplant, mushrooms
- Potato, sweet potato
- Apple, pear, peach, plum, apricot
- Orange, grapefruit, tangerine
- Strawberries, blueberries, raspberries and cherries
- Banana, mango, papaya, grapes, melon
- Raisins, dried apricots, dried cranberries, dates, figs
- 100% Juice – fruit or vegetable

Grain Products

- Cold cereals, oatmeal, Red River™ porridge
- Toast
- Pancakes, waffles
- Granola or cereal bars
- Rye or whole grain crackers
- Bagels, bread, pita or buns
- Pasta or couscous
- Rice, barley, quinoa
- Corn or flour tortillas
- Fig bars, oatmeal cookies
- Popcorn

Mix and match foods for your breakfast, morning and afternoon snacks, lunch and dinner. If you are doing a lot of physical activity, you may need an evening snack, too.

 **Include foods from all the food groups for your meals.**

Vegetables and Fruit

- Eat vegetables and/or fruit at each meal.
- Eat at least one dark green and one orange vegetable each day such as broccoli, romaine lettuce, spinach, carrots, sweet potatoes, winter squash and peppers.
- Have fruit more often than juice.

Grain Products

- Select whole grains more often to obtain more nutrients than from highly refined products alone.
- Eat a variety of whole grains such as whole grain breads, oatmeal, barley, brown rice, quinoa and wild rice.
- Compare the Nutrition Facts table on food labels to make high fibre choices.

Milk and Alternatives

- Select lower fat milk products and alternatives.
- Compare the Nutrition Facts table on yogurts or cheeses to make wise choices.

Meat and Alternatives

- Have meat alternatives such as beans, lentils and tofu often.
- Eat at least two 75g (2½ oz) servings of fish (salmon, sardines, trout, herring) each week.
- Select lean meat and alternatives prepared with little or no added fat or salt.
- Limit high fat luncheon meats, wieners, sausages, salami and bacon.

Fats and Oils

- Include a small amount (30 – 45 mL or 2 – 3 Tbs) – of unsaturated fat each day. This includes fat used in cooking, salad dressing, margarine and mayonnaise.
- Compare the Nutrition Facts table on food labels to make low in saturated fat and trans-fat free choices.

Fluids

- Satisfy your thirst with water. Drink water regularly. It's a calorie-free way to quench your thirst.

Sugar, Sweets and Salt

- Limit foods and beverages high in sugar such as cakes, pastries, chocolate, candies, cookies and doughnuts.
- Reduce or limit salt in cooking and at the table. Cook using fresh ingredients and add flavour with herbs, spices and lemon juice instead of salt.
- Read the Nutrition Facts, compare similar items, and choose foods with less sodium.

Milk and Alternatives

- Milk, yogurt drinks or fortified soy beverage
- Yogurt, kefir
- Cheese
- Cottage cheese, frozen milk desserts

Meat and Alternatives

- Chicken, turkey, beef, lamb, pork
- Fish, seafood, canned fish, smoked seafood
- Eggs
- Beans, chickpeas, lentils in chili, stews, soups or salads
- Tofu in stir fries or soups
- Nuts and seeds
- Peanut butter and other nut butters

Fats and Oils

- Olive, canola, soybean, other vegetable oils
- Salad dressing using vegetable oils
- Non-hydrogenated margarine
- Butter (in moderation)

Fluids

- Water
- Mineral water
- Milk or juices – individual containers to carry with you
- Blender drinks – fruit and yogurt or milk or soy beverage



Focus on Hydration!

Being well hydrated is critical for optimal performance. With the exception of alcohol, all fluids you consume count as water/fluid. Beverages such as juice, milk, coffee and tea all provide water.

Fluid is important, especially in extreme conditions:

- You need at least 2 litres (8 cups) to replace fluid you lost through sweat, breathing etc.
- Physical activity dulls thirst. By the time you are thirsty, you are somewhat dehydrated.
 - Weight loss of 2% of your body weight is a sign of dehydration and can lower performance by 15 to 20%.
- Dehydration causes fatigue, cramps, increased body temperature, decreased muscle co-ordination, and poor performance. Severe dehydration can lead to heat exhaustion, heat stroke and death.

Fluids for your workouts

- Test new fluids in training to find out what works for you. See table on the next page for specific fluid recommendations.
- Sport drinks are practical for most longer-lasting workouts. 100% fruit juice packs a bigger nutritional punch, so try to make your own sport drink using your favourite fruit juice. See recipes attached.

Make a plan for fluid intake!

- During the day, drink water, milk, juice, and eat foods like vegetables and fruit.
- Carry a personal water bottle for a drink at any time.
- Monitor your fluid status: urine volume and colour are simple indicators of hydration status.
 - Ample quantities of lemon juice-coloured urine = well hydrated.
 - Dark coloured, small volume, infrequent urination = dehydration... *drink more fluids!*

Homemade Sport Drink Recipes

Makes: 1L (4 cups)

Sport Drink A

500 mL (2 cups) fruit juice
500 mL (2 cups) water
1.5 mL (¼ tsp) salt

Nutrition Information
Per 250 mL (1 cup):
58 calories
13 g carbohydrate (5.4%)
150 mg sodium

Food Guide Servings:
1 Vegetable and Fruit serving

Sport Drink B *(with less fructose)*

60 mL (¼ cup) fruit juice
925 mL (3¾ cup) water
60 mL (4 Tbsp) sugar
1.5 mL (¼ tsp) salt

Nutrition Information
Per 250 mL (1 cup):
56 calories
14 g carbohydrate (5.7%)
150 mg sodium

Food Guide Servings:
No significant amount per serving

BEFORE EXERCISE		DURING EXERCISE		AFTER EXERCISE
WHEN	GOAL	FLUIDS	FOOD	SUGGESTIONS
2-4 hrs before	Provide energy and prevent dehydration and hunger during exercise	Drink about 300-600 mL (1-2½ cup)	Eat a balanced meal rich in carbohydrate with some protein and low in fat	<p>Meal Suggestions</p> <ul style="list-style-type: none"> Rice, vegetables, lean meat and milk Pasta, tomato/lean meat sauce, apple sauce, milk Lean meat sandwich and juice Pancakes with fruit, yogurt and nuts
1-2 hrs before	Stay hydrated	Drink about 150-350 mL (½-1½ cup)	Eat a snack high in carbohydrate or a liquid meal	<p>Snack Suggestions</p> <ul style="list-style-type: none"> Smoothie using fruit, milk, soy milk or yogurt Chocolate milk Pita with hummus and vegetable juice A slice of bread with peanut butter and milk Low-fat muffin and fruit yogurt
lasting < 1 hr	Stay hydrated and provide energy	Drink water to thirst	Not needed	<p>Sport drink (commercial or homemade):</p> <ul style="list-style-type: none"> Carb concentration of 4-8% (40-80 g carb per litre of fluid) Sodium intake of 0.5-0.7 g (¼ tsp salt) sodium per litre fluid <p>Water with carbohydrate foods:</p> <ul style="list-style-type: none"> Fruit (e.g. bananas, oranges, dates) Granola bars, cookies, candies, bagels Special sport gels, bars or candies
lasting > 2 hr	Stay hydrated, provide energy and replace sodium	Drink about 150 to 350 mL (½-1½ cup) every 15 or 20 minutes (0.5-1.5 L per hour of exercise)	If needed, easily digested foods high in carbohydrates	<p>Meal Suggestions</p> <ul style="list-style-type: none"> Bagel and chocolate milk or yogurt Sandwich and juice Granola bar and juice or yogurt drink
lasting > 3hrs	Replace fluids and rebuild carbohydrate stores and repair muscles	Drink fluid as soon as possible	Include sodium in food or fluid	<p>Meal Suggestions</p> <ul style="list-style-type: none"> Pasta with tomato sauce, cheese and a salad Chicken and vegetable rice, fruit salad and milk Tuna sandwich, raw veggies and a glass of milk Chili, bread and milk
0-2 hrs after exercise	Replace fluids and rebuild carbohydrate stores and repair muscles	Drink fluid as soon as possible	Tip: Urine amount and color is a good indication of hydration status. Aim for pale yellow!	<p>Tip: The tolerance is individual and depends on the type/intensity of exercise (marching vs. running). Avoid trying new foods or drinks before or during competition or rucksack march.</p>
		Tip: Drink 1.5 L of fluid for every 1 kg weight loss during exercise		

Focus on Protein



- Very active soldiers and athletes need slightly more protein than other people to repair the small amounts of muscle damage.
- Consuming too much protein may increase your body's water requirement and may contribute to dehydration.
- Some active individuals consume very large amounts of protein believing this will enhance muscle size and strength. These practices are neither necessary nor beneficial.
- To increase muscle size and power you need to:
 - Increase your resistance training and
 - Add a little extra energy, not extra protein.

After training, your muscles are primed for growth and repair. Your recovery plan should include carbohydrate, a little protein, fluids and electrolytes.

Protein for muscle building...

There's a cheaper whey! The average Canadian diet supplies more than enough protein for athletes. If however you are not getting enough, rather than spending big bucks on protein powders, try good old **skim milk powder** – it's cheaper and contains whey as well as other proteins. Try mixing skim milk powder into milk, pudding, soups, sauces, and casseroles.

Supplements

To improve performance, athletes are often tempted to turn to performance enhancing supplements. These products can be harmful, especially when used excessively or in combination with other products.

In Canada, supplements are divided into **nutritional supplements** and **dietary supplements**.

Nutritional supplements include sport drinks, sport bars, gels, most protein powders and meal replacement drinks. They are regulated as foods in Canada and must have a Nutrition Facts table on the package.

Dietary Supplements are tablets and capsules, amino acids, energy drinks, herbal remedies and vitamin-mineral supplements. They are regulated differently than food. These products will have a Natural Product Number (NPN) or Homeopathic Medicine Number (DIN-HM) on the label if they are legally approved for sale in Canada.

Bottom line:

- Do not depend on dietary supplements for success.
- If you choose to use supplements, always look for NPN or DIN-HM on these product.
- Licensed Natural Health Products Database at www.hc-sc.gc.ca/dhp-mpps/prodnatur/index-eng.php contains product specific information on those natural health products that have been issued a product licence by Health Canada.
- Remember, being "natural" or approved for sale is still no guarantee that the supplement is risk free.

Sport Supplements

Beware... If it sounds too good to be true – it probably is. There is no magic bullet or potion that will take the place of hard work and smart food choices.



Make a Food Plan for Travel

Stick to your Healthy Eating Plan

Before you leave, make a plan to eat your usual food. You may want to pack dishes, cutlery, can opener and a sharp knife.

Make a list of what you can buy and what you need to take with you.

For the trip, you may wish to carry fluid and healthy portable foods:

- Water (water bottle)
- Fruit or vegetable juice (drinking boxes)
- Bread, bagel, whole grain rolls
- Crackers or crisp breads
- Dry cold cereal (in a zip lock bag)
- Cereal or granola bars
- Fresh, canned or dried fruit
- Trail mix - nuts, seeds, cereals, dried fruit
- Raw vegetables
- Plain cookies (oatmeal, fig Newton's, gingersnaps, digestive)
- Peanut butter
- Tuna in cans with pull off-lids or pouches
- Canned beans

If you have a cooler, you could add:

- Milk or chocolate milk
- Yogurt, yogurt drink or pudding
- Hard boiled eggs
- Cheese
- Meat sandwiches

Top Fuel Eating Out Ideas

Plan ahead to develop food selection strategies that result in high performance:

- **Know your nutritional goals** – follow Top Fuel Tips in this handbook to guide you.
- **Check the menu** – Words such as fried, crispy, breaded, scampi-style, creamed, buttery, au gratin, and gravy all suggest high fat content. Better choices are items described as: steamed, broiled, charbroiled, poached, marinara, tomato sauce, and “in its own juice”.
- **Plan your plate** – Make use of menu boards and websites before entering the dining hall so that you can pre-plan your meals.
- **Source menu nutrition information** – If you are unsure of the foods served, ask food service staff.
- **Salad dressings and toppings** – salad dressings and toppings such as dips, sour cream, mayonnaise, gravy can raise calories and fat if used in excess. Choose dressing on the side and control portions. Go for healthy toppings such as: salsa, lemon juice, vinaigrettes, mustard, low fat mayonnaise, yogurt and cottage cheese.
- **Healthy sides** such as baked potato, side salad, double the vegetables and fruit, instead of French fries, onion rings, garlic bread, poutine and hash browns.
- **Desserts** – Opt for fresh fruit, frozen yogurt, sherbet, ice milk, or yogurt. If you do choose a dessert, go for a small portion.
- **Drinks** – Large servings of pop or other sweetened beverages can add lots of sugar and excess empty calories. Substitutes include water with slice of lemon or a glass of milk.

In restaurants, dining halls and fast food outlets, look for:

- Pasta or rice meals with vegetable toppings and meat or legumes (beans)
- Baked potato, with vegetable and meat
- Chili con carne, bread and salad
- Plain hamburger or meat in a bun with lots of vegetables and little sauce
- Pizza topped with vegetables and less cheese.
- Soup and sandwiches, salad and fruit
- Bagel with lean meat and raw vegetables
- Lower-fat muffin, yogurt and fruit
- Breakfast cereals, toast and boiled or poached egg
- Pancakes or waffles with fruit and a little syrup and lean meat like ham

If water safety is an issue, use bottled water or use water purification. Avoid ice cubes if water safety is questionable.



Hungry for More Information?

For more information on general and sport nutrition:

- Coaching Association of Canada www.coach.ca
- Dietitians of Canada www.dietitians.ca (member's site)
- Eat Right Ontario www.eatrightontario.ca
- Health Canada www.hc-sc.gc.ca
- Sport Dietitians Australia www.sportsdietitians.com.au (*English only*)
- Le centre de référence en nutrition de l'Université de Montréal www.extenso.org (*French only*)

Visit the Strengthening the Forces Health Promotion staff. There are professionals and programs that can help you with healthy eating, exercise, weight and stress management:

www.forces.gc.ca/health-sante/ps/hpp-pps

