

**Psst!**

*Plan to stay in shape today*

# ATHLETES



## PRACTICE YOUR SPORT

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A GUIDE FOR

# ATHLETES





YOU HEAR A LOT ABOUT THE BENEFITS OF EXERCISE. PLAYING SPORTS AND EXERCISING ARE KEY TO DEVELOPING GOOD SELF-ESTEEM AND SELF-DISCIPLINE, AND THEY HELP PREVENT CANCER, FATIGUE, HEART DISEASE, DEPRESSION, AND COUNTLESS OTHER HEALTH PROBLEMS.

An active body is a healthy body. That's why it's never too late to get moving to maintain your ideal body weight. But to avoid injury, there are a few things you should know. This guide has all the information you need whether you're tying up those laces for the first time or picking up an old sport.

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# 1 THE SKINNY ON EXERCISE

## MAKING PROGRESS

Your number one goal when exercising should be to make progress, so don't overdo it—especially if you're just getting started! Give your body a chance to adjust.

The first week, do three 30-minute workouts (including warm-up). Add five minutes to your workouts each week. That will help you strengthen your muscles and joints and keep you motivated. You can then move up to four or five workouts a week depending on your goals.

Remember, it's best to work out three to four times a week, but six workouts is the absolute max. Your body needs at least one day off a week to recuperate.

## WARMING UP

Getting a good warm-up is one of the most important things you can do before a workout. Warming up means getting your body ready for exercise by gradually raising your body temperature by walking or doing stairs, push-ups, or slow versions of the movements you'll be making later. This gets your muscles and joints ready to go. A good warm-up should take anywhere from 5 to 30 minutes, depending on what you'll be doing.





## STRETCHING

Flexibility is key to preventing certain types of injuries. It also helps you make complex motions. Some people are naturally more flexible than others. People who are less limber can improve their flexibility by stretching 15 to 20 minutes daily, but they will probably never be as flexible as those who are naturally more limber.

Contrary to what you may think, you shouldn't stretch right before working out.

Muscles are basically bundles of muscle fibre. These fibres allow muscles to stretch or contract in response to signals from the brain that activate filament connections and move the limbs.



You can stretch any time of day. Pick a time that's best for you and make it a **DAILY ROUTINE.**



Stretching helps separate your muscle cells. It's more difficult to contract a muscle that has been stretched than a muscle at rest that has been warmed up with running or repetitive motions. In other words, when a muscle goes from being stretched to contracted, it has further to go and generates less force, increasing the risk of injury. Muscles usually return to their normal length 30 to 60 minutes after stretching.

## NUTRITION

It's important to eat before you exercise, but not too much. Your body doesn't like to multitask. It will already be providing energy to your muscles and heart while you're exercising, so don't add digestion to its to-do list.

**Proteins** play a role in muscle and tissue growth, development, and repair. They take a long time to digest, so avoid eating protein-rich foods just before a workout.

**Carbs** are the cornerstone of every athlete's diet. They are your primary source of energy when your muscles are working. There are fast carbs like yogurt and fruit that produce energy right away, and complex or slow carbs like pasta and granola bars that take longer to kick in.

**Fats** are the body's energy stores. They are harder to digest, which can lead to dehydration and stomach discomfort if they are eaten right before exercise. It's therefore best to avoid them before working out.

When your muscles are working, they first draw from your carbohydrate reserves. Remember, pasta and fruit are good sources of carbohydrates and are digested quickly. That's why most athletes eat them 90 to 120 minutes before working out to give their bodies time to digest, thereby boosting their blood sugar levels.

Fatty foods and foods with a higher protein content should be eaten much sooner because they take longer to digest.



If you want to  
give 110%,  
**NEVER EXERCISE  
ON AN EMPTY  
OR OVERLY FULL  
STOMACH.**



Your particular nutritional needs will depend on the sport you play. **Endurance sports** like running, biking, tennis, and soccer will use readily available sugar for energy, followed by fat stores and protein. You may want to take a juice- or gel-based sugar supplement while you're exercising. They're a great way to get quick carbs.

**Shorter-duration sports** like sprinting, freestyle skiing, and short-track swimming will use the sugar that's already in the blood, so fat and protein stores aren't necessary when exercising. These sports do require strong muscles, which means you'll need to do weight training and get your protein.

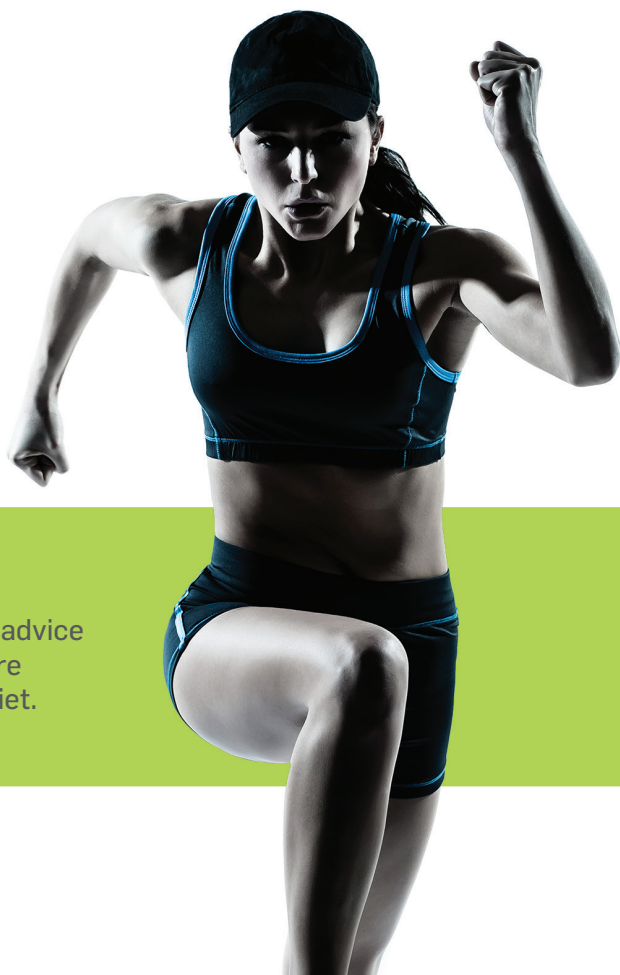
It's also a good idea to eat and drink **after** you work out to help your muscles recover, repair muscle fibre, and replace the sugar your body used. If you sweated a lot, make sure to eat or drink things with sodium (such as tomato juice, salted nuts, and saltine crackers) and potassium (bananas, dried fruits, and yogurt).

## SUPPLEMENTS

People have been taking protein supplements for years to add protein to their diets without upping their fat and sugar intakes. Those who want to lose weight without losing muscle mass often replace their snacks with a protein mix. But beware of any not-so-healthy ingredients on the label. And if you're a competitive athlete, make sure to avoid the banned substances found in some of these products. Talk to someone you trust if you need more information.



**See a nutritionist**  
to get personalized advice  
and make sure you're  
eating a balanced diet.



# HYDRATION

Even if you don't feel thirsty, it's essential to stay hydrated while exercising in order to:

- > Prevent dehydration
- > Avoid overheating
- > Deliver the carbohydrates and oxygen your muscles need
- > Compensate for liquid loss caused by sweating
- > Improve performance
- > Reduce the risk of injury

One common sign of dehydration is **cramping**. Anyone who has ever had a muscle cramp knows how important it is to drink water while exercising. The side effects of dehydration (e.g., heatstroke) can be very serious and even require a trip to the ER in extreme cases.

Follow these two tips to stay healthy and hydrated:

**1** Sometimes drinking water isn't enough. The human body is mostly composed of water, but it's also made up of salt and lots of other things like electrolytes. It's a good idea to drink beverages containing these substances.

**2** It's important to hydrate **before**, **during**, and **after** exercise. Here's an easy tip:

- > Drink the equivalent of a 500 ml bottle of water one hour before exercising.
- > Take two sips every 30 minutes during your workout.
- > Drink the equivalent of a 500 ml bottle of water after your workout.





## TIP

When you have a cramp, stretch out the muscle and press on the exact spot where it hurts. And though it may sound strange, eating **MUSTARD AND DRINKING PICKLE JUICE AND SPORTS DRINKS** helps get rid of cramps fast.



## HEART RATE

The average normal resting heart rate for adults is 72 beats per minute. For athletes, it's often under 70 beats per minute because their hearts are in better shape. Your heart rate shouldn't exceed **220 minus your age** while you're exercising. So 50-year-old should keep their heart rate at or below 170 beats per minute ( $220 - 50 = 170$ ).

When it comes to your heart, it's better to be safe than sorry. Adults over 45 who want to take up a new sport should see their doctor to make sure they're healthy enough.

# 2

## PLAYING SPORTS AND EXERCISING DURING PREGNANCY

Pregnant women should continue to exercise to maintain the muscle tone and endurance they need for childbirth. Most women who ran prior to becoming pregnant can continue to run at a more moderate intensity until the fourth or fifth month of pregnancy.

During the third trimester (weeks 26 and later), women should do lower-impact activities like walking, swimming, and prenatal water aerobics. They shouldn't take up any new activities while pregnant with the exception of prenatal classes and activities in the pool.

Obviously high-impact sports like volleyball and sports involving sudden changes in direction or the possibility of collisions or falls like basketball, hockey, and skiing should be avoided.

And though they're very popular, group classes like Zumba, Pilates, and step aerobics are not recommended. During pregnancy the body secretes more elastin, a hormone that boosts joint flexibility. The positions and motions involved in these classes place a lot of stress on the spine and joints, which are already coping with increased elastin levels. If you're unsure if an activity is safe for you, consult your doctor.



# 3 STAYING ACTIVE AS YOU AGE

Joints and tendons start to wear out around age 60. This is especially noticeable during more intense activities that entail changes in direction, jumping, and explosive arm movements.

Many people this age should give up sports like soccer, basketball, and badminton for lower-impact activities like walking, biking, swimming, and working out to stay in shape without injuring themselves.

Falls are the leading cause of injury (63%) in seniors, so it's important for them to do exercises or activities that improve balance, muscle control, and leg strength.

## JOGGING

Jogging has really gained in popularity in recent years. It provides a great workout at little to no cost and can be done virtually year-round. It can cause many types of injuries, however. As with any sport or activity, make sure to use the right equipment.

Good **running shoes** can make all the difference when it comes to preventing **foot, knee, and back injuries**. They should be comfortable and designed specifically for running. Following a realistic and personalized workout program is the key to limiting injuries and staying motivated as long as possible. And don't forget to keep hydrated and have fun!

# 4 STAYING MOTIVATED

Despite our best intentions, it's not always easy to stay motivated to exercise. We tend to be very enthusiastic at the outset, then gradually lose interest. Here are some tips to help you stick to your exercise routine:

- 1 Start out slow.
- 2 Set **realistic goals**.
- 3 Play a sport or work out with **friends**, but don't use them as a yardstick. Focus instead on your individual progress.
- 4 Find a sport or activity you enjoy.
- 5 Make time in your schedule for exercise. Though it shouldn't be, exercise is often the first thing to go when you're busy.
- 6 Take at least **one or two days off a week**.
- 7 Take a month off each year.



Sports are great for your health, but they do come with certain risks. An estimated 50% to 65% of athletes get hurt at least once over the course of a season.

Two-thirds of injuries in teens are sports-related. In adults 20 to 64, sports and work-related injuries account for nearly half of all injuries. And among seniors 65 and older, over half of injuries occur while the person is walking or doing housework.

Sports injuries fall into one of two categories:

### 1 TRAUMATIC INJURIES:

**Sudden injuries** that occur when more force is applied to a body part than it can sustain.

Examples include sprains, fractures, contusions, concussions, traumatic bursitis, muscle strains, and dislocated bones.

### 2 NON-TRAUMATIC INJURIES:

A **gradual-onset injury** or condition due to **overuse**, repetition, or poor posture.

Examples include tendinitis, bursitis, periostitis, stress fractures, and hernias (the most of them).

## ICE OR HEAT?

Whenever you're hurt or sore, you probably wonder:

### Should I apply ice or heat?

Unfortunately everyone has their own theory. Let's set the record straight. Here's a step-by-step approach that works for everyone.

Both ice and heat relieve pain by stimulating the skin's sensory receptors. Both work—it's just a matter of using them at the **right time** in the right place.

#### The first 24 to 48 hours

**Ice is best in the first few hours** following an injury because it slows your metabolism and reduces swelling and bleeding around joints and muscles.

But there are **two exceptions** to this rule:

- 1** **Back** and **neck** injuries don't swell like sprained knees and ankles do. For minor spine injuries, the pain is often due to muscle tension that protects the affected area. In this case, **90% of sufferers will get more relief by applying heat**, even in the first two days.
- 2** Pain from a **fractured bone** tends to intensify when ice is applied. So if the pain gets worse after you apply ice, you may **need to go to the emergency room**.



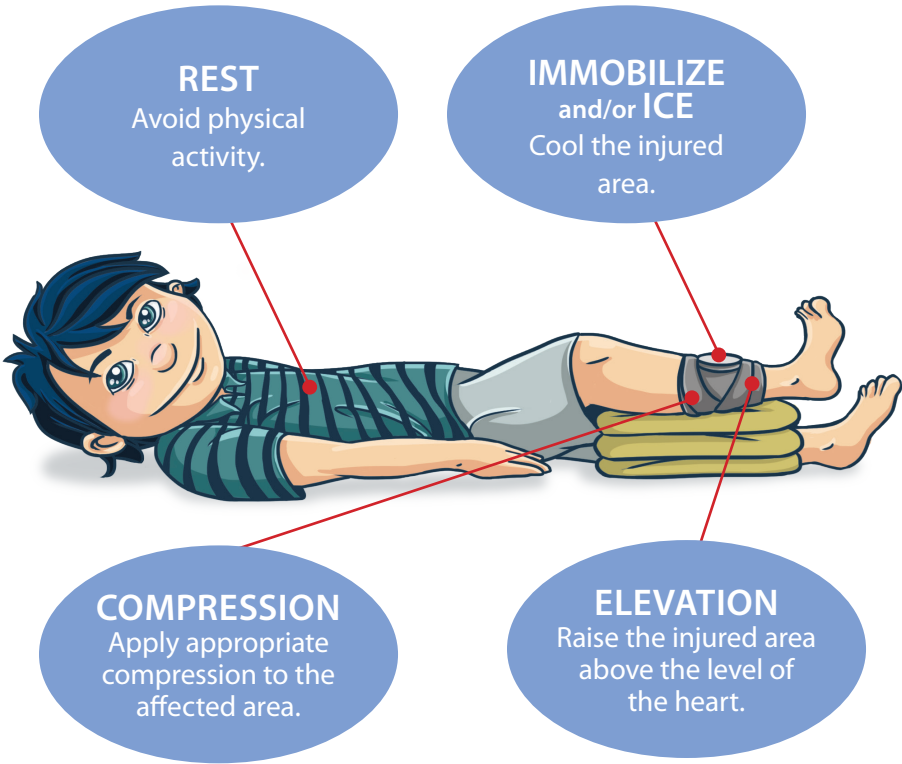
## Do you know the RICE principle?

Remember the acronym RICE when caring for injuries at home.

Rest	The area around an injury should be rested for the first 24 hours.
Immobilize and/or ICE	<p>Bracing or taping, preferably by a physical therapist, will help keep the affected area immobilized in the ideal position for recovery. The goal is to keep the injured limb from moving.</p> <p>Applying ice for <b>10 minutes every hour</b> is the safest, most effective way to treat an injury in the first 24 to 48 hours.</p> <p>Some believe that applying ice for more than 15 to 20 minutes has the opposite effect and makes swelling worse, so make sure not to keep it on too long.</p>
Compress	Compression is the most important step. An elastic bandage or athletic tape applied by a physical therapist is critical in the four to seven days following a trauma to keep swelling down so you can recover. <b>If you're debating between compression and ice, always go with compression.</b> That's why in hockey, when no doctor, physical therapist, or trainer is on hand, they always keep players' skates on if players have a sprain in order to keep the swelling down.
Elevation	Your heart pumps blood to your body, so to reduce swelling in a limb or joint <b>keep it at or above your heart</b> to prevent blood from pooling. That's also why swelling is always worse later in the day.

Depending on the severity of your injury, **have it looked at by a qualified physical therapist within three days**. You don't need a prescription to see a physical therapist, so you can call the clinic yourself.

**RICE PRINCIPLE:**



## Days 3 to 10: Ice or heat?

After the first 24 to 48 hours, when the swelling starts to come down, it may be a good idea to apply heat. At this post-injury stage, health professionals will often recommend applying whichever treatment works best for you (hot or cold). Heat acts by enhancing joint flexibility and relaxing muscles.

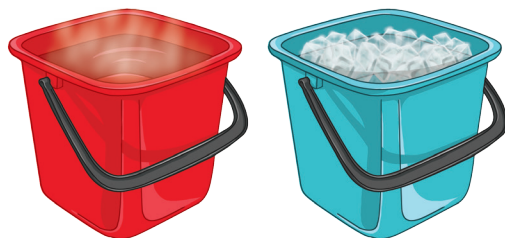
Contrast baths do wonders for swollen ankles, feet, knees, wrists, and elbows. Immerse the affected area in alternating containers of hot and cold water (using the bathtub, sink, and/or buckets).

Find two rectangular buckets like the ones you'd use to wash your car. Fill one with hot water from the bathtub (being careful not to burn yourself) and the other with cold water and ice cubes from the freezer. First put your ankle (or whatever joint is affected) in the warm water for two minutes, then put it in the cold water for one minute. Do this four or five times for about 10 to 15 minutes total.

Alternating between hot and cold water will help pump your blood. When you do this along with the right exercises, you will cut your recovery time by keeping the swelling down. Take a contrast bath once or twice daily and keep a compression bandage on the rest of the day.

## CONTRAST BATHS

Use a 2:1 hot-to-cold ratio (2 minutes of hot followed by 1 minute of cold for no more than 15 minutes)



## WHEN TO GO TO THE ER?

If you are experiencing intense pain and swelling, the limb looks deformed, you can't put weight on it, or you're still feeling extremely weak 15 minutes after the injury, you should go to the ER to rule out fracture.

## WHEN TO SEE A HEALTHCARE PROFESSIONAL?

Certain injuries can have permanent after effects if not treated immediately. This is true no matter what body part or joint is affected.

**There are three kinds of healthcare professionals** that can assess the severity of injuries to the human body: **orthopedists, sports doctors, and physical therapists.**

It's critical to have a traumatic injury looked at within three days to get recovery off on the right foot. **Physical therapists** are usually available soonest, so try to get an appointment with one of them first. Your physical therapist may then refer you to one or more physicians. Choosing the right physical therapist is therefore key. Select a clinic that has a proven track record treating performance and sports-related injuries and can provide manual therapy.

# WHAT INJURIES ARE MOST COMMON?

An injury survey conducted by the *Institut national de santé publique du Québec* revealed what types of injuries are most common<sup>1</sup>:

**40%: esprains and strains**

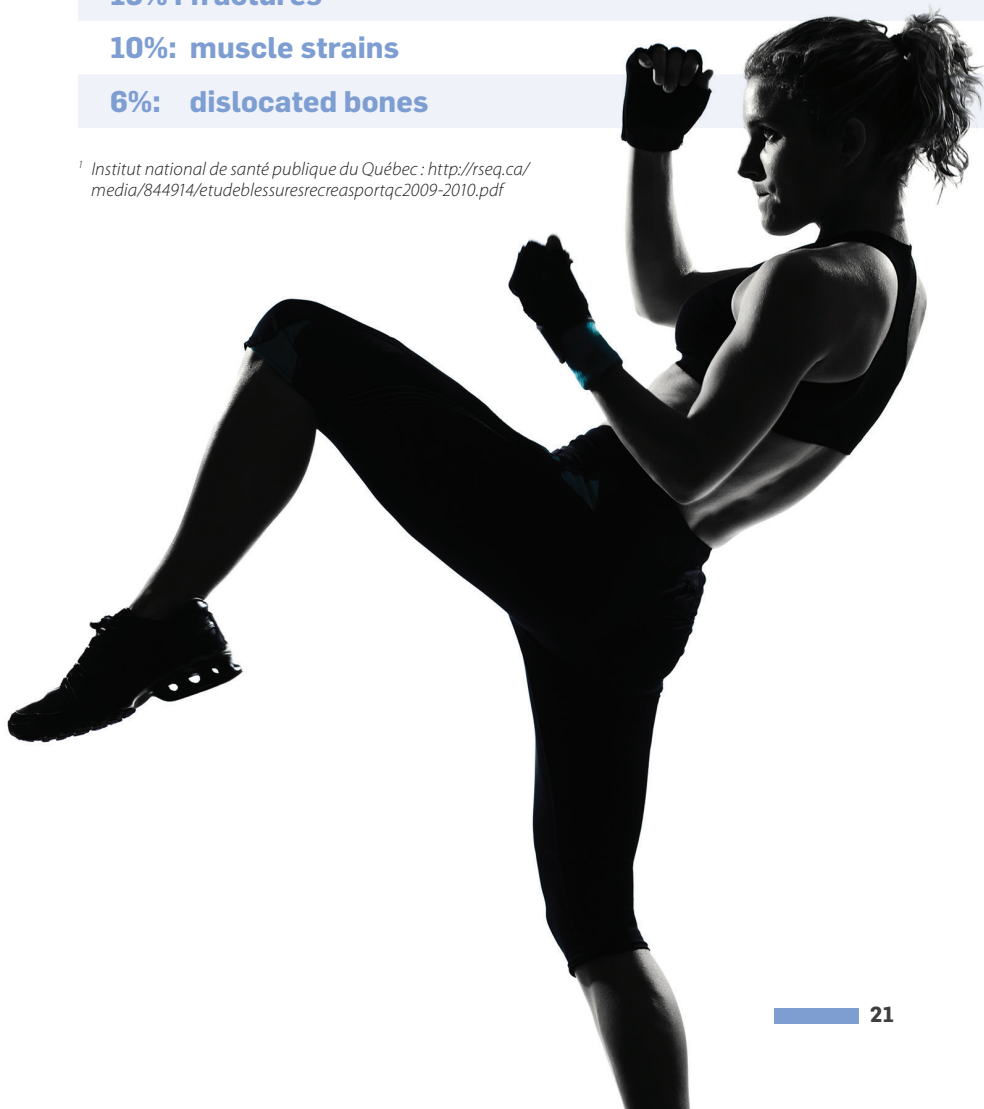
**15%: tendinitis, bursitis, and periostitis**

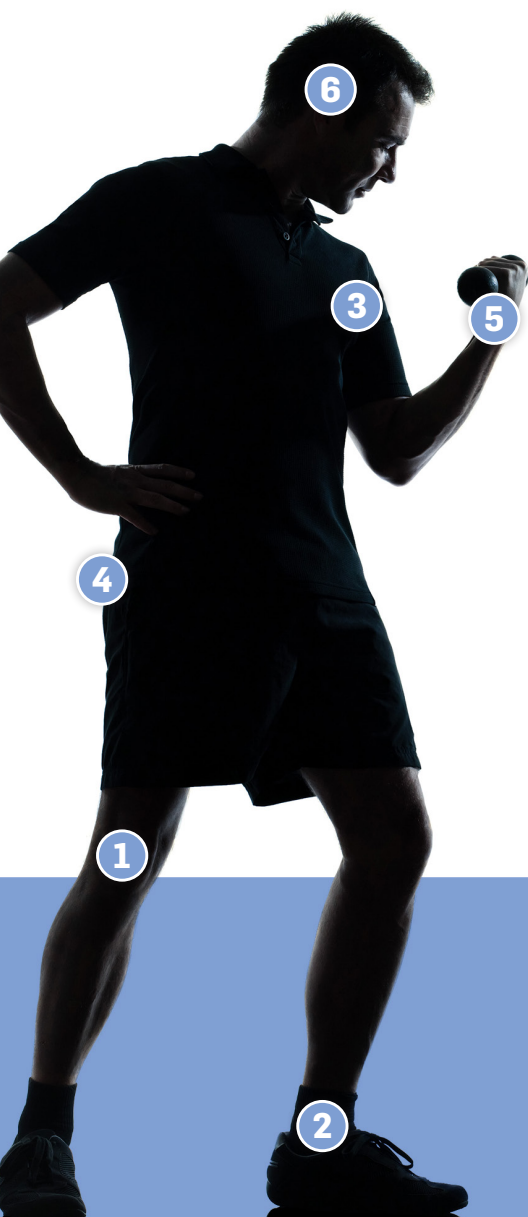
**13% : fractures**

**10%: muscle strains**

**6%: dislocated bones**

<sup>1</sup> Institut national de santé publique du Québec : <http://rseq.ca/media/844914/etudeblessuresrecreasportqc2009-2010.pdf>





Most injuries are to the  
**lower limbs<sup>1</sup>**:

- 1** **21%**  
knee
- 2** **19%**  
ankle and foot
- 3** **13%**  
shoulder and arm
- 4** **10%**  
lower back
- 5** **8%**  
wrist and hand
- 6** **8%**  
head (excluding  
the eyes)

The survey did not look at injuries by sport, but it does paint a pretty good picture of the types and severity of injuries that athletes sustain.<sup>1</sup>

<sup>1</sup> Institut national de santé publique du Québec : <http://rseq.ca/media/844914/etudeblesuresrecreasportqc2009-2010.pdf>

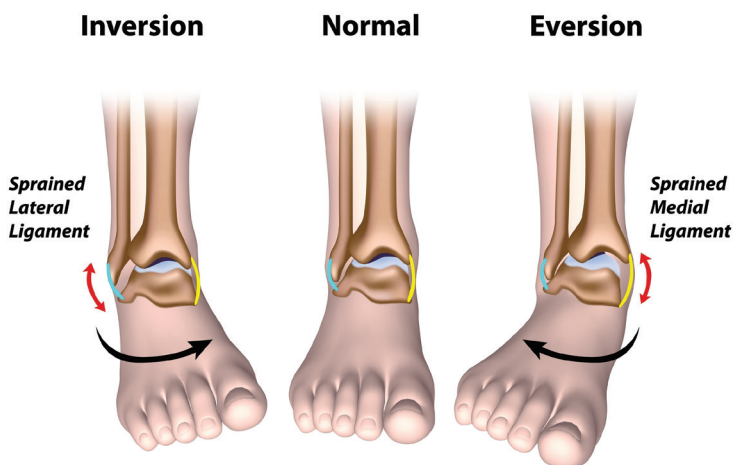


# SPRAINS AND STRAINS

## What is a sprain?

A sprain is an injury caused when the **ligaments** of a joint are **overstretched** or even torn. While sprained knees, fingers, and wrists are not unusual, ankle sprains are the most common. Sprains cause pain and swelling that can sometimes limit joint movement.

### Ankle Sprains



## How to treat a sprain?

- 1 Follow the RICE principle—rest, immobilize, compress, and elevate.
- 2 Decide if you need to go to the ER.
- 3 See a physical therapist to determine how serious the sprain is and how to treat it.

You may need to take a pain reliever. And if you have a certain type of elbow or knee sprain, you may need to wear a special splint for several weeks to limit joint movement.

Certain ankle injuries require the use of crutches for one to three weeks, depending on the severity of the sprain. That's why it's important to find out right away which ligament is affected to prevent permanent after effects.

## What does rehabilitation entail?

It takes about **six weeks** to fully heal a sprain, depending on the severity.

Your physical therapist will give you exercises to help you regain strength and control in the joint. Depending on the severity of the sprain, your physical therapist may use athletic tape or a splint to avoid reinjuring the joint during rehab and to get you back in the game faster.

In some cases, your physical therapist may administer localized treatment (friction, ultrasound therapy), exercises, and manual therapy to help you regain the flexibility you lost when you were injured. Weekly appointments are often needed.



## TIP

If you have a moderate to severe ankle sprain, you should wear an ankle brace at night for the first four to six weeks **so that the weight of your covers doesn't stretch out the affected ligaments.**

## Getting back in the game

Take your time getting back to your normal activity level. How long you will be sidelined will depend on the severity of your injury. Make sure the affected ligaments are strong enough or are adequately protected to withstand the stress involved.

Once you're healed, meaning the inflammation is gone and your strength, flexibility, and control are at 80% or 90%, your physical therapist may recommend you wear a splint or athletic tape for the first few months.

You will have to gradually stop using it to avoid long-term weakness. Bandages made of elastic or a similar material usually don't provide enough support for this type of injury.

## How to avoid sprains and reinjury?

Follow your physical therapist's instructions and these exercise rules of thumb:

- > Do a proper warm-up before exercising.
- > Take in sufficient liquids during your workout.
- > Recover properly between workouts.
- > Respect your limits.
- > Eat right.
- > Do your strengthening exercises.

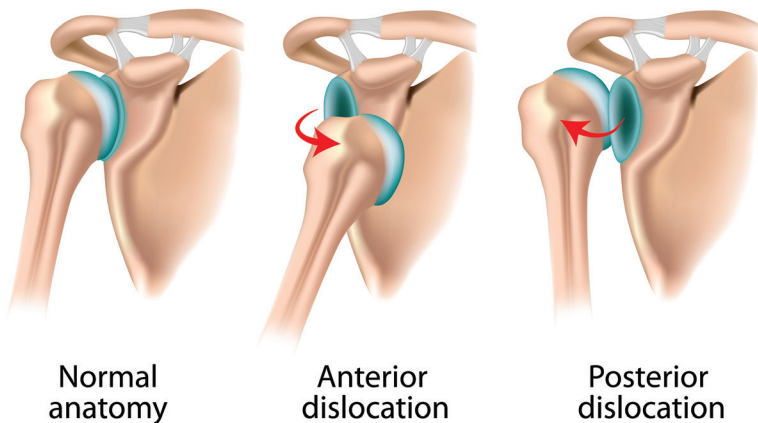
# DISLOCATED BONES (LUXATIONS AND SUBLUXATIONS)

## What is a luxation?

A **luxation** is a sprain in which the ligaments protecting a bone are torn, allowing the bone to come out of its normal position. It is also referred to as a dislocated bone. It is usually caused by a trauma or heavy blow.

A **subluxation** is a partial dislocation in which the bone comes out of its normal position then returns to it. In other words, the bone temporarily comes out of its socket and pops back in.

## Shoulder Dislocation



## How to treat a luxation?

First, keep the area immobilized and try not to let the person see it so he or she doesn't faint or panic. A luxation is a serious injury, so the person should be taken to the **ER** for treatment by a qualified physician. Once the joint and bone are reset, a pain reliever may be recommended.

## What does rehabilitation entail?

Once the joint has been immobilized for a time, your physical therapist will recommended by beginning mobility, strengthening, and muscle control exercises.

## Getting back in the game

Since a luxation is a more serious injury than a sprain, it will probably take longer before you can exercise again. Make sure the joint is 100%, then gradually return to your normal activity level.

## How to avoid reinjury?

In addition to following the exercise rules of thumb, the best way to prevent a luxation is to get physical therapy, wear a stint or athletic tape, do weight training, and improve your muscle control.



When you're ready to work out again, use your pain as your guide to determine your intensity level.

**Don't overdo it or you may reinjure yourself.**



# MUSCLE PULLS AND STRAINS

## What is a muscle strain?

When a muscle is overstressed, it may stretch too far and become pulled. A muscle strain is a more serious tear that occurs when a muscle is extremely overstressed in an unnatural position.

Pain is usually highly localized. The most commonly pulled and strained muscles are the calves, quadriceps, and hamstrings. Muscle strains are often accompanied by **localized bleeding**, bruising, or deformation (hole and bump), depending on the severity of the injury.

If the whole muscle hurts, it's usually just minor muscle soreness.

## How to treat a muscle pull or strain?

- 1 Follow the RICE principle—rest, immobilize, compress, and elevate.
- 2 Decide if you need to go to the ER.
- 3 See a physical therapist or sports doctor within 72 hours.

Apply ice for 10 minutes every hour for the first 48 hours.

Wear a compression bandage at all times, except when applying ice or showering.

Don't take baths or apply heat as these tend to increase blood flow to the injury site, making the pain worse.

You may also want to take a pain reliever to help alleviate some of the pain.

## What does rehabilitation entail?

After three to seven days of rest, you will be given flexibility exercises and gradually increase the difficulty.

Depending on the severity of the injury, you may begin a strengthening program seven to fourteen days after the injury, preferably under the supervision of a qualified healthcare professional.

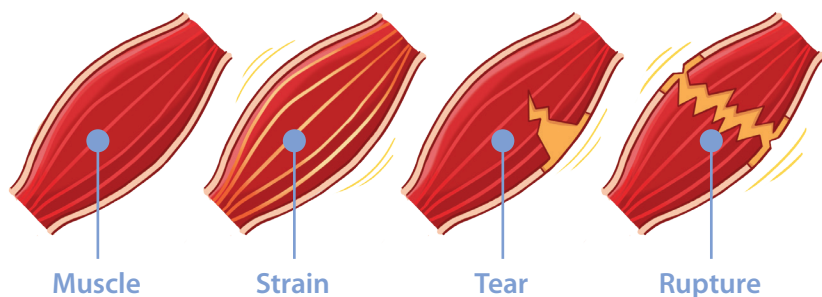


## Getting back in the game

It can take about six weeks to fully heal a mild to moderate muscle pull. You should wait until you have regained full flexibility and your strength is at 90% before exercising again, however. You will need to follow a sport-specific program to get back in the game.

### How to avoid reinjury?

Your physical therapist will use a specific taping for each muscle so you can get back in the game safely. Wait until you've fully regained your strength before exercising at home again, and make sure to eat right and maintain a healthy weight to avoid placing too much stress and strain on your muscles. Risk factors for muscle pulls include fatigue, muscle stiffness, dehydration, and age. Some of these are easy to control, others less so. But no matter what, getting a good warm-up and playing it safe are key.



# CONTUSION

## What is a contusion?

A contusion is an injury sustained when a body part is hit by an object or the limb of another person. Muscles, bones, ligaments, bursas, skin, and joints are all susceptible to contusions.

If the affected area becomes painful and bluish in colour, it's called a **bruise**. If the area becomes swollen and discoloured, it's called a hematoma.



## How to treat a contusion?

- 1 Follow the RICE principle—rest, immobilize, compress, and elevate.
- 2 Decide if you need to go to the ER.
- 3 Ideally, have it looked at by a physical therapist or sports doctor within 72 hours.

Wear a compression bandage at all times, except when applying ice or showering.

As with a muscle pull, it's best to avoid taking baths or applying heat because they tend to increase blood flow to the injury site, making the pain worse.

## What does rehabilitation entail?

Contusions usually clear up on their own within a few days. Rehabilitation for a contusion is a lot like that for a muscle pull. After three to seven days of rest, you can begin flexibility exercises and gradually increase the difficulty.

You can then begin a strengthening program depending on the severity of the injury.

## Getting back in the game

Once your pain is gone, you've fully regained your flexibility, and your strength is at 90%, you'll need to follow a sport-specific program to get you back in the game.

## How to prevent reinjury?

Wearing protective gear (helmet, knee pads, etc.) is the key to preventing contusions. It won't cover every inch of your body, but it's still important.

# TENDINITIS AND BURSITIS

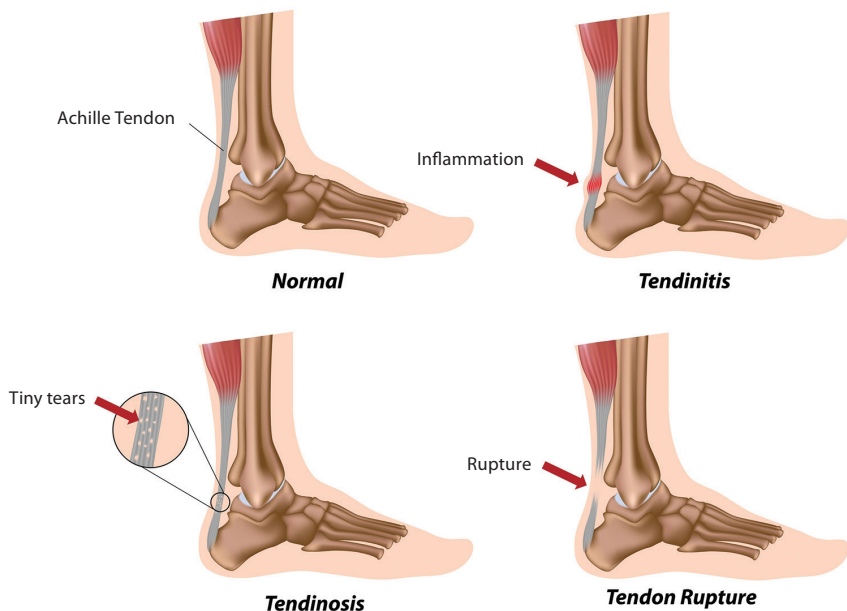
## What is tendinitis/bursitis?

Tendinitis/bursitis is **acute inflammation** of a tendon or bursa.

**Tendons** connect muscles to bones. When you contract your muscles, your tendons pull on your bones to move your limbs.

**Bursas** are small, fluid-filled sacs that play a protective role by preventing friction between tendons or between bones and tendons.

Non-traumatic tendinitis or bursitis usually develops when you **repeat a motion over** and over, resulting in fatigue and possibly even micro-tears in the tendons or micro-lesions of the bursas. Tendons with chronic tendinopathy are thicker, causing pain and weakness when the muscle contracts.



Tendinitis is most commonly seen in the shoulders, knees, elbows, wrists, ankles, and hips.

## How to treat tendinopathy or bursopathy?

If the pain is starting to get in the way of your activities, rest and apply ice when the pain is intense. Take a pain reliever if you need to. If your condition persists despite taking a pain reliever and following the RICE principle when the pain is intense, see a healthcare professional.

## What does rehabilitation entail?

Once the cause or causes have been identified, your physical therapist and trainers may put together a rehabilitation plan to resolve the issue.

They may use the following tools:

- > Manual therapy
- > Transverse friction massage
- > Ultrasound
- > Shockwave therapy
- > Relaxation
- > Specific strengthening
- > Form analysis and correction
- > Changes to workout frequency and intensity
- > Taping
- > New or modified equipment
- > Posture correction
- > Gradual return to exercise

Proper treatment will allow the tendon to heal fully so you can safely get back in the game.

## How to prevent reinjury?

First and foremost, you need to pinpoint the cause of the problem:

- > Working out too frequently or at too high intensity
- > Poor form
- > Poor posture
- > Compensating for a recent injury that hasn't fully healed
- > Lack of muscle or joint flexibility
- > Mismatch between the muscle strength and muscle endurance around the affected area
- > Wrong equipment (size, quality, chafing, etc.)

Once the cause has been identified, gradually increase the frequency and intensity of your workouts. And remember, warming up is key.

## Epicondylitis (tennis elbow)

Though it's better known as tennis elbow, epicondylitis usually isn't caused by playing tennis. The epicondyle is the small bony bump on the outside of the elbow where the muscles that rotate the forearm and bend the fingers and wrists are attached.

Acute or chronic pain associated with epicondylitis is due to inflammation and sometimes even micro-tears in the tendons around the elbow. It may be caused by improper repetitive motions of the hands, fingers, or wrists, or by too much stress on the forearms.

You should treat epicondylitis the way you would treat tendinitis—by **resting**, applying **ice**, taking a pain reliever, **correcting your form** (whether the injury is work or sports-related), creating a personalized **exercise program**, and **gradually returning** to exercise.



# CONCUSSIONS

Though they're nothing new, concussions have been getting a lot more media attention lately. It's important to understand the potential dangers of concussions.

## What is a concussion (mild traumatic brain injury)?

A concussion refers to the impaired brain function that occurs when the brain moves too fast in the skull. The sufferer doesn't necessarily lose consciousness (75% to 80% don't).

One or more of the following symptoms may be reported:

- > Headache
- > Fatigue
- > Nausea
- > Dizziness
- > Vertigo
- > Memory problems
- > Light sensitivity
- > Sensitivity to noise
- > Balance problems
- > Irritability
- > Sadness/anxiety
- > Problems sleeping
- > Problems concentrating

Brain function is temporarily impaired. In most cases, the signs and symptoms go away within 7 to 10 days in adults and within 30 days in children.



## DID YOU KNOW?

- The brain begins to change dramatically around age 15 or 16 and reaches full maturity between the ages of 24 and 26.
- The front part of the brain is the last to reach maturity. It is responsible for judgment, reasoning, language, personality, inhibition, organization, attention, and concentration.
- Someone who has previously had a concussion is at a **five-times** higher risk of having another.
- Experts believe about 80% of concussions go undiagnosed.
- Having three concussions increases one's odds of having a neurodegenerative disease such as Alzheimer's by a factor of ten.

### How to treat a concussion?

- 1 Take the athlete out of the game.
- 2 If the person is unconscious, call an ambulance.
- 3 Have the person evaluated by the medical staff on hand.
- 4 If you're unsure of the severity of the symptoms and no qualified medical staff is on hand, take the person to the ER within a few hours.
- 5 Someone who has had a concussion should not be given any medication unless prescribed by a physician.

## The first 24 to 72 hours

Someone who has had a concussion should be monitored closely for 24 to 72 hours. Serious problems can develop after a seemingly mild brain trauma.

People used to think you should waken someone who has had a concussion the first night so the person doesn't slip into a coma.

Current recommendations are to let the person rest and sleep and to monitor the person by seeing if he/she responds to gentle stimulation without waking him/her. The person should not be left alone and should be taken to the **ER** in case of any of the following:

- > Worsening headache
- > Persistent vomiting
- > Dilated pupil
- > Change in behaviour
- > Excessive drowsiness
- > Difficulty seeing, hearing, speaking, or walking
- > Convulsions
- > Persistent confusion or disorientation

## What does rehabilitation entail?

**Physical and mental rest** is critical to allow the brain to recover. Use of electronics such as smartphones, tablets, computers, TV, and video games should be limited, but the person may do low-intensity activities like walking, watching light entertainment on TV, and visiting friends and family in a relaxed setting.

Standard rest recommendations:

- > Adults over 25: 24 to 48 hours
- > 25 and under: 7 days

Your healthcare provider will give you the green light to resume **mental activity** (school or work) before physical activity. Here are the steps to recovery from a concussion:

- > **Step 1:** Mental rest
- > **Step 2:** Gradual return to mental activity (for short periods of time)
- > **Step 3:** Schoolwork from home
- > **Step 4:** Return to school or work part-time
- > **Step 5:** Return to school or work full-time
- > **Step 6:** Return to learning and a full-load of cognitive work

You may then gradually resume **physical activity** once your symptoms are completely gone. You must wait a **full 24 hours between each step:**

- > **Step 1:** Return to mental activity (half-day of work or school without symptoms)
- > **Step 2:** Light conditioning exercises (20 minutes of light to moderate elliptical work)
- > **Step 3:** More intense conditioning (running, stairs, or biking for 30 to 45 minutes)
- > **Step 4:** Conditioning and sport-specific skill-building (non-contact team workout)
- > **Step 5:** Neuropsychological testing for comparison with the preseason test (for team sports)
- > **Step 6:** Full practice with physical contact
- > **Step 7:** Return to competition

## Neuropsychological testing (team sports)

Neuropsychological testing has been used in recent years to assess memory, concentration, mental fatigue, and reaction time. Many sports organizations work with sports physical therapy clinics and clinics specializing in traumatic brain injuries to test their players before the season begins. That way if an athlete suffers a concussion during the season, they can run a new test and compare the results to the preseason results to make sure it's safe for the player to return. Testing is also available to individuals, so contact a clinic near you if you're interested.

If your side effects last more than three to four weeks, get a referral to a neuropsychologist. You may not be recovering properly and may require more careful monitoring.

## How to prevent a concussion?

There are a lot of myths surrounding concussion prevention. **There is no proof** that the following measures reduce the risk of concussion:

- > Wearing a mouth guard (these help prevent mouth injuries, not concussions)
- > Wearing a concussion helmet (there is no evidence that they work)

But these two things could potentially prevent many concussions:

- > Regulating sports to reduce blows to the head
- > Teaching players how to make contact safely

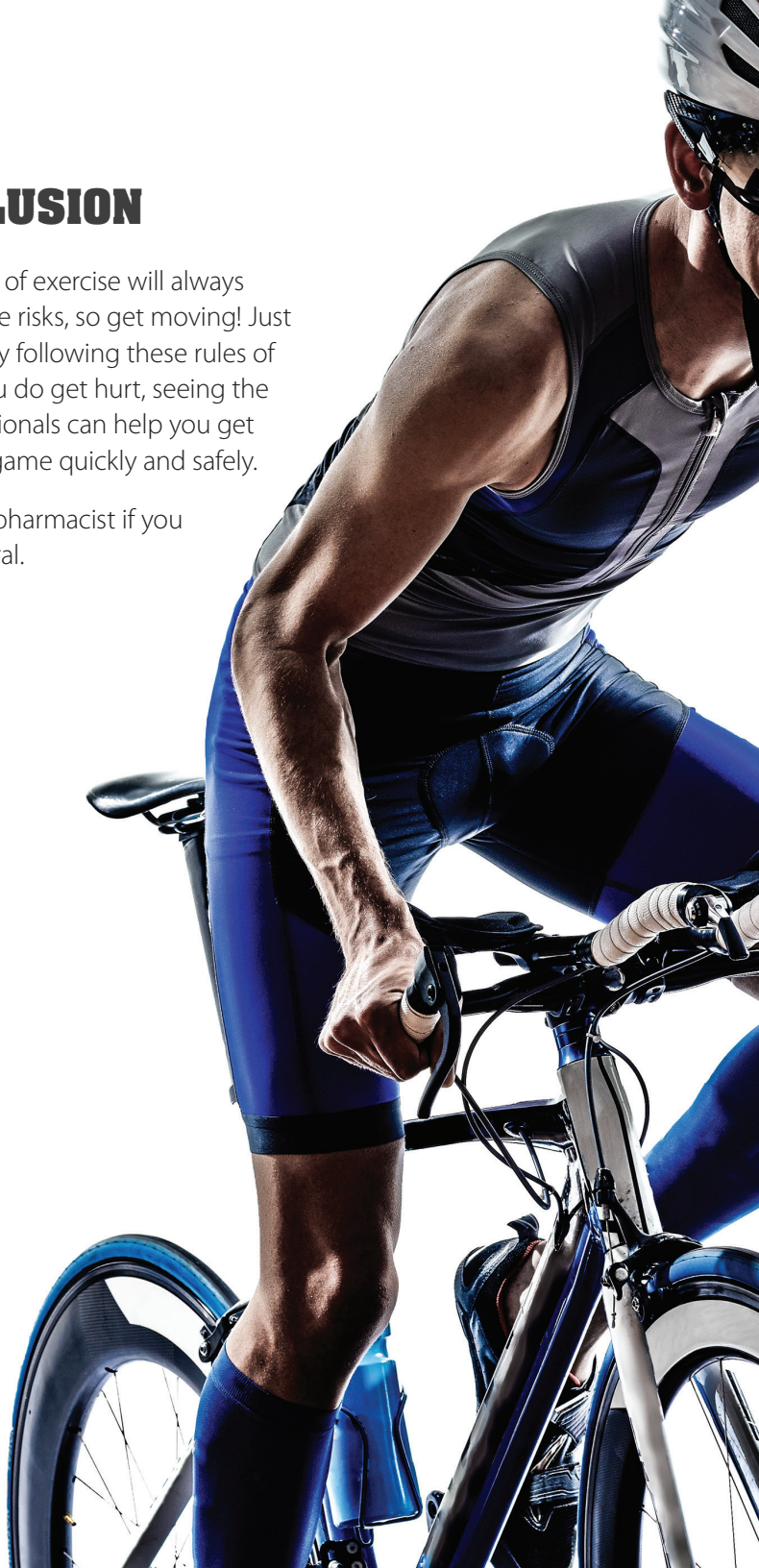
Having **strong neck muscles** may also help, so your physical therapist may teach you special neck-strengthening exercises.



## CONCLUSION

The benefits of exercise will always outweigh the risks, so get moving! Just play it safe by following these rules of thumb. If you do get hurt, seeing the right professionals can help you get back in the game quickly and safely.

Talk to your pharmacist if you need a referral.







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## REFERENCES

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Only pharmacists are responsible for pharmacy practice. They provide related services only on behalf of a pharmacist/owner and use various tools such as the Psst! (Plan to Stay in Shape Today) program tools.