

Should Pitchers Ice After Throwing to Prevent Shoulder Injuries?

By: **Tony Bonvechio**

Provided by: - [Stack.com](https://www.stack.com)

In a sport as rooted in tradition as baseball, some habits go back so far that nobody stops to think about whether they're actually useful. Phrases like "roll the wrists at contact" while hitting, or the idea that baseball players should not lift weights, are total nonsense but still get thrown around on a regular basis.

So what about one of baseball's most sacred traditions—using ice after throwing? At almost every game, from Little League to the Major Leagues, you'll see a pitcher in the dugout, wrapped up like a mummy with an Antarctica-sized chunk of ice on his shoulder after he's done throwing.

Countless pitchers have been icing their arms and shoulders for ages. But does it actually work? Or is it just a myth like Babe Ruth calling his home run shot?

An understanding of how the body works—plus a glance at the scientific research—should put this myth to bed for good.

What Happens When Pitchers Ice

When you throw, you damage the muscles involved, all the way from the forearm to the lower body. Muscle damage results in soreness, often brought on by chemical byproducts that build up during intense muscle contractions. Soreness is uncomfortable, and naturally, pitchers want to do something about it. So they ice.

Ice feels good (kind of). It numbs the sore area, shutting off communication between the muscle and the nerves. This is great for temporarily reducing pain, but not so great for the healing process.

When you ice, blood quickly rushes to the cold area to raise the temperature on the surface of the skin. Blood is good—we want blood to go to the injured area because blood brings healing nutrients. But there's a problem. Leave the ice on the area and you close up the blood vessels, trapping blood and waste products at the injured site. You may numb the area and reduce pain, but that doesn't mean you're healing the injured tissue.

People use ice, hoping to reduce inflammation, but in reality, icing only delays the inflammatory response. As soon as you take the ice away, blood rushes back to the area and inflammation ramps up again.

The Truth About Inflammation

Isn't inflammation bad? Don't we want to get rid of it as fast as possible?

Hold on. Inflammation is part of the natural healing process and a normal function of our immune system. We can't repair our muscles and tissues without it. Open any biology textbook and you'll read that inflammation is actually good because it protects the injured area, bringing antibodies, white blood cells and other substances to the site to speed up healing and kill invading particles.

Swelling isn't the problem. The problem is lingering waste products as a result of injury. These waste products need to be washed away by driving fluid into the area and flushing waste away using the lymphatic system, a part of the circulatory system that sucks up waste and debris for removal. The lymphatic system carries lymph, a clear fluid derived from the plasma in the blood. Junk from the injured site gets sucked into the lymph and carried away for removal. The system works via the muscle pump mechanism, which literally means muscles squeeze the lymphatic vessels to move the fluid inside them, much like squeezing a tube of toothpaste. Icing literally freezes the lymphatic system in its tracks, preventing it from kick-starting the healing process.

Icing, Recovery and Performance

Many studies have tried to determine whether and how icing impacts performance and recovery. Bad news for ice—the results don't look good.

A 2013 study found 15 minutes of icing immediately after intense exercise and three, 24, 48 and 72 hours after exercise not only didn't speed recovery—it made it worse. This study looked at eccentric exercise-induced muscle damage, the same kind of damage that occurs to the muscles while pitching.

Icing is usually applied after a pitcher is finished throwing, but some athletes use cold therapy between bouts of exercise to increase performance. The research is split on this one, with some studies showing that cold therapy helps and others showing it hurts performance.

A study at the University of Alabama looked at the use of cold therapy on pitchers' elbows and shoulders between innings of a simulated game and how it affected pitching velocity. Interestingly, researchers found cold therapy actually increased pitching velocity, but only by about 1.3 miles per hour. It's a small difference, and only eight pitchers were studied, so there's no reason to start icing between innings to bump up your fastball.

What to Do Instead?

The point isn't that ice is totally bad or that you should never ice after throwing. But icing may not be the miracle cure it was once thought to be. There are other ways to speed up recovery without disrupting the natural healing process.

- Light activity/exercise. The lymphatic system is triggered by muscular movement. Light exercise such as mobility work, dynamic stretching, weight lifting or foam rolling can improve healing and reduce soreness.
- Proper nutrition. You can manage chronic inflammation with a proper diet. Foods like olive oil, fruits, vegetables and fish have been shown to reduce inflammation, while processed foods high in sugar and trans fat make inflammation worse. Cleaning up your diet may help you recover faster after throwing, without the need for ice.
- Sleep. Not surprisingly, getting plenty of sleep will help recovery. Cortisol, a hormone that regulates inflammation and can reduce the effectiveness of the immune system, is lowest during deep sleep. Growth hormone production also spikes during sleep, which increases protein synthesis and speeds healing.

The Stone Cold Truth

It's hard to argue with the science. Icing just isn't the magic healer we once thought it was. That doesn't mean you should ditch it completely. If a doctor or athletic trainer recommends ice to treat an injury, listen to that advice. But, don't be afraid to ask "Why?" They should understand the science behind icing and be able to explain why icing is the right choice for your situation.

None of us have Wolverine healing powers. We have to do everything we can to recover from games