



### What are the common causes of Soft Tissue Injury and Dysfunction

- **Poor Posture** - A very common postural syndrome in modern society involves excessive rearward curving of your lower, middle, and upper back; forward drawn head; rounded shoulders; and excessive forward curving of your upper neck. It is a natural result of prolonged sitting work, especially with computers, I pads and phones.
- In today's society we are leading a **less active lifestyle** and spend much more time sitting down, many of us these days work behind a desk and due to all the gadgets and labour saving devices created we also spend much more of our leisure time sitting down. The human body was designed to move and all sorts of problems including weakening of the muscles can occur if we sit for too long.
- **Repetitive** and **habitual** behaviour.
- **Old injury**, often if an injury is not treated correctly at the time it can go on to cause many problems, weeks, months or even years later.
- **Body composition**, Carrying around excess weight can put a real strain on the body and this in turn can lead to soft tissue problems
- It is estimated that a large percentage of illness is due to a direct result of **Stress**. Stress causes us to tense up and shortening the muscles and therefore it can lead to all sorts of aches and pains.
- **Underlying pathology** (Illness and Disease)
- Adhesions in the muscles can lead to **Impaired circulation** (blood and lymph)
- **Impairment to joint mechanics**

#### **Signs and Symptoms of soft tissue Dysfunction**

- Reduced Range of Motion
- Postural deformity
- Muscle Weakness and atrophy (wastage)
- Pain, both local and referred
- Tenderness on palpation
- Tension

- Trigger points (a sensitive area within the muscle that becomes painful when compressed, it can also refer pain to other areas)
- Compensation patterns which cause problems in seemingly unrelated areas
- If a nerve is trapped it can cause numbness, burning or tingling
- Tissue texture changes
- Headaches
- Excessive muscle tension in your neck, chest, shoulders, arms and forearms, back, abdomen, hips, and thighs and legs
- Strains and trigger points to the above areas
- Joint dysfunction and sprains in your neck, back, and ribs
- Increased loading on the intervertebral discs of your spine
- Impaired function of your breathing muscle (your diaphragm), causing the muscles lifting your upper ribs and shoulders to become overactive and subject to problems

### **The common causes of soft tissue injury:**

**Intrinsic** – These are factors that affect the body from within and are individual from person to person. Often the cause of injury can be due to lack of physical preparation, overuse, repetition, muscle imbalances, acceleration, deceleration, lack of stretching, postural defects and underlying pathologies

**Extrinsic** – These are factors that come from outside, external factors. Usually the cause of injury from extrinsic factors includes trauma or impact pressure, friction, environmental factors, equipment, clothing and footwear.

Soft-tissue injuries fall into two basic categories: acute injuries and overuse chronic injuries.

- Acute injuries are caused by a sudden trauma, such as a fall, twist, or blow to the body. Examples of an acute injury include sprains, strains, and contusions.
- Overuse or chronic injuries occur gradually over time, when an athletic or other activity is repeated so often, areas of the body do not have enough time to heal between occurrences. Tendinitis and bursitis are common soft-tissue overuse injuries.

### **Common acute injuries**

#### **Sprains**

A sprain is a stretch and/or tear of a ligament, a strong band of connective tissue that connects the end of one bone with another. Ligaments stabilize and support the body's joints. For example, ligaments in the knee connect the femur with the tibia, enabling people to walk and run.

The areas of your body that are most vulnerable to sprains are your ankles, knees, and wrists. A sprained ankle can occur when your foot turns inward, placing extreme tension on

the ligaments of your outer ankle. A sprained knee can be the result of a sudden twist, and a wrist sprain can occur when falling on an outstretched hand.

### **Strains**

A strain is an injury to a muscle and/or tendons. Tendons are fibrous cords of tissue that attach muscles to the bone. Strains often occur in your foot, leg (typically the hamstring) or back.

Similar to sprains, a strain may be a simple stretch in your muscle or tendon, or it may be a partial or complete tear in the muscle-and-tendon combination. Typical symptoms of a strain include pain, muscle spasm, muscle weakness, swelling, inflammation, and cramping.



A severe hamstring injury where the tendon has been torn from the bone.

### **Contusions (Bruises)**

A contusion is a bruise caused by a direct blow or repeated blows, crushing underlying muscle fibres and connective tissue without breaking the skin. A contusion can result from falling or jamming the body against a hard surface. The discoloration of the skin is caused by blood pooling around the injury.

### **Dislocation**

A dislocation is an injury in which the bones in a joint are forced apart and out of their usual positions. To dislocate the bones of a large joint usually needs considerable force (although there are exceptions to this). Dislocations are usually caused by trauma which produces force on the joint, such as falls, accidents involving moving vehicles and collisions during contact sports. Less force is needed for smaller joints than for larger ones. It can become easier to dislocate joints that have dislocated before, as the surrounding tissues which hold the joint in place may have been stretched. Dislocation is usually sudden and extremely painful as the ends of the bones dislocate from one another. This is because tissues around the joint are stretched and torn. There will be bleeding and immediate swelling. The joint may look obviously deformed.

**Cuts and abrasions** are wounds that cause your skin to break. **Cuts** can be caused by sharp object such as knives, glass splinters. **Abrasions** are caused when your skin rubs against a hard surface and it breaks.

**Burns and scalds** are damage to the skin caused by heat. A burn is usually caused by dry heat, like fire, a hot iron, or the sun. A scald is caused by wet heat, like steam or a hot cup of tea.

**Compartment syndrome** is a painful and potentially serious condition caused by bleeding or swelling within an enclosed bundle of muscles (a muscle 'compartment'). Compartment syndrome occurs when pressure within a compartment increases and affects the function of the muscle and tissues. This condition can be acute or chronic

### **Common Overuse or chronic Soft-Tissue Injuries**

#### **Tendinitis**

Tendinitis is an inflammation or irritation of a tendon or the covering of a tendon (called a sheath). It is caused by a series of small stresses that repeatedly aggravate the tendon. Symptoms typically include swelling and pain that worsens with activity.

#### **Bursitis**

Bursae, are small, jelly-like sacs that are located throughout the body, including around the shoulder, elbow, hip, knee, and heel. They contain a small amount of fluid, and are positioned between bones and soft tissues, acting as cushions to help reduce friction.

Bursitis is inflammation of a bursa. Repeated small stresses and overuse can cause the bursa in the shoulder, elbow, hip, knee or ankle to swell. Many people experience bursitis in association with tendinitis.



Swelling associated with elbow bursitis.

### **Differences between the severity of injuries.**

Sprains – Damage to the ligaments

Strains – Damage to the muscle or tendons

- **GRADE 1 STRAIN**  
There is damage to individual muscle fibres (less than 5% of fibres). This is a mild

strain which requires 2 to 3 weeks rest. There is only a minor loss of strength and function, but active or passive movements will cause some pain.

- **GRADE 2 STRAIN**

There is more extensive damage, with more muscle fibres involved, but the muscle is not completely ruptured. The rest period required is usually between 3 and 6 weeks. There will be more pain with any attempt to contract the muscle

- **GRADE 3 STRAIN**

This is a complete tear of the whole muscle. No functional movement is possible as there is no longer any connection with the bone. Total ruptures must be seen by a medical practitioner as soon as possible. Immediate surgical repair is sometimes the only way to achieve a good recovery. The rehabilitation time is around 3 months.

**Symptoms of muscle strain include:**

- Muscle pain and tenderness, especially after an activity that stretches or violently contracts the muscle -- Pain usually increases when you move the muscle but is relieved by rest.
- Muscle swelling, discoloration or both
- Muscle cramp or spasm
- Either a decrease in muscle strength or (in Grade III strains) a complete loss of muscle function
- A pop in the muscle at the time of injury
- A gap, dent or other defect in the normal outline of the muscle (in Grade III strain)

All muscle strains should be rested and allowed to heal. If ignored, a grade one strain has the potential to become a grade two strain or even a complete rupture.