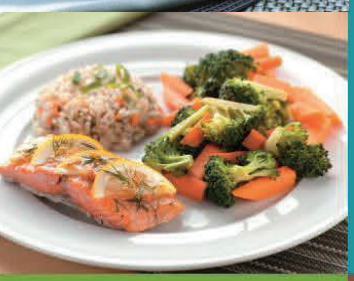

Sports Nutrition for Youth: A Handbook for Coaches

Alberta Health Services

Nutrition Services

Healthy Eating Starts Here

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Introduction

"Good nutrition accounts for 50% of my performance, with 40% being mental and 10% being physical."

–Five-Time Canadian Olympian Hayley Wickenheiser

Proper nutrition and hydration have a major impact on young athletes' health and sports performance across all levels of training and competition. When athletes want to improve their physical skills – whether it is strength, speed, endurance, or power – they need to train well and eat well. Athletes who invest time to plan for healthy eating and hydration get more out of their training, perform better during competition, refuel their bodies faster, and have less illness and injury.(1)

Athletes often look to coaches as the most trusted source of nutrition information over parents, friends, teachers, or dietitians.(2) It is vital that coaches act as healthy role models who support athletes to make smart food choices for improved overall health and sport performance. Coaches can also work with parents, athletes, teachers, and the community to create healthier eating environments that support athletes to eat well at home, at school, on the road, in recreation centres, and in other spaces where they train or compete. When the healthy choice is the easy choice, athletes are more likely to eat well and perform better.

The information in this handbook is based on current research and best practice in sports nutrition at the time of publication. For young athletes, proper nutrition is more important than ever because they must eat well to support both healthy growth and optimal sports performance. Active youth need to learn how to follow a well-balanced approach to eating which includes healthy amounts of fluid, protein, fat, carbohydrate, and other key nutrients.

Purpose of this Handbook

Sports Nutrition for Youth: A Handbook for Coaches has three main purposes:

- To help school and community coaches support young athletes and their parents in making informed choices around good nutrition and hydration for sports performance.
- To provide ideas on how coaches can help build healthier eating environments for athletes at home, at school, on the road, and in recreation centres.
- To help coaches address unique concerns such as vegetarian diets, body image, alcohol, and nutrition supplements.

Please Note:

This handbook aims to support coaches who work with recreational athletes, rather than elite athletes. Coaches should always consult a sports dietitian for young athletes who compete at an elite level or who need special nutrition advice. The College of Dietitians of Alberta maintains a list of registered dietitians in the province who focus on sports nutrition. The Coaches Association of Canada also provides a list of sports dietitians.

Learning Outcomes

By using the information in this handbook, coaches will be able to:

- Speak to the value of eating healthy every day to support an athlete's training plan and well-being.
- Understand and value their role to promote healthy eating in the home, at school, in the community, on the road, and in recreation centres.
- Provide ideas for good eating habits by using Canada's Food Guide.
- Help athletes learn to make healthy food and fluid choices to fuel their bodies before, during, and after activity when they train, compete, or travel.
- Address special concerns that may affect some athletes:
  - the effects of alcohol on health and sports performance
  - the safe use of nutrition supplements
  - body image issues
- Locate and use other credible online resources and tools that can support athletes and parents.
- Locate and use credible online resources and tools that help build healthy eating environments at home, at school, in the community, on the road, and in recreation centres.
- Identify when to refer athletes to health professionals or sports dietitians for support.

How to Use this Handbook

Each chapter follows the same format and has three to five key sections:

1. **Key Teaching Points** that spotlight the main nutrition messages from the chapter. When you don't have time to cover all of the information, you can refer to the key teaching points for ideas to share with your athletes.
2. **Background Information** that provides more detail and research about the topic of each chapter. This section explains the 'what' and 'why' behind the key messages and includes details such as meal, snack, and drink examples.
3. **Role of the Coach** which outlines many ideas on 'how' coaches can support the key messages of the chapter.
4. **Teaching Tools and Resources** which are available online and can help coaches add more detail when talking about nutrition issues with athletes and parents. These tools and resources include websites, articles, handouts, or activity sheets that can be passed along to your athletes and parents to provide extra ideas to help athletes eat healthy.
5. **Suggested Activity** which offers coaches ideas on specific activities for use with their athletes to help teach the key messages of the chapter.

The *Glossary of Terms* in the appendices provides definitions for many key words that may be new to some readers.

Coaches

Coaches: A Source of Nutrition Information

Key Teaching Points

1. Young athletes often view coaches as the most trusted source of nutrition information.

2. Coaches can support their athletes to eat healthy by sharing the information in this manual with athletes and their parents.

3. Coaches can lead new ways to work with athletes, parents, teachers, and other key decision makers to ensure healthy food choices are available in the settings where athletes live, study, train, compete, and play.

Background Information

Coaches play an important role in teaching athletes and their parents about nutrition and sports performance because the coach is often viewed as the most trusted source of nutrition information.(2) There are three key environments which impact the food choices of teen athletes: home, schools, and recreation centres. When coaches educate athletes, parents, teachers, and the community about healthy eating for sports, it may create more demand for better quality food options in all of these environments. This could inspire athletes, parents and spectators to select healthier foods.

Role of the Coach

How to Talk About Sports Nutrition with Young Athletes

- Use the information in this handbook to teach or remind athletes and parents about healthy eating habits to provide fuel for better sports performance.

- Offer a session on sports nutrition for parents and/or athletes where you outline the role of nutrition and healthy eating goals for sports performance.

- Set nutrition targets for teams and athletes. Good examples include:
    - to plan healthy food choices at home, at school, in the community, and on the road
    - to plan healthy meals, snacks, and drinks before, during, and after training or competition
    - to plan healthy meals, snacks, and drinks during travel

- Work with athletes, parents, teachers and community members to assess and promote healthy eating environments in schools and recreation centres.

- Include a ‘healthy eating tip of the week’ on schedules.

- Talk about healthy food and drink ideas while travelling on a bus or when athletes are changing or stretching.

- Add healthy eating tips to your team talks or at the start or end of practice. If you keep healthy eating top of mind, athletes will be more likely to reflect on the food and drink choices they make.

- Contact local restaurants or the host school to ask if they are willing to provide high carbohydrate, low fat meals before games during a tournament or competition. Let your athletes know which restaurants are on board.

Teaching Tools and Resources

Coaching Association of Canada provides information on coach training and certification as well as tips on how to coach specific sports.

Healthy Eating

Eating Well with Canada's Food Guide

Key Teaching Points

1. Athletes need to consume the daily recommended food guide servings based on their age and gender.

2. Athletes need to consume a variety of foods from all four food groups to meet their energy and nutrient needs.

3. Athletes may need to consume extra food servings to meet their energy demands on days when they train or compete.

4. Athletes may need slightly more protein for muscle growth and repair, but they can consume enough protein by eating extra servings of Milk and Alternatives or Meats and Alternatives.

Background Information

Canada's Food Guide suggests that people of all activity levels enjoy a range of foods from each of the four food groups on a daily basis.(3) The number of daily servings for each of the four food groups is based on age and gender to ensure individuals are meeting their unique nutrition needs at each stage of life. By choosing a good mix of foods from each of the four food groups, athletes will have all the energy and vitamins and minerals they need to support the demands of growth, training, and competition.(4)

On days when athletes train or compete at high intensity or for long periods of time, they may need to consume extra food servings to meet increased energy demands, refuel their muscles, and maintain a healthy body weight.(1) Athletes should choose extra food servings from a balance of all four food groups to ensure they receive more of all key nutrients. Athletes need to eat and drink enough to avoid fatigue and to satisfy their hunger and thirst.

Table 1: Daily Number of Canada's Food Guide Servings for Youth Aged 12–18 Years

Food Group	Number of Food Guide Servings per day for youth				Sample Serving Sizes
	Females 12-13 years	Females 14-18 years	Males 12-13 years	Males 14-18 years	
Vegetables and Fruit	6	7	6	8	125 mL (½ cup) of fresh, frozen, or canned vegetables and fruit
Grain Products	6	6	6	7	125 mL (½ cup) cooked pasta, brown rice, quinoa, or couscous
Milk and Alternatives	3-4	3–4	3-4	3–4	250 mL (1 cup) milk or fortified soy beverage
Meat and Alternatives	1-2	2	1-2	3	75 g (2 ½ oz) cooked fish, poultry, or lean meat

How Can Athletes Choose Balanced Meals and Snacks?

Athletes should aim to include all four food groups to make a balanced meal, and at least two of the four food groups to make a healthy snack. This advice helps athletes receive a balanced mix of carbohydrates and protein as well as their daily needs for other key nutrients such as fibre, vitamins and minerals.

What is the Difference between a Portion and a Serving?

A portion is the amount of a certain food an athlete chooses to eat at one time. A serving is a fixed amount of a food based on Canada's Food Guide. This means a large portion of a food is likely more than one serving of that food, whereas a small portion of a food could be less than one serving.

For example, if an athlete eats a 250 mL (1 cup) portion of carrots, they are eating two 125 mL (½ cup) Canada Food Guide servings of carrots; but if an athlete consumes 125 mL (½ cup) of milk, they are only drinking one half of a 250 mL (1 cup) Canada Food Guide serving. Health Canada provides the My Food Guide Servings Tracker tool to help people of all ages and genders figure out the number of servings of a food they are eating. Alberta Health Services has a resource to help everyone Choose Healthy Food Portions.

The Four Food Groups

Each of the four food groups offer different types and amounts of key nutrients.

Vegetables and Fruit

Athletes may need to consume more servings from the Vegetables and Fruit food group to ensure they meet their energy needs and to help their bodies recover well.

- Vegetables and fruit provide many vitamins and minerals. Canada's Food Guide recommends eating at least one dark green and one orange vegetable each day. Orange vegetables such as carrots, yams, and spaghetti squash are high in beta carotene which can help protect the body's cells from damage.(1) Green vegetables such as broccoli, kale, and snap peas are high in folic acid which helps make red blood cells and repair tissue.(1)
- Most vegetables and fruit contain carbohydrates that provide the body with energy.
- Many vegetables and fruits provide vitamin C which helps protect and repair body cells that are broken down by intense physical activity.(1) Athletes will benefit if they choose vegetables and fruit that are high in vitamin C such as oranges, grapefruit, strawberries, bell peppers, tomatoes, and broccoli.

Grain Products

Athletes may need to eat more servings of Grain Products to help meet their energy needs.

- Grain Products are high in carbohydrate which is the best source of fuel for athletes who need to supply more blood sugar to the brain and muscles during activity.(5)
- The body stores carbohydrate as glycogen in the muscles and the liver. When an athlete does not store enough carbohydrate, they are at much greater risk of tiring quickly, having too little energy to train, or performing poorly during competition.(6)
- Athletes should enjoy whole grains as often as they can because they contain more nutrients, such as B vitamins and fibre, than refined (white) grains.

Milk and Alternatives

Athletes need to consume enough Milk and Alternatives to promote bone growth and prevent bone damage. The teen years (ages 11–17) are a key time for building healthy bones.(7)

- Milk and Alternatives are the best sources of calcium and vitamin D, which help build strong bones, muscles and nerves.
- Milk and Alternatives are also a source of carbohydrate and protein. Protein helps build and maintain muscles and other body tissues.

Meat and Alternatives

Active people have slightly higher protein needs than those who are less active, but they can easily get enough by following Canada's Food Guide. Athletes who eat too much protein may not consume enough nutrients from the other food groups. Please refer to the *Nutrition Supplements* section starting on page 64 for more information on protein.

- Meat and Alternatives are the best sources of protein. Protein helps build and maintain muscles and other body tissues.
- Many of the foods in the Meat and Alternatives food group are also good sources of other nutrients such as iron. Iron helps the body to use and carry oxygen to active muscle.(4)
- It is a good choice for athletes to include meat alternatives such as legumes (kidney beans, brown beans, chickpeas, lentils, and split peas) in their diet because they are high in fibre, low in fat, and a source of carbohydrate, protein, and vitamin and minerals.
- When eating meat alternatives such as legumes, athletes should also include a source of vitamin C (refer to Vegetables and Fruit above) to increase the amount of iron they absorb from these foods.
- Athletes can easily meet protein needs without reducing their carbohydrate intake. High protein, low carbohydrate diets are not a good choice for sports performance since carbohydrates are the body's preferred source of energy.

Teaching Tools and Resources

Visit Health Canada to order copies of Canada's Food Guide for free.

My Food Guide Servings Tracker helps users track the type and amount of food they eat each day so they can compare their daily intake to Canada's Food Guide recommendations.

EATracker helps users track their eating and activity choices, analyze recipes, plan meals, and set goals for healthy eating and physical activity.

Alberta Health Services' Choose Healthy Food Portions teaches how to measure a healthy portion size.

Food Guide Servings for 13 to 18 years shows pictures of Canada's Food Guide serving sizes for youth people.

Alberta Health Service's Inspiring Healthy Eating organized by types and main meals, so you can easily find the one you need.

Suggested Activity: Track Your Food Intake

Learning Objective:

Athletes will learn how to compare their food and drink intake to the Canada's Food Guide to find out if they need to make any changes to support health and sports performance.

Materials Needed:

- Access to the online tool My Food Guide Servings Tracker
- *3-Day Food and Activity Journal*, see Appendix 2.0, (page 94)
- Pen

Activity:

1. Ask your athletes to write down their food and drink intake and portions for 1 to 3 days. If keeping track for 3 days in a row, athletes should include a weekend day in case they choose different foods on these days. Athletes can use the *3-Day Food and Activity Journal* to help with tracking.

2. Athletes can then compare their intake with the Canada's Food Guide through the online tool My Food Guide Servings Tracker.

Suggested Activity: Create Your Own Healthy Food Guide

Learning Objective:

Athletes will learn how to set up their own healthy food guide.

Materials Needed:

- Access to the online tool My Food Guide.

Activity:

1. Have the athletes create a personal food guide using My Food Guide.

Alberta Nutrition Guidelines: An Overview

Key Teaching Points

1. The Alberta Nutrition Guidelines for Children and Youth apply to schools, recreation centres, and childcare settings.

2. The Alberta Nutrition Guidelines for Children and Youth outline a food rating system to classify foods into the categories of Choose Most Often, Choose Sometimes, and Choose Least Often to help Albertans make informed food choices.

3. The Alberta Nutrition Guidelines for Adults are very similar to those for children and youth and encourage parents to create a healthy food environment in the home.

Background Information

The Alberta Nutrition Guidelines for Children and Youth are designed to assist Albertans to build an environment which provides healthy food choices to promote healthy eating habits.

These guidelines can be used wherever food is offered to children and youth in schools, recreation and community centres, and childcare settings.

The Food Rating System

This rating system puts all foods into three categories based on certain nutrition criteria. The three classes are: Choose Most Often, Choose Sometimes, and Choose Least Often.

Choose Most Often - High nutrient foods
These foods and drinks should be consumed daily, in appropriate amounts and portion sizes based on age category. All recommended healthy choices in Eating Well with Canada's Food Guide. Example: an apple.

Choose Sometimes - Moderate nutrient foods
While these foods and drinks may still provide beneficial nutrients, they tend to be higher in added sugar, unhealthy fats or sodium (salt). Example: sweetened applesauce.

Choose Least Often - Low nutrient foods
These are foods and drinks that are low in nutrients and higher in sugar, fat and salt and may contain sugar substitutes. Example: apple flavoured drink.

The food criteria outlined in the Alberta Nutrition Guidelines for Children and Youth are based on Canada's Food Guide serving sizes. A food must meet all criteria to fit into a certain category.

The Alberta Nutrition Guidelines for Adults

The *Alberta Nutrition Guidelines for Adults* are meant to help Albertans build healthier eating environments in their homes, at work, and in public settings. The difference between the adult resource and the children and youth resource is that the adult guidelines allow for caffeine and sugar substitutes in the daily diet. Caffeine and sugar substitutes are not recommended for children and youth. This resource can guide food shopping and cooking methods at home and in public settings.

Teaching Tools and Resources

Alberta Nutrition Guidelines for Children and Youth: An Overview

Healthy Eating for Children and Youth in Schools: A booklet to help you understand the Alberta Nutrition Guidelines for Children and Youth.

Healthy Food Checker: A tool to compare the nutrition criteria from a Nutrition Facts table to find out if your food or beverage choice is a Choose Most Often, Choose Sometimes, or Choose Least Often based on to the Alberta Nutrition Guidelines.

Healthy Eating in Recreation and Community Centres: A booklet to help you understand the Alberta Nutrition Guidelines for Children and Youth.

The Alberta Nutrition Guidelines for Adults

Alberta Health Services, Healthy Eating Starts Here

Key Teaching Points

1. Alberta Health Services has developed the Healthy Eating Starts Here: Steps to a Healthier You campaign to help Albertans learn what it means to eat healthy and how to make personal changes in their eating habits where they live, work, learn or play.

2. There are many online resources, tools, and handouts that can support athletes and their parents to achieve the *Healthy Eating Starts Here* messages.

Background Information

Healthy places make healthy eating possible.

Healthy eating starts where you live, work, learn and play.

Alberta Health Services (AHS) has developed the Healthy Eating Starts Here: Steps to a Healthier You campaign to help Albertans learn what it means to eat healthy and how to make personal changes in their eating habits where they live, work, learn or play.

Healthy eating is an important lifestyle behaviour that promotes health. The *Steps to a Healthier You* are based on nutrition messages from the Alberta Nutrition Guidelines for Adults, Alberta Nutrition Guidelines for Children and Youth and other provincial and national guidelines:

1. Set Goals for Healthier Eating

- Commit to a plan to eat healthier.
- Choose small changes that will work for you.
- Goals to start with include:
  - Drink enough water
  - Make time for breakfast
  - Pack fruit for a healthy snack

2. Choose and Prepare Healthy Food

- Read labels and choose foods higher in fibre and lower in fat, sodium, and sugar.
- Use healthy cooking and baking methods.
- Flavour foods with spices, herbs, vinegars or ground seeds.

3. Eat More Vegetables and Fruit

- Plan to eat enough servings of vegetables and fruit every day.
- Use vegetables and fruits to add colour to your meals.

4. Choose Whole Grains

- Enjoy whole grain foods to increase your fibre intake.
- Try grains like whole wheat, quinoa, barley, rye, oats, millet, or brown rice.
- Read ingredient lists on labels, look for words such as; "whole grain", "whole wheat", "oats", "cracked wheat", and "whole rye".

5. Know Your Portions

- Plan a healthy plate! Fill half your plate with vegetables and fruit.
- Use Canada's Food Guide to learn how much food is right for you.

6. Choose Healthy Drinks

- Drink water throughout the day.
- Drink milk at meals.
- Limit juice to 125 mL (½ cup) per day.
- Avoid drinks with added sugar.

The Healthy Eating Starts Here website also has a number of resources to help coaches support athletes and parents to make healthier food choices at home, at school, on the road, and at recreation centres.

Teaching Tools and Resources

For more information on handouts and resources that support the Healthy Eating Starts Here messages visit: www.healthyeatingstartshere.ca. Here you will find resources to help you achieve each goal:

Set Goals for Healthier Eating

Choose and Prepare Healthy Foods

Eat More Vegetables and Fruit

Choose Whole Grains

Know Your Portions

Choose Healthy Drinks

Healthy Eating Environment

Promoting Healthy Eating at School

Key Teaching Points

1. Proper nutrition is important for healthy growth, effective learning and strong sports performance.

2. It is recommended that schools have healthy environments that offer and sell healthy foods and drinks to students and staff that support learning and work.

3. Developing and implementing a school (or school district) nutrition policy is a key way to ensure a school offers and sells healthy foods, drinks, and snacks.

Background Information

Good nutrition promotes physical growth, helps prevent chronic disease, and supports learning among children and youth. Students who meet their nutrition needs are better able to focus on learning and classroom activities. Teens are more likely to develop better eating habits when the school environment helps them learn to enjoy healthier food and drink choices.(8)

Whether young athletes are on school teams or community teams, they are all still students. A school environment that offers and sells healthy foods better supports students' school and sports performance. Students spend about one third of each weekday at school, so a healthy eating environment supports them by making the healthy choice an easier choice.

Role of the Coach

Coaches and athletes can promote a healthy school food environment through:

1. **Healthy Non-Food Rewards**
    - Support positive behaviour through rewards that do not include unhealthy food options such as candy or chocolate.
    - Some ideas for rewards include:
        - free music download
        - gift card for a sports store
        - movie pass
        - pass to a bowling alley, swimming pool or social activity
        - ticket to a sports event
        - paid registration in a sports event such as a fun run
        - admission to museum or art gallery
        - recognition on team's social media page
        - e-book download
        - gift card to a massage therapist
        - water bottle or thermos
        - sunscreen
        - travel-size toiletries
        - frisbee, soccer ball, baseball, football

2. **Healthy Fundraisers**
    - Sell healthy food such as fruit or non-food items such as poinsettias.
    - Host healthy social activities and events such as dance-a-thons.
    - See Healthy School Fundraising for more ideas.

3. **Healthy Foods at Special Events**
    - Take the focus away from the food and place it on fun and social connections instead.
    - Start new healthy food customs at parties or track and field days.
    - Ask parents and volunteers to serve or sell Choose Most Often or Choose Sometimes foods rather than Choose Least Often foods, see page 15 for more information.

4. **Healthy Vending, Canteens and Cafeterias**

- Ask for healthy meals, snack items, and drinks in school cafeterias, canteens, and vending machines.
- Suggest taste tests or student surveys to determine which healthy options athletes and their friends are willing to eat.
- See The Healthy Vending Toolkit for ideas.

5. **Healthy Foods at Sporting Events**
   - Ask schools and food vendors to promote and sell healthy snacks, drinks, and meals during competitions and sporting events.
   - Let guest teams know that there will be healthy options for their athletes – this is a great chance to lead by example.
   - See Hosting Healthy Eating at Sporting Events Toolkit for more ideas.

6. **School Meal and Snack Programs**
   - Support any plans for healthy breakfast, lunch, or snack programs in schools.

7. **Healthy Nutrition School Policy**
   - For long-term healthy options, work with school leaders and student/parent councils to lobby the school or school district to develop a nutrition policy that supports healthy food options.
   - Use the Building Healthy School Communities and Steps to Creating a School Nutrition Policy resources.
   - Complete the suggested activity below to get started!

Teaching Tools and Resources

Healthy Eating for Children and Youth in Schools: A booklet to help you understand the Alberta Nutrition Guidelines for Children and Youth.

Healthy Eating Starts Here: Pages on Alberta Health Services website with information to help school communities incorporate healthy food knowledge and environments; also includes curriculum based lesson plans, newsletter inserts, and more.

Healthy Food Checker: A tool that compares the nutrition information criteria from a Nutrition Facts table to the Alberta Nutrition Guidelines. Find out if your food or beverage choice is Choose Most Often, Choose Sometimes or Choose Least Often.

Snack Shack Manual: Provides ideas of foods to sell in school vending, cafeterias, and canteens.

Healthy School Fundraising: Provides ideas from Alberta Health Services to help raise funds at your school without selling unhealthy foods.

Special Lunch Days: Tips on healthier food items to serve on hot lunch days or at special events. This is a really helpful resource for schools that may not have access to common food chains and restaurants.

Hosting Healthy Sporting Events: An electronic toolkit to help with planning school and community recreation sporting events.

Steps to Creating a School Nutrition Policy: A step-by-step guide to help your school district or school to draft a nutrition policy.

Building Healthy School Communities: Web pages from Alberta Health Services that includes practical information, resources, and tools that support comprehensive school health.

Suggested Activity: Create a Nutrition Policy at School

Learning Objective:

Athletes will:

1. Learn more about how to set up a school nutrition policy.
2. Be able to determine whether there is a need for a policy for their school or division.
3. Be able to assess their current school food environment and identify strengths and areas to improve.

Materials Needed:

- Paper
- Pens
- Internet to access school division and school websites to check for policies
- Steps to Creating a School Nutrition Policy resource
- Building Healthy School Communities website
- Healthy Eating Rubric to assess school food environment

Activity:

Ask athletes to see whether their school district or their school has a nutrition policy in place. If so, assess how well their school is able to follow this policy, and if there are any areas of concern. For all schools have the students complete the Healthy Eating Rubric to assess the school food environment and to look for areas for improvement.

If there is no policy, you and your athletes could ask school leaders and school council to develop a nutrition policy. Use the Steps to Creating a School Nutrition Policy and Building Healthy School Communities to guide you. Your athletes and other students, parents, and staff could present a case for making a nutrition policy at a parent council or school staff meeting. This could provide a great leadership opportunity for the athletes!

Promoting Healthy Eating in Community Recreation Centres

Key Teaching Points

1. Coaches can work with athletes, parents, and leaders at recreation centres to make sure there are healthy food options that fuel athletes and keep all patrons healthy.
2. Recreation centres can create a nutrition policy to ensure the centre promotes and sells healthy food and drink choices to their users. Nutrition policy can support good health and sports performance.

Background Information

Why Recreation Centres?

In many towns and cities, recreation centres are central places where people gather to use the large spaces for meetings, events, and sports. Recreation centres play a role in helping people of all ages be healthier by sharing safe spaces for physical activity and socializing.

Recreation centres have the chance to align the value of physical and social well-being with healthy food and drinks. Creating centres of wellness will help support and maintain changes towards a healthy, active lifestyle for all users.

Parents, coaches, and athletes have power to persuade recreation centres to offer healthy food choices because they may be the main users or purchasers in these spaces. Teen athletes spend many hours each week at these centres for training and competition, and they often have to pack their own food to ensure they have healthy options to support good sports performance.(9–11)

Tips to Work with Recreation Centres to Promote Healthy Eating

- Share your goal to have healthy food options available for athletes, athletes' families, other coaches and members. All community members are potential users of these facilities, so they are likely to support such changes.
- Suggest the recreation centre use the Healthy Vending Toolkit to work with the food vendors to sell more healthy food choices.
- Ask athletes, their parents, other coaches, and community members to write letters to vendors, recreation boards, city council, and sports councils to request healthy food and drink options at recreation centres (See Appendix 1.0 for *sample letters*).
- Use the Stay Active Eat Healthy link to determine with the recreation centre how many parents, coaches, and athletes will be more likely to purchase healthy food options.
- Ask the recreation centre to set up a nutrition policy that ensures more healthy food and drink options are on hand. Inform how a policy could highlight the centre as a key health leader in the community and draw in new members and positive media reports.

- Contact local media (radio, newspaper, TV) to spotlight the challenges and the changes you would like to see happen.
- Contact your local public health partners for resources to help the recreation centre create nutrition policy and find healthier food and drink options.
- Rally support from other key stakeholders and form a committee to start the changes.

Teaching Tools and Resources

Healthy Eating for Children and Youth in Recreation and Community Centres: A booklet to help you understand the Alberta Nutrition Guidelines for Children and Youth.

Healthy Eating in the Recreation Setting: A resource developed by the Canadian Recreation and Parks Association to help facilities move towards offering healthy food and drink options.

Healthy Eating Starts Here: A website created by Alberta Health Services that contains information on the six steps to a healthier you, complete with handouts and resources.

Healthy Food Checker: Compares the nutrition criteria from a Nutrition Facts table to find out if your food or beverage choice is a Choose Most Often, Choose Sometimes, or Choose Least Often according to the Alberta Nutrition Guidelines.

Marketing Healthy Food Choices: This handout goes through the 4 P's of marketing and some other helpful tips to help market and promote the healthy choices.

Alberta Policy Coalition for Chronic Disease Prevention Policy Staging Tool: Assessing Readiness for Healthy Policy Change & Strategies for Taking Action: The Policy Readiness Tool was created to increase local capacity for healthy policy change and is designed for individuals, organizations, and municipalities interested in creating healthier communities.

Request for Proposal: Healthy Food Product Specifications: This document helps schools to negotiate contracts with vendors and make smooth transition towards offering healthy food options. It can be adapted for use in recreation centres.

Steps to Creating a School Nutrition Policy: A guide for schools which can be used to help recreation centres create a nutrition policy for their centre.

Building Healthy School Communities: A website which includes practical information, resources, and tools that support Comprehensive School Health. Many of these resource and tools can also be adapted for use in recreation settings.

Stay Active Eat Healthy: The Stay Active Eat Healthy® program aims to increase the provision of healthy food and beverages while restricting unhealthy options in municipal and community recreation facilities.

Hosting Healthy Sporting Events: An electronic toolkit to help with the planning of school and community recreation sporting events.

Suggested Activity: Create a Nutrition Policy at Your Recreation Centre

Learning Objective:

Athletes will:

1. Learn more about how to create a nutrition policy.
2. Be able to determine whether there is a need for a policy at their recreation centre.
3. Be able to assess their community recreation facility's food environment and identify strengths look for areas to improve.

Materials Needed:

- Paper
- Pens
- Internet to access town or facility websites to check for policies
- Steps to Creating a School Nutrition Policy resource
- Facility Assessment to assess food environment

Activity:

Ask athletes to see whether their recreation centre has a nutrition policy in place. If so, assess how well their facility is able to follow this policy, and if there are any areas where they could improve. Complete the Facility Assessment Tool to assess the food environment and to look for ways to improve.

If there is no policy, ask the centre manager or sports council to consider developing nutrition policy to ensure healthy food is provided at the centre. Use the resource Steps to Creating a School Nutrition Policy for help. Although this resource was developed for schools, the policy design process can also be used in a recreation centre.

Coaches, athletes, parents, and other community members could present a case for a nutrition policy at a city council meeting, recreation board meeting, or sports council meeting. Everyone could also send letters of support signed by coaches, athletes, and parents to request a policy. See Appendix 1.0, for *Sample Letters of Support for Healthy Eating in Recreation Settings*.

Promoting Healthy Eating at Home

Key Teaching Points

1. An athletes' everyday diet has as much impact on good sports performance as training.
2. Athletes need to eat a healthy breakfast to ensure their muscles refuel after many hours of sleep without food.
3. Athletes should eat healthy snacks when they feel hunger between meals.
4. Athletes need to develop a healthy eating routine by having healthy foods on-hand to meet their energy and nutrient needs at home, at school, and on the road.
5. When athletes and their parents plan meals in advance, they make healthier food choices and may save money if they are not buying convenience or restaurant foods.
6. Athletes who learn to read food labels are better able to make healthy food choices.

Background Information

It is important for athletes to understand how and what they eat and drink each day can affect how well they train, perform, and recover. Planning healthy meals and snacks can lead to better sports success. Parents who know more about healthy food planning and grocery shopping may be better able to meet their teens' nutrition needs for growth and development.

Meal Planning Tips

These tips can help athletes and their parents plan meals in advance and make healthier food choices:

- Set aside enough time to plan meals and snacks at least once or twice per week. Aim for balanced meals that have a variety of foods from all four food group.(12)
- Cook large batches of food to have leftovers for lunch or supper the next day.
- Use leftovers as a starting point to make a new, quick meal.
- Slow cookers, rice cookers, or microwave ovens can help save time when preparing meals.(13)
- Plan ahead for training, competitions, and travel. See the *Planning for Tournaments, Competition, and Travel* section (page 45), and the *Sports Nutrition Travel Checklist* (page 103) for more details.

Meal Planning Teaching Tools and Resources

Quick and Easy Meals: A handout from Alberta Health Services.

Cook it Up Healthy! Time Saving Techniques: A handout from Dietitians of Canada.

Do you want to add some punch to your lunch?: A handout from Dietitians of Canada.

My Menu Planner: A tool from Eat Right Ontario.

Slow Cooker Savvy: An information link from Eat Right Ontario.

Cookspiration: Healthy recipes from Dietitians of Canada.

Inspiring Healthy Eating provides recipes that are organized by types and main meals, so you can easily find the one you need.

Label Reading

Food labels contain a lot of information to help consumers choose foods. Athletes and parents who learn to read food labels are better able to compare products, and make healthier food choices. Nutrition information is found in three places on food labels:

1. Ingredient List – This list shows what is used to make the food. The ingredients are always listed in order of weight, starting with the ingredient that weighs the most, and ending with the ingredient that weighs the least. In general, athletes should look for foods that do not list sugar or salt as one of the first few ingredients.
2. Nutrition Facts Table – The Nutrition Facts table provides details on calories (energy) and other nutrients in a serving size. The Nutrition Facts table can help athletes compare similar foods. All of the data in the Nutrition Facts table is based on a certain serving size of the food. This serving is always listed at the top of the Nutrition Facts table.
3. Nutrition Claims – There are two types of nutrition claims on food products: nutrient content claims and health claims.
    - Nutrient content claims describe the amount of a nutrient in a food. "*A good source of iron"* is an example of a nutrient content claim.
    - Health claims are statements about the possible effects of a certain food on a person's health when they include it in their diet. For example, "*a healthy diet containing foods high in potassium and low in sodium may reduce the risk of high blood pressure, a risk factor for stroke and heart disease."*

Label Reading Teaching Tools and Resources

Label Reading the Healthy Way: A handout from Alberta Health Services to help make sense of food labels.

Interactive Nutrition Label Quiz: A 9 question test from Health Canada to learn more about labels.

% Daily Value: A handout from Health Canada to explain the Nutrition Facts table and % daily values.

Nutrition Facts table: An activity from Health Canada that can be done with your athletes.

Breakfast

Without a healthy morning meal, athletes are less likely to perform at their best. Breakfast is the key time to boost an athlete's carbohydrate intake to refuel muscles after a night of sleep. Athletes should include all four food groups from Canada's Food Guide in the breakfast meal(1). If an athlete cannot eat a full breakfast due to an early morning training schedule, a quick snack that includes carbohydrates will ensure they have enough energy to train without getting any stomach upset.

Some balanced breakfast choices include:

- 2 whole grain waffles or pancakes (with less than 5 g fat and less than 10–12 g sugar), 125 mL to 175 mL (½–¾) cup low fat plain yogurt, 2 eggs, and 125–250 mL (½–1 cup) berries.
- Whole grain tortilla wrap with 60 mL (2 Tbsp) of nut or seed butter, a whole piece of fruit, and 250 mL (1 cup) milk.
- 1 or 2 slices whole grain toast, 1 or 2 boiled or scrambled eggs, and a fruit smoothie made with 250 mL (1 cup) milk and 250 mL (1 cup) frozen fruit.
- 250 mL (1 cup) cooked whole grain, hot cereal made with 250 mL (1 cup) milk and topped with a chopped apple, cinnamon and 30 mL (2 Tbsp) of nuts or seeds.

For many more breakfast ideas, see the Alberta Health Services handout Wake Up to Breakfast Every Day.

For specific guidelines about eating before activity, see the *Nutrition and Hydration Guidelines Before Activity*, (page 31).

Snacks

Athletes should choose healthy snacks daily, even when they are not training or competing. Snacks help all youth meet their nutrition needs every day and satisfy their hunger between meals.

Here are some tips on how to help athletes choose healthy snacks:

- Ask athletes to include at least two of the four food groups from Canada's Food Guide when they snack. This guideline helps athletes achieve a balanced mix of carbohydrates and protein, as well as their daily needs for other key nutrients such as fibre and vitamins and minerals.

- Ask athletes to keep a supply of healthy, non-perishable snacks in their locker or school bag so they do not have to purchase less healthy options from vending machines or snack bars.
- Use Safe School Lunches from Health Canada to teach athletes how to keep cold foods cold, and hot foods hot when needed.

Here are some easy snack choices that do not need to be stored in a fridge:

- whole grain granola bar and a piece of fruit
- box of raisins and a handful of almonds
- whole grain crackers with nut butter

Here are some easy snack choices to eat during the school day:

- whole grain muffin and skim or 1% milk
- hard-boiled egg and a piece of fruit
- celery sticks with nut butter

For other snack ideas, check out the Alberta Health Services handout Healthy Snacking

Please see the *Nutrition and Hydration Guidelines Before Activity*, and *During Activity*, (pages 31 and 34), for details on how athletes should snack to support training and competition.

Sports Nutrition and Hydration

Nutrition and Hydration Guidelines Before Activity

Key Teaching Points

1. Proper nutrition and hydration before activity can improve mental and physical performance.

2. Dehydration and over-hydration can have a negative effect on sport performance and health.

3. Athletes need to drink 400–600 mL (1 ½–2 ½ cups) of fluid, 2–3 hours before activity.

4. The best foods to eat before activity are high in carbohydrates, moderate in protein, and low in fat and fibre to fuel the muscles and reduce any chance of stomach upset.

5. Athletes need to test new foods and drinks before training sessions not before a competition, in case these items cause stomach upset or other physical effects.

Background Information

Proper nutrition and hydration before activity are vital to ensure athletes(1,5):

- have enough fuel for mental and physical performance
- can avoid physical discomfort caused by hunger, upset stomach, or dehydration
- are able to push their muscles for a longer period of time

Dehydration and Over-Hydration:

Water has many key functions in the body including the transport of nutrients to the muscles and tissues, and the control of body heat through sweat.(14) When an athlete has lost as little as two percent of body weight during activity, mental and physical performance are greatly impaired.(15) Athletes must consume enough fluids before they begin an activity and then continue to drink during and after activity.

Dehydration occurs when an athlete loses more water than they take in. Athletes lose water through their sweat, breath, and urine. Athletes cannot rely on thirst as a sign of dehydration because activity weakens the thirst signal, and they may already be quite dehydrated by the time they feel thirsty.(16)

The most common signs and symptoms of dehydration include(15,17):

- feeling dizzy or lightheaded
- feeling tired and weak
- nausea
- having chills
- high heart rate
- having less urine and/or dark urine
- raised body temperature
- muscle cramps
- headaches
- thirst

Over-hydration (also known as 'hyponatremia') occurs when there is too much fluid and not enough sodium in the blood. In athletes, over-hydration often happens when they drink large amounts (8–10 L or 36–40 cups) of low sodium fluids (like plain water) before or during long bouts of intense activity (such as triathlons).(18) The signs and symptoms of over-hydration are much like the signs and symptoms of dehydration and can pose safety risks to an athlete's health.(18) Athletes can prevent over-hydration by staying within hydration guidelines at all times.

Hydration Guidelines Before Activity:

Athletes need to drink 400–600 mL (about 1 ½–2 ½ cups) of fluid 2–3 hours before activity.(5)

Nutrition Guidelines Before Activity:

What Should Athletes Eat?

The best foods to eat before activity are high in carbohydrate and moderate in protein.(1,5) These foods should also be lower in fat and fibre to reduce the chance of stomach upset.(1) High carbohydrate foods digest quickly and should be the main source of fuel for activity.

Best to choose: Higher in carbohydrates and moderate in protein	**Best to avoid:** Higher fat and fibre can cause stomach upset
Fruit Fruit smoothies Pasta in tomato sauce Cereal Bread 1% or skim milk 1% milk fat (M.F.) or less yogurt with fruit 1% M.F. or less cottage cheese and fruit Poached eggs on dry toast Lean meat (chicken breast, ham) in a wrap	Cheeseburgers French fries/Potato chips Bran muffins Cream-based soups or sauces Ice cream Chocolate or candies Peas, beans and lentils Cabbage, broccoli or cauliflower High fat meats and cheese Deep-fried foods

Before a competition, athletes need to eat familiar foods that they already know will not cause stomach upset and cramping during activity.(1)

When Should Athletes Eat?

The timing of meals is vital. If an athlete begins an activity with food in their stomach, this can cause cramping or nausea.(19) Eating a meal two to three hours before an activity gives an athlete's body time to digest food and convert it to energy to fuel muscles.(15) When it is not possible to eat a meal two to three hours before an activity, athletes can choose a snack one to two hours before.(1) This snack will help prevent hunger and provide energy for the activity. Athletes also need to drink water with their meal or snack before an activity to maintain hydration.(5) Athletes are at high risk for an upset stomach if they eat just before they start an activity.

Sample pre-activity meals:

Meals should contain all four food groups from Canada's Food Guide.(12) Athletes should eat two to three hours before an activity.(1)

- 2 slices toast with 30–45 mL (2–3 Tbsp) nut/seed butter, a piece of fruit and 250 mL (1 cup) skim or 1% milk.
- Chicken sandwich on whole grain bread with 30 g (1 oz) low fat cheese, mustard and 125 mL (½ cup) unsweetened applesauce.
- 60–90 g (2–3 oz) roast beef and 250 mL (1 cup) vegetables in a stir-fry with 250 mL (1 cup) brown rice and 250 mL (1 cup) skim or 1% M.F. milk.

Sample pre-activity snacks:

Snacks should contain at least two food groups(12) from Canada's Food Guide. Athletes should eat one to two hours before an activity.(1)

- Granola bar*, 175 g (¾ cup) low fat yogurt and a banana.
- 60 mL (¼ cup) low fat cottage cheese, 250 mL (1 cup) pear slices and 1 whole grain English muffin.
- ½ roast beef sandwich on whole grain bread with mustard.

* See the Alberta Nutrition Guidelines for Children and Youth to find information on how to select granola bars that are *Choose Most Often.*

Nutrition and Hydration Guidelines During Activity

Key Teaching Points

1. Proper nutrition and hydration during activity can improve mental and physical performance.
2. Dehydration and over-hydration can have a negative effect on sport performance and health.
3. Water is the best fluid for athletes who are active for 60 continuous minutes or less.
4. Athletes may need a sports drink if they sweat a lot during intense activity that lasts more than an hour in order to replace sugar in the blood and mineral (electrolyte) losses.
5. Athletes need to drink 150–300 mL (½–1 ¼ cups) of fluid every 15–20 minutes during activity.
6. Athletes should trial new foods and drinks during training sessions to determine if these items cause stomach upset, or other physical effects that would impact them negatively during a competition.

Background Information

The amount of sweat an athlete loses will vary based on the intensity of the activity, their genetics, and the temperature or climate during exercise.(20) The more intense the activity and the warmer the temperature, the more an athlete will sweat.

Hydration Guidelines During Activity:

- Athletes need to drink 150–300 mL (½–1 ¼ cups) of water every 15–20 minutes during activity.(5)
- Athletes can choose water when active for an hour or less.
- Athletes only need to use a sports drink when they sweat a lot for more than an hour in order to replace blood sugar and mineral (electrolyte) losses.(5,17)
- Athletes should have their own water bottle to drink fluid during activity.

How Should Athletes Use Sports Drinks?

Sports drinks help replace sugar in the blood used up by the muscles and brain, as well as the electrolytes lost through sweat during an intense, nonstop activity that lasts longer than one hour. However, sports drinks are not all the same and their ingredients often change over time. It is important for athletes to always check labels because some drinks may contain ingredients that they do not need or too little of the ingredients that they do need. Each athlete will respond better to some sports drinks over others, so all athletes should test new drinks during training sessions rather than the day of a competition.

Young athletes do not need to consume sports drinks if they have not been active and sweating for more than one hour.(5) Athletes never need sports drinks to fuel *before* activity or refuel *after* activity, as it is always better to eat food and drink healthy fluids such as water and milk.(5) Sports drinks contain sugar and can lead to cavities or weight gain when consumed on a regular basis.(21)

When choosing a sports drink, athletes need to consider these ingredients(20):

Carbohydrate or Sugar

Athletes who are active for more than one hour need to consume carbohydrate to provide energy to their working muscles and brain during activity. The recommended intake of sugar/carbohydrate per 250 mL (1 cup) of sports drink is 8–20 g.(5) Drinking too much carbohydrate can have a negative impact on performance due to upset stomach, cramping, or diarrhea.

Sodium and Potassium

Sodium (salt) and potassium are electrolytes that help control fluid balance and blood pressure in the body. Athletes who sweat a lot for more than an hour will need extra electrolytes to prevent muscle cramps and dehydration.

The recommended intake of sodium per 250 mL (1 cup) of sports drink is 115–173 mg. Always read the label. There may be sports drinks that have slightly more or slightly less sodium per 250 mL (1 cup) serving but they will still help.

The recommended intake of potassium per 250 mL (1 cup) of sports drink is 19–49 mg.(5) Always read the label. There may be sports drinks that have slightly more or slightly less potassium per 250 mL (1 cup) serving but they will still help.

Carbonated Fluids

Fluids that are carbonated (have bubbles) often make athletes feel full. Athletes may then drink less fluid and dehydrate during activity. Carbonated fluids may also cause stomach discomfort and gas.

Caffeine

Athletes should avoid sports drinks that have caffeine due to negative side effects such as headache, poor sleep patterns, mood changes, anxiety, diarrhea, or upset stomach. See the *Nutrition Supplements* section, (on page 72) for more details about caffeine.

Natural Health Products

Some sports drinks may contain various forms of natural health products such as ginseng, ma huang, guarana, yerba mate, açaí, inositol, carnitine, creatine, glucuronolactone, or ginkgo biloba. None of these ingredients have been shown to enhance performance, and could pose serious health risks to young athletes whose bodies are not yet fully grown. See *Natural Health Products*, (page 76) section for more details.

Sugar Substitutes

Sugar substitutes (natural or artificial sweeteners) are not recommended for youth because there is a lack of evidence to show these products are safe for growing bodies.(12) Sugar-free or low calorie sport drinks are not recommended because they do not provide the carbohydrate the body needs to sustain activity that lasts more than an hour. Examples of sugar substitutes are: sucralose, acesulfame potassium, aspartame, saccharin, stevia, and cyclamate.

Which Drinks are Best During Activity That Lasts More Than One Hour?

The following table compares the most common drinks young athletes choose to stay hydrated during activity. Coaches can help athletes learn more through the *Evaluate Your Sports Drink Activity*, (page 98).

Table 2: Compare the most common drinks young athletes may choose during activity

Drink	Carbohydrate (CHO) g per 250 mL	Sodium mg per 250 mL	Potassium mg per 250 mL	Caffeine, Natural Health Products, Sugar Substitutes	Carbonated	Good Choice During Activity?
Goal Range ⇨	8–20	115–173	19–49	No	No	
Water	**0**	**5**	**0**	**No**	**No**	**Best choice during activity that lasts less than one hour or does not cause the athlete to sweat a lot.(5)**
Sports Drinks	**8–20**	**100–210 (always check the label)**	**15–100 (always check the label)**	**No (but always check the label)**	**No**	**Drink during intense activity that causes the athlete to sweat a lot for more than 1 hour.(5)**
Energy Drinks	**27–30** Too high	**Varies** Too low or too high	**Varies** Too low or too high	**Yes** Contains caffeine; may also have sugar substitutes or natural health products	**Sometimes**	**Not a good choice(22)** **See Rethink Your Drink for more information**

Drink	Carbohydrate (CHO) g per 250 mL	Sodium mg per 250 mL	Potassium mg per 250 mL	Caffeine, Natural Health Products, Sugar Substitutes	Carbonated	Good Choice During Activity?
Goal Range	8–20	115–173	19–49	No	No	
Vitamin Fortified and Flavoured Waters	**13–14**	**0–13** Too low	**0–875** Too low or too high	**Sometimes** May contain caffeine, sugar substitutes or natural health products	**Sometimes**	**Not a good choice(23)**
Soft Drinks	**22–32** Too high	**10–53** Too low	**3–15** Too low	**Sometimes** May contain caffeine or sugar substitutes	**Yes**	**Not a good choice(24)**
Fruit Juice	**24–36** Too high	**2–14** Too low	**2–68** Can be too low	**No**	**No**	**Not a good choice on its own(24)** **Can be used in a *Homemade Citrus Sports Drink Recipe*** (see page 96)
Coconut Water	**9**	**2–266** Can be too low	**634** Too high	**No**	**No**	**Not a good choice(19)**

Nutrition Guidelines During Activity:

In most cases, an athlete will not need to eat during activity if they have eaten enough to fuel their muscles and body before they train or compete.

Athletes may need to eat during an activity when(1):

- it is a nonstop endurance activity that lasts longer than one hour
- it is a morning activity and the athlete has only eaten a small breakfast

What Should Athletes Eat?

Athletes who are active for less than an hour do not need to consume food unless they did not eat a large enough meal before the activity. When athletes perform an intense activity for more than one hour, they need to ingest 30 to 60 grams of carbohydrate in small amounts during each hour of activity, and drink enough water to maintain hydration and energy levels.(1,19) Athletes can consume this carbohydrate through sports drinks or food or a combination of both. During competition, athletes need to choose foods that they already know will not cause them stomach upset or cramps.(1)

Examples of intense, nonstop activity:

- Long Distance Running
- Triathlon
- Long Distance Swimming
- Cross-country Skiing
- Long Distance Biking

Examples of good carbohydrate food choices include (25):

- 1 large banana (30 g carbohydrate)
- 1 medium orange (12 g carbohydrate)
- 250 mL (1 cup) watermelon (11 g carbohydrate)
- 4 dried apricots (13 g carbohydrate)
- 1 small box (28 g) raisins (22 g carbohydrate)

Should Athletes Use Sports Food Products?

Like sports drinks, sports products such as gels, beans, chews, and bars can help athletes refuel blood sugar levels and electrolytes during intense activity that lasts more than an hour.(1,5) However, unlike sports drinks, these products do not provide hydration during intense activity when athletes sweat a lot.

It is important to note that sports food products are only helpful during intense activity that lasts more than one hour. Athletes will not gain any benefit if they consume these food items as snacks or part of a meal before or after activity. These products are low in fibre and high in sugar and calories and they are often quite costly. They do not meet Canada's Food Guide or the Alberta Nutrition Guidelines for Children and Youth.(12) The use of famous athletes to promote these products may lead young people to believe they should use these items to become more fit or to perform better at sports.

If an athlete wishes to consume sports food products during intense activity, they should consider these guidelines:

- Use the Nutrition Facts table to see how much of the product they need to consume to get 30–60 g of carbohydrate per hour of intense activity.(1,5)
- Avoid products that contain sugar substitutes or caffeine.(12)
- Drink enough water with these products to prevent stomach upset(1) and to ensure good hydration.

Nutrition and Hydration Guidelines After Activity

Key Teaching Points

1. Proper nutrition and hydration after activity are important to refuel and repair tissue.

2. Dehydration and over-hydration can have a negative effect on sport performance and health.

3. Athletes who have less than a full day to recover between training or competition need to eat foods that provide carbohydrate and protein within 30 minutes of finishing activity in order to refuel quickly.

4. When more than 24 hours is available to recover between training or competition athletes do not need to eat food within 30 minutes of finishing activity, but should eat once they feel hungry.

Background Information

There are many key benefits of proper nutrition and hydration after activity:
Athletes will have enough energy, fluid, and nutrients to recover from an event or training session and to fuel up for the next bout of activity.

- Eating protein helps athletes build and repair muscles and other tissues.

- Drinking fluid replaces losses from sweat and breath during activity.

Hydration Guidelines After Activity:

Young athletes need to drink 4 mL of fluid per kilogram of body weight after exercise to ensure good hydration.(5) On average, this would be 250–500 mL (1–2 cups) of fluid for a young athlete. One sign of healthy hydration is urine colour. After activity, athletes should continue to drink small amounts of fluid until their urine appears colourless.(5)

Nutrition Guidelines After Activity:

The timing of the snack or meal following an activity will depend on the amount of time between training sessions or competitions.

Less than 24 hours until next activity:

Athletes who have less than a full day to recover between sessions should eat food sources of both carbohydrate and protein within 30 minutes of finishing an activity(1). Eating within this timeframe ensures the muscles will fill their glycogen stores before the next activity.

More than 24 hours until next activity:

Athletes who have more time to recover between sessions can refuel with food sources of carbohydrate and protein when they are hungry for their next regular meal or snack. There is no need to refuel within 30 minutes of activity to achieve enough glycogen storage in muscles when the athlete has more than 24 hours to recover(1).

What Should Athletes Eat?

To refuel muscles, athletes need to eat a meal or snack that provides carbohydrate and protein at a 4 gram:1 gram ratio.(1) Parents, athletes and coaches can use the Canadian Nutrient File to find the carbohydrate and protein content of foods.

Carbohydrate rich foods:	Protein rich foods:
Fresh, frozen or canned fruit	Lean meat
100% fruit juice or dried fruit	Fish
Whole grain bread, bun, pita, flat bread, or bagels	Poultry
Whole grain cereal	Tofu
Whole grain pasta	Beans and lentils
Whole grain rice	Nuts, seeds, or nut/seed butter
Couscous	Cheese (20% M.F. or less)
Quinoa	Cottage cheese (2% M.F. or less)
1% or skim milk or unsweetened fortified soy beverage	1% or skim milk or unsweetened fortified soy beverage
Yogurt (2% M.F. or less)	Greek yogurt (2% M.F. or less)

Well balanced meal and snack options include:

- 1 medium banana with 250 mL (1 cup) of skim or 1% milk (32 g carbohydrate, 8 g protein = 4:1)
- 175 mL (¾ cup) bowl of granola with 250 mL (1 cup) of skim or 1% milk (77 g carbohydrate, 20 g protein = 4:1)
- 175 mL (¾ cup low fat yogurt) with 125 mL (½ cup) of fresh berries (35 g carbohydrate, 8 g protein = 4:1)
- 1 slice whole grain toast with 15 mL (1 Tbsp) peanut butter and 1 small apple (29 g carbohydrate, 6.5 g protein = 4:1)

Teaching Tools and Resources

Sports Nutrition for Young Athletes: A position paper created by the Canadian Pediatric Society.

Sport Hydration: A handout from Dietitians of Canada that discusses sports hydration guidelines.

Label Reading the Healthy Way: Is a handout from Alberta Health Services to help make sense of food labels.

Healthy Snacking: A handout that helps Albertans plan and create healthy snacks.

Canadian Nutrient File: An online database that reports up to 150 nutrients in over 5807 foods in both English and French. The database can help you find values for nutrients such as vitamins, minerals, carbohydrate, protein, energy, and fat. It is updated from time to time and allows you to search the nutrient values for specific foods.

Suggested Activity: Learn to Compare Food Labels

Learning Objective:

Athletes will learn how to compare similar products by using food labels and Nutrition Facts tables.

Materials Needed:

- Food labels and Nutrition Facts tables from 3 to 4 different brands of the same type of food product.

Activity:

Athletes can practice label reading by comparing the grams of protein in different types of products.

Suggested Activity: Evaluate Your Sports Drink

Learning Objective:

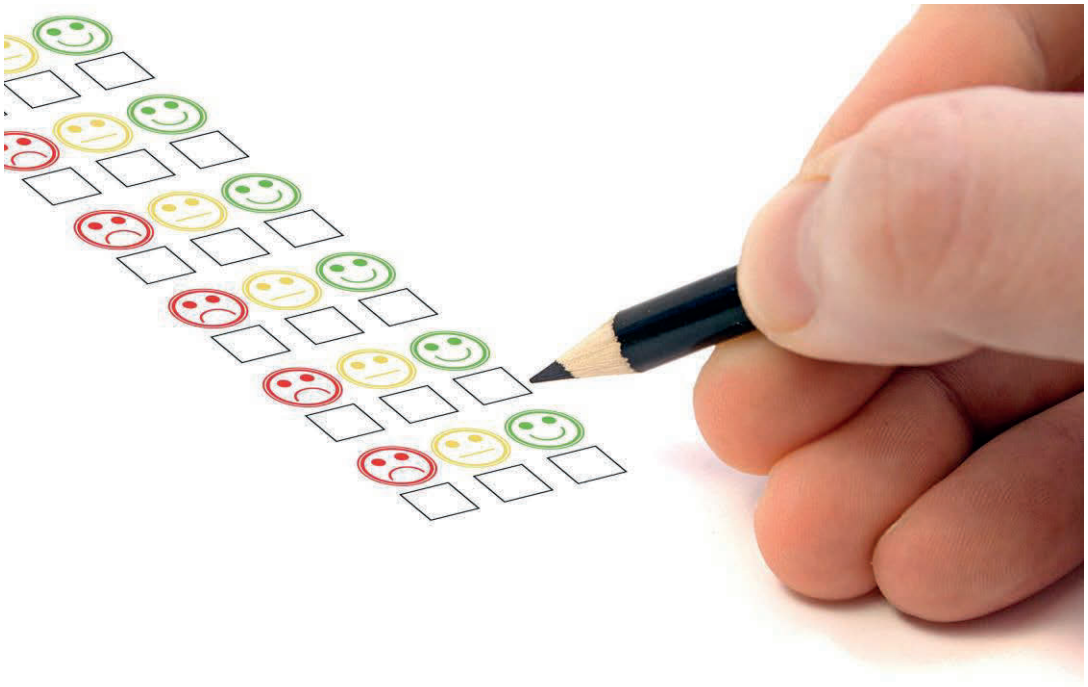
Athletes will learn how to assess drinks to figure out which are the best choices for use during intense activity that lasts longer than one hour.

Materials Needed:

- Food labels and Nutrition Facts tables from 3 to 6 different drinks.
- The *Evaluate Your Sports Drink Activity*, (page 98).

Activity:

If athletes play sports that cause them to sweat for longer than one hour, they can complete the *Evaluate Your Sports Drink Activity*, (page 98).



Planning for Tournaments, Competitions, and Travel

Key Teaching Points

1. Athletes need to make healthy food choices and drink enough fluids during competitions for good mental and physical performance.
2. When menu planning, athletes and their parents should focus on the type and amount of food and drinks to ensure good nutrition and hydration during competitions.
3. Coaches, athletes, and parents should evaluate which food and drinks are available at restaurants and event venues when on the road. When healthy choices are not available, it is important to bring healthy food and drinks.

Background Information

Benefits of Proper Nutrition and Hydration

Competitions may require athletes to compete and train in many events over a short period of time. Proper nutrition and hydration are vital to ensure athletes(26):

- consume enough energy, fluid, and nutrients to recover from one event or training session and prepare for the next
- have enough fuel for mental focus and physical performance
- prevent physical discomfort caused by hunger, upset stomach, or dehydration

Menu Planning and Meal Timing During Competitions

The amount and type of food athletes consume will vary based on the amount of time they have between competition or training sessions. When the amount of time between events is less than 24 hours, athletes should consume food and fluid within 30 minutes of ending the first event.(1)

Athletes should consume foods high in carbohydrates, moderate in protein, low in fat and low in fibre to refuel quickly if they have less than three hours between events.(1) Carbohydrates are the main source of energy for the brain and muscles. Protein repairs and builds muscles. Fat and fibre take a long time to digest and may cause stomach upset during the next event when athletes have less than three hours to digest their meals.

Athletes should not test new foods or drinks during a competition, as it is always best to test how their body reacts to the amounts and types of foods and drinks during practice or training.(26) Athletes need to eat familiar foods during competition so they know they will not have stomach upset or cramps(1).

General guidelines to help athletes plan and time meals and snacks include(26):

- If the next event is more than 3 hours away, athletes should eat a regular meal without the need to reduce fat or fibre and include all 4 food groups in Canada's Food Guide.
- If the next event is less than 3 hours away, athletes should eat a low fibre, low fat snack or made up of at least 2 different food groups in Canada's Food Guide.
- If the next event is within one to two hours or if athletes have a "nervous stomach", it is best for athletes to consume a liquid snack, such as a low fat smoothie without added sugar, sweetener, or honey.
- Athletes should drink 250–500 mL (1–2 cups) of water between events to ensure enough fluid intake.
- Athletes should only focus on familiar foods during competition to avoid stomach upset or cramps.

More examples of meals and snacks can be found in *Nutrition and Hydration Guidelines Before Activity*, (page 31).

If athletes are not competing or training within 24 hours of the first event, the timing of the snack or meal is not as rigid.(1) Athletes simply need to eat enough carbohydrate and protein within the next 24 hours by following the recommendations in the *Canada's Food Guide* section on page 9.

Nutrition Tips for Travel

Before leaving on a sports trip, it is helpful for parents, coaches, and athletes to research the foods and drinks that will be available at the hotel, restaurants, and sporting centres. Many of these menus will be posted online, but it may be necessary to call ahead for this information. It is also helpful to ask how the food is prepared to avoid high fat meals through cooking methods such as deep-frying.

Athletes, parents, and coaches should plan to bring healthy foods and drinks to support good nutrition and hydration while on the road. Athletes should bring water bottles and drink plenty of fluids during and after traveling. Always pack extra snacks and drinks in case there are surprise changes in schedules.

It is important to consider food safety when packing foods and drinks to prevent food borne illnesses. Cold foods must be kept cold, and hot foods hot. The Safe School Lunches resource can teach athletes how to keep food at the right temperature.

Check the *Sports Nutrition Travel Checklist* (on pages 103 and 107) for more ideas.

Teaching Tools & Resources

Tournament Tips: Written by the Coaching Association of Canada and provides a list of meals and snack ideas for the backpack or car.

Eating Out the Healthy Way: This handout is designed to help Albertans choose healthy foods while eating away from home.

Label Reading the Healthy Way: This handout was created by Alberta Health Services to help Albertans read food labels and make healthy food choices.

Safe School Lunches: By Health Canada, talks about food safety and how to keep cold foods cold, and hot foods hot when traveling.

Travel and Restaurant Tips: From the Coaching Association of Canada.

Eating Out the Healthy Way: From Alberta Health Services

10 Tips for Eating Out: From Eat Right Ontario.

Eating Away from Home: Tips for Making Healthy Choices: From the Canadian Diabetes Association.

Suggested Activity: Create a Tournament Meal Plan

Learning Objective:

Athletes will be able to create an individual tournament menu plan focusing on the timing, type, and amount of food and drinks.

Materials Needed:

- A *Sample Tournament Menu Plan* (page 100) and/or competition schedule
- Blank *Sample Tournament Menu Plan Worksheet* (page 102)
- Paper
- Pens
- Menus from restaurants of choice (many are available online)

Activity:

1. Discuss with athletes about the importance of healthy eating while competing and/or traveling. See *Sports Nutrition and Hydration*, *Sports Nutrition Travel Checklist,* (pages 31 and 103).
2. Talk with athletes about the timing, type, and amount of food and drinks athletes should consume while competing and/or traveling. See *Sports Nutrition and Hydration,* (page 31).
3. Have participants create an individual menu plan. Review all menus, and discuss why some of the suggested food and meal times would, or would not work.

Suggested Activity: Create a Travel Meal Plan

Learning Objective:

1. Athletes will be able to plan their eating schedule and meal plan for a day of travel to a competition.

Materials Needed:

- Blank *Sample Tournament Menu Plan Worksheet* (page 102)
- Paper
- Pens
- Menus from restaurants of choice (many are available online)
- Optional: *3-Day Food and Activity Journal*, (on page 94) and *Sports Nutrition Travel Checklist*, (on page 107)

Activity:

1. Introduce athletes to a pretend scenario where they have to travel for 8 hours by car to a tournament destination.
2. Ask athletes to develop a meal plan for this day. They can include stops for restaurant meals if they wish, but they also need to plan to pack food and drinks to consume on the way. Athletes could use a blank page from the *3-Day Food and Activity Journal*, (page 94) to outline their day.
3. Review all meal plans, and discuss which foods and meal times would, or would not work. Use the *Sports Nutrition Travel Checklist*, (page 107) to find options and ideas.

Special Considerations

Vegetarian Eating

Key Teaching Points

1. Vegetarian diets can be a healthy choice for athletes, but require careful planning to ensure their food choices meet all of their energy and nutrient needs.
2. Vegetarian athletes need to ensure they consume enough of the following nutrients; protein, vitamin B12, iron, calcium, and vitamin D.

Background Information

Vegetarian diets can be healthy for athletes if they make good food choices to ensure they meet all of their nutrient needs. Vegetarian athletes who do not plan their food choices are at higher risk for a lack of certain nutrients that can affect their health, growth, and sports performance. If a coach is concerned about the eating habits of a vegetarian athlete, it is best to recommend that the athlete and their parents consult a dietitian. The College of Dietitians of Alberta maintains a list of registered dietitians in the province who focus on sports nutrition.

Vegetarian athletes need to follow the Canada's Food Guide and the points listed below to ensure their diet meets their health, growth, and training needs.

Total Energy

Vegetarian diets are often higher in fibre, so an athlete may feel full before they have eaten enough energy to fuel their body.(1) These athletes could choose to eat more or larger snacks to help meet their energy needs. Vegetarians can also choose healthy, higher calorie snacks like nuts, seeds, nut butters, cheese, dried fruit, and avocado to support activity and training.

Protein

Plants are the main source of protein for vegetarians who do not eat eggs or dairy products. Vegetarian athletes need to consume the same amount of protein each day as other athletes by eating large enough portions of protein sources such as soy, beans, nuts and seeds.(27)

Vitamin B12

Vegetarian diets tend to provide lower amounts of vitamin B12 because this nutrient is only found in animal products. If a vegetarian athlete does not eat dairy products or eggs, they need to consume foods and beverages with added vitamin B12, such as fortified nutritional yeast or fortified soy milk and soy products. Dietitians of Canada have a list of Food Sources of Vitamin B12.

Iron

Iron carries oxygen through the body and helps prevent fatigue. The body does not absorb the iron in plant foods as well as the iron in meats.(1) Vegetarians need to consume 1.8 times more iron than non-vegetarians,(27) so vegetarian athletes need to eat iron-rich meat alternatives often, such as kidney beans, brown beans, chickpeas, lentils, and split peas. When eating meat alternatives such as legumes, athletes should also include a source of vitamin C to increase the amount of iron they absorb from these foods. Vegetarian athletes could speak to their doctor about testing their blood iron level to find out if they are meeting their iron needs through diet or if they may need an iron supplement.(27) Food Sources of Iron (Dietitians of Canada) and Getting Enough Iron (MyHealth.Alberta.ca) are two resources that provide information on iron in food.

Vitamin C

To increase the amount of iron the body absorbs, vegetarians should include a good source of vitamin C when they eat iron-rich plant foods such as beans. Good sources of vitamin C are listed in Canada's Food Guide: Vegetables and Fruits.

Calcium

Calcium helps build strong bones, muscles, and nerves. Vegetarian sources of calcium include: dairy products, fortified soy beverages, almonds, figs, beans, tahini, tofu made with calcium, and broccoli. For vegetarians who eat fish, canned salmon and sardines with bones are also sources of calcium. There are also many other plant-based drinks that may be fortified with calcium such as almond milk and rice beverage. A list of Food Sources of Calcium is available from Dietitians of Canada.

Vitamin D

Alberta Health Services recommends that all healthy Albertans, aged 0 to 70 years, take a 400 IU vitamin D supplement every day in addition to the vitamin D consumed from food and drinks. Milk is always fortified with vitamin D; however, some soy or plant-based beverages do not have added vitamin D so it is important to read the label. Vegan athletes or athletes who do not consume milk should speak with a dietitian to assess if they need to take more vitamin D supplements. Dietitians of Canada provides a list of Food Sources of Vitamin D.

Teaching Tools and Resources

Dietitians of Canada created Eating Well for Vegetarian Athletes specifically for athletes.

Vegetarian athletes can create and print a personal food guide using My Food Guide.
My Food Guide Servings Tracker to keep track of the type, and amount of food they eat each day to compare with Canada's Food Guide.

Eating well for Vegetarian Athletes and Healthy Eating Guidelines for Vegans are available from Dietitians of Canada.

Suggested Activity: Track Your Vegetarian Food Intake

Learning Objectives:

1. Vegetarian athletes will learn how to compare their intake to the Canada's Food Guide to see if they need to make any changes to support health and sports performance.
2. Vegetarian athletes will learn how to set up their own healthy vegetarian food guide.

Materials Needed:

- Access to the online tool My Food Guide Servings Tracker
- *3-Day Food and Activity Journal*, (page 94)
- Pens (if keeping track on paper)

Activity:

1. Ask your athletes to keep a record of their food and drink intake (including portion sizes) for one to three days. If keeping track for three days in a row, athletes should include a weekend day in case they choose different foods and follow different meal patterns on these days. Athletes can use the *3-Day Food and Activity Journal*, (page 94).
2. Athletes can then compare their intake with the Canada's Food Guide through the online tool My Food Guide Servings Tracker.
3. Ask all athletes to share any changes they plan to make to their diet based on the results of this activity.

Suggested Activity: Create Your Vegetarian Food Guide

Learning Objectives:

Vegetarian athletes will learn how to set up their own healthy vegetarian food guide.

Materials Needed:

- Access to the online tool My Food Guide
- The Eating Well for Vegetarian Athletes handout

Activity:

1. Review the Eating Well for Vegetarian Athletes handout.
2. Have the athletes create a personal vegetarian food guide using My Food Guide.

Positive Body Image: Helping Athletes Accept Their Body Size and Shape

Key Teaching Points

1. Body image is formed by the thoughts, feelings, and reactions a person has toward their own body.

2. Young female and male athletes are at the same risk for having poor body image, but their concerns are often quite different. Girls often aim to be smaller and thinner, while boys want to be leaner and more muscular.

3. Recreational athletes may be at higher risk for poor body image than elite athletes because they believe they should achieve an elite body type even though they train and compete much less often and at a lower intensity.

4. It is important to focus on the athlete as a whole person by praising their unique talents, strengths, skills and success, rather than their weight, body size, or body shape.

5. Coaches can help build and boost young athletes' self-esteem so they have positive feelings about their bodies, their sport performance, and their lives overall.

6. It is important to seek support from health professionals (with parental consent) if an athlete struggles with intense and unhealthy feelings, behaviours, or thoughts around food, eating, or body weight, shape, or size.

7. Unhealthy, rapid, or drastic changes in body weight or eating habits may harm an athlete's well-being and sports performance.

Background Information

How Does an Athlete Develop Body Image?

Body image is the thoughts, feelings, and reactions a person has toward their own body.(28) The condition of the body is central to sports performance so athletes tend to be much more aware of the way their bodies work, feel, and look.(29) Elite athletes are more likely to report a better body image than non-athletes because their bodies tend to meet current beauty and physical ideals as a result of intense training.(29) However, recreational athletes may be at higher risk for poor body image because they may believe they should achieve an elite-level body, even though they train and compete much less often and at a lower intensity.(29)

Body image has been shown to change over a person's lifetime because it is shaped by the complex interaction between many different physical, emotional, and mental factors.(28–30) It is helpful for coaches to understand these factors and to know key questions they could ask to help identify and explore athletes' body image struggles.(27,28,30-32)

1. **What an athlete believes about their body**
    - Do they accept for themselves the social, cultural, and family beliefs about the human body?
    - Do they have any negative myths or judgments about the human body?
    - Do they have correct knowledge of the human body and how it works?
    - Do they believe in any myths or limits based on the gender of their body?

2. **How an athlete feels about their body**
    - Do they feel pressure to conform to media, cultural, and gender body ideals?
    - Do they believe negative body comments from family, peers, and other people who are important in their lives?
    - How do they feel about body changes that may happen due to puberty, sports training, injury, illness, or aging?
    - How much value do they place on their looks to help shape their self-esteem?

3. **How an athlete feels in their body**
    - How well are they able to accept and respect moment-to-moment and day-to-day changes in their energy levels?
    - How willing are they to meet all their body's mental and physical needs to stay well?
    - Do they put regular effort into self-care (e.g.: grooming, hygiene, health check-ups, sleep)?

4. **How well an athlete connects with and trusts their body signals**
    - How well do they notice and respond to important body cues such as hunger, thirst, fullness, and fatigue?
    - Do they notice and accept all the body sensations that come up with different emotions?
    - Do they give their body enough rest to recover after activity, training, competition, illness, or injury?
    - Do they get enough sleep?
    - How much do they enjoy pleasant sensations such as moving their body, physical touch, and the taste of food?

5. **How well an athlete accepts their ability to manage the way their body moves**
    - Do they have positive feelings about their physical skills?
    - Do they respect their physical limits?
    - Do they remain open to trying new skills or activities that involve the body?
    - Do they feel secure about the motor skills they can perform well?
    - Are they willing to practice a new skill many times without giving up right away?
    - Do they have shame about the skills they cannot perform well?
    - Do they choose to engage in the sports that best match their body type?

Is Body Image a Concern for Both Girls and Boys?

It is a common belief that females struggle with poor body image much more than their male peers, but research shows that boys and girls face this issue at nearly the same rate.(29,33,34) As many as one-third of Canadian boys and girls aged 11–15 years believe their body is not the right size or shape, even though they are within a healthy weight range.(35) The key difference between young males and females is the way in which they judge their bodies, especially as they enter puberty.(36) As females mature, they are often not able to naturally meet the social pressure to stay or become thin, whereas the growing male body is expected to become much larger and more muscular. *Table 3* is a summary of the key body image differences that often appear between the genders.

Table 3: Body image differences between teen females and males

Young female athletes	Young male athletes
Girls feel pressure to meet adult body ideals at an earlier age than boys, often as early as age 6.(33,37)	Boys begin to worry whether they will have large enough muscles and body size as they enter puberty at age 11 or 12.(35,38)
In general, teen females with poor body image will try to achieve a thinner or smaller body.(34,37,39)	In general, teen males with poor body image will try to achieve more muscle mass, a larger body, or less body fat.(34,40,41,42)
Teen girls with poor body image are more likely to diet and use supplements to promote weight loss.(43,44)	Teen boys with poor body image are more likely to use steroids, supplements, and ergogenic aids to increase muscle mass.(34,40,43,44)
Young female athletes may avoid or quit sports if they have to wear clothing that reveals a lot of their body or if they sense a change in the way other people observe and critique their body shape and weight.(39,45)	Young male athletes whose bodies mature later or slower than their male peers are at higher risk for body teasing and poor body image.(41)
Female athletes often feel more ‘on display’ than their male peers because their bodies go through more visible changes during puberty than male bodies.(45)	Male athletes tend to focus on and compare their body shape, size, and appeal more often than their non-athlete male peers.(38)
Teen girls who believe they are too heavy are much more likely to drop out of sports before they finish high school.(46,47)	Male athletes’ confidence and body image often depend on how well they rate their physical strength, body fat levels, and muscle size.(42)

A young athlete's self-worth is highly shaped during the teen years while their body, mind, and physical and emotional skills change at a rapid rate.(32) The culture of an athlete's sports community can impact the way an athlete thinks and feels about their body, personal strengths, and overall worth. There are many key factors that affect young athletes' body image:

- The extent to which a young athlete believes the negative body comments they receive from other people.(31,32,39,48)
- Body insults and body teasing lead to a decline in self-esteem and an increase in sports dropout rates for young athletes of both sex.(39)
- Junior and senior high school boys are more likely than girls to tease same-sex peers about body shape and weight and these comments play a major role in raising body image concerns for young males.(32,39,49)
- Even though boys tease boys about their bodies more often than girls tease girls, female teens receive the highest number of total body comments from peers of both sexes, especially when they are participating in sports and other physical activities.(31,32,39,47)
- Athletes perform better when they compete in a setting that promotes respect for all body types and does not allow negative body remarks and body teasing.(32,39)

How Can a Coach Support an Overweight Athlete?

Overweight youth of both sexes have more body image concerns than their average-weight peers and are more likely to practice unhealthy methods of weight loss.(49) Overweight teens face more body teasing, social exclusion, and negative comments about their eating habits and health at school and at home.(49) Young people are also exposed to media (popular and social) that focus attention on obesity, weight gain, and unhealthy ways to change the body to meet societal standards. Experts recommend building supportive environments that help young people of all sizes develop a healthier body image through positive mental health, physical activity, and healthy eating.(49,50)

Overweight and obese youth may be at higher risk for developing certain health problems including: high blood pressure, diabetes, eating disorders, and depression.(51) To prevent a negative impact on body growth, self-esteem, or sport performance, young athletes who need to lose weight for health reasons should always work with a dietitian, doctor, and other professionals who can help them achieve sensible goals safely.(1,52) It is best for young overweight athletes to focus their efforts on a broader shift towards a healthy lifestyle that supports their well-being over time while their bodies continue to grow and develop.(52)

The Alberta Health Services' Provincial Pediatric Weight Management service does not recommend a focus on calorie restriction or a specific weight loss goal, but instead promotes a holistic approach to lifestyle changes for teens and the teen's family.(53) In fact, most of the advice for overweight youth and their families is the same as the key health messages for all teens and young athletes in general.(53)

- Shift the focus from weight and body shape to overall health and better care for the body.
- Learn new health skills and behaviours to help improve confidence and well-being.
- Invest more energy into a healthier lifestyle rather than dieting or popular diet plans.
- Create a positive mood at family meal times to make eating more pleasant.
- Enjoy healthy meals with family and friends when possible, to make meals more social.
- Aim to eat a healthy breakfast everyday that includes 3–4 food groups.
- Learn how to make healthy meals and snacks.
- Plan ahead for healthy snacks and meals when away from home.
- Eat balanced meals and snacks at regular times to maintain good energy and mental health.
- Stock up on healthy snack food choices at the grocery store.
- Eat fewer meals away from home because restaurant meals and fast food may be less healthy.
- Limit juices, sweetened drinks and unhealthy snack items.
- Enjoy at least 60 minutes of physical activity each day.
- Aim to reduce screen time (television computer, phone) to no more than 2 hours per day.
- Talk about feelings and problems with parents and other supportive people.
- Ask for help to learn healthy ways to relax and cope with stress.
- Get enough sleep every day to maintain good energy and mental health.
- Celebrate and reward without food, (page 20).

Impact of Rapid Weight Loss on Sport Performance

It is common for young athletes to believe they can improve sport success by quickly losing weight or body fat. Some young athletes will undergo many physical changes as they grow older and their body type may no longer be an ideal match for the sport they practice.(29,45,54) This can lead to an unhealthy pressure to change body weight, shape, or size to better meet the demands of their sport.(29) These athletes are more likely to restrict food intake or engage in other risky weight control methods to achieve this goal.(29,52)

Teen athletes are in a key stage of body and brain growth and dieting or restricting food intake is harmful to their health and sport performance. When athletes consume too little energy and nutrients to support activity and growth, they will(1,52):

- use muscle for fuel
- lose muscle strength
- have a weaker immune system
- have unhealthy changes in hormone levels
- lose bone mass
- have less endurance
- fatigue more quickly
- lose mental focus
- not be able to perform their sport skills as well
- become dehydrated more quickly
- be at greater risk for anemia (low blood iron) and stress fractures

It is important for teens and young athletes to learn that their body weight, shape, and size all depend on many key factors, over which they have no to little control.(54) These factors are:

- Genetics: Each person has their own unique, natural and healthy range for weight, muscle mass, bone mass, height, and body fat.
- Growth patterns: Every teen will pass through their own unique, natural, and healthy growth pattern which may follow one or more common paths, such as:
    - a sudden increase in weight, muscle and/or body fat, before a growth spurt
    - slow and steady growth and body changes over time
    - a growth spurt before slowly filling out
- Biological sex: In general, boys have less body fat and more muscle mass than girls.
- Hormones: Changes at puberty may affect appetite and can lead to fast or gradual body changes.
- Sports training: Certain types of training may cause distinct muscle and body fat changes.

Role of the Coach

Many athletes will ask coaches for support around weight and body image issues because it is easier to share their concerns or struggles with someone who knows and values the demands of their sport.(2) Coaches can play an important role in building and boosting young athletes' self-esteem so they have positive feelings about their bodies, their sport performance, and their lives overall. Teens who receive support and respect from coaches and other adults, have better self-esteem, greater respect for their bodies, and more trust in their ability to perform well in both school and sports.(32,42,54)

What Do Athletes Want From Their Coach?

Studies show that young athletes have less anxiety, stronger self-esteem, and better body image when their coaches:

- Focus on gaining new skills, having fun, and taking care of the whole body.(32,45)
- Focus on the whole person rather than weight, body size or muscle mass.(55)
- Provide social support, helpful feedback and guidance instead of comments on their failures or success.(56)
- Give praise for many different types of success and show respect for bodies of all shapes and skill levels.(32)
- Focus on long-term well-being, rather than short-term wins and losses.(57).
- Talk about how an athlete's unique talents, core strengths, and skills will lead to much more than just sport success in life.(32,48)
- Allow them to speak openly about their body image concerns so they can better resist unhealthy body pressures from media, society, family, and peers.(58)

Tips to Help Athletes Build Positive Body Image

- Refer athletes (with parental consent) to a dietitian, family doctor, and mental health professionals if they are having serious problems with body image.(1,59)
- Highlight the importance of healthy eating, regular training, and life goals, rather than body weight, body shape, or performance.(60)
- Promote other health behaviours such as developing good stress control and spending quality time with family and friends.(31,32,37,58)
- Stress the value of other sport training goals such as good energy levels, preventing injuries, taking enough time to recover between training sessions, getting enough sleep, and having a balance of interests besides just sports.(31,32,45,56)

- Focus on healthy eating patterns that can support growth, training, and competition rather than diet strategies to promote weight loss, muscle gain, or changes to body shape.(1)
- Remind athletes that they are at their optimal weight when their energy, mood, and health are all at their best, despite any weight or image pressures of their sport.(1,47,52)
- Explain how the various ways in which athletes try to change their bodies actually creates a higher risk for injury, poor performance, and health problems.(1,49)
- Focus on overall balance and variety of the diet, rather than condemn certain foods or focus on eating as a way to change weight, muscle mass, or body size.(1)
- Act as a role model by talking positively about your own body, eating balanced meals with athletes, and pointing out foods which support sport performance and overall well-being.
- Provide or suggest healthy snacks and drinks before, during, or after training and competition.
- Work with parents and sports dietitians to help promote the same message about good health and eating habits.

Which Athletes are at Highest Risk for Poor Body Image?

Young athletes who play sports that define some of their success by the way they look or how much they weigh, are at much greater risk for poor body image.(29,31,52) Coaches can best support these athletes by being aware of the most common unhealthy beliefs.(29,39,42,45,52,59):

1. "The lower my body weight or my body fat, the better I will perform"
    - distance runners
    - triathletes
    - swimmers
    - cross-country skiers
2. "The better my body looks, the more chance I have of winning"
    - gymnasts
    - dancers
    - body builders
    - figure skaters
    - synchronized swimmers
    - divers
    - cheerleaders

3. "If I reach a certain weight, I will have a greater lead on other athletes in my sport"
    - boxers
    - wrestlers
    - weight lifters
    - martial artists
    - rowers
    - jockeys
    - football players
    - rugby players

Warning Signs of Poor Body Image and Related Struggles

If a coach has concerns about an athlete's health, body image, or eating patterns, the best first step would be to talk with the athlete (and the parents) in private to suggest they seek more help from doctors, psychologists, or dietitians who have special training in nutrition and body image.(1,59) For tips on how to approach an athlete who may struggle with body image or disordered eating, see page 16 of the Coach & Athletic Trainer Toolkit.

Since coaches spend a lot of time with athletes, it is helpful to become aware of the common warning signs of a struggle with body image and other related issues such as steroid use, disordered eating, or eating disorders.(52,62)

Warning signs for body image, steroid use, and disordered eating patterns, or eating disorders are listed below.

Body Image:

- ongoing concern or anxiety about muscle mass or body fat, shape, size or weight
- frequently commenting or expressing concerns about 'being fat' or 'becoming fat'
- frequent negative comments about other people's eating patterns or weight
- extreme focus on building more muscle
- hiding body with bulky clothing
- often seen checking body in mirrors
- extra exercise outside of the normal training program
- losing too much weight or body fat over time

Steroid Use:

- extreme focus on building more muscle
- rapid gain of muscle mass
- mood swings or violent or hostile behaviour
- sudden or increased acne on face and body

Disordered Eating Patterns and Eating Disorders:

- often eating alone
- skipping meals regularly
- ongoing concern or anxiety about food or calories
- eating too little food to support demands of training and competition
- extreme focus on only eating 'healthy foods'
- avoiding an entire food group or nutrient such as fats or carbohydrates
- restricting fluid intake (to help keep weight lower)
- weighing self more than once per week
- ongoing use of laxatives or diuretics (water pills)
- use of weight loss supplements
- hiding body with bulky clothing
- often seen checking body in mirrors
- rapid weight loss
- losing too much weight over time
- rapid gain of body fat
- gaining too much weight over time (due to binge eating)
- cycling between weight loss and weight gain
- irregular menstrual cycle or total loss of menstrual cycle
- vomiting after eating
- loss of teeth or damage to teeth
- swollen glands in neck or jaw
- always using the bathroom after meals
- cut marks or red sores on knuckles of hands

Teaching Tools and Resources

Straight talk about Sports: By the Coaching Association of Canada.

Beyond Images: Program is for grades 4 through 8 to teach students to better understand how media impacts their body image and beliefs around food and exercise. It was created by the National Eating Disorder Information Centre (NEDIC) is Canada's only national organization dedicated to helping those impacted by eating disorders and related issues such as body image.

Body Sense: Is offered jointly by the Canadian Centre for Ethics in Sport and the True Sport Foundation. This program aims to foster positive body image in male and female athletes to prevent disordered eating and poor body image. The Body Sense Model describes ten ways that a coach or a school can boost positive self-esteem and body image in its male and female athletes through respect, healthy coping skills and informed choices.

- Role of Key Influencers (Parents, Teachers, Coaches)
- Positive Body Image
- How to Prevent Body Image Disorders
- Quick Tips to Promote Body Sense
- Natural Body Size
- Enhancing Male Image
- Young Men and Steroids
- Steroid Fact Sheet
- Female Athlete Triad
- Can Weight Loss Give an Athlete Competitive Advantage?
- How to Deal With Body Image Disorders

KidsHealth®: Provides advice, information and support about a wide range of physical, emotional, and behavioral issues that affect children and teens. Kidshealth® offers different information for teachers, parents, and teens. All KidsHealth® articles, animations, games, and content go through a careful medical review by doctors and other medical experts. These medical reviews continue on a regular basis to make sure the information is as current and accurate as possible.

- Encouraging a Healthy Body Image
- Female Athlete Triad
- Compulsive Exercise
- Are Steroids Worth the Risk?
- Body Image and Self-Esteem
- A Guy's Guide to Body Image
- Help! Is this My Body?
- What's the Right Weight for my Height?
- How Can I Improve My Self-Esteem?

Physique and Body Image: A Guide for Coaches and Parents of Athletes in School and Community Sports: By the Coaching Association of Canada.

Self-Esteem, Sport and Physical Activity: This document has been created by the Canadian Association for the Advancement for Women and Sport and Physical Activity. It provides practical tips to coaches, leaders, and teachers on how to support healthy self-esteem in female athletes.

Signs of Body Image Disturbance, Disordered Eating, and Eating Disorders in Physically Active Adolescents: A short article by the Association for Applied Sport Psychology that provides information for coaches.

When Building Muscle Turns into Muscle Dysmorphia: A short document by the Association for Applied Sport Psychology that provides information for coaches.

Anabolic Steroids Overview: By MyHealth.Alberta.ca.

Coach and Athletic Trainer Toolkit: For staff working in gyms, school settings, outside athletic groups, dance studios, and recreation centres who would like to know how to support athletes who may be affected by eating disorders. Frequently asked questions and common myths about eating disorders, strategies for assisting athletes and much more are included.

Nutrition Supplements for Young Athletes

Key Teaching Points

1. With the exception of vitamin D, all athletes can meet their vitamin and mineral needs through food alone if they eat a wide enough range of foods from all four food groups from Canada's Food Guide. All healthy Albertans aged 0–70 years old should take a 400 IU Vitamin D supplement each day.

2. An athlete's best sport performance depends on a healthy and well-planned diet, regular training, good sleep habits and genetics rather than a mix of supplements.

3. All athletes can meet their protein needs through high quality food sources such as dairy products, soy, eggs, fish, beef, poultry, pork and other lean meats.

4. There is not enough research about the safety of most nutrition supplements for young athletes, so health and sport experts do not advise the use of these products with this age group.

5. Any athlete who wants to use supplements should always consult a health professional first.

6. Research does not support the belief that optimal performance is achieved by taking more vitamins and minerals than required for good health.

7. Health Canada warns that some of the nutrition supplements which are deemed safe for adults (but not for teens) could still contain ingredients that are banned within the sports community.

8. If growing athletes take high doses of certain supplements, it can be unsafe and toxic, especially if they have health issues such as anxiety, diabetes, sleep problems, or heart, liver or kidney problems.

9. Young athletes do not need to use protein or amino acid supplements to get the best results for muscle growth. They simply need to eat slightly larger amounts (10–20 grams) of high quality protein on days when they train or compete.

Background Information

What are Nutrition Supplements?

Nutrition supplements are products that can provide an athlete with nutrients they may not be able to consume in large amounts through food alone. Supplements are often classed into three groups: vitamin and mineral supplements, nutrition ergogenic aids and natural health products.

Vitamin and Mineral Supplements

Vitamins and minerals are found naturally in foods from the four food groups of Canada's Food Guide. Although most of the vitamins and minerals in supplements are man-made, the human body absorbs these just as well as the natural vitamins and minerals in foods. Vitamin and mineral supplements usually come in the form of a chewable tablet, a pill, or a liquid.

Nutrition Ergogenic Aids

A nutrition ergogenic aid is a substance found in natural food sources that has been packaged in doses much higher than a person could ever consume through a normal diet.(1) Ergogenic aids claim (but may not be proven) to enhance sports performance by increasing strength, power, speed, or endurance.(62) Common examples include: caffeine pills, creatine powder, protein powders, and amino acid supplements.

Natural Health Products

Natural health products can be made from plants, animals and other life forms such as bacteria.(63) Some people believe these products can help improve overall well-being, reduce the symptoms of illness, or enhance sports performance. Natural health products come in many forms such as tablets, capsules, tinctures, solutions, creams, ointments, powders, and drops. Common examples include: herbal remedies, probiotics and homeopathic or naturopathic medicines.

Are Nutrition Supplements Safe for Young Athletes?

Athletes, parents, and coaches may believe nutrition supplements are harmless because they are sold over the counter and are often labeled 'natural', 'safe', and 'legal'. There is simply not enough research about the safety of nutrition supplements for young athletes. The effects of supplements on people younger than 18 years old may never be well known because it is not ethical to give children and teens products which could harm their health as part of a research study.(64) Health Canada and the American Academy of Pediatrics do not support supplement use in growing athletes who are under the age of 18 due to the lack of proof that they are safe for this age group.(63,65) Athletes under age 18 should not take supplements without advice from a health professional.(63,65)

Why are Supplements Less Safe for Young Athletes Compared to Adult Athletes?

Experts strongly advise sports and health professionals to not compare the growing teen body to the fully grown adult body.(62,66) All three classes of nutrition supplements could have very different effects on teen athletes compared to adult athletes for the following reasons:

- Young, growing bodies break down, absorb, and excrete supplements much differently from fully grown adult bodies.(66)
- Even supplements that are proven safe and helpful in adults could have adverse effects in younger people.(66)
- It is very hard to predict how the regular use of a supplement will impact the physical and mental health of youth athletes because this age group faces complex body and hormone changes throughout the period of rapid growth during puberty.(67)

Why Do Young Athletes Use Nutrition Supplements?

Research suggests that the number of young athletes who use supplements ranges from 22–71%.(5) In a recent study in Alberta, about 98% of recreational athletes aged 11–18 reported the use of one or more dietary supplements and on average, they took seven different supplements over a three month period of time.(68) The most common reasons young athletes choose to take these products include(64–68):

- seeing media or supplement ads that target teens and teen athletes
- trying to improve chances of moving into more advanced or elite sports levels
- looking up to adult sport role models who promote or use certain supplements
- trying to speed up recovery or healing from injury or illness
- feeling pressure to be like their teammates or peers who use supplements
- trusting that they will not suffer any harmful side effects
- trying to change body shape, weight or size, body fat levels, or muscle mass
- pushing their limits so they can train longer and harder
- trying to gain an edge over their peers with little to no effort
- fighting off fatigue
- boosting energy levels and their immune system
- taking advice from parents, coaches, or trainers who provide or promote supplements

Female and male athletes both use supplements to increase energy levels, but there may be some gender and age differences around the reasons young athletes use nutrition supplements.(58,64,66,68):

Female athletes:

- tend to use supplements more often than male athletes, such as vitamins and vitamin waters
- most often choose supplements which claim to improve health, offset poor food intake, or speed up recovery after training and competition
- are more likely than male athletes to use herbal natural health products and weight loss products

Male athletes:

- are more likely than female athletes to take protein powders and other ergogenic aids to try to enhance their sports performance, strength, endurance, power, and muscle mass
- who use nutrition supplements are much more likely than other boys to struggle with body image issues and concerns about muscle mass

Older athletes (15 years and older):

- are more likely to have money and access to buy supplements on their own
- begin to search for supplement information on the internet rather than ask a qualified person

Younger athletes (14 years and younger):

- are more likely to take supplements because their parents, coaches, and trainers suggest or offer them
- are more likely to use supplements when they learn other people and peers use them

Guidelines for the Safe Use of Nutrition Supplements

Vitamin and Mineral Supplements

The teen body needs a balance of many different vitamins and minerals to support growth, organ function, good health, and mental and physical activity. Vitamins and minerals are important for sport performance because they help release the energy from carbohydrate, protein, and fat, and they carry oxygen and other important nutrients to the body's cells.(1) These nutrients are also important for athletes' bone health, immune system, and muscle growth and repair.(1) Athletes can meet all of their vitamin and mineral needs by eating a well-balanced diet that includes a variety of foods from each food group.(1) However, Alberta Health Services recommends that all healthy Albertans aged 0 to 70 years old take a 400 IU vitamin D supplement every day, since they may not be able to get enough through diet or safe exposure to sunlight during the winter months.(69)

Vitamins and minerals are the most common supplements used by young athletes on a regular basis.(64,66,68) During times of training and competition, teen athletes tend to be hungrier and they often need to eat more than the recommended number of daily servings from Canada's Food Guide to meet higher vitamin, mineral and energy needs.(1,70) Some research shows that young athletes naturally tend to eat more food than their less active peers and would therefore not need to take vitamin and mineral supplements.(64) Athletes can easily learn to meet their needs through a balanced diet alone, but teens may lack the information to make these healthy food choices.(64)

Research on athletes and vitamin and mineral supplement use shows:

- Young athletes do not need vitamin and mineral supplements (other than vitamin D), if they maintain a healthy body weight and consume enough nutrients from a range of foods from all four food groups in Canada's Food Guide.(1)
- Sports performance will not improve by taking more vitamins and minerals than is required for good health.(1)
- Large doses of single or mixed vitamins and minerals can pose a health risk because they can be toxic or lead to harmful side effects through reactions with other nutrients, supplements, or medications.(71)
- Vitamin and mineral supplements do not provide athletes with any of the other vital nutrients found in natural food sources, such as fibre and energy.(1)

When Should an Athlete Take Vitamin and Mineral Supplements?

If an athlete wants to take vitamins or minerals, they should speak with a doctor or sports dietitian to find out whether the supplements are safe and helpful. Athletes may need to take a vitamin and mineral supplement when they are(1,69):

- Treating or preventing a health problem caused by a lack of a nutrient (e.g.: taking iron for anemia).
- Ill for a long time and cannot eat enough from all four food groups.
- Recovering from a serious injury that requires extra vitamins and minerals (e.g.: wound healing).
- Avoiding certain foods which contain key nutrients (e.g.: vegetarians, vegans, athletes who have a milk allergy).
- Restricting their intake for weight loss (which needs support from a dietitian and a doctor).

Note: All healthy Albertans should take a 400 IU vitamin D supplement each day.

If an athlete chooses to take a supplement, they should get no more than 100% of the dietary reference intakes (DRIs) for vitamins and minerals to prevent toxic effects.(71)

Nutrition Ergogenic Aids

The number of ergogenic aids on the market grows at such a rapid rate that it is hard to stay up-to-date on the safety and benefits of these products for young athletes. Very few of these aids have ever proven to improve sport performance, yet many of them do pose major health risks, especially if athletes use them often or in large doses.(1,62) The government does not check all of the supplements on the market, so there is always a risk that an athlete may take a supplement that contains banned ingredients.(72) The Canadian Centre for Ethics in Sport strongly suggests that all athletes should avoid ergogenic aids altogether.(72) If an athlete insists on using these products, they should at least consult a health professional to figure out whether the specific aid is safe, useful, and legal before choosing to take it.(1,72)

Protein and amino acid supplements, caffeine, and creatine are the three most common ergogenic aids used by teen athletes and they have all been studied by experts. There are many other products on the market, but very few have ever been studied in enough detail.

Protein and Amino Acid Supplements

Some active people believe they must eat many extra servings of protein-rich foods or use protein and amino acid supplements to increase their muscle mass. It is true that athletes do need more protein than non-athletes to support muscle gain and repair, yet it is very easy to get extra protein just by consuming extra servings of the Milk and Alternatives and Meat and Alternatives food groups from Canada's Food Guide.(1) The human body absorbs the protein found in dairy products, fish, eggs, soy, and meats most easily(73,74) so athletes need to include these high quality proteins in their diet each day. Vegetarian athletes can consume soy products on a regular basis, and they can also choose beans, nuts, and seeds to meet protein demands. Vegan and vegetarian athletes do not need to consume more protein than non-vegetarian athletes, yet they need to ensure they eat enough plant-based protein overall.(75) See *Vegetarian Eating* (page 49) for more ideas on protein sources and portions.

Athletes who consume large amounts of protein powder, fish, poultry, or meats may not eat enough from the other food groups. Protein-rich foods will make athletes feel full quite quickly and a high protein diet increases the risk that they will not consume enough vitamins, minerals, fibre, or energy to support optimal health and sport performance.(73) See *Eating Well with Canada Food Guide*, (page 9) and *Nutrition and Hydration Guidelines After Activity*, (page 41) for ideas on healthy food sources and portions of protein.

What Do Athletes Need to Know About Protein?

- Growing athletes should avoid protein and amino acid supplements since there is not enough research to assess how safe and helpful these products are for youth.(73)

- Teen athletes need to eat slightly larger portions of high quality protein foods rather than use protein bars or protein and amino acid supplements to get the best results for muscle growth and health. Protein bars, powders and drinks offer no extra benefit over real food and may be high in sugar and low in other nutrients and fibre.

- Healthy athletes only need to consume an extra 20 grams of high quality protein after training or competing to support muscle repair and growth.(75) Some food examples are:
    - 3 large eggs
    - 75 g (about 2 ½ oz) fish, poultry or meat
    - 175 g (¾ cup) low fat (2% M.F. or less), Greek style yogurt
    - 100 g (about 3 oz) textured soy protein
    - 75 g (2 ½ oz) part-skim mozzarella or lower fat cheese (20% M.F. or less)

- Athletes have better muscle repair and growth when they include a source of high quality protein as part of a snack or meal within the first two to three hours after weight lifting or sports training.(1,75)

- It is important for new athletes to make a slight increase in their daily protein and energy intake because muscle growth is greatest during the first phase of training when beginning a new sport.(75) Research shows that new athletes will naturally increase their food and protein intake to meet increased physical demands and increased hunger.(64)

- If an athlete chooses to use a protein powder, it is important to ask a dietitian for advice and to read the ingredient list to look for banned substances or additives that are not recommended such as sugar substitutes.(72)

Creatine

Creatine is a natural substance that the human body makes in the liver, kidneys, and pancreas and it is then stored in muscle cells.(62,67) Creatine helps supply energy to all muscle tissues and supports the heart, lungs, and other key organs during physical activity.(77,78) The human body makes at least half of the creatine it needs each day while protein-rich foods such as lean red meats, pork, poultry, and fish provide the other half.(76,77)

Is Creatine Safe for Young Athletes?

Most of the research that supports the safe use of creatine to improve sports performance has only focused on adult male athletes rather than females and younger athletes. Creatine supplements are useful for fully grown adults who do not consume enough creatine in their diet – such as vegetarians and vegans – as long as they follow the advised dose.(1,62,73)

There is little to no research on the safety of creatine in young people(1,65), yet as many as 62% of junior high and high school athletes have used creatine supplements to try to build more muscle or speed up recovery.(64) The International Society on Sports Nutrition advises coaches to teach teen athletes about the risks of creatine supplements as part of standard teaching around nutrition for peak performance.(76) It is vital for coaches to work with parents and health professionals to guide and protect young athletes who insist on using creatine in order to prevent these teens from transitioning on to steroids and other banned supplements.(76)

What Do Young Athletes Need to Know about Creatine?

- Young athletes should avoid creatine until their muscles and organs are fully grown and are able to break down, use, and excrete each dose.(62,63)
- Before they use creatine, athletes should talk to a doctor or dietitian to make sure it is safe.
- Human muscles are limited in the amount of creatine they can store, so an athlete will not gain extra muscle or energy by taking more than the advised dose.(1)
- Each athlete has their own unique response to creatine supplements based on how well their body makes creatine and absorbs creatine from food. A dose that works well for one athlete may cause bad side effects in another athlete.(1,77)
- Studies of adult men show that creatine may help improve the ability to perform frequent short bursts of highly intense activity such as weight lifting and sprinting (when skating or running), but it does not enhance the performance of endurance athletes such as distance runners, swimmers, and cyclists.(1,73,76)

What are the Risks of Creatine?

- Young athletes who choose to use creatine may be at higher risk for self-esteem or body image issues and may be more likely to take harmful products such as steroids as they grow older.(77)

- Creatine is never safe for athletes who have health problems such as(1,78):
    - diabetes
    - stomach ulcers
    - high blood pressure
    - liver problems
    - kidney problems
    - gout (pain and swelling in the joints of the toes, ankles, elbows, wrists or fingers)

- There is a high risk of severe dehydration or kidney damage when mixing creatine with certain foods and products such as (1,73,78):
    - caffeine supplements
    - foods and drinks that are high in caffeine
    - diuretics (water pills)
    - anti-inflammatory medications such as ibuprofen

- Creatine is never safe for athletes who are pregnant or breastfeeding.(1,78)

- The most common side effects of creatine supplements include(1,62):
    - fluid retention (getting puffy)
    - diarrhea
    - upset stomach or feeling the need to vomit
    - strained muscles or torn muscles from training too much or too hard
    - increased blood pressure
    - dehydration
    - muscle cramps
    - allergic reaction

- More is not better – the risk of harming the body is quite high for any athlete who exceeds the advised dose.(73)

Caffeine

Caffeine is a drug that enters the brain and speeds up the central nervous system.(79) Although many athletes believe caffeine will give them energy, it really just makes the mind more alert(80). Surveys show that at least 30% of teen athletes use caffeine as a way to enhance sports performance and they are more likely to use caffeine if pressured by other members of their sports community.(21,81)

How Much Caffeine is Safe for Young Athletes?

Caffeine is classed as a drug because it poses serious health risks if taken too often or in large doses. Caffeine becomes toxic to all healthy *adults* when they consume 1000 mg in a day and it can cause death at 5000 mg per day.(79,82) Growing teen bodies are less developed and often smaller than an adult body, so young athletes have lower limits for safe caffeine intake.

Health experts stress the need to limit how much caffeine teens consume – even when they are the same size as an adult–for many key reasons(79,81,83):

- There is not enough research to know the real effects and risks of caffeine for youth.
- Caffeine may make it harder for young minds and bodies to cope with the demands of growth.
- Youth often have too little blood volume to handle adult amounts of caffeine.
- Caffeine impairs the body's ability to absorb calcium from food to build healthy bones.
- Young people are less likely to consume enough healthy foods and sources of calcium (such as milk) if they fill up on caffeine drinks.

Table 4 outlines the maximum daily caffeine intake to ensure all Canadians stay within these limits.(83)

Table 4: Health Canada's guidelines on daily caffeine limits

Age Range	Daily Caffeine Limit
Children 4–6 years old	45 mg caffeine per day
Children 7–9 years old	62.5 mg caffeine per day
Children 10–12 years old	85 mg caffeine per day
Teenagers 13–19 years old • 54 kg/ 120 lbs • 58 kg/ 130 lbs • 63 kg/ 140 lbs • 68 kg/ 150 lbs • 72 kg/ 160 lbs • 77 kg/ 170 lbs • 81 kg/ 180 lbs	2.5 mg caffeine per kg body weight • 135 mg caffeine per day • 145 mg caffeine per day • 160 mg caffeine per day • 170 mg caffeine per day • 180 mg caffeine per day • 195 mg caffeine per day • 205 mg caffeine per day
Adults 20 years +	≤ 400 mg caffeine per day
Women: pregnant, breastfeeding, or planning to become pregnant	≤ 300 mg caffeine per day

How Much Caffeine is in Foods and Drinks?

Caffeine is found naturally in the seeds or leaves of many plants such as coffee beans, tea, cocoa beans, and guarana berries, but it can also be man-made to add to foods, drinks, and medications.(84) Caffeine intake among children and youth has increased by 70% over the past three decades.(81) This has coincided with the development of new caffeine containing products like energy drinks. For more information on energy drinks, refer to Alberta Health Services *The Energy Drink Buzz* handout and *The Energy Drink Buzz* presentation.

The caffeine levels of common foods consumed by teens and young athletes are outlined in the table below.(82,84)

Table 5: Caffeine content of common foods

Food or Drink	Serving Size	Average caffeine content (mg/ serving)
Coffee	250 mL (1 cup)	120–180
Instant coffee	250 mL (1 cup)	75–105
Energy drink	250 mL (1 cup)	80–125
Energy shot	60 mL (2 oz) bottle	80–500
Regular or diet cola	355 mL (1 can)	35–50
Tea (black, green, white)	250 mL (1 cup)	30–50
Iced tea, sweetened	250 mL (1 cup)	10–46
Chocolate cake	84 g (3 oz) slice	40
Dark chocolate	28 g (1 oz)	19
Chocolate milk	250 mL (1 cup)	8
Milk chocolate	28 g (1 oz)	7

How Does Caffeine Affect the Body?

Each young athlete will have a unique response to caffeine based on many factors(79,80,85):

- How often they consume caffeine because the body becomes used to the drug over time.
- How quickly their body absorbs, breaks down and excretes caffeine based on their metabolic rate.
- How much blood volume (litres of blood) they have since caffeine affects smaller people faster and stronger.
- Whether they take medication that has bad side effects when mixed with caffeine.
- Whether they have eaten. The body will absorb caffeine more slowly with food.
- How well hydrated they are. Dehydration increases the effects of caffeine.
- Whether they are active. Exercise increases the effects of caffeine.

What are the Risks of Caffeine?

Young athletes can have negative side effects if they consume too much caffeine or take caffeine pills or caffeine shots. These problems can occur across a wide range of caffeine intake because each athlete has a unique response and tolerance to this drug. Athletes should avoid caffeine if they struggle to sleep well, have a medical problem, or take any medications.(78,79)

The most common harmful effects of excess caffeine include (79):

- increased heart rate
- feeling more anxious or nervous
- getting angry or annoyed very quickly
- upset stomach
- feeling restless
- trouble sleeping or staying asleep
- headaches
- trembling hands or body (‘the jitters’)
- irregular heart beat
- throwing up

Natural Health Products

Health Canada reviews natural health products to discern whether they pose any health risks or have negative effects when taken with other products such as common medications and foods.(86) Health Canada then assigns a Natural Product Number to license those items that are legal, safe, high quality, and helpful. Even though licensed products are safe for most adults, they can still have harmful side effects when adults do not follow the advised dose on the label.(87) In the United States, the safety standards and review process for natural health products are different. Athletes who buy supplements from the United States need to review the online information from the Food and Drug Administration on Dietary Supplements to ensure they are safe.

How Safe are Natural Health Products?

Health Canada suggests the following groups of Canadians should avoid taking natural health products unless they have talked to a dietitian, doctor, or pharmacist due to the high risk of harmful side effects(63,87):

- children
- teens
- pregnant women
- breastfeeding women
- seniors
- those who have medical problems

The safety of these supplements is never tested on youth so Health Canada stresses the need to consult a health professional before giving any of these products to children or teens.(87) If a young athlete wishes to take a natural health product, they should consult with a health professional such as a doctor or a dietitian prior to using the product.(87)

What are the Risks of Natural Health Products?

Growing athletes are at higher risk for side effects because their bodies are often too small or may not absorb, break down and excrete natural health products as well as a fully grown adult.(1,87) There are many risks and side effects to consider before taking licensed natural health products since they could(1,67,87):

- contain banned or harmful substances
- have health claims that are not appropriate for the actual ingredients
- be the wrong product to help with a certain health issue
- mask symptoms or signs of a serious illness which could prevent or delay important medical help.
- have no warning on the label for those people who should not use the product
- interact with medications
- react badly with other nutrition supplements
- cause harmful side effects if mixed with alcohol
- cause an allergic response

Role of the Coach

Teen athletes are more likely than their non-athlete peers to believe media claims about supplements, but the more they learn about healthy nutrition, the lower their rate of supplement use.(66)

There is evidence that young athletes who start taking supplements will be more willing to use banned products in future if they continue to train and compete.(58,66) If a coach has concerns about a young athlete's health due to unsafe supplement use, it is rarely helpful to use shock or scare tactics for behaviour change.(65) A coach should instead ask the athlete to discuss the supplement with their family doctor in case there are medical risks or concerns about side effects with medications.(1)

Coaches can promote a "food first" attitude among young athletes to ensure healthier eating and better meal planning. The Coaching Association of Canada supports the position that nutrition supplements "should not be recommended until the athlete's health, diet, nutrition needs, current supplement and drug use, and energy requirements have been evaluated". The American Academy of Pediatrics, Dietitians of Canada and the International Society for Sports Nutrition have outlined many ways coaches can support teen athletes around the use of nutrition supplements.(1,65-67) These include:

- Referring athletes to health experts for information about the way a supplement impacts health and sport performance.
- Advising athletes to avoid supplements until they are fully grown because they may not be safe and could have a negative impact on their health and sports performance.
- Learning the facts about new supplements by working with professional sports groups and health providers such as doctors, sports dietitians and pharmacists.
- Staying informed about the World Anti-Doping Agency's Prohibited List so they know which products are banned for particular sports.
- Reminding athletes who still choose to take supplements that they should make sure these products have been deemed safe, helpful, and legal by Health Canada.
- Sharing the health risks of supplement use and explore ways to eat healthy and train well to improve sports performance.
- Enhancing athletes' self-esteem by helping them see that no supplement can ever act as a shortcut to better sports success.
- Promoting a balanced diet, focusing on well planned training and providing positive feedback when athletes make good choices for overall well-being.
- Working with schools and sports clubs to help athletes make better health and nutrition choices and remain open minded and honest when asked about nutrition supplements.
- Highlighting the need to prevent the use of supplements when developing policy or teaching tools for sports clubs, parents, and athletes.
- Exploring the reasons athletes take supplements and how well they understand the effects and risks rather than ignoring the issue until it becomes a problem.
- Supporting athletes who go through distress or anger when asked to stop a supplement. Coaches can assure these athletes that their progress and success are not a direct result of taking the product, but are instead due to regular training, a healthy diet, and enough recovery time.

Teaching Tools and Resources

About Natural Health Products: Information provided by Health Canada on the safety and risks of using Natural Health Products.

Supplements: Frequently Asked Questions: The Canadian Centre for Ethics in Sport provides answers to some common questions about the use of supplements in athletics.

Vitamins and Minerals for Athletes: A fact sheet by Dietitians of Canada created to explain the vitamin and mineral needs of athletes and active people.

How to Choose a Multivitamin: Information from Dietitians of Canada on how to safely choose a multivitamin for specific age groups when necessary.

Vitamins and Minerals and Sports Supplements: KidsHealth® has created fact sheets for teens to explain the role of vitamins and minerals and sport supplements.

Informing You About Natural Health Products and Safe Use of Natural Health Products: Information sheets by Health Canada for consumers to promote and protect the health and safety of Canadians.

The Prohibited List: The World Anti-Doping Agency (WADA) prepares, updates, and publishes this list every year on January 1st. Athletes should be aware of the products on this list so they can check the legal status of any supplements or medication they consume.

Evaluation of Dietary Supplements for Performance Nutrition: This article provides detail on the risks and safety of supplements that are available in the United States.

Food Sources of Caffeine: Is a list of the caffeine content of common food and drinks prepared by Dietitians of Canada.

What is Caffeine?: A fact sheet created by KidsHealth® for teens to explain caffeine.

The Energy Drink Buzz: A handout by Alberta Health Services to explain energy drinks to teens.

Alcohol and Sports Performance

Key Teaching Points

1. In Alberta, it is illegal for anyone under 18 years of age to possess, purchase, or consume alcohol in public.

2. It is important to delay the age when teens first try alcohol as late as possible to protect the brain and body as they grow and mature during puberty.

3. Athletes who use alcohol before they train or compete will not perform well due to dehydration, broken sleep patterns, headache, fatigue, and lower levels of alertness.

4. Drinking alcohol during activity can lead to injury, reduced endurance, poor coordination, slower reaction time, and poor balance.

5. Having alcohol after competition or training will impair athletes' ability to refuel, repair and strengthen body tissues.

6. The use of alcohol impairs sport performance for many days and raises the risk of injury while athletes train and compete.

7. Use of alcohol can cause the body to break down more lean tissue and make less muscle.

8. Teens cannot handle alcohol as well as adults because they often have less body weight, blood volume, and liver enzymes to dilute and break down the alcohol.

9. Genetics, weight, gender, food intake, metabolism, medication, hydration, stress, and fatigue all affect the way alcohol impacts each person at any given time.

10. The risk of having alcohol problems later in life is reduced in half if teens delay drinking to at least age 17 or 18.

11. It is not safe to mix alcohol with caffeine or medications.

12. If a teen athlete does begin drinking alcohol, they should only do so in a safe and legal setting and follow Canada's low risk alcohol drinking guidelines (never more than one or two drinks at a time, and never more than once or twice per week).

Background Information

Youth, Alcohol and Alberta Law

As stated by the Alberta Gaming and Liquor Act, Section 87.1, it is an offence for a youth under 18 to possess, consume, or purchase alcohol in public.(88) However, it is legal for a parent or guardian to give their own underage child an alcoholic drink at home.

It is crucial to note that the terms "parent" and "guardian" refer to a mother, father, or legal guardian but do not include any other adult family members, or any other adults who are supervising young people for a certain period of time.(88) Coaches can use this information to remind athletes of legal drinking age that they cannot legally provide alcohol to their younger peers.

Alcohol Use Among Youth and Young Athletes

Alcohol is the most common drug youth choose to use in Canada.(89,90) Teens are more likely than adults to exceed the adult guidelines for low-risk drinking during a single event, which is defined as no more than 2 drinks per day for adult women, or 3 drinks per day for adult men.(91) Recent research provides more insight into the ways in which young athletes and teens use alcohol:

- There is an increase in alcohol use and getting drunk among teen athletes in organized sport.(92)
- Young male and female athletes report more binge drinking, but less total alcohol intake than their non-athlete peers.(93,94)
- It is unclear whether youth who binge drink are more likely to seek out sports, or if being in sports places youth at higher risk of starting to binge drink, or both.(93)
- Teen boys who struggle with body image concerns and use nutrition supplements to increase muscle mass, are more likely than their male peers to binge drink.(95)
- Team sport athletes appear to drink more than individual sports athletes when their clubs or teams create a social culture that involves alcohol.(96)
- The younger a teen begins to drink, the higher their risk of substance abuse problems and addiction as adults.(97)
- The age at which young people first try alcohol appears to have decreased from 18 or 19 years old to 12 or 13 years old over the past few decades.(98)
- Among Canadian youth aged 15 and older, 83% have used alcohol in the past year and 37% have engaged in binge drinking at least once per month by having five or more drinks during a single event.(99)
- The percentage of youth who are heavy drinkers (five or more drinks during one event) grows from 14% in grade 9, to 41% in grade 12.(100)

- 14% of teen boys and 7% of teen girls report having five or more drinks at least once per week.(90)
- The amount of Alberta students who have used alcohol in the past year rises from 15% in grade 7, to 75% in grade 12.(100)
- Moving between different schools or moving from junior to senior high school is a time when some students may begin to drink alcohol because they may face new pressures, changes in social circles, and sudden body changes.(101)

The Impact of Alcohol on Health, Growth and Safety

Young people often believe they are old enough to drink alcohol, yet neither their bodies nor their brains have matured enough to cope with this choice. Health research highlights the likely impact of alcohol on the growing human body:

- The teen brain is at higher risk of damage from alcohol than the more stable adult brain due to complex and frequent changes during puberty.(93,98)
- The area of the brain that promotes impulse control and safe decisions is not fully developed until age 24, so alcohol use at an early age may pose a greater risk of addiction as an adult.(101,102)
- As many as 40% of teens who start drinking between ages 11–14 will have alcohol issues in their lifetime.(102)
- Early use of alcohol can lead to major learning and memory problems in young people.(97)
- Teen drinkers are more likely than non-drinkers to have lower grades and more reckless behaviour in both middle and high school.(98)
- Teens that use alcohol are at much higher risk for alcohol poisoning, car crashes, risky sexual choices, suicide attempts, drowning, and the use of other drugs.(98)
- The rate of personal harm caused by drinking alcohol is more than double for youth than for adults.(97)
- Teens cannot handle alcohol as well as adults because young people often have less body weight, blood volume, and liver enzymes to dilute and break down the alcohol.(97,98)
- Prolonged alcohol use in young adults impairs the liver, lungs, pancreas, kidneys, hormones, immune system, and heart.(93,98,103)
- Teens who misuse alcohol report more health problems such as appetite changes, weight loss, eczema, headaches, poor sleep, and muscle pain.(98)

- Heavy drinking can lead to liver disease, nerve damage, weak heart muscles, bone loss, stomach ulcers, sexual health problems, and memory loss.(91,99,103,104)

The Impact of Alcohol on Athletic Performance

Athletes who use alcohol before they train or compete will impair sports performance due to dehydration, broken sleep patterns, headache, fatigue, and lower levels of alertness.(91) Drinking alcohol during activity can lead to major injury, reduced endurance, poor coordination, slower reaction time, and poor balance.(93) Having alcohol after competition or training will impair athletes' ability to refuel, repair, and strengthen body tissues.(103)

Athletes who drink alcohol even once per week have a higher risk of sports injury due to impaired judgment and coordination.(105) Studies show when adults have five or more drinks in one night, they will have a decrease in mental and physical performance for up to three days after.(106) If an adult drinks five or more drinks two nights in a row, their performance can suffer for up to five days after.(106) The impact of binge drinking on the sports performance of the growing brains and bodies of young athletes may be much worse because their bodies are often smaller and less developed.(98,107)

Table 6 outlines the ways in which alcohol can affect athletes and their ability to engage in sports.(91,98,103,107,108)

Table 6. Negative effects alcohol may have on athletic ability

Body System	Negative Effects Alcohol May Have
Muscle Function	• Decreases muscle strength and force • Increases muscle cramps • Makes muscles weaker • Increases muscle pain • Decreases ability to control body movement
Temperature Control	• Causes blood vessels to dilate which leads to poor performance in hot climate • Reduces core temperature which leads to poor performance in cold climate
Fluid Balance	• Increases urine output which could lead to dehydration • Increases sweating which could lead to dehydration
Blood Sugar	• Causes blood sugar to drop which leads to low energy and poor mental function • Impairs the muscles' ability to refuel with carbohydrate during activity and recovery
Digestion and Metabolism	• Absorbs less of some nutrients such as B vitamins • Uses up or excretes more of other nutrients such as zinc • Breaks down more muscle • Makes less muscle
Central Nervous System	• Acts as a mood depressant • Slows reaction time • Impairs balance • Causes headache • Impairs fine motor skills • Causes upset stomach • Impairs memory • Leads to feeling dizzy • Impairs hand-eye coordination • Disturbs length and quality of sleep • Reduces alertness • Increases fatigue • Causes shaking

Alcohol and Caffeine or Medication

Many young athletes are not aware of the risks of mixing alcohol with caffeine. When teens mix alcohol with caffeinated energy drinks, they tend to consume more alcohol much more quickly because the high levels of caffeine excite the mind and mask the way alcohol slows down healthy brain function.(91,109,110) For more information on the food sources and risks of caffeine, see the *Nutrition Supplements section* of this toolkit. For more information on energy drinks, refer to Alberta Health Services The Energy Drink Buzz handout and The Energy Drink Buzz presentation.

Mixing alcohol and medication can lead to death because alcohol blocks or weakens the effects of some medications while making others stronger or more toxic. Some of the more common medications which can cause harmful physical or mental problems when mixed with alcohol include: sleeping pills, antidepressants, antibiotics, pain killers, and epilepsy or seizure drugs.(91,110)

Role of the Coach

The key message coaches need to offer young athletes are:

- Delay the use of alcohol as long as possible to prevent any negative impacts on growth, physical and mental health and sports performance.

- The risk of having alcohol problems later in life may be cut in half if teens can delay drinking to at least age 17 or 18.(98)

Teens who have good relationships with coaches, parents, teachers, and other mentors are more likely to develop a healthy approach towards alcohol.(111) Coaches can help young athletes better understand how alcohol impacts healthy growth and sport performance. Once athletes have chosen to start drinking alcohol, coaches should advise them to only do so in a safe and legal setting, under parental guidance, and at low levels (never more than one or two drinks at a time, and never more than once or twice per week).(91)

Coaches can correct the myths athletes have about drinking with the following facts(101,110):

- No two people can handle the exact same volume or pattern of alcohol intake, so it is not safe to drink as much as a friend, teammate, or adult.

- A person cannot always handle the same amount of alcohol each time they drink because genetics, weight, biological sex, food intake, metabolism, activity, medication, hydration, stress, and fatigue all change the way alcohol affects the body at any given time.

- Growing bodies and minds are not able to handle alcohol as well as an adult body.

Other Drugs

Young athletes may also struggle with the use of other drugs, including marijuana. These drugs will have a negative effect on sports performance and will increase the risk of sports injury. These drugs may also impact an athlete's food choices, taste preferences, and fluid intake; both when using the drug and after the effects of the drug have worn off. Ongoing use of these drugs may lead to unhealthy weight gain or weight loss and changes in metabolism.(112–114)

Coaches who would like to provide more support to young athletes who use drugs can access the following supports and resources from Alberta Health Services:

- Alcohol and Health Information Series
- Addiction and Mental Health
- Overview of Other Drugs
- Parent Information Series
- Addiction and Substance Abuse Programs and Services

Teaching Tools and Resources

Canada's Low-Risk Alcohol Drinking Guidelines: A brochure of the guidelines developed by the Canadian Centre on Substance Abuse. It outlines recommended limits, tips for safe drinking, and reasons to delay drinking in young people.

Alcohol and Caffeine–Youth and Young Adults at Greatest Risk: A fact sheet (English and French) outlining the unique risks for youth who drink alcohol mixed with high-caffeine energy drinks and other caffeinated beverages. The information was created by the Canadian Centre on Substance Abuse.

The Effects of Early Alcohol Use: Causes and Consequences of Excessive Drinking in Adolescence: This easy-to-read document outlines the physical and psychological risks of alcohol use among youth.

Alcohol Hangover: Created by Educ'alcool to explain the negative effects of alcohol to teenagers.

Alcohol and Energy Drinks: Don't Get Your Kicks from this Mix: Created for teenagers by Educ'alcool to describe the risks of mixing alcohol and energy drinks.

Drinking Games Can Be Deadly: Poster/web capsule created by Educ'alcool to inform teenagers of the dangers of binge drinking.

Conclusion

The foods and drinks athletes choose during training and competition will affect their sports performance. It is important for athletes to have access to healthy food and drink choices where they study, play, travel, compete, and practice. A coach plays an important role in teaching athletes and parents about healthy eating and in making a case for healthy eating environments in schools, recreation centres, and the home. Athletes look to their coaches for support around body image issues, alcohol, and nutrition supplements. This resource was developed to answer coaches' questions and to provide the resources needed for coaches to best teach and mentor their athletes.

Appendices

Alberta Health Services

Healthy Eating Starts Here

Appendix 1.0

Sample Letters of Support for Healthy Eating Environments in Recreation Facilities

The following pages contain sample letters of support that can be used by individuals and organizations in gaining support for a change towards healthy food options being available in recreation facilities. These letters could easily be adapted for use in schools. Use the links below to access the adaptable letters.

Sample Coach Letter to Support Healthy Eating in Recreation Facilities

sports-nutrition-sample-ltr-coach-rec-facilities.doc

Sample Athlete Letter to Support Healthy Eating in Recreation Facilities

sports-nutrition-sample-ltr-athlete-rec-facilities.doc

Sample Parent Letter to Support Healthy Eating in Recreation Facilities

sports-nutrition-sample-ltr-parent-rec-facilities.doc

Sample Patron Letter to Support Healthy Eating in Recreation Facilities

sports-nutrition-sample-ltr-patron-rec-facilities.doc

Sample Coach Letter to Support Healthy Eating in Recreation Facilities

[Insert Month, Day, Year]

Name, Title
Address

Dear _____:

Re: Request for Healthy Food Choices in Recreation Facility

I am writing to you as the coach of _____ team to ask you to support our request to offer healthy food and beverage options at our facilities.

Recreation facilities are the cornerstones of communities, where people gather for meetings, events and to be physically active. Recreation centres play a role in keeping people both young and old healthy by offering safe spaces for physical activity. As such places that support physical and social opportunities, there is an opportunity to support healthy choices for foods and beverages and to excel as a facility of wellness.

As their coach, I am working with my team on the importance of healthy eating to improve their performance in sport. As our athletes, their parents, and community members spend a great deal of time at our facilities; and often long days and multiple meal times during practices and tournaments, we are writing to ask your support in offering healthy food options to help fuel our athletes.

Many of our local schools have already made significant changes to the foods offered and sold within their facilities. It is our hope that recreation facilities can follow in their footsteps to further help create healthy environments where children and youth learn, work, and play.

Thank you for your consideration,

Name
Position
Organization

Sample Athlete Letter to Support Healthy Eating in Recreation Facilities

[Insert Month, Day, Year]

Name, Title
Address

Dear _____:

Re: Request for Healthy Food Choices in Recreation Facility

I am writing to you as an athlete who plays on the _____ team to ask you to support our request to offer healthy food and beverage options at our facilities.

Recreation facilities are the cornerstones of communities, where people gather for meetings, events, and to be physically active. Recreation centres play a role in keeping people both young and old healthy by offering safe spaces for physical activity. As such places that support physical and social opportunities, there is an opportunity to support healthy choices for foods and beverages, and to excel as a facility of wellness.

I, along with my teammates, am working on eating a healthy balanced diet to improve my performance in my sport. As we as athletes, our parents, and community members spend a great deal of time at our facilities; and often long days and multiple meal times during practices and tournaments, I am writing to ask your support in offering healthy food options to help fuel our athletes.

Our local schools have already made significant changes to the foods offered and sold within their facilities. It is my hope that recreation facilities can follow in their footsteps to further help create healthy environments where we learn, work, and play.

Thank you for your consideration,

Name
Sports team/Sport if individual
Community

Sample Parent Letter to Support Healthy Eating in Recreation Facilities

[Insert Month, Day, Year]

Name, Title
Address

Dear _____:

Re: Request for Healthy Food Choices in Recreation Facility

I am writing to you as the parent of a child who plays on _____ team to ask you to support our request to offer healthy food and beverage options at our facilities.

Recreation facilities are the cornerstones of communities, where people gather for meetings, events, and to be physically active. Recreation centres play a role in keeping people both young and old healthy by offering safe spaces for physical activity. As such places that support physical and social opportunities, there is an opportunity to support healthy choices for foods and beverages and to excel as a facility of wellness.

As a parent, I am working with my child/ren to create good eating habits that they will carry with them throughout their lives. As the parent of an athlete, we are working together with their coach, to help our athletes understand the importance of healthy eating to improve their performance in sport. As our athletes, us parents and community members spend a great deal of time at our facilities; and often long days and multiple meal times during practices and tournaments, we are writing to ask your support in offering healthy food options to help fuel our athletes.

Many of our local schools have already made significant changes to the foods offered and sold within their facilities. It is our hope that recreation facilities can follow in their footsteps to further help create healthy environments where children and youth learn, work, and play.

Thank you for your consideration,

Name
Position
Organization

Sample Patron Letter to Support Healthy Eating in Recreation Facilities

[Insert Month, Day, Year]

Name, Title
Address

Dear _____:

Re: Request for Healthy Food Choices in Recreation Facility

I am writing to you as a concerned community member and patron of our recreation facilities to ask you to support our request to offer healthy food and beverage options at our facilities.

Recreation facilities are the cornerstones of communities, where people gather for meetings, events and to be physically active. Recreation centres play a role in keeping people, both young and old, healthy by offering safe spaces for physical activity. In places that support physical and social opportunities, there is an opportunity to support healthy choices for foods and beverages and to excel as a facility of wellness.

I myself try to lead a balanced, healthy lifestyle which includes good eating habits and being physically active. As I spend a great deal of time at our facilities, I am writing to ask your support in offering healthy food options to help fuel our athletes.

Many of our local schools have already made significant changes to the foods offered and sold within their facilities. It is our hope that recreation facilities can follow in their footsteps to further help create healthy environments where children and youth learn, work, and play.

Thank you for your consideration,

Name
Position
Organization

3-Day Food and Activity Journal

Please see the other side for instructions about how to use this food journal.

Meal	Day 1: _____	Day 2: _____	Day 3: _____
Breakfast (First Meal)			
Snack			
Lunch (Second Meal)			
Snack			
Dinner (Third Meal)			
Snack			
Activity			

Alberta Health Services

Developed by Registered Dietitians
Nutrition Services
607866-NFS

How to fill in this journal

- Write down everything you eat and drink. You may want to record **one weekday (**or **workday)** and **one Saturday** or **Sunday (**or **day off)**.
- Include:
  - How much food you ate. See the suggestions below to estimate portion sizes. If the food comes in a package, just write down the package size. Example: 175 mL container of yogurt.
  - How the food is cooked (for example: fried, baked, boiled, barbecued)
  - Anything you add to food, during or after cooking. Example: cream, sugar, oil, butter, jam, syrup, ketchup or other sauces, dressings or condiments.
  - Details about restaurant foods, fast foods, or packaged foods (for example: McDonald's Big Mac® or KFC® chicken).
- Measure the food you eat for a day or two to help you understand how much you eat and drink. Use measuring cups and spoons.
- Write down all your **activities** for the day. Include planned activities (going for a walk or swim) and activities of daily life (housework or grocery shopping). Comments may include where you ate, your mood, or stress level.
- Use more paper if you need to or photocopy the other side of this handout.
- Read over your journals to see what is working well and what you may want to change.
- Keep on tracking. Use this tool to help you meet your goals, or to make new goals.

To estimate portion sizes, use the guidelines below:

This amount of food:	**…is about the same size as:**
2½ oz (75g) of meat	a hockey puck
1½ oz (50 g) of cheese	2 white erasers
1 cup (250 mL)	a baseball or fist
½ cup (125 mL)	a hockey puck
1 medium piece of fruit	a tennis ball
2 Tbsp (30 mL)	1 golf ball
¼ cup (60 mL)	2 golf balls
1 tsp (5 mL) – use for butter, margarine, mayonnaise	a thumb tip or one die

Example of how to fill in your food journal:

Meal	Day 1: Thursday	Day 2: Saturday
Breakfast (First Meal)	1 cup Bran Flakes® with 1 tsp sugar and ½ cup 1% milk 1 cup coffee black 1 slice whole wheat toast with 2 tsp Soft margarine	1 egg fried in 1 tsp butter with 3 strips of bacon 2 slices whole wheat toast with 2 tsp soft margarine 2 cups tea (chamomile)
Snack	1 carrot muffin - Tim Hortons® 1 medium black coffee - Tim Hortons®	1 medium apple
Activity	Stressful day at work	30 minute walk

Sports Drinks

Why Do Some Athletes Need Sports Drinks?

Sports drinks are designed to replace fluid and electrolytes (sodium and potassium) that the body loses in sweat. Sports drinks also provide carbohydrate to supply energy to the muscles and the brain during long periods of intense activity.

When Do Athletes Need Sports Drinks?

Active people only need to consume sports drinks during intense activity that causes them to sweat a lot for more than an hour. Water is the best choice for events that last less than an hour or involve only moderate levels of activity.

Which Athletes Need Sports Drinks?

Sports drinks can help athletes who:

- sweat a lot while training or competing very hard for more than one hour
- compete or train in a hot and humid climate
- get dehydrated from sweating when they wear thick sports gear (such as hockey and football)

Examples of intense activity include; triathalons, marathons, and long distance running, biking or cross country skiing.

Can Athletes Make Their Own Sports Drink?

Yes! Here is a simple recipe for a sports drink:

Homemade Citrus Sports Drink

Yield: 500 mL (2 cups)

2 Tbsp	sugar	30 mL
⅛ tsp	salt	0.5 mL
2 Tbsp	boiling water	30 mL
2 Tbsp	orange juice	30 mL
1 Tbsp	lemon juice	15 mL
1¾ cup	cold water	425 mL

Combine the sugar and salt in a bowl or pitcher. Add boiling water to the salt and sugar mixture and stir until sugar and salt dissolve. Stir in remaining ingredients and chill in fridge until needed.

Tip: Other unsweetened fruit juices can be used instead of orange juice.

*Nutrition information per 250 mL/1 cup: 58 calories, 0 g fat, 155 mg sodium, 42 mg potassium, 15 g carbohydrate, 15 g sugars, 0 g fibre, 0 g protein.

What Nutrients Should Sports Drinks Provide?

GOAL	8–20 g Carbohydrate per 250 mL	115–173 mg Sodium per 250 mL	19–49 mg Potassium per 250 mL	No Caffeine, Sugar substitutes or Natural Health Products	No Carbonation
Sports Drink	**8–20**	**100-210 (check the label)**	**15-100 (check the label)**	**No (check the label)**	**No**
Water	**0**	**5**	**0**	**No**	**No**
Energy Drink	**27–30** Too high	**Varies** Too low or too high	**Varies** Too low or too high	Contains caffeine; may have sugar substitutes or natural health products	**Sometimes**
Vitamin Fortified Water	**13–14**	**0–13** Too low	**0–875** Too low or too high	**Sometimes** May contain caffeine, sugar substitutes or natural health products	**Sometimes**
Flavoured Water	**13–14**	**0–13** Too low	**0–875** Too low or too high	**Sometimes** May contain caffeine, sugar substitutes or natural health products	**Sometimes**
Soft Drink	**22–32** Too high	**10–53** Too low	**3–15** Too low	**Sometimes** May contain caffeine or sugar substitutes	**Yes**
Fruit Juice	**24–36** Too high	**2–14** Too low	**2–68** Too low or too high	**No**	**No**
Unflavoured Coconut Water	**9**	**2–266** Too low or too high	**634** Too high	**No**	**No**

Evaluate Your Sports Drink Activity

Learning Objective:

Athletes will learn how to use the ingredient list and the Nutrition Facts table on a drink to figure out if the drink will support performance during periods of intense activity that last longer than one hour.

Materials Needed:

- Copies of the worksheet (see next page)
- Pens
- Drinks that have labels and Nutrition Facts tables
- Refer to *Nutrition and Hydration Guidelines During Activity,* (page 34)

Activity:

Athletes who are engaged in intense activity and sweating for more than one hour will require a sports drink to refuel blood sugars and electrolytes. However, sports drinks are not all the same and their ingredients often change. Some sports drinks may have slightly too little or too much sodium or potassium (but they can still be helpful). Coaches can teach athletes how to assess sports drinks by using the Nutrition Facts table on the bottle.

Drinks that young athletes often choose include water, sports drinks, low-calorie sport drinks, juice, pop, coconut water, vitamin water, and energy drinks. Athletes can assess these products by answering the questions in the *Evaluate your Sports Drink Worksheet*. Athletes will learn more by sharing their results with their peers.

Coaches can find background information on all of these drinks in *Table 2*, (page 37) and in the *Nutrition and Hydration Guidelines During Activity* section.

Evaluate Your Sports Drink Worksheet

Name of Drink			
Carbohydrate Drinks with too much sugar can cause stomach upset and diarrhea. Drinks with too little carbohydrate will not refuel muscles during intense activity. *Does the drink contain 8–20 g of carbohydrate per 250 mL?*			
Sodium Drinks with too little sodium will not prevent muscles from cramping during intense activity. *Does the drink contain 115–173 mg (or close to 115–173 mg) of sodium per 250 mL?*			
Potassium Drinks with too little potassium will not prevent muscles from cramping during intense activity. *Does the drink contain 19–49 mg (or close to 19–49 mg) of potassium per 250 mL?*			
Caffeine, Sugar Substitutes or Natural Health Products Caffeine (cocoa beans, guarana, kola beans, tea, tea extract, coffee) can cause headaches, nervousness, and upset stomach. Sugar substitutes (acesulfame potassium, aspartame, sucralose, saccharin, and cyclamate), and natural health products (ginseng, ma huang, guarana, yerba mate, açaí, taurine, inositol, carnitine, creatine, glucuronolactone, ginkgo biloba) are not safe for teens. *Does the drink contain caffeine, sugar substitutes, or natural health products*?			
Carbonation Carbonation (fluid containing bubbles) can limit the amount of fluid taken in during activity due to the feeling of fullness and gas. Carbonation is not recommended. *Is the drink carbonated?*			
Would you recommend this drink to be consumed if being active for longer than one hour? Why or why not?			

Tournament Menu Plan Activity

Sample Tournament Menu Plan:

Time	Activity	Food and Drinks
6:00 AM		**Breakfast:** 400 mL (1 ½ cups) water 1 bran muffin and 50 g (1 ½ oz) cheese 250 mL (1 cup) grapes
8:00 AM	1 hour Game	**During Activity:** 500 mL (2 cups) water
9:00 to 9:30 AM		**After Game Snack:** 250–500 mL (1–2 cups) water 1 medium banana 175 g (¾ cup) container of low fat yogurt
12:00 PM		**Lunch:** 6" sub on whole wheat, lean meats 75 g (2 ½ oz) and vegetables 250 mL (1 cup) Sliced medium apple 500 mL (2 cups) skim milk
2:00 PM	Athlete has a nervous stomach	**Pre-game Snack:** 250 mL (1 cup) of fruit smoothie

Time	Activity	Food and Drinks
4:00 PM	1 hour game	**During Activity:** 500 mL (2 cups) water
5:00 to 5:30 PM		**After Game Snack:** 30 g (1 oz) cheese string 200 mL (6 oz) 100% fruit juice box 250–500 mL (1–2 cups) water
7:00 PM		**Refuel Supper:** 75 g (2 ½ oz) Chicken breast with 50 g (1 ½ oz) cheese 250 mL (1 cup) of rice 250 mL (1 cup) of vegetables 250–500 mL (1–2 cups) water

Sample Tournament Menu Plan:

Time	Activity	Food and Drinks

Sports Nutrition Travel Checklist for Coaches

No matter what length of time your athletes need to travel for competition, the goal is to make sure they arrive ready to perform at their best. Some athletes may see travel as a time to have fun so it is important to plan ahead to make sure they still think about healthy food choices. Try some of the following ideas to remind athletes they need to meet the exact same nutrition needs during travel as they do when training or competing at home.

Ask Athletes to Pack a Healthy Nutrition Kit

1. **Whole grain products:**
   - ☐ Sliced bread
   - ☐ Buns
   - ☐ Pita shells
   - ☐ Tortillas
   - ☐ Bagels
   - ☐ Crackers

2. **Protein-rich foods to eat with grain products:**
   - ☐ Natural nut or seed butters*
   - ☐ Flavoured canned tuna
   - ☐ Salmon canned in water
   - ☐ Tuna canned in water
   - ☐ Hummus*
   - ☐ Lower fat cheeses*
   - ☐ Sliced ham*
   - ☐ Sliced roast beef*
   - ☐ Sliced chicken or turkey breast*

3. **Snack items:**
   - ☐ Fresh fruit
   - ☐ Fresh vegetables (celery, carrots, snap peas, grape tomatoes)
   - ☐ Fruit canned in its own juice
   - ☐ Unsweetened fruit sauces
   - ☐ Mixes of dried fruit, roasted nuts or seeds
   - ☐ Granola bars**
   - ☐ Instant plain oatmeal (requires a thermos of hot water or hot milk)
   - ☐ Cold cereal
   - ☐ Boiled eggs*
   - ☐ Greek yogurt*

4. **Beverages:**

- ☐ Water
- ☐ 1% or skim milk*
- ☐ Unsweetened fortified soy beverage*
- ☐ Herbal teas

5. **Condiments:**

- ☐ Mustard*
- ☐ Light mayonnaise*
- ☐ Relish*

6. **Supplies:**

- ☐ Personal water bottle
- ☐ Thermos
- ☐ Napkins
- ☐ Travel plates and bowls (often sold at camping supply stores)
- ☐ Travel cutlery and can opener (often sold at camping supply stores)
- ☐ Cooler (with ice)
- ☐ Small garbage bags
- ☐ Moistened wipes
- ☐ Snap-lock plastic bags or food containers
- ☐ Hand sanitizer

* These foods must be kept cold in a cooler. The Safe School Lunches information can show athletes how to keep food at the right temperature.

**See the Alberta Nutrition Guidelines for Children and Youth for guidance on which granola bars to choose most often.

Check Out Your Food Options Before You Leave

- Ask the hotel if your athletes will have a fridge in their rooms where they can store healthier food options.
- Find out whether your athletes will have access to a local grocery store where they can buy healthier foods.
- Look into the types of meals that are available at local restaurants, or the hotel where the athletes are staying. Many of these businesses will have menus posted online.
- Map out the best restaurants so athletes know where to stop for a meal if they plan to eat on the way to the competition.
- If you plan to cater meals for your athletes, be sure to let your caterer know about special food requests and food allergies well ahead of time so they can be ready to meet your needs.
- Work with athletes who have specific food preferences or allergies to make sure they can meet their needs at the travel destination.
- Review healthy eating goals if athletes need to dine at an 'all you can eat' venue because they will have access to food choices that are not ideal for training and competition.
- Ask local restaurants if they are willing to prepare high carbohydrate, low fat meals to fuel athletes before and between competitions. Some basic ideas include:
    - Chicken/Shrimp/Tofu and vegetable stir-fry with brown rice.
    - Spaghetti with lower fat cheese and marinara sauce plus a side salad with cubes of ham, tofu, or chicken breast and a light dressing.
    - Grilled chicken breast with baked potato and grilled vegetables.
    - Turkey sandwich on whole wheat bread with a glass of skim milk and an apple or fresh fruit cup.

Share Tips on Healthy Restaurant Eating

- Eating Out the Healthy Way
- Travel and Restaurant Tips
- 10 Tips for Eating Out
- Eating Away from Home: Tips for Making Healthy Choices

Remind Athletes to Keep All of Their Habits Healthy

- Encourage athletes to eat together as a way to connect with one another and to make it easier for coaches and parents to support healthy eating choices.
- When athletes travel by airplane, they need to drink more water to stay well hydrated because the air system increases fluid losses.
- During long periods of travel, athletes need to schedule regular meal times so they are less likely to snack when bored, go too long without food, or make poor food choices if they suddenly become very hungry.
- If they travel to a different time zone, athletes need to shift meal times to the new local time as quickly as possible.
- If they travel to a warmer climate, athletes need to drink enough fluids to stay well hydrated.
- Ask athletes to stick to their regular sleep pattern while traveling and once they reach their destination.
- Schedule breaks while travelling to stand up and move around or to get out of a vehicle and move around.
- Bring along other ways to reduce boredom (and prevent mindless eating) such as games, music, reading materials, or schoolwork.

Sports Nutrition Travel Checklist for Athletes

Regardless of the length of time you need to travel for competition, you need to eat and drink well so you arrive ready to perform at your best. You have the same nutrition needs during travel as you do when training or competing. Try out some of these ideas.

Pack a Healthy Nutrition Kit

Whole Grain Products

- ☐ Sliced bread
- ☐ Buns
- ☐ Pita shells
- ☐ Tortillas
- ☐ Bagels
- ☐ Crackers
- ☐ Cold cereal (requires a thermos of milk)
- ☐ Popcorn (little or no added salt and fat)
- ☐ Granola bars (high fibre options)
- ☐ Instant plain oatmeal (requires a thermos of hot water or hot milk)

Foods Higher in Protein

- ☐ Natural nut or seed butters*
- ☐ Flavoured canned tuna
- ☐ Salmon canned in water
- ☐ Tuna canned in water
- ☐ Boiled eggs*
- ☐ Hummus*
- ☐ Lower fat cheeses*
- ☐ Sliced ham*
- ☐ Sliced roast beef*
- ☐ Sliced chicken or turkey breast*
- ☐ Greek yogurt*

Vegetables and Fruit

- ☐ Fresh fruit
- ☐ Fresh vegetables (celery, carrots, snap peas, grape tomatoes)
- ☐ Fruit, canned in its own juice
- ☐ Unsweetened fruit sauces
- ☐ Mixes of dried fruit, roasted nuts or seeds

Supplies

- ☐ Personal water bottle
- ☐ Thermos
- ☐ Napkins
- ☐ Travel plates and bowls
- ☐ Travel cutlery and can opener
- ☐ Cooler (with ice)
- ☐ Small garbage bags
- ☐ Moistened wipes
- ☐ Snap-lock plastic bags
- ☐ Snap-lock food containers
- ☐ Hand sanitizer

Beverages

- ☐ Water
- ☐ 1% or skim milk*
- ☐ Unsweetened fortified soy beverage*
- ☐ Herbal teas

Condiments

- ☐ Mustard*
- ☐ Light mayonnaise*
- ☐ Relish*
- ☐ Ketchup*

* These foods must be kept cold in a cooler

Check Out Your Food Options Before You Leave

- Ask the hotel if you will have a fridge in your room to store healthier food options.
- Find out if you will have access to a local grocery store where you can buy healthier foods.
- Look into the types of meals that are available at local restaurants (many will have menus posted online).
- Map out the best restaurants so you know where to stop for a healthy meal if you plan to eat on the way to a competition.
- If you have specific food preferences or allergies, make sure you can meet your needs at the travel destination. You may need to pack certain food items.

Keep Your Habits Healthy

- Be social and eat with other people. You can support one another to make healthy eating choices.
- Drink plenty of water when you travel by plane because the air system increases fluid losses.
- During long periods of travel, schedule regular times to stop for meals so you do not go too long without food.
- If you travel to a different time zone, shift your meal times to match the new local time as quickly as possible.
- If you travel to a warmer climate, drink enough fluids to replace higher sweat losses.
- Stick to your regular sleep pattern while traveling and once you reach your destination.
- Schedule breaks while travelling to stand up and move around or to get out of the vehicle and move around.
- Bring along other ways to reduce boredom so you do not eat when you are not hungry (such as games, music, reading materials, or schoolwork).

What Should I Drink When I am Active?

Active people need to drink enough fluid to prevent fatigue, maintain good reflexes, control body heat, and speed up recovery. It is important for athletes to choose healthy drinks to help them stay well hydrated throughout the entire day.

Drink	Before Activity	During Activity	After Activity	Key Points
Water	☑	☑	☑	Drink throughout the day. Best choice before and after activity. Best choice during activity unless sweating a lot for more than an hour.
Milk	☑	☒	☑	Choose unflavoured milk or soy milk most often. Can cause stomach upset during activity.
100% Fruit Juice	▼	▼*	▼	Limit to 125 mL (½ cup) per day. *Can be used to make a homemade sports drink. Can cause stomach upset during activity.
Sports Drink	☒	☑	☒	Drink only during intense activity when sweating for more than an hour. Replaces electrolytes and carbohydrates during long bouts of activity.
Coconut Water	☒	☒	☒	Not recommended. Does not replace enough electrolytes during intense activity. Can cause stomach upset during activity.
Flavoured Water	☒	☒	☒	Not a healthy choice. Can be higher in sugar or sugar substitutes. Can cause stomach upset during activity.
Energy Drink	☒	☒	☒	Not a healthy choice. Can be higher in caffeine and sugar. May have added herbs. Can cause stomach upset during activity.
Fruit Drinks, cocktail, beverage	☒	☒	☒	Not a healthy choice. All are higher in sugar and contain little to no real fruit juice. Can cause stomach upset during activity.
Vitamin Water	☒	☒	☒	Not a healthy choice. May be higher in sugar or sugar substitutes. May have added herbs. Can cause stomach upset during activity.
Soft Drinks	☒	☒	☒	Not a healthy choice. May contain caffeine or sugar substitutes. Carbonation causes upset stomach during activity. Regular soft drinks are higher in sugar.

How Much Should I Drink When I am Active?

Before Activity

You need to be well hydrated when you start your activity, practice, or competition. Drink 400–600 mL (1 ½–2 ½ cups) of fluid 2–3 hours before activity. The best fluid to choose before activity is water.

During Activity

You will perform better if you stay hydrated during your activity, practice, or competition. Drink 125 mL (½ cup) fluid every 15 minutes. The best fluid to choose during activity is water so you do not get an upset stomach.

If you are sweating a lot and you are active for more than an hour, you may need to have a sports drink instead of water. Sports drinks help replace fluid, blood sugar, and the electrolytes you lose in sweat (sodium and potassium).

After Activity

It is important to replace all of the fluid you lose through sweat after you finish your activity, practice, or competition. Be sure to drink at least 250–500 mL (1–2 cups) of fluid. The best fluid to choose after activity is water.

A sign of good hydration is the clearness of your urine, for example a pale yellow colour. After activity, continue to drink small amounts of fluid until your urine runs clear. But please note, if you take a multivitamin supplement, it can make your urine bright yellow the next time you go to the washroom.

*Homemade Citrus Sports Drink Recipe

Here is a simple recipe for a sports drink:

2 Tbsp	sugar	30 mL
⅛ tsp	salt	0.5 mL
2 Tbsp	boiling water	30 mL
2 Tbsp	orange juice	30 mL
1 Tbsp	lemon juice	15 mL
1 ¾ cup	cold water	425 mL

Combine the sugar and salt in a bowl. Add boiling water and stir until sugar and salt dissolve. Stir in remaining ingredients and chill. Makes 500 mL (2 cups).

*Nutrition information per 250 mL/1 cup: 58 calories, 0 g fat, 155 mg sodium, 42 mg potassium, 15 g carbohydrate, 15 g sugars, 0 g fibre, 0 g protein.

***Tip*:** Other unsweetened, 100% fruit juices can be used instead of orange juice.

What Should I Eat Before Activity?

It is important to eat enough food before activity to fuel your muscles and brain for good mental and physical performance while you are active. High carbohydrate foods digest quickly and should be the main source of fuel within 2–3 hours before activity.

Meals and snacks should have a lot of carbohydrate, but only a medium amount of protein (one food guide serving of Meat and Alternatives or Milk and Alternatives) to make sure your stomach empties before activity. Choose foods that are low in fat and lower in fibre, to prevent gas or stomach upset.

Best to choose before activity: High carbohydrate but not too much protein, fibre or fat
Pasta in tomato sauce
Wrap or tortilla with lean meat (chicken breast, ham)
Poached eggs on dry toast
Cereal such as oatmeal
Bread, buns, pita, tortilla, English muffin
1% or skim milk
2% milk fat (M.F.) or less yogurt with fruit
1% M.F. or less cottage cheese and fruit
Fruit smoothies made with milk rather than juice and with no added sugar or honey
Fresh fruit, carrots, potatoes, yam

Best to avoid before activity: Higher fat OR higher fibre
Hamburgers
High fat meats and cheeses
Deep-fried foods, French fries or potato chips
Bran muffins (higher fat and higher fibre)
Ice cream
Cream-based soups or sauces (such as Alfredo)
Chocolate
Peas, beans and lentils (too much fibre before activity, so choose these after activity)
Cabbage, broccoli or cauliflower (too high in fibre before activity, so choose these after activity)

Before a competition, always eat familiar foods that do not cause stomach upset or cramps when you are active. Do not try a new food before a competition!

When Should I Eat?

If you begin an activity with food in your stomach, you will likely have cramps or upset stomach. Eat your meal two to three hours before an activity to give your body time to digest the food and convert it to energy to fuel muscles.

If it is not possible to eat a meal two to three hours before an activity, you can still eat a snack one to two hours before you begin. This snack will help prevent hunger and provide energy for the activity.

Be sure to drink water with your meal or snack to help you stay well hydrated.

Sample Meals 2–3 Hours Before Activity

Include all four of the Canada's Food Guide food groups in your meal 2–3 hours before your activity:

- 2 slices toast with 30–45 mL (2–3 Tbsp) nut or seed butter, a piece of fruit and 250 mL (1 cup) skim or 1% milk.
- Chicken sandwich with 30 g (1 oz) lower fat cheese, mustard and 125 mL (½ cup) unsweetened applesauce.
- 60–90 g (2–3 oz) roast beef and 250 mL (1 cup) vegetables combined in a stir-fry and served over 250 mL (1 cup) brown rice with 250 mL (1 cup) skim or 1% milk to drink or 175 g (¾ cup) yogurt for dessert.
- 2–3 poached or scrambled eggs wrapped in a tortilla shell with fresh or grilled vegetables and 30 g shredded lower fat cheese with a bowl (250 mL) of fruit salad on the side.
- 60–90 g (2–3 oz) grilled fish (such as salmon) with at least 250 mL (1 cup) grilled or steamed vegetables and a large baked potato with salsa and 15 mL (1 Tbsp) sour cream.

Sample Snacks 1–2 Hours Before Activity

Include at least two food groups in your snack 1–2 hours before your activity:

- Small granola bar, 175 g (¾ cup) low fat yogurt and a banana.
- 60 mL (¼ cup) low fat cottage cheese, 250 mL (1 cup) pear slices and an English muffin.
- ½ roast beef sandwich with mustard instead of mayonnaise.
- 250 mL (1 cup) plain oatmeal made with skim or 1% milk and garnished with fresh apple slices and cinnamon.

What Should I Eat During Activity?

Proper nutrition and hydration during activity will help improve your mental and physical performance while you train and compete.

If you are active for less than an hour, you do not need to eat during activity so long as you eat enough food before you start.

You may need to eat during activity to provide energy to your brain and muscles if:

- You are involved in an intense, nonstop endurance activity that lasts longer than one hour (such as running, cycling or cross country skiing).
- You have only eaten a small meal or snack before activity and you run out of energy.

If you are doing an intense activity for more than one hour, you can aim to eat 30–60 g of carbohydrate per hour. You also need to drink enough fluid to stay hydrated.

You can spread out this carbohydrate intake by snacking on food, sipping a sports drink or a combination of both.

During a competition, always eat familiar foods that do not give you an upset stomach or cramps while you are active. Do not try a new food during a competition! Test new foods during training instead.

Examples of food choices for carbohydrates include:

- 1 large banana (30 g carbohydrate)
- 1 medium orange (12 g carbohydrate)
- 250 mL (1 cup) watermelon (11 g carbohydrate)
- 8 dried apricots (26 g carbohydrate)
- 1 small box (28 g) raisins (22 g carbohydrate)

Should I Use Sports Food Products?

Food products such as sports gels, beans, chews and bars can help you replace blood sugar and electrolytes (sodium and potassium) during intense activity that lasts more than an hour. However, these products do not keep you hydrated when you sweat a lot so you need to drink water at the same time.

Sports food products are only helpful during activity. They are not healthy food choices before or after activity because they are low in fibre and high in sugar and calories. It is better to choose real foods at these times.

If you choose to consume sports food products during intense activity, be sure to:

- Use the Nutrition Facts table to work out the portion of the product you need to get 30–60 grams of carbohydrate per hour of intense activity.
- Choose items that have no caffeine or sugar substitutes or you may get an upset stomach.
- Drink enough water (125 mL (½ cup) every 15 minutes) at the same time.

What Should I Eat After Activity?

Proper nutrition and hydration are important after activity, training, or competition to refuel your muscles and repair tissue. To refuel your muscles, you need to eat carbohydrate and protein when you are hungry for your next meal or snack.

Carbohydrate rich foods:	**Protein rich foods:**
Fresh, frozen, or canned fruit	Lean meat
100% fruit juice or dried fruit	Fish
Bread, bun, pita, flat bread, or bagels	Poultry
Cereal	Tofu
Pasta	Beans and lentils
Rice	Nuts, seeds, or nut/seed butter
Couscous	Cheese (20% M.F. or less)
Quinoa	Cottage cheese (2% M.F. or less)
1% or skim milk or unsweetened fortified soy beverage	1% or skim milk or unsweetened fortified soy beverage
Yogurt 2% M.F. or less	Greek yogurt (2% M.F. or less)

Meal and snack ideas include:

- 1 medium banana with 250 mL (1 cup) of skim or 1% milk
- 175 mL (¾ cup) bowl of granola with 250 mL (1 cup) of skim or 1% milk
- 175 mL (¾ cup low fat yogurt) with 125 mL (½ cup) of fresh berries
- 1 slice wholegrain toast with 15 mL (1 Tbsp) peanut butter and 1 small apple

How Soon Should I Eat After Activity?

The timing of your snack or meal after activity depends on how soon you will be active again.

If you have less than 24 hours until your next activity:

Eat foods that provide both carbohydrate and protein within 30 minutes of your activity. It is important to eat within this time to make sure your muscles fill up their energy stores.

If you have more than 24 hours until your next activity:

Eat foods that provide carbohydrate and protein when you are hungry for your next regular meal or snack. There is no need to eat within 30 minutes of activity if you are not hungry.

Appendix 3.0

Glossary of Terms

Allergy/Allergic Reaction: Bad reaction, itch, rash, hives, swelling.

Amino Acid: The small building block that makes protein in food and muscles in the body.

Antibiotic: Drug that fights infection.

Anti-inflammatory: Drug that takes away swelling and pain.

Anxiety: Fear or worry.

Bacteria: Germs.

Behaviour: The way a person acts which includes their actions and manners.

Benefit: Something that has good effect or helps improve health.

Beverage: A drink.

Body Fat: A type of tissue in the body that protects organs.

Carbohydrate: The starch and sugar in food that can be broken down to give the body energy.

Chronic: Lasting a long time, constant, does not go away.

Community: A group of people who live in the same place, town, or city; a group of people who share a common interest, activity, concern, or goal.

Concession: A place where athletes can buy food, snacks, and drinks.

Consumer: A person who buys or uses goods or information.

Coordination: The ability to use different parts of the body at the same time.

Criteria: Standards by by which the health of a food or food product can be set out.

Dehydration: Losing a lot of water from the body.

Deficiency: Not enough, a lack of.

Development: A step or stage in growth; the act of growing.

Diabetes: A disease that causes too much sugar in the blood.

Endurance: How long an athlete can keep playing or training before they become too tired.

Environment: The setting where an athlete trains, competes, studies, spends time, or lives.

Ergogenic: Something that is used to try to improve mental and physical strength and skill.

Fat: The part of food that gives the body energy; oil, butter, lard, margarine.

Fibre: The part of food that the body cannot digest; roughage.

Fortified: To strengthen or enrich by adding nutrients, like vitamins.

Genetics: Traits in a family that are passed on from parents to children.

Glucose: Sugar.

Glycogen: Sugar stored in the muscles, liver, and other body cells.

Gout: Pain and swelling in the joints of the toes, ankles, elbows, wrists or fingers.

Guardian: Adult who has the legal duty and right to protect and takes care of a person who is not yet of legal adult age.

Homeopathy: A way to treat or prevent disease by using supplements or drugs to help improve the body's immune system.

Hormone: Natural or man-made chemical that affects growth and the health of many body organs and systems.

Hydration: Giving enough water and fluid to the body to keep it healthy.

Immune System: Helps the body protect against disease and germs.

Ingredients: All the single parts of a food or a nutrition product.

Injury: When an athlete gets hurt during training or activity.

Insomnia: When a person is not able to sleep.

Kidney: Organ that filters the blood and makes urine.

Liver: Organ that helps the body break down drugs, alcohol and poison and helps digest and store food.

Marketing: Trying to get people to buy a product by making the product look good.

Medication: Drug, pill, or medicine used to treat a health problem, disease, or illness.

Metabolism: How fast the body gets energy from food.

Micro-organism: A small life form such as bacteria or virus that are often made of only one or a few cells.

Mineral: Found in the soil; something that helps the body grow, repair, and stay healthy; found in foods made from plants and animals.

Naturopathy: A way to treat or prevent disease that uses special diets, herbs, and supplements.

Nutrient: Something that helps the body grow, repair, and stay healthy.

Optimal: Best.

Over-hydration: Giving the body too much water or fluid.

Pancreas: Organ that helps the body digest food and get sugar into the cells for energy.

Performance: How well an athlete plays a sport or performs a skill, both mentally and physically.

Poison: Something that makes a person sick or die if they eat or drink it.

Protein: The part of food that helps the body grow and repair muscles, organs, hair, and skin.

Puberty: Time in life when a child's body begins to grow and change quickly as their body becomes like an adult.

Recommended Dietary Allowance (RDA): The amount of a nutrient that a healthy person needs to consume each day to meet the needs of their age and gender.

Recreation: Activity that a person chooses to do for fun away from work.

Recreation Centre: A place where a person can do activity that is fun; a building that is open to the public where meetings are held, sports are played, and there are activities available for young and old people.

Recover: Return to a normal state of physical and mental health and strength.

Rehydration: To fill the body back up with enough water and fluid so it is healthy.

Self-esteem: What a person believes, thinks, and feels about themselves; having pride in who they are.

Sensitivity: How much a person responds to something, such as a drug, food, or allergy.

Skeletal Muscle: Muscle that connects to the bones and helps to move parts of the body such as the arms and legs.

Stomach: Part of the body that stores and helps break down food right after a person eats.

Substance: A type of liquid, solid, or gas; can also be a harmful drug that may not be legal.

Sugar Substitute (artificial sweetener)**:** A sweet substance that has no calories and is added to foods to replace sugar.

Supplement: Gives the body more of a nutrient like vitamins and minerals.

Teenager: A person who is the process of growing from a child to an adult; a person between the ages of 12 and 18 years old; a teen.

Tincture: A medicine made by making a drug liquid in a mix of alcohol and water.

Tolerance: How much a person can handle or resist the negative effects of a drug, food, or allergy.

Toxicity: The way an item poisons in the body.

Vitamin: Found in plants and animals; something that helps the body grow, repair, and stay healthy; found in foods made from plants and animals.

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