Disney Marathon
Training and Sports Medicine Guide

Injury Prevention and Care

Training for endurance sports can put an enormous amount of stress on your body and make you more prone to suffering over-use and acute injuries. A little preparation and a little preventative action can keep you in the game.

It is highly recommended that you visit your doctor and get a complete physical prior to beginning any new exercise program. Your doctor will likely be very supportive of your goals, but it's best to make sure you are able to begin such a strenuous exercise plan.

A tip from the pros—get a foam roller and use it to massage your legs. A 6" diameter by 36" long ethafoam roller is most recommended as it will stand up to being used frequently. They can usually be found for about $20 from sports medicine catalogs online or from physical therapy clinics locally.

To use the roller, while seated on the floor, lay it on the floor perpendicular to your outstretched legs. Put your legs over the roller at about knee height. Lift your rear-end off the floor and roll your legs up and down the roller. The weight of your legs will press them into the roller and give you a great deep tissue massage. Roll for about 5 minutes, once or twice daily, making sure to change the angle of your legs a little. You may experience some discomfort while rolling, to reduce it you can take more weight on your arms to reduce the amount of pressure between your legs and the roller.

Moist Heat versus Ice

If you are sore, or do have an injury, what do you do? Is it heat first and then ice, or the other way around?

Ice is the best treatment to start with. Acute injuries are very inflamed and continue to swell for several days after they occur. For the first 72 hours (3 days) sports medicine practitioners always recommend using ice. Ice slows down metabolism, reduces blood flow to the area, and works as an anesthetic (pain killer). The reduced blood flow has the additional benefit of reducing the amount of fluid in the injured area, thereby reducing the amount of swelling. Swelling is the real "bad guy" in the early stages as it increases pain, and is associated with slower healing times.

How long should you apply the ice?

The National Athletic Trainers' Association (NATA) recommends icing for 20 minutes no more than once an hour for the best effect and to avoid possibility of frostbite. In reality, 20 minutes 2 or 3 times a day is ideal. Icing for more than 20 minutes can activate the Huntington Reflex, and actually cause you to swell more.

Apply the ice directly to the affected area, no towel is needed. Crushed ice works the best as it molds well to your body and covers the most area. If you don't have crushed ice, a bag of frozen peas or corn works great—just make sure you mark them so they don't get eaten after being re-frozen. Plastic wrap can be used to "attach" the ice bag so it stays put. When making ice bags try to get all of the air out of the bag so you get the best contact with your skin.

A tip from the pros—wet and wring out a small towel, wrap it around the ice bag and get better penetration through the injured tissues.

Heating

After a few days, 3 or 4, begin applying moist heat to the injured site as you enter the sub-acute and chronic phases. Again, 20 minutes 2 or 3 times a day is ideal. You can purchase moist heating pads at most drug stores for under $20. Another way to apply moist heat is to wet and wring out a towel, microwave the damp towel for about 1 minute and apply. It is best not to lie on the towel or heating pad as you may burn, always put it on you. Also, you may want to put a dry towel between you and the heating pad if it is very hot.

A tip from the pros—R.I.C.E will help you correctly manage your injury

Rest—take some time off to recover
Ice—apply ice first thing
Compression—apply pressure to the injured site with an ace wrap or sleeve to reduce swelling
Elevation—let gravity help reduce the swelling, get the injured site above your heart

Once you have returned to training you will need to continue icing and heating your injury to reduce pain and continue healing. It is recommended that you heat before warming up to train and ice after, each for 20 minutes. During the chronic phase of injury you may experience periods where the injury swells again, and you may still have discomfort while training; this is all normal.

The Pain Scale

Pain can be measured using a 0 to 10 scale of severity. By evaluating your pain and assigning it a number you will have a better idea of whether you need to see a doctor or not.

0	No Pain
1	Minimal Discomfort
2	
3	Mild Discomfort
4	
5	Moderate Discomfort
6	Severe Discomfort
7	Mild Pain
8	Pain
9	Severe Pain
10	Unbearable Pain

Most sports medicine practitioners will advise you to go directly to a doctor or emergency room if the pain is above a 7. Discomfort between a 4 and a 6 can be managed at home initially, but you should follow up with a doctor if it persists for more than 3 days without improving. Discomfort below a 4 can be managed at home. In all cases applying ice to the injury as soon as possible will help you heal faster and be more comfortable.

When to See a Doctor

No athlete likes being injured and missing game time, but injuries happen and sometimes they require a visit to the physician. A few basic guidelines in making a decision of when to see a physician are listed below, and if you are ever in doubt err on the conservative and see the doctor.

1. There is any deformity immediately after the injury occurs.
2. There is an open wound.
3. There is any foreign object in a wound (other than a small amount of dirt).
4. A child is injured.

5. You are in a lot of pain, over a 7 out of 10.
6. You have an underlying medical condition that can be compromised or exacerbated by an injury.
7. Pain persists for more than 3 days without getting better.
8. Swelling continues for more than 72 hours.
9. You are unable to walk or move normally or unassisted.

Over the Counter Pain Medications

We all see the ads on television, the miracle pain killer that cured all which ails you. This is a myth. No pain killer can prevent you from feeling all pain, and there are no miracle pills.

Over the counter medications (OTCs) are very effective pain killers and can help you manage your injury and get back to training. However, they are powerful medications and should **only** be taken as directed on the package or as directed by your physician.

There are 2 main classes of OTC pain medications: NSAIDs and acetaminophen.

NSAIDs are non-steroidal anti-inflammatory drugs and include ibuprofen (branded as Advil or Motrin) and naproxen sodium (branded as Aleve) in OTC formulas. There are other NSAIDS that are available only as prescription medications. NSAIDs relieve both pain and swelling. NSAIDs should always be taken with food as they can cause stomach and digestive track irritation.

Acetaminophen, or Tylenol, is not an anti-inflammatory drug. It is only analgesic (pain killing) in nature. No more than 4000mg of acetaminophen should be taken in any 24 hour period. Over dose of acetaminophen has been linked to liver disease, especially when combined with alcohol. Acetaminophen can be taken on an empty stomach, but it is better to take it with food. Acetaminophen also does not have the interactive properties of NSAIDs, so can be taken by children, pregnant women, and those with digestive track conditions.

Aspirin is also available OTC. Aspirin is a good pain reliever, but its action causes an increase in bleeding, and therefore an injury will swell more. It is inadvisable to take aspirin within 72 hours of an injury, unless directed to do so by your physician.

Caring for Cuts and Scrapes at Home

Cuts and scrapes are an unfortunate reality in sports. We all experience falls or bump into things, but if you care for them properly they are just a minor nuisance. The most important thing to remember in caring for cuts and scrapes is to keep

them clean and covered until they heal, this is the most effective way to avoid getting an infection.

As soon as you can, clean your cut with either soap and water, or betadine solution (available at most drug stores). Make sure to scrub lightly to get all the dirt out (it's better to scrub once than to get an infection). Once you've cleaned it out, put a little bacitracin with zinc or triple antibiotic on it (use a tongue depressor to spread it on) and cover with a sterile band-aid. Change the band-aid daily.

If you see redness spreading out from the wound or it takes more than a few days to start healing, it's time to go and see your doctor. If you have diabetes it often takes longer to heal and you have a higher risk of infection, so make sure you clean cuts, scrapes and blisters well and quickly.

Rating of Perceived Exertion

The Rating of Perceived Exertion Scale, or RPE Scale, has been developed by exercise physiologists as a means to accurately measure effort during exercise. It is quite simple to use and is a good indicator of whether you are working in your "target range" or not.

0	Nothing at all
0.5	Very, very weak effort
1	Very weak
2	Weak
3	Moderate
4	Somewhat Strong
5	Strong
6	
7	Very strong
8	
9	
10	Very, very strong
•	Maximal effort

GA Borg: Medicine and Science in Sports and Exercise 14:377-387, 1982.

For most endurance activities over 30 minutes in duration, the target work zone is 5 – 7. For activities under 30 minutes in duration, the target work zone is 6 – 8. Each whole number on the RPE Scale correlates to 10% of maximal effort, therefore a 6 is about 60% of maximum heart rate.

To calculate your target heart rate use the following formula:

[220 – age (0.60 or 0.80)] x 100 = Target Heart Rate Range

Example: 46 year old male at 60% of maximum heart rate
[220 – 46 (0.60)] x 100 = 104 beats per minute

Typically, cardiovascular exercise is performed at 60% to 80% of maximum heart rate. An easier cardiovascular load is at 60%, and more strenuous load is at 80%.

Guidelines for Exercise Testing and Prescription, Fourth Edition; American College of Sports Medicine, 1991.

How do I measure my heart rate or pulse?

The 2 spots most athletes use are your neck (or carotid pulse) and your wrist (or radial pulse).

To find your carotid pulse take 2 fingers, place them at the corner of your jaw and slide down diagonally toward the middle of your throat. About 2" from the corner of your jaw you'll feel a slight hollow, by pressing lightly with the pads of your fingers you should be able to feel your pulse.

To find your radial pulse take 2 fingers, place the tips on your wrist bone on the same side as your thumb, with your thumb towards the ceiling. Roll your wrist so your palm is towards the ceiling, your fingers will cover your wrist and by pressing down lightly with the pads of your fingers you should be able to feel your pulse.

Count the beats for 6 seconds, then add a zero. This will give you your heart rate for 1 minute (e.g. 7 beats in 6 seconds = 70 beats per minute).

Why do I use my fingers and not my thumb? Your thumb has a pulse that you may feel while counting your carotid or radial heart rate. When you feel this pulse you may count extra beats, which can affect how hard you exercise.

Active Rest

The term 'active rest' may seem like an oxymoron, but to endurance athletes it is key in achieving a high level of conditioning and limiting the chance of suffering an overuse injury. An active rest day is one on which you still work out quite strenuously, but you use a different mode than usual. For example long distance runners will often schedule a day to swim or run in the deep end of the pool after their long-run day. Swimmers may schedule a day to run or ride a bike rather than swim. This period of time rests the muscles and joints you place the most

demand on, but you still gain the strength and cardiovascular benefits of working out. So consider an active rest day in your training schedule.

Hydration

Few things in endurance training are as important as proper hydration. Dehydration can literally become a life-threatening condition. Dehydration can also put you in electrolyte imbalance, cause you to tire more easily, and cause changes in mental status.

Fortunately, it is simple to stay hydrated, even while on a long run. Make sure to bring water or sports drinks with you on long runs, as well as money in case you need to stock up while you're out. Drink before you become thirsty to avoid the beginning stages of dehydration, and maximize your performance.

It is also easy to determine how much fluid you need to drink after a long run. Before you start weigh yourself and record it on a chart, when you get back weigh yourself again. Calculate the pounds lost, these pounds are all water weight and need to be replaced. To replace them simply drink 1 quart (8 ounces) of fluids per pound before your next ride. Your weight should not fluctuate more than 2% over 24 hours, so compare pre-ride weights to determine if you've met your fluid needs.

Foot Care

Good foot care is of vital importance for any athlete. If your feet hurt it makes everything more difficult, but it's easy to care well for your feet and takes only minutes a day.

First, make sure your shoes dry completely overnight. If it's raining or you get wet just stuff your shoes with a piece or two of crumpled newspaper and put them up high when you take them off. The newspaper wicks the moisture away and your shoes will dry faster. A dry environment makes it harder for germs to thrive and helps prevent infection.

Second, wear socks. Seems pretty simple, but socks cut down on friction protecting your skin from blisters and "wear" that may lead to cuts or sores.

A tip from the pros—wear 2 pairs of socks with new shoes. Put the first pair on inside out, the second right side out. The two "grabby" surfaces will be together and the smooth surfaces will be in contact with your skin and the inside of the shoe. This prevents friction, enables less sliding in the shoe, and cuts down on

the number of blisters you may suffer. If you have a "hot spot" in the shoe, put some Vaseline on the outer sock in the area to reduce rubbing and pain.

Third, take the time to get your athletic shoes properly fitted by an educated professional. This will take some time, and you should be prepared to spend a good amount of money, but unhappy feet make everything unhappy. Go to a specialty store with a good reputation for knowledge and a return policy. The staff should take about 45 minutes to an hour talking to you and having you walk and jog to get you the correct shoe. Ask the staff what the typical "life" of your shoe is and replace them regularly. Usually shoe life is measured in miles, so the shoe may look great, but the structure can be worn and unsupportive.

Fourth, keep your feet as clean and dry as possible. After each run make sure to dry them completely, apply antibiotic ointment as necessary, moisturize, and inspect for blisters, cuts or sores.

A tip from the pros—Blister Care. There are those who will tell you to leave them alone and those who will tell you to pop them. Sports medicine professionals typically make a small hole with a sterile needle, drain the blister, clean the area with betadine and cover with antibiotic ointment and a bandage. For activity, make sure the blister is clean and covered, then place a foam or felt donut around it (you can purchase the Dr. Scholl's pads in most drugstores), Tape the donut down with athletic tape and put on your socks. As the blister dries out, keep the skin trimmed, and continue to cover until healed. A popped or open blister is an open wound, so be sure to keep it clean to prevent infection.

Methicillin Resistant Staphylococcus Aureus (MRSA)

What is MRSA? MRSA is a drug resistant staph infection, which until recently has been primarily associated with hospitalizations. In recent years MRSA has become prevalent among athletic populations. The current theory is that MRSA is carried by many people in the community and in an ideal environment it will produce an opportunistic infection. The ideal environment is a damp, dark, warm locale—like dirty sports equipment. The majority of athletic MRSA infections have occurred in wrestlers, crew, football, ice hockey and fencing. All of these sports use protective equipment that does not get washed regularly and that may not dry completely overnight. In running, as with crew, the culprit would be shoes that do not dry overnight.

You can prevent MRSA by following good hygiene habits daily.

MRSA enters the body via a cut or sore, and can produce either a local infection or enter the blood stream producing an infection at another site. Typically, MRSA first appears as a small, red, round bump on the skin. It looks similar to a pimple, but is the edges are usually not smooth, and it may be scaley on the top.

If you find rash, it is wise to follow up with your health care practitioner for proper treatment.

Example of a MRSA sore.

http://www.mayoclinic.com/health/mrsa/DS00735/DSECTION=2