

# No Pain, No Gain??

## Sports and Fitness Injury Prevention, Understanding, and Treatment

By Tamara Mitchell

Edited by Sally Longyear



That saying: “No pain, no gain”....is it really true when it comes to fitness and sports? Yes and no. And it’s important to learn the difference.<sup>1</sup>

The muscle fatigue and tension that occurs while you are doing sit-ups is different than a sharp, stabbing pain from a sprained ankle, hernia, or dislocation. And muscle soreness the day after exercise is different from a pulled muscle or torn ligament. *It’s important to learn the difference between the pain of injury and the feelings that are normal as you work to increase fitness.* When in doubt about the nature of your pain, consult a doctor or fitness professional. Friends, unless they are professionals in the field, are not a good source of advice about your injuries.

The principles of ergonomics focus on helping you work in a neutral position and reducing muscle tension and fatigue. In sports and fitness, it’s also important to take into account your form, or posture, while you train. But assuming you have proper form, you actually want to stress your muscles to the point of fatigue to strengthen them. The burning in your muscle that is bad when you are working at the desk or computer is actually the sensation you want to feel when you are working out and strengthening your muscles. You cannot sustain this activity for hours without injury, though, which is why it is harmful at work.

When working out, push yourself just a bit and put up with some discomfort. Pushing too hard will lead to injury, so start slowly and gradually increase the intensity of your training. If you feel extremely sore the next day, and the soreness does not go away in a couple of days, you will know you worked out a bit too hard. If you remain active, soreness that fades will indicate that you worked out just enough.

If you are feeling pain from a new or old injury, you should stop using that body part immediately. We will discuss the treatment of injuries later.

### Preventing Injury

Avoid injuring yourself while you are participating in sports and fitness activities by following these recommendations.<sup>1,2,3,4</sup>

1. Always follow the whole sequence of a workout: warm up, workload, and cooldown. Cooling down reduces muscle soreness the next day. Warming up and cooling down also greatly reduce the risk of heart attack.
2. Progress gradually. Increase duration, intensity, and/or distance by no more than 10% per week. After a vacation or a break in your exercise routine, restart your training at 50% to 75% of your previous level.
3. Conditioning prevents sports injuries, so engage in a regular fitness program to strengthen your body prior to participating in sports.
4. Hydrate, but not too much. Make sure you drink plenty of water and use a sports drink to replace lost electrolytes if you are sweating profusely. Drinking too much is bad, too, but dehydration is a greater problem.
5. Use proper form. Consult with a trainer or coach to make sure that you are using proper posture, balance, grip, etc. Injuries will occur if you do not use correct form.
6. Avoid excessive repetitions, especially with heavy weight.
7. Wear appropriate shoes and protective gear for the sport.
8. Avoid polluted areas. Exercising in air polluted with carbon monoxide, smoke, or other particles increases the risk of heart attack, so avoid busy roads and exercise indoors on smoggy days.
9. Plan your workouts at a time of day when you will not stress your body with unnecessary heat or cold, and dress appropriately for the weather. Avoid working out in excessively hot or excessively cold weather.
10. Let injuries heal. Continued exercise is important, but do not use injured body parts until they are completely healed.
11. Protect yourself from activities that will aggravate known weak body parts (e.g., knees, wrists, old injuries).
12. Maintain a healthy lifestyle. Eat balanced meals, get plenty of sleep, and avoid tobacco and alcohol.

13. Train within your target heart rate zone (discussed in our previous article) to gain the greatest benefits. It is dangerous to work out above your zone.

## Treating Injury

The most frequent problems that interfere with an athlete's ability to perform arise from overuse or repetitive trauma.<sup>4</sup> Areas of the body most commonly affected are the shoulder, elbow, knee, ankle, neck, and back. Factors that affect training for a specific sport and the most common injuries will be discussed on a sport-by-sport basis in future articles throughout the summer. The guidelines for general treatment of an injury are listed below.

In nearly every injury, the traditional protocol, "RICE", is recommended during immediately following the injury. This is called the "acute phase". Once swelling has occurred in the area, RICE is generally not adequate, so it's important to start treatment quickly. RICE stands for rest, ice, compression, and elevation.<sup>4</sup> An updated protocol, "PRICE", is actually better. The P stands for protect<sup>1</sup>.

- P** **Protect** the area that's been injured from further injury. That means stop using that body part immediately! You will never work off an injury, so forget the notion that walking on a sprained ankle is going to loosen it up. Protection also means that body parts with old injuries need special consideration to prevent re-injury.
- R** **Rest** the injury until it is almost completely healed. Rest does not heal the tissue, however; it only facilitates recovery.
- I** **Ice.** Use the coldest thing on hand at the time. Ice, frozen gel packs, a package of frozen peas, or snow all work well. Apply it directly to the injury with some pressure, for 20-30 minutes, twice a day until the swelling has stopped. Never apply heat during the acute phase of injury. Ice reduces swelling; heat draws fluids to the area and will increase swelling. Prolonged swelling deposits waste material in the tissues, which are counterproductive to healing and tissue function.
- C** **Compression** during the use of ice is important, but it needs to be continued after icing to allow the swelling to dissipate more quickly. Make sure the injury is wrapped with the right amount of pressure. Too little pressure will allow the tissues to swell, but too much will cut off circulation needed for healing.
- E** **Elevation** of the injured body part above your heart level keeps blood and fluids from pooling in the injured area. Waste materials will not accumulate as readily and blood pumping "uphill" to the area flows more smoothly when the body part is elevated.

## The Healing Process

PRICE is what you should do immediately following injury. What should you do after the initial trauma? First, if the injury is severe, you should seek medical help. If the injury is not major, you can continue the healing process by practicing the following methods. If you return to training as soon as pain and swelling subside, you will most likely get re-injured.

If swelling persists, use of an anti-inflammatory will probably help. Non-steroidal anti-inflammatories include aspirin, ibuprofen (eg. Advil), or naproxen (eg. Aleve or Naprosyn). Note that acetaminophen (eg. Tylenol) is not an anti-inflammatory and will not help reduce swelling. Use of corticosteroids is no longer recommended since it treats inflammation by suppressing the immune system.<sup>5</sup> Inflammation is a healing response of the immune system to trauma.

Tissue heals best when activity is used as part of the healing process. Activity encourages new blood vessels and collagen to be developed in the injured area. Aerobic activity increases oxygen content of the blood as well as blood flow to the injured area, supplying necessary nutrition for healing. Exercise provides nerve stimulation to the injured area, minimizes weakness in surrounding uninjured areas, controls weight gain, and provides positive psychological benefits for the injured person.<sup>4</sup>

So what does this mean? You should continue aerobic exercise, but avoid using the area of your body that is injured. Once pain and swelling have subsided, begin a conservative rehabilitation program that gradually increases the use of the injured area. Many tissues develop according to the stresses placed on them, so once tissues have started to heal, exercises specific to the injury will strengthen the tissues needed to eventually perform the sport or activity again.

Once an injury has healed, retraining and conditioning targeted to continue strengthening the area is necessary to avoid re-injury. Postural education is also important to promote flexibility and balance. It's possible that your injury was actually caused by improper form or body mechanics. Even if you have been performing the same sport or training for a long time, it's helpful to make sure you are doing everything correctly and that you have not fallen into bad habits. Get advice from a professional sports or fitness trainer to make sure your form is correct.

\*\*\*\*\*

This article and all of our articles are intended for your information and education. We are not experts in the diagnosis and treatment of specific medical or mental problems. When dealing with a severe problem, please consult with a healthcare or mental health professional and research the alternatives available for your particular diagnosis prior to embarking on a treatment plan. You are ultimately responsible for your own health and treatment!

\*\*\*\*\*

**REFERENCES:**

1. *Hold It! You're Exercising Wrong*, by Edward J. Jackowski, © 1995, A Fireside Book, New York, N.Y.
2. "12 Ways You Can Prevent Injuries", Consumer Reports, June 2003, pg. 17.
3. "Fitness and Exercise: All-Season Exercise", © 2002, Metropolitan Life Insurance Company, NY, NY.  
<http://www.metlife.com/Applications/Corporate/WPS/CDA/PageGenerator/0,1674,P1258,00.html>
4. *Sports Injury Prevention & Rehabilitation*, by Eric Shamus and Jennifer Shamus, ©2001, McGraw-Hill, Medical Publishing Division, N.Y.
5. NSAIDs, [www.NSAID.net](http://www.NSAID.net), ALtruis Biomedical Network, © 2000-2002