

# BACK IN THE GAME

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Rehabilitation information for those who enjoy the sporting life

## • Ice vs. Heat • When to Apply Each

By: William Elmlad, Athletic Trainer Certified, Marquette General Sports Rehab

Coaches, parents and athletes often ask the question, "When do I apply ice and when do I apply heat to an injury?" With any sprain, strain or bruise, there is some bleeding in the underlying muscle tissues. This causes swelling, pain and can delay healing.

### ICE TREATMENT

Ice treatment will limit the body's response to injury. Applying ice numbs the injury site which reduces tissue bleeding, prevents or reduces swelling, and decreases muscle spasms and pain.

Immediate treatment of an injury should follow four basic principles:

- Rest
- Ice
- Compression
- Elevation

**R.I.C.E.** treatment should begin as soon as possible after an injury occurs.

**Rest** - simply means to stop using the injured area. This could require anything from avoiding unnecessary movements, to using crutches, a cast or a sling.

**Ice** - treatment should be applied to the injured area every 4-6 hours for the first 48 hours. Ice bags or packs, ice cups, or icewater immersions are excellent ways to apply ice to injuries.

When using *ice bags/packs*, it is recommended to use a damp, thin



towel between the skin and the ice to help prevent skin damage. Ice bags/packs can be used for 20 minutes at a time.

*Ice immersion* works well for feet, ankles, shins or elbows. Fill a bucket half with water and half with ice and immerse the injured area into the water. Duration for treatment should be 10-15 minutes.

*Ice cups* work well for shins, quads, shoulders, and hips. Freeze water in a paper or foam cup. Then, tip the cup upside down so the ice is in contact with the skin. Using a continuous motion, gently rub the injury site. Tear away the excess cup as needed. Application should be about 10 minutes long. Avoid using ice cups on new injuries as the movement could cause further

tissue irritation.

Ice can be an effective treatment for up to several weeks.

**Compression** - involves wrapping an elastic wrap around the injured area. This will help prevent or reduce swelling. The wrap should be snug, not tight. If the area below the wrap becomes numb or loses color, remove the wrap immediately. After feeling and color return, reapply the wrap looser. Cover the entire area leaving no gaps in the wrap.

**Elevation** - involves keeping the injured area above the height of the athlete's heart, if possible. Elevation will also help prevent or reduce swelling.

### HEAT TREATMENT

Heat treatment should not be used for the first 48-72 hours following an injury. The use of heat too quickly after an injury may result in increased swelling, discomfort and loss of movement. If swelling occurs during or after the use of heat, return to ice treatments.

The most common forms of heat therapy are heating pads (dry heat), hydrocollatorpads (moist heat), and whirlpools. Moist heat is more beneficial than dry heat as it has the capability of penetrating more deeply into the muscle

# Aquatic Exercise and Conditioning

By: Megan Colombe, Physical Therapy Assistant

Aquatic exercise is a safe and effective way to perform rehabilitation or training through the use of water. Because it is nearly gravity-free, exercise in the water allows athletes with injuries to recover faster and with less pain than they would have on land. Aquatic exercise can also improve physical condition, because water offers enough resistance to tone and strengthen muscles.

When your body is immersed in the water, your blood does not pool in your legs. Instead, your blood is redistributed, which causes an increase in the amount of blood returned to the heart. Whether you are walking or running in the water against pool resistance, an increase in circulation will occur and healing is promoted. All submerged body parts will experience a decrease in swelling due to the hydrostatic pressure of the water.

Another change that takes place in the water is an increase in heart rate. Although your heart rate will increase from your resting heart rate when you exercise in the water, it will be 10-15 beats per minute lower in the water than it would be on land when expending the same amount of effort.

Other physiological changes that may occur include a decrease in blood pressure, an increase in metabolic rate and an increase in respiration.

When training, athletes often think of high-intensity, speed and strength conditioning exercises. Many different muscles can also be strengthened in the water.

Leg muscles can be

strengthened by doing different types of kicks. Arm muscles can be strengthened by using dumbbells to perform tricep pushdowns. You can even strengthen your stomach muscles and improve your posture through aquatic exercise. The force of the water offers just the right amount of resistance. Performing exercises in a vertical position in the water has advantages over swimming. This exercise position can increase resistance by 75%.

For athletes in training, sports moves can be played against the current getting resistance in all directions and recruiting all of the muscles needed.

An increased number of college and professional sports teams and Olympic training centers are using



pools to get athletes to top-speed quickly and safely. Pools can bridge the gap between injury and conditioning, so that an athlete can begin working out safely in the pool before returning to play.

For more information on aquatic exercise and conditioning, contact a physical therapist at the Rehabilitation Center at 1-800-562-9753.

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tissue. The recommended amount of moist-heat treatment time is 20-30 minutes.

In whirlpool treatments, the bath temperature should be maintained between 100-104 degrees. Athletes should not use the whirlpool more than 20 minutes at a time. Whirlpool baths should be cleaned and chemically treated daily to help avoid bacteria growth.

Some precautions when using heat and ice include avoiding:

- areas of the skin that are in poor condition
- areas of the skin that have poor sensation to heat or cold
- areas of the body that have poor circulation
- areas of infection
- treatment if you have diabetes

Ice often decreases circulation better than heat. Remember not to use heat on a new injury. This will increase bleeding and could make the problem worse. Only when swelling, pain and loss of movement have been controlled or are improving should heat treatment be used.

For more information on ice or heat treatment, contact a physical therapist at the Rehabilitation Center at 1-800-562-9753.