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# THE DEFINITIVE GUIDE

# ICE & HEAT

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Thank you for downloading this guide.

**Before you go any further we have to address the obvious.** It goes with out saying that the advice in this guide does not replace any care or advice that you may receive from your chiropractor, medical doctor, or physiotherapist. Be sure to consult with a health professional before taking any steps.
- Common sense prevails.

With 6 years of experience, Dr. Adam Markew noticed that it was not common knowledge for his patients to know when it is best to apply Ice and Heat. He created paper hand outs for patients to use as a reference guide that became very popular. Over the years the hand out became longer and transformed into many updated versions, until it became what you are reading now.
- Enjoy

# ICE & HEAT

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## What do they do?

To understand why to use Ice and Heat we first must understand what they do when they are applied to our body.

**Ice** is a **vasoconstrictor**. This means your blood vessels tighten in the area where it is applied. This means that less blood is able to enter into that area because the blood vessels contract in size.

**Heat** on the other hand is a **vasodilator**. This makes your blood vessels expand and will cause an increase of blood flow to the area that the heat is applied. Not only does blood carry oxygen to the tissues but it carries specific nutrients, and repair chemicals.

## When to use them?

To understand when to use ice and heat you must first understand how the body responds to different types of injuries. To make it easy we will separate injuries into 2 categories, **acute** and **chronic**.

**Acute injuries** are injuries that recently happened, and have **active inflammation** (an excess of blood entering the area). Examples of acute injuries are getting hurt in a recreational sport or hobby, getting injured in a car accident, or suffering an injury due to a fall.

**Chronic injuries** are long standing injuries that have **low grade (chronic) inflammation**. Chronic inflammation usually does not produce swelling like acute inflammation does. Examples of chronic injuries are spinal arthritis, degenerative disc disease, or repetitive strain injuries such as tennis elbow, or postural strains.

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Before we go any further, we have to make mention of something. Inflammation is normal. It is the normal response your body makes when something isn't working right and healing needs to take place. The human body is simply amazing and is constantly healing throughout the day and night.

When you have pain, stiffness and swelling, it is your body's equivalent of the "check engine light" in your car.

Ice and heat will help a bit but they will not fix the issue. They can help facilitate the healing process but they are not causing the healing to occur. The ice and heat are applied from the outside, and the healing happens from the inside.

Most of the time we will not use ice or heat, and will let my body heal on it's own.

**Nature needs no help... just no interference**
**- Clarence Gonstead**

# Ice & heat for acute injuries

When you damage body tissue during an acute injury, your body responds by driving more blood to the area. Pressure rises due to the increased volume of blood into the area and you will notice swelling, discolouration and usually pain.

Ice is great in this situation because it will decrease the diameter of the vessels and allow less blood to the injured area, which will lead to decreased pain, and faster recovery times.

Avoid applying heat in acute situations because more blood will enter the area and will exacerbate the inflammation, which will lead to increased pain and prolonged healing time.

## Example #1:

Say it is spring time and you are out in the garden for the first time in the year. You work for a few hours and later that day or the next morning you feel pain and stiffness in your back.

A few days go by after using the ice and heat and it is still sore. The pain is in the muscles that surround and protect the spine. You likely caused some type of shift in my spine that has irritated the nerves. The muscles tighten to protect the area.

**Old way of thinking** - Bed rest.

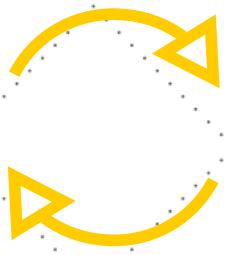
**New way of thinking** - Move! Movement is key. The more stagnant you are the more likely this will lead to chronic like symptoms.

**Motion is lotion and we don't get enough of it**
**- Dr. Adam :)**

# Ice & heat for chronic injuries

Chronic injuries tend to linger, and for one reason or another don't necessarily heal well. These are the "aches and pains" that we deal with day to day which can easily "flare up" with certain movements associated with things like moving boxes, shovelling snow, or gardening.

Chronic injuries have a tendency to cause stiffness in the morning or after long periods of rest and loosen up as the day goes on (you may wake up in the morning feeling stiff and question why). As you loosen up and start to regain motion throughout the day low-grade inflammation is flushed out of the injured area, but as you feel better the increased movement will irritate damaged tissue and lead to more low-grade inflammation.



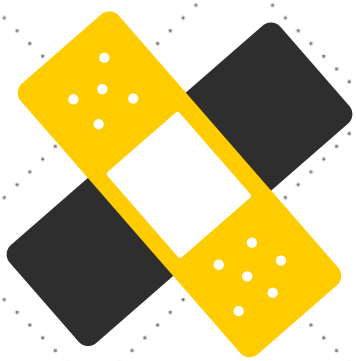
**This is the viscous cycle of chronic injuries — feel better, move more and create further damage.**

# Ice & heat for chronic injuries

During periods of inactivity (sleep), the inflammation settles and then you will be stiff when you start moving again (ie. getting out of bed).

Ice is used in chronic injuries to limit inflammation just like in acute injuries. However, the icing will be more beneficial **after** exercising or after a long day before bed.

Heat on the other hand is great to loosen up tissues **before** exercise or work, relax muscles, and increase tissue elasticity.



## Example #2:

Every winter, you dread the next snowfall. Why? Because your back tightens up for the next 3-8 days. And each winter it seems to last a bit longer or hurt a bit more.

Usually when this happens the shift in the spine is more chronic and gets irritated with the bending involved in shovelling snow.

As in the previous example movement is key, and sometimes these chronic shifts are due to lack of movement over many years. Such as sitting at a work desk for 30 years .

Think of the alignment of your car. You can fix the alignment but if the tire is worn on one side more than the other than the car will slide back out of alignment. Thankfully with our car we can change the rubber. In the spine we have to keep correcting the alignment.

The goal is to prevent going out of alignment in the first place.

# Application

You can use an ice pack, crushed ice with or without water (to conform better), or frozen veggies. If using an ice pack place a thin cloth between the skin and pack.

Ice the injury for **10** minutes. Take the ice off for a minimum of **20** minutes or let the skin return to normal temperature before reapplication.

Since icing is not the most comfortable sensation I tell patients to reapply until they don't want to ice anymore and then reapply once more. Be careful not to leave ice on direct skin for too long as frost nip can occur.

Heating pads, heat packs, warm baths or tissue massage are all ways to heat an area. Heat for 10-20mins.

# Important!

Products like Deep cold and Biofreeze may be misleading. Intuitively you would think that they would serve the same function as ice. However they do not. Rubbing in these creams will actually have the same effect as applying heat. You will get short term pain relief, however you stall your recovery because this is when you should be applying ice.

Finally, not only is icing good for decreasing inflammation it is also a good analgesic (pain reliever). So if you want a natural pain reliever it is good to use however, it is detrimental to use ice before exercise or returning to sport/hobby. Icing may decrease muscle performance, decrease fine motor control and maybe limit your proprioception (awareness of body position in space). All of these will put you at higher risk for further injury.

# You did it!

Great! You now know when to use Ice and Heat and why you apply them right?

There is so much information that it is tough to retain it all. We get that! The best way to use this guide is as a reference. Our patients have told us they find it best to save it to the computer desktop so it is easy to find when you need it most.

If you have any questions or concerns please do not hesitate to send us an email, we are here to help!

Yours in health,

Dr. Adam Markew