

COLD VS. HEAT

WHAT TO USE ON SPORTS INJURIES

by Dr. Darrell M. Schreyer, D.C.

Should I apply ice or heat on my injury?

This is a question that is asked in my clinic almost every day. It is a question that people are very unsure of, and often misinformed.

Several patients have come to me after applying heat to an area they have previously injured. They almost always ask why they felt great during and immediately after the heat was removed but have felt much worse ever since. Although heat will decrease joint stiffness by reducing muscle spasms, it produces more swelling to the area by allowing damaged blood vessels to remain open. This action will not only increase the amount of pain, but also create a longer healing time. If the injured site is the spine or another joint of the body that has a large nerve supply, the swelling can also put more pressure on the nerve and cause further pain and damage. The primary goal in new injuries is to reduce the swelling as quickly as possible. Ice does so by decreasing blood vessel pressure, diminishing the amount of bleeding, and therefore aiding in the drainage necessary to reduce swelling. Ice is also deeper penetrating than heat, and can help heal damaged tissue further from the skin surface.

There are basically two classes of injuries; acute and chronic. Acute meaning a recent and intense problem, while chronic meaning a longer duration and less extreme injury, or one that reoccurs. The rule of thumb is ice for acute, and heat for chronic. Athletic injuries can fall under either of these two classes.

Any athlete with a sports injury wants to return to competitive form as soon as possible. With acute injuries such as sprains, strains, contusions and abrasions, the application of cold is probably the fastest and safest therapy available. The P.R.I.C.E. method is prescribed to athletes or patients presenting with the above problems:

P = protect the area from re-injury

R = rest

I = ice the injured site

C = compress

E = elevate

The most common form of using ice to treat an injury is the cold pack. There are many very good gel-filled cold packs on the market today. These are more efficient than cubes of ice or crushed ice put into a plastic bag, because they are more comfortable and provide a greater surface area of coverage than does cubes of ice. Cold packs should be applied with a thin towel between it and the skin to prevent frostbite, and with a duration of 20 minutes. This is recommended to be done every 1-2 waking hours for the first 48-72 hours after the injury.

The best treatment for bony areas or areas with little soft tissue, such as the ankle or elbow is with ice massage.

Freeze water in a Styrofoam or Dixie cup, then peel the top away to leave enough of the cup bottom to hold onto.

Using a circular motion, you can comfortably rub the ice directly on and around the injured site for 5-10 minutes.

The effects of the cold are a decrease in the amount of swelling in the area, an increase in the pain threshold, and a decrease in the amount of oxygen needed by the injured area.

When an injury reappears constantly, or is felt during or after every competition, or has become a dull ache that will not go away, it has become chronic. The application of cold therapy or ice is recommended immediately following the event. As was mentioned earlier, heat is less penetrating and must be maintained on the injured area longer (at least 30 minutes), for any effect to occur. Heat can be utilized in many ways, with one of the favorite being a whirlpool or spa. Other common ways are moist hot packs, hot baths or showers, or a wet towel warmed in the microwave oven. Heat should not be applied to areas of swelling or possible bleeding as both problems will increase, and therefore so will pain. Heat will decrease muscle spasm, increase circulation and heart rate, and sedate the nervous system.

In summary, utilize ice or cold therapy with any new injury, paying strict attention to the duration's mentioned above. With an old, nagging injury, try ice and if this doesn't seem to produce any results, then you can use heat.

Ice, Heat or Both?

By Dr. Hamid Sadri
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Our patients often ask us whether they should use ice or heat for their particular conditions. There are certain factors to help you determine which of these thermal modalities to use, and if you follow the guidelines, you will reduce the risk of further injury or adverse effects.

Among the many different physiological effects that ice and heat have on a tissue, there are basically 2 that make the most difference. These are vasoconstriction and vasodilation. Simply put, ice results in a narrowing of the local blood vessels (vasoconstriction), while heat will increase the vessels' diameter (vasodilation). It is because of this main difference that the use of these modalities will vary. While both help to reduce pain, they should be used at the right time and in the correct manner or adverse results may occur.

The general rule is that if the injury is acute (72 hours or less) or if there is inflammation in the tissue, then ice is the treatment of choice. By the same token, if there is no inflammation and if the condition is in a subacute or chronic stage (3 days to several weeks after an injury), then heat may prove to be more beneficial.

When applying ice, one should take caution NOT to apply the ice pack directly to the skin as there would be a risk of frostbite. There should always be one layer of a damp towel or T-shirt placed between the ice pack and the skin. The proper way to use ice therapy is to multiple, back-to-back applications by applying the ice pack for 20 minutes, leaving off for one hour, and reapplying it again. Best results are obtained when this is repeated at least 3-4 times immediately after an injury. To prevent tissue damage, it is important to be sure that the tissue temperature has returned to normal before applying ice to the area again. When using ice therapy you can expect the tissue to feel cold, followed by a burning sensation that will in a short time turn into an ache and will finally begin to feel numb. The main benefit of this will be a reduction in pain, spasm and swelling.

When using heat, once again, prolonged exposure should be avoided. The therapeutic benefit of heat is best achieved by 30 minute applications with an hour in between to allow the tissue temperature to normalize. Heat therapy should never be used in bed as the risk of burns increase if one falls sleep during application resulting in prolonged exposure. The benefit is increased circulation along with reduction of pain and spasm.

Since ice reduces blood flow to the tissue, it is important to remember NOT to use ice when a condition has reached a sub-acute or chronic state. This will result in a slowing of the healing process as the tissue is deprived of oxygen and nutrients.

There is a third method of application called "contrast therapy" and it is considered to be superior to using ice or heat alone. This is once again used after the acute inflammation has subsided and its benefit is in its ability to rapidly flush the tissue with blood. Heat will bring in increased blood flow and with it comes increased oxygen and nutrients and ice will cause the blood to rapidly leave the tissue and take the waste and pain producing elements away. This will aid in increasing tissue repair and hence improve speed of recovery. When using contrast therapy, heat is applied first and last and ice is alternated. The time application ratio is usually 3 to one (3 minutes of heat followed immediately with one minute of ice). This should be repeated for approximately 20 minutes and repeated every hour.

Following these simple guidelines will help in better outcomes when managing your injuries and will reduce the risk of adverse effects. Always remember: when in doubt, use ice.

[Dr. Sadri](#) and his team at First Choice Healthcare have been fanatically caring for our athletes at their Decatur location for several years, and most recently, at The Sport Factory's new Roswell location. He can be reached through his practice at [First Choice Healthcare](#).