MPCC-302: SPORTS MEDICINE

UNIT 4 – Upper and Lower Extremity Injuries and Management

4.1 Causes and Symptoms of Various Injuries of Upper and Lower extremities.:

- **Sprain:** A sprain is a stretching or tearing of ligaments — the tough bands of fibrous tissue that connect two bones together in your joints.
    - **Causes:**

i. In a sudden twist and stretch on the ankle, elbow, knee, wrist, shoulder, while landing or falling.
ii. Over extend or tear a ligament while severely pressing a joint.
iii. When a joint is twisted while bearing some weight.
iv. By stepping or falling off of a higher platform, like sidewalk.
v. Ankle – walking or exercising on an uneven surface.
vi. Knee – Pivoting during an activity.
vii. Wrist – landing on an out stretched hand during fall.
viii. Thumb – Skiing injury and Racquet sports.

    - **Symptom**:

i. Hear or Feel a Popping or tearing sound in the Joint.
ii. Pain, Swelling and Stiffness.
iii. Difficulty or Inability to Move.
iv. Tenderness and warmness around the injury.
v. Decrease strength.
vi. Bruising.
vii. Discoloration.

- **Strain:** A strain is a stretched or torn muscle or tendon. Tendons are tissues that connect muscle to bone. Twisting or pulling these tissues can cause a strain. Strains can happen suddenly or develop over time. Back and hamstring muscle strains are common.
    - **Causes:**

i. Twisting or pulling a muscle or tendon.
ii. An acute strain is caused by trauma or an injury such as a blow to the body;
iii. Improperly lifting heavy objects or over-stressing the muscles.
iv. Chronic strains are usually the result of overuse--prolonged, repetitive movement of the muscles and tendons.

    - **Symptom**:

i. Pain, Swelling and Stiffness.
ii. Muscle spasm,
iii. Muscle weakness.
iv. Swelling,
v. Cramping or inflammation.
vi. Some loss of muscle function.
vii. Decrease strength.
viii. Discoloration.

- **Dislocation:** A dislocation is an abnormal separation of two bones where they meet at a joint. A dislocated bone is no longer in its normal position. A dislocation may also cause ligament or nerve damage.
    - **Causes:**
        v. An unexpected or unbalanced impact.
        vi. Dislocations can occur in contact sports, such as football and hockey,
        vii. Dislocations are usually caused by a sudden impact to the joint.
        viii. This usually occurs through a blow, fall, or other trauma.
        ix. After a joint dislocates, it's more likely to dislocate again in the future.
        x. The loosened or stretched ligaments in the joint provide little stability and allow for the joint to be easily dislocated.

    - **Symptom**:
        i. Visibly deformed or out of place
        ii. Swollen or discoloured or Redness.
        iii. Intensely painful
        iv. Immovable
        v. Bruised.
        vi. Loss of motion
        vii. Pain during movement
        viii. Numbness around the area.
        ix. Loss of normal function
        x. Joint may be locked in one position
        xi. Limited joint movement
        xii. Decreased sensation distal to the joint
        xiii. Decreased pulse, cool extremity distal to the joint
        xiv. Stiffness, impaired circulation to the limb

- **Fracture:** The breaking, cracking, rupture of a bone, cartilage, or the like, or this resulting condition is called fracture.
    - **Causes:**
        xi. Most fractures are caused by a bad fall or automobile accident.
        xii. Weaker bones and a greater risk of falling.
        xiii. Children, who tend to have more physically active lifestyles than adults, are also prone to fractures.
        xiv. People with underlying illnesses and conditions that may weaken their bones have a higher risk of fractures.
        xv. Osteoporosis, infection, or a tumor.
        xvi. Stress fractures, which result from repeated stresses and strains, commonly found among professional sports people, are also common causes of fractures.

    - **Symptom**:
        ix. Pain
        x. Swelling
        xi. Bruising
        xii. Discolored skin around the affected area
        xiii. Angulation - the affected area may be bent at an unusual angle
        xiv. The patient is unable to put weight on the injured area.

xv. The patient cannot move the affected area.
xvi. The affected bone or joint may have a grating sensation
xvii. If It is an open fracture, there may be bleeding
xviii. When a large bone is affected, such as the pelvis or femur the sufferer may look pale and clammy
xix. There may be dizziness (feeling faint)
xx. Feelings of sickness and nausea.
xxi. Deformity

- **Contusion:** A region of injured tissue or skin in which blood capillaries have been ruptured; a bruise.
  - **Causes:**

xvii. sports injuries
xviii. car accidents
xix. concussions
xx. head injury
xxi. ankle sprain
xxii. muscle strain
xxiii. blows, such as someone hitting you or being hit by a ball
xxiv. medications that thin blood, such as aspirin or warfarin (Coumadin)
xxv. supplements

  - **Symptom**:

xxii. Pain
xxiii. Swelling
xxiv. Discolored skin around the affected area
xxv. Red, blue, or black swelling near the injured area
xxvi. Throbbing or aching
xxvii. Difficulty moving the area

4.2 Prevention of Injuries: Supporting and adding Techniques and Equipment for Lower and Upper extremities:

- **Supporting and adding Techniques:** The important Techniques which may assist the prevention of injury –

❖ **Warm-up:** Warm-up prepares the body for exercise.

❖ **Stretching:**

The ability to move a joint smoothly throughout a full range of movement is considered of component of good health.

Benefit: Increase flexibility, decrease musculo-tendinous injuries, and minimize alleviate muscle soreness, Specific injury prevent particular injury type.

❖ **Taping and Bracing:**

It is used to restrict undesired potentially harmful motion and allow desired motion. Taping is used for facilitates and inhibition muscle. It is to prevent injury and to decrease to excessive load on the effective area. Support the injured parts and to prevent further injury.

- Taping is use as a preventive measure in high risk activities. Example – Basket players' ankle.
- Bracing is used as a protective mechanism during the healing and rehabilitation phase.

❖ **Protective Equipment:**

Protective equipment has been designed to shield various parts of the body against injury without interfering with sporting activity. Protective equipment can also be used on return to activity after injury institutions where direct contact may aggravate the injury.

The role of equipment is to protection against injuries. It can may provide a psychological benefit by increasing player confidence.

❖ **Suitable Equipment:**

Running shoes, football boots, ski boots and tennis rackets are important elements that contribute to prevent sports injuries.

❖ **Appropriate Surface:**

In a particular type of game and sports require specific type of playfield which give the advantage to the player with less injury. Inappropriate surface and weather give more disadvantage and maximum chance of injury.

❖ **Appropriate Training :**

Training is the pursuit of activity that will ultimately lead to an increase in performance in a given sports. A number of general principle of training apply to all sports –

– Periodization. – Specificity – overload. – Individuality

❖ **Adequate Recovery:**

Adequate recovery is essential if the athletic is to benefit fully from training and prevent injuries from occurring. Because without adequate recovery a player cannot perform next game and sports with full energy.

❖ **Psychology:**

Excessive psychological arousal can not only impair sporting performance but is also likely to increase the risk of injury. Over arousal is associated with impairment of natural technique, which players describe as a loss of rhythm. Loss of concentration can also predispose to injury.

❖ **Nutrition:** Adequate nutrition may decrease the risk of injury due to its effect of recovery

▪ Supporting and adding Equipment for Lower and Upper extremities Injuries Prevention:

• Protective Equipments:

Many sports require specific protective equipment in order to be played effectively and safely. For example, **shoulder pads, a helmet and thigh pads** are used when playing the sport of football. It's important for each individual to determine if additional protective equipment is specifically required for them to safely play the sport. For instance, one individual may require **knee and/or elbow support** while other participants may not. It's also important that protective equipment be used at all times when participating in the sport, whether it is in a game, practice, or just for fun.

❖ **Sports Protective Equipment: Sports Injury Prevention**

As a result of injuries to athletes during sporting activities, safety standards are set by government, national health and public health organizations to identify risks and protective equipment required in specific sports, particularly action or high contact sports, to reduce risk of injury. When engaging in a sport, it is best to seek professional sports advice about the type of protective equipment required.

Protective equipment may include helmets, protective eyewear, mouth guards, face protection, jock straps, life jackets, safety mats, pads and guards, protective footwear and padded flame resistant pressure suits for motorcyclists and motor cross participants.

❖ Prevention before Injury:

- **In Cricket the protective equipments are as follows:**
  - **Abdominal guard or "box"** or an L Guard for male batsmen and wicket-keepers (often referred to as a *cup*, *box* or *abdo guard*). It is usually constructed from high density plastic with a padded edge, shaped like a hollow half-pear, and inserted into the jockstrap with cup pocket underwear of the batsmen and wicket-keeper. This is used to protect the ballz and dong against impact from the ball.
  - **Spiked shoes** to increase traction.
  - Leg pads, worn by the two batsmen and the wicket-keeper, used to protect the shin bone against impact from the ball. The wicket-keeping pads are slightly different from the batsmen's. Fielders that are fielding in close to the batsmen may wear shin guards (internal) as well.
  - **Thigh guard, arm guards, chest guard, and elbow guards** to protect the body of the batsmen.
  - **Gloves** for batsmen only, thickly padded above the fingers and on the thumb of the hand, to protect against impact from the ball as it is bowled
  - **Wicket-keeper's gloves** for the wicket-keeper. Usually includes webbing between the thumb and index fingers.

- **In Volleyball the protective equipments are as follows:**
  - **Padded Volleyball Shorts:** The Volleyball shorts with HexPads strategically placed over the hips to reduce hip pointers and abrasions common in Volleyball. The compression fabric supports large muscle groups to reduce muscle pulls and fatigue.
  - **Thumbkeeper by Bird and Cronin**: Ideal splint for Gameskeeper's Thumb, Immobilizes the MP joint to support and protect injured collateral ligaments.
  - **Padded Elbow Brace:** In addition to warmth and compression for minor injuries such as tendonitis, bursitis, and arthritis, this brace provides added protective padding.
  - **Knee Pad:** The Spider Knee Pad serves as an ideal sports support for many sports, including basketball, football and volleyball. High impact resistant foam for protection during contact sports.

- **Thumb Stabilizer:** Helps support and limit the motion of the MP joint of the thumb. Ideal for use on soft tissue injuries, ligament strains, Gamekeeper's thumb, osteoarthritis, and degenerative joint disease.

- **In hockey requires a lot of protective equipment, and it must fit properly to effectively protect the player. The necessary equipment includes:**
  - Helmet
  - Mouth guard (either custom-made or "boil and bite" off the shelf)
  - Face shield
  - Shoulder pads
  - Elbow pads
  - Gloves
  - Jersey
  - Pants (girdle and shell)
  - Cup/supporter
  - Shin guards
  - Socks
  - Skates
  - Stick

Goalies require additional equipment:

  - Face shield
  - Leg pads
  - Catch glove
  - Blocker
  - Chest and arm protector
  - Helmet with face mask
  - Goalie skates
  - Goalie stick

Hockey equipment can be expensive. Good used equipment can often be found, but make sure it fits appropriately.

- **In Boxing the protective equipments are as follows:**
  - **The Boxing Gloves**: Gloves are the boxer's most important piece of equipment. First, they reduce the risk of injuring one's opponent by protecting against outer cuts and bruises. Also, they protect the boxer's hand.
  - **Boxing Hand Wraps:** In addition to gloves, boxers wear hand wraps to further protect the hands from fractures and joint damage.
  - **Boxing Mouthpiece:** The boxing mouthpiece is absolutely necessary for boxers in sparring or fighting settings. It is designed to protect teeth from being knocked out, and also to prevent the boxer from biting his or her tongue.
  - **Boxing Headgear:** Though the toughest heavyweight champions are hard enough to sustain punches to the head without a flinch, most mortals would severely hurt themselves if they boxed without protective headgear.
  - **Boxing Groin and Chest Protection:** Depending on their sex, boxers of every level should consider groin and chest protection. Although punches to the groin are not allowed in boxing, it is not uncommon for such areas to receive accidental blows during a match. Groin protection protects not only the groin, but also surrounding areas including the kidneys, the liver, and the lower abdomen

- **In Football the protective equipments are as follows:**

So, what exactly are all those pieces of equipment meant to protect your young football warrior from injury? Here's the run-down:

  - Helmet
  - Neck Collar/Neck Roll
  - Jockstrap and Cup
  - Mouth Guard
  - Thigh, Hip and Knee Pads
  - Shoulder Pads
  - Gloves
  - Shoe
  - Shin Guards
  - Groin Protectors

To prevent or minimize injuries to sports people, such as boxers, cricketers, football players, cyclists, skiers, baseball and motor sports above equipments are mandatory or recommended.

❖ **Prevention for Re-Injury:**

- **Common Items**:

The common kits mostly found in the homes may contain:

- Band-Aids
- Cotton Balls
- Cotton Swabs
- Iodine
- Bandages
- Hydrogen Peroxide
- Gauze
- sticking plasters
- Saline
- Dressings
- Eye wash

- **Trauma injuries**:

Trauma injuries, such as bleeding, bone fractures or burns, are usually the main focus of most first aid kits, with items such as bandages and dressings being found in the vast majority of all kits.

- **Adhesive bandages (Band-Aids, sticking plasters**) - can include ones shaped for particular body parts, such as knuckles.
- **Moleskin**— for blister treatment and prevention
- **Bandages** (for securing dressings, not necessarily sterile)
  - **Gauze roller bandages** - absorbent, breathable, and often elastic
  - **Elastic bandages** - used for sprains, and pressure bandages
  - **Adhesive, elastic roller bandages** (commonly called 'Vet wrap') - very effective pressure bandages and durable, waterproof bandaging
  - **Triangular bandages** - used as slings, tourniquets, to tie splints, and many other uses
- **Butterfly closure strips** - used like stitches to close wounds, usually only included for higher level response as can seal in infection in uncleaned wounds.
- **Saline**-used for cleaning wounds or washing out foreign bodies from eyes
- **Adhesive tape**, hypoallergenic

- **Personal protective equipment**:

The use of personal protective equipment or PPE will vary by kit, depending on its use and anticipated risk of infection. The adjuncts to artificial respiration are covered above, but other common infection control PPE includes:

- **Gloves** which are single use and disposable to prevent cross infection
- **Goggles** or other eye protection
- **Surgical mask or N95 mask** to reduce possibility of airborne infection transmission (sometimes placed on patient instead of caregivers. For this purpose the mask should not have an exhale valve)
- **Apron**

❖ **Some others equipment that may be use after injury or the healing period of injury to prevent re-injury.**

- 10cm Trigger Massage Ball
- Ankle Cuff Weights- Vinyl
- Ankle Weights
- Bak Balls
- Body Blade Classic
- Dura Disc Balance Plate
- Footeeze
- Franklin Balls
- Hand Exerciser
- Handmaster Plus
- Hard Spiky Ball

4.3 Exercise for Injuries Management: Breathing Exercises, Relaxation Techniques, Free hand Exercises, Stretching and Strengthening exercise of various parts of upper and Lower extremities.

❖ What Are Breathing Exercises?

Under normal circumstances, we inhale to absorb oxygen and exhale to rid our body of carbon dioxide through the lungs, with the help of our diaphragm muscle. But when we're stressed, anxious or upset, for example, the way we breathe changes. Instead of deep, lung-filling breaths, we start "over breathing" and taking short, shallow breaths. Instead of our diaphragm doing the heavy lifting, we use our shoulders to inhale and exhale, which can make anxious feelings even worse.

By using breathing exercises, we send a signal to our nervous system, the part of our body managing things like our heart rate and our stress response, that things are OK. In turn, the physical effects of anxiety — racing heartbeat, shallow breathing, sweaty palms — are reduced, and our minds calm down. Best of all, unlike yoga or meditation (which I still absolutely recommend!), you can do breathing exercises when you're commuting to work, before a stressful meeting or even in the midst of an argument when you want to calm down.

❖ What are deep breathing exercises?

Deep breathing exercises, often referred to as thoracic expansion exercises aim at getting the biggest breath of air possible into the lungs to help move any secretions (phlegm) that may be present at the bottom of the lungs, and increase lung volumes.

Deep breathing exercises form a stage of the active cycle of breathing exercise, and tend to be carried out in a sitting position. It is advised you place your hands on your lower rib cage so you can feel the air entering the bases of your lungs, keeping your shoulders still, you are aiming for as much movement of your ribs upwards and outwards as possible.

- **4 Benefits of Breathing Exercises**

1. **Improve COPD**: For people with Chronic Obstructive Pulmonary Disease, or COPD, that feeling of not being able to take a deep breath is one of the earliest signs of the disease, though it's often confused with aging.

2. Lower Blood Pressure: For folks with high blood pressure, practicing breathing techniques and breathing exercises for anxiety can help naturally lower blood pressure, reducing the risk of cardiovascular disease.

3. Reduce Anxiety: Whether you suffer from an anxiety disorder or are just confronting a nerve-wracking, anxious experience, breathing exercises for anxiety can be really helpful.

4. Improve Sleep and Lower Stress: If you're lying in bed with thoughts racing and have run out of sheep to count, breathing exercises for sleep can help send you to dreamland.

❖ Different Types of Breathing Exercises to Relax:

Not all breathing exercises are the same, but I especially love the ones that help the body relax and quiet a busy mind. The cool thing is that aside from helping you unwind and distress, breathing exercises also strengthen the lungs. You might find that after you've been doing the techniques for some time that your "normal" breathing is more effective, too.

1. Pursed lip breathing: This one is super simple and easy to do, but extremely effective. The general idea is to breathe out for double the amount of breaths you inhale. Pursed lip breathing helps release air that's trapped in the lungs, and decreases the amount of breaths you take, while extending exhalation. With relaxed shoulders, take a normal breath for about 2 counts. Then pucker your lips up (think of your mouth when you're about to whistle — that's what your lips should look like!) and exhale for 4 counts. Do this for a few rounds.

2. Diaphragmatic breathing: Also known as belly or abdominal breathing, this is the granddaddy of breathing exercises, as you're training the body to let your diaphragm do all the work. Your goal here is to breathe through your nose and focus on how your belly fills up with air. You can do this one either sitting up or lying down; I find it's nice to do while in bed to help wind down. With your shoulders back, keep one hand on your chest and the other on your belly. As you breathe in deeply for about 2 seconds, your belly should stick out a bit. Feel the air expanding your stomach and then breathe out slowly through the lips.

3. Yoga breathing: Yogis know that controlled breathing is a huge part of a yoga practice. One of my favorites is alternate nostril breathing. This is a great one when you want to keep your mind from jumping around, like when you're stressed at work or trying to fall asleep, because you'll need to focus to remember what nostril you're working on. To practice this one, start on the right side. Place your right thumb over your right nostril as you breathe in through the left nostril. Then take your right ring finger and place it over your left nostril as you exhale from the right one.

4. 4-7-8: This deceptively simple breathing technique is lauded as one of the best ones to help you fall asleep. In theory, it's easy. You exhale through your mouth and then close it and inhale through your nose for 4 counts. You hold the breath in for 7 counts, then release it in 8 counts, and repeat at least three times. Because you have 8 counts to get the breath out in, you're forced to slow down your breathing which, in turn, slows down the heart rate and helps you relax.

5. Breath counting: This is another relaxation technique that will keep your mind from wandering too far. Sitting comfortably with your eyes closed, take a few deep breaths, then settle into a pattern of "normal" breathing. When you exhale, count "one." The next time, count "two." Do this until you have exhaled (and counted to) five, then start the pattern over. Don't count past five, and if you find you've lost count, start again at one. You'll be surprised at how much concentration it will take to keep yourself on count.

RELAXATION TECHNIQUE:

A relaxation technique (also known as relaxation training) is any method, process, procedure, or activity that helps a person to relax; to attain a state of increased calmness; or otherwise reduce levels of pain, anxiety, stress or anger. Relaxation techniques are often employed as one element of a wider stress management program and can decrease muscle tension, lower the blood pressure and slow heart and breath rates, among other health benefits.

People respond to stress in different ways, namely, by becoming overwhelmed, depressed or both. Yoga, QiGong, Taiji, and Pranayama that includes deep breathing tend to calm people who are overwhelmed by stress, while rhythmic exercise improves the mental and physical health of those who are depressed. People who encounter both symptoms simultaneously, feeling depressed in some ways and overexcited in others, may do best by walking or performing yoga techniques that are focused on strength.

Techniques:

Various techniques are used by individuals to improve their state of relaxation. Some of the methods are performed alone; some require the help of another person (often a trained professional); some involve movement, some focus on stillness; while other methods involve different elements.

Certain relaxation techniques known as "formal and passive relaxation exercises" are generally performed while sitting or lying quietly, with minimal movement and involve "a degree of withdrawal". These include:

- Autogenic training
- Biofeedback
- Deep breathing
- Meditation
- Mind body relaxation
- Pranayama
- Progressive muscle relaxation
- Qigong
- Zhineng Qigong
- Self-hypnosis
- Transcendental Meditation technique
- Visualization
- Yoga Nidra
- Zen Yoga

Movement-based relaxation methods incorporate exercise such as walking, gardening, yoga, T'ai chi, Qigong, and more. Some forms of bodywork are helpful in promoting a state of increased relaxation. Examples include massage, acupuncture, the Feldenkrais Method, myotherapy, reflexology and self-regulation.

Some relaxation methods can also be used during other activities, for example, autosuggestion and prayer. At least one study has suggested that listening to certain types of music, particularly new-age music and classical music, can increase feelings associated with relaxation, such as peacefulness and a sense of ease.

A technique growing in popularity is flotation therapy, which is the use of a float tank in which a solution of Epsom salt is kept at skin temperature to provide effortless floating. Research in USA and Sweden has demonstrated a powerful and profound relaxation after twenty minutes. In some cases, floating may reduce pain and stress and has been shown to release endorphins.

Even actions as simple as a walk in the park have been shown to aid feelings of relaxation, regardless of the initial reason for the visit.

4.4 Treatment of common upper and lower extremity"s injuries: Sprain, Strain, Dislocation, Fracture and Contusion:

- **Treatment of Sprain and Strain:**

Acute Treatment: There are several decisions you must make when you injure yourself, including how serious the injury is and whether you should go to a health care provider. Look for deformities, significant swelling and changes in skin color. If there are deformities, significant swelling or pain, you should immobilize the area and seek medical help. Many fractures will not cause a deformity.

• Treating A Sprain: Management of sprains:

Follows the PRICE principle.

• P – Protect from further injury.
• R – Restrict activity.
• I – Apply Ice.
• C – Apply Compression.
• E – Elevate the injured area.

This PRICE principle limits the amount of swelling at the injury and improves the healing process. Splints, pads and crutches will protect a joint or muscle from further injury when appropriately used (usually for more severe sprains or strains). Activity restriction, usually for 48- 72 hours, will allow the healing process to begin. During the activity restriction, gentle movement of the muscle or joint should be

started. Ice should be applied for 15 -20 minutes every 60-90 minutes. Compression, such as an elastic bandage, should be kept on between icings. You may want to remove the bandage while sleeping, but keeping it compressed even during the night is best. Elevating the limb will also keep the swelling to a minimum. If you suspect more than a mild injury, cannot put weight on the limb, or it gives way, you should consult with a health care provider.

- **Treatment of Dislocation:**

Your doctor's choice of treatment will depend on which joint you dislocated. It may also depend on the severity of your dislocation. According to Johns Hopkins University, initial treatment for any dislocation involves RICE: Rest, Ice, Compression, and Elevation. In some cases, the dislocated joint might go back into place naturally after this treatment. If the joint doesn't return to normal naturally, your doctor may use one of the following treatments: manipulation or repositioning, immobilization, medication and rehabilitation

Manipulation: In this method, your doctor will manipulate or reposition the joint back into place. You'll be given a sedative or anesthetic to remain comfortable and also to allow the muscles near your joint to relax, which eases the procedure.

Immobilization: After your joint returns to its proper place, your doctor may ask you to wear a sling, splint, or cast for several weeks. This will prevent the joint from moving and allow the area to fully heal. The length of time your joint needs to be immobile will vary, depending on the joint and severity of the injury.

Medication: Most of your pain should go away after the joint returns to its proper place. However, your doctor may prescribe a pain reliever or a muscle relaxant if you're still feeling pain.

Surgery: You will need surgery only if the dislocation damaged your nerves or blood vessels, or if your doctor is unable to return your bones to their normal position. Surgery may also be necessary for those who often dislocate the same joints, such as their shoulders. To prevent redislocation, it may be necessary to reconstruct the joint and repair any damaged structures. On occasion, a joint has to be replaced, such as a hip replacement.

Rehabilitation: Rehabilitation begins after your doctor properly repositions or manipulates the joint into the correct position and removes the sling or splint (if you needed one). You and your doctor will devise a rehabilitation plan that works for you. The goal of rehabilitation is to gradually increase the joint's strength and restore its range of motion. Remember, it's important to go slowly so you don't reinjure yourself before the recovery is complete.

- **Treatment of Fracture:**

A bone fracture is usually treated with a cast and/or splint. A cast or splint will immobilize the bone (keep it from moving) in order to encourage the bones to align (straighten) and to prevent use of the bone. In some cases when the bone is small (toes or fingers), no cast is needed and the fracture is immobilized by wrapping. Medication may also be prescribed to ease the pain of the fracture.

Traction may also be used to stabilize and realign fractures before surgery. Traction uses a system of pulleys and weights to stretch the muscles and tendons around the broken bone.

If a fracture is bad enough, the patient may need surgery. Hip fractures almost always require surgery, because other treatments require that the hip remain immobilized for a long time, and often have poor

results. Internal and external rods and/or pins may be used to hold the bone in place to allow the bones to align.

- **Treatment of Contusion:**

Most contusions simply require time to heal. Soft tissue contusions can take anywhere from a few days to a couple of weeks to heal. Bone contusions take a bit longer — usually one to two months — depending on how severe the injury is.

As you recover, you can follow the RICE protocol to help manage your symptoms. RICE stands for:

Rest. Rest the area whenever possible.

Ice. Apply a cold compress to the area to reduce swelling. You can do this for 15 to 20 minutes at a time, several times a day. You must always put a cloth between the compress or ice and your skin. Skin in direct contact with any cold source can quickly develop an ice burn or frostbite.

Compress. Compress the bruised area with a wrap or bandage to reduce swelling. Just make sure you don't wrap it so tight that it starts to affect your circulation.

Elevate. If possible, raise the affected area above your heart. This can help to drain blood from the injured area.

If you have a bone contusion, your doctor might suggest additional treatment, including: wearing a temporary brace increasing your intake of vitamin D and calcium, which are both crucial for bone health Never try to drain the blood from a contusion with a needle or other sharp object. It won't help you heal any faster, and it'll also put you at risk of developing an infection. Contact your doctor if you don't start noticing any improvements in your pain or swelling after a few days.