

Contusions

Introduction

Physical Therapy in Naperville, Aurora, Lisle, Wheaton, Warrenville, DuPage County, Will County for Contusion

A contusion is the medical term used for a 'bruise.' Contusions can be minor, like the one you get after clumsily hitting the edge of the coffee table, to major ones like the contusion you may get across your chest or down your leg after a serious motor vehicle accident. Whatever the size, that red, blue, purple, green or brown rainbow that appears is a sure sign of damaged tissues below or near the area.



This guide will help you understand:

- what causes a contusion
- why bruises are different *colours*
- how contusions are diagnosed
- what OMTA Physical Therapy's approach to rehabilitation is
- what complications may occur

Causes

What causes a contusion?

A contusion can result from a blow (or repetitive blows) to a specific part of your body, or can result from you hitting against a fixed object or the ground. When this occurs, injury occurs to the muscle fibers as well as the capillaries (with blood vessels) and blood leaks out of the injured cells into the surrounding areas beneath the skin. The injury does not break the skin.

How quickly a bruise develops depends on how forceful the trauma is that causes the injury. If you simply pinch a bit of skin with a zipper, you may see the bruise develop quickly, within a few minutes or within the hour, as the injury is close to the surface. In more forceful traumas, like during a fall or getting hit by an object such as a sports stick or helmet, the bruising may not occur for a few hours or even a couple of days. It should be noted that bruising could occur farther from an injury than you would expect. It is not uncommon to see bruising around your ankle after an injury or surgery to the hip or knee, or to see bruising in the hand after a shoulder injury. Gravity carries the escaped blood to the lowest point of the limb, hence showing up in the hand or foot. It should also be noted that severe contusions on the abdomen or back could also injure the internal organs.

The size of the bruise you incur depends on what actually caused your injury, as well as how much force was involved. The larger the object you run into, the bigger the potential contusion. Evidently the more force involved in the blow, the bigger the potential contusion.

Symptoms

What does a contusion feel like?

For most people, the feeling of a bruise need not be explained. What should be noted, however, is that one may feel little pain from a bruise, and yet there is no objective sight of it. As mentioned above, the bleeding caused by trauma can be deep, and for that reason, the skin may not look bruised initially, but can feel tender. The classic bruise will likely make its way to the surface a few days later, or the bruising may show up, as discussed above, farther away from the site of the trauma rather than right at the traumatized area.

What does the *colour* of a bruise mean?

The *colour* of a bruise depends on how fresh the injury is, or its stage of healing. Typically a new bruise will begin with a red stage as new blood is leaked into the surrounding tissues, which is rich in both oxygen and hemoglobin (a protein that contains iron). Sometimes the red stage isn't noticed, as the area of impact isn't looked at immediately. Not long after the blood has leaked out of the injured capillaries, the blood loses its oxygen, and the blood becomes darker, which turns the skin *colour* blue or purple. A few days the bruise may turn an even deeper purple *colour* or may even look black. This occurs due to the red blood cells being broken down and hemoglobin (and iron) being released into the surrounding tissues.



As your contusion begins to heal, a variety of other *colour*s may appear. Healing contusions begin to turn green as the hemoglobin in the tissues begins to convert to other chemicals. As the hemoglobin nears its final breakdown the bruise will turn yellow. Eventually the body absorbs the last of the damaged tissue and the skin returns to its normal *colour*ing.

It should be noted that most bruises are multi*colour*ed as different areas of the tissue are damaged at different intensities or by different forces. The worst of the damage, however, will be noted in the dark purple or black areas.

Diagnosis

How do health care professionals diagnose the problem?

Generally the presence of a contusion can be diagnosed by the patient themselves when they see it. Your health care professional may palpate (feel) around the contused area to see if there are any areas of hardness developing within the contused area, which may mean a complication is developing (see Complications below).

In most cases of contusions no further investigations are required, however, in cases where the extent of the damage to the area is in question, an ultrasound, magnetic resonance image (MRI) test, a computed tomography (CT) scan, or an x-ray may be ordered. These tests can help to determine whether the original injury has caused a significant or full tear of the muscle, damage to an internal organ, or even a fracture to a local bone.



In cases where extensive bruising is occurring more than it should from the expected insult (ie: a large bruise from a s where bruising occurs more easily than it should, your health care professional may suggest you be investigated for sy conditions which make bruising more likely such as hereditary blood diseases (ie: hemophilia). Some medications ca bruising more likely (ie: blood thinners). Your health care professional will inquire regarding any general health cond medications you are on in order to determine if you have any specific reasons why you may be bruised or bruising mo normal.

Physician Review

What will my doctor do when I see them?

Depending on when exactly you get to see your doctor regarding your contusion, in most cases they will simply suggest first aid to assist your bruise (rest, ice, compression, and elevation). In more severe cases if you are having difficulty m limb or dealing with significant pain they may suggest a painkiller type of medication, whether it be over the counter o In these cases the degree of damage of the tissue or bone may also be in question, so as mentioned above, your doctor further examination through an ultrasound, x-ray, computed tomography (CT) scan or MRI in order to determine the s soft tissue or underlying bone. Associated injury to a local nerve may also need to be ruled out.

Rehabilitation

The path of rehabilitation for your contusion will depend on when exactly you see your Physical Therapist. The earlier in to see your therapist, the more they can help!

In the initial stages of healing of a contusion, the RICE principle still applies: Rest, Ice, Compression, and Elevation.

Your therapist will discuss with you how much rest you need and how much activity you can continue to do with your

contusion. Resting doesn't necessarily mean sitting around doing nothing at all. Rest means to make a relative decrease in activities that you have normally been doing or at least those activities that you know irritate your contused muscle. To some gentle stretching and movement of the contused muscle also helps to encourage the fluid and damaged tissue to move to the area and assists the newly forming scar tissue to align in the correct direction. Your therapist will discuss how much rest you need and will prescribe the proper stretching and strengthening exercises for your stage of healing. If you have just had a new injury, you may only be asked to slowly and gently move the muscle into its full range of motion, and work to isometrically contract the muscle (squeeze and tighten the muscle without moving the actual joint near it). Some severe contusions may require rest for a short period of time; minimal movement over this time will allow the recovery process to begin without causing pain or damage.

If your injury is already well on its way to recovery, your therapist may prescribe more aggressive stretching called dynamic stretching. Dynamic stretching is used to prepare your muscle for the repetitive and more aggressive movements needed for activity and sport. Dynamic stretching involves moving your limbs repetitively and with controlled speed into their end range of motion so that the muscles get put on full stretch. If you are at the end stages of recovery from your contusion then your strengthening will be more aggressive as well. You may be asked to jump, squat, or move your limbs or torso aggressively and quickly in order to prepare the contused muscle to return to the repetitive and arbitrary movements that come with even the most basic sport.

Again, depending on how far along the healing of your injury is once you seek Physical Therapy, your therapist may encourage ice. If you have just sustained your contusion (or within the last 48 hours), applying ice is essential to cut down on unnecessary swelling and secondary injury to the tissues surrounding the main injury. Even if the injury occurred months or days ago, icing can still be extremely useful for the same purpose. If the injury has occurred a few weeks back or is older, your therapist may suggest using heat on the injured area. Heat, when applied at the proper stage, can also help to decrease swelling and assist recovery. A combination of ice and heat may also help. Your Physical Therapist can give specific advice regarding the best to use ice or heat for your individual injury, and can advise you on the best amount of time to keep the ice or heat on during a session.

If your contusion is in an area that is easy to apply a compression wrap to (ie: calf, forearm, thigh) then your therapist will have you compress the area. Compressing an injury with a wrap of some sort is emerging in current research as one of the most important things one can do, particularly in the early stages of recovery. Compressing the injured area can limit any excess swelling and bruising in the area and help to contain the area of secondary injury. Some swelling of an injury is actually required for the healing process to occur, but excess swelling can damage surrounding cells and inhibit the local muscles from working properly. If the injured area gets more painful once you wrap it or if it feels too constricted, it is imperative to remove the wrap and make it looser.

In the later stages of healing of a contusion, a compression wrap can continue to be useful both to limit any ongoing swelling and can also help to add a physical support to the injured muscle as you start to rehabilitate it. Your therapist may also suggest using a brace (even from early on in the healing process of your contusion) in order to add some compression and limit swelling and support the area.

If feasible, elevating the injured area helps to drain any of the swelling related to your injury. Obviously there are some injuries that sustain a contusion that can't easily be elevated, but if you have injured an area in your limbs, elevation can assist greatly in reducing the swelling and bruising back towards your heart so it can re-circulate the fluid into your system. For this reason, when you have an injury it is best to elevate your limb above your heart in order to help the most. If it was a contusion on your thigh or calf for example, you could lie on the couch and stack pillows up to put your leg on, or lie on the floor and put your leg up on the couch. The more the extremity is harder to elevate for a long period, but even if you can rest the limb level with your heart whenever possible, it will assist the recovery of your contusion. When the area is not elevated, gravity pulls the swelling downwards into your lower body and your body has to rely only on the pumping action of your muscles to get the fluid out. Since your muscles aren't working as hard due to the injury in the area, this process for removing the swelling and bruising can be slow. The force of gravity is the reason that one sometimes gets bruised in an area that seems unrelated to the originally injured area (gravity pulls the fluid downwards). For instance, it is not uncommon to see ankle bruising after a hip or knee injury or surgery, or bruising a

the thigh when the original injury was on the top of the thigh.

In addition to rest, ice (and/or heat), compression and elevation, your Physical Therapist may use a variety of other modalities to treat your contusion in order to speed its recovery. Hands on techniques such as massage or stretching may be useful, or electrical modalities such as ultrasound, muscle stimulation, laser or interferential current (IFC).

If you have a severe contusion of your lower limb or torso you may require the use of crutches in order to get around. Your Physical Therapist can recommend crutches where needed and teach you how to use them. The general rule regarding when to use crutches after a lower limb or torso contusion is such that if you are limping when walking without crutches, then you should use crutches to get around. Crutches (or a cane/stick) should continue to be used until your injury heals enough so that you are able to walk without limping when not using the walking aid.

Complications

What kinds of complications can occur from a contusion?

In rare cases complications may result as a contusion heals. Incurring a complication is more common when dealing with a severe rather than mild contusion, as severe contusions also cause more significant muscle fiber damage. Factors that may contribute to developing a complication include stretching the contused muscle too aggressively and too early on, not having an appropriate rest period for the contusion to heal before returning to activity, or massaging directly over the contused area too aggressively. Receiving advice from your Physical Therapist and strictly following the advice in regards to your stretching, strengthening, and activity regime will significantly decrease your chances of developing a complication.

Hematoma

In more severe contusions, hematomas (blood clots) can develop as a complication within the healing muscle. A hematoma may present as a hard lump in the muscle fairly early on in the recovery process. The development of a hematoma can delay recovery. A hematoma, in most cases, will eventually be reabsorbed back into the tissue, and a full recovery will be made.

Myositis Ossificans (MO)

With some severe contusions myositis ossificans may develop. This condition occurs most often with contusions of the thigh muscle (also known as corked thigh in some parts of the world) but can occur in any severely contused muscle. With myositis ossificans damaged muscle fibers turn into bone (ossify) but the exact mechanism of this conversion remains unclear. It may cause a lump in the healing tissue, similar to a hematoma, but the calcification of the muscle will not be felt or show up on X-ray usually any earlier than 4 weeks after the injury, which distinguishes it from a hematoma. Being too aggressive in early rehabilitation or returning to activity too early may be related to developing MO.

See OMTA Physical Therapy's Guide to Myositis Ossificans:

<http://www.honsbergerphysio.com/Injuries-Conditions/Muscle-Injury/Muscle-Injury-Issues/Myositis-Ossificans/a~86>

Compartment Syndrome

Another rare complication of a severe contusion in the upper or lower limbs, can be a compartment syndrome. When a severe contusion occurs there is a lot of local swelling and blood in the area, which has nowhere to escape to. The force of the swelling in the area can put pressure on the other local muscles and arteries and can cause severe damage or death to the muscles by cutting off their blood supply. Symptoms of a compartment syndrome occurring after a severe contusion include a sudden, new and severe pain or ache in the injured area, pins and needles or tingling, difficulty moving the body part, and tightness on palpation. An acute compartment syndrome requires emergency medical attention in order to decompress the compartment, restore blood flow, and prevent permanent damage.

supply to the tissues, and ensure no muscle death occurs in the affected area.

Conclusion

Contusions can occur for a variety of different reasons but the larger the force and the bigger the object that one makes determines the extent of the damage. As contusions heal they go through a classic array of *colour*ing which relates to the stages of healing, although many contusions are a variety of *colour*s due to different areas within the same bruise having different degrees of damage. Receiving early Physical Therapy advice and treatment can be very useful in ensuring a quick and uncomplicated recovery of your contusion.