

A Definition of Cumulative Trauma Disorders



IMPACTO™

Protective Products Inc.

Cumulative Trauma Disorder

What is it?

Cumulative Trauma disorders are disorders of the musculo-skeletal and nervous systems. CTDs, also referred to as Repetitive Strain Injuries (RSI), can occur in many parts of the body, such as wrists, elbows, shoulders, back, neck, hips, knees and ankles.

Causes

Cumulative Trauma Disorders may be caused or aggravated by impact and **vibration** from power tools, repetitive motions, forceful exertions, mechanical compression, sustained activities in awkward positions, over extension and over flexion of the wrist and/or use of hands as tools. Factors such as exposure to cold temperatures, genetic predisposition, stress and smoking may cause the discomfort to occur sooner.

Symptoms

- Muscle tightness, discomfort, stiffness or pain
- Clumsiness or loss of strength and coordination
- Tingling, coldness or numbness
- Bruising in the affected area

Prevention

There are several things we can do to minimize exposure to cumulative trauma injuries. Decreasing vibration and impact to the hand; maintaining neutral range of motion for the wrist; keeping hands warm; modifying or adjusting a workstation, rotating activities; maintaining tools and using appropriate tools instead of your hand; exercising regularly; and utilizing **Personal Protective Equipment**.

Treatments

- Initially, splints may be recommended to protect sore areas
- Anti-inflammatory drugs are often used in conjunction with ultrasound, cold packs or electrical stimulation
- Exercises may be suggested to help tissues move safely while healing
- Rest and Relaxation
- Surgery

Hand-Arm Vibration Syndrome/Raynaud's Phenomenon

What is it?

Hand-Arm Vibration Syndrome is caused by exposure of the hands to **vibration**. It affects the circulation, sensory and motor nerves and may cause musculo-skeletal problems and can damage blood vessels and nerves in the fingers. Also known as White Finger Disease, HAVS is

the most common secondary cause of Raynaud's. During an attack the blood vessels narrow and the blood supply to the fingers is reduced.

Causes

Many common tools produce high levels of vibration. These tools include road drills, grinders and power hammers, chain saws and chipping hammers. People who work with vibrating tools are prone to Raynaud's and the condition may become permanent. Exposure to cold, stress, repetitive motion and smoking may also trigger this disease.



The risk is increased by a number of factors, which include the amount of vibration, length of time using the tool, working conditions, how they are used, and how cold it is.

Symptoms

Initially, attacks are mild whereby fingertips become white. During an attack there may also be numbness, or 'pins and needles' and the attack may end with the whiteness changing to red, which can be very painful. Continuing to work with **vibrating tools** may allow the affected area to become larger.

When blood vessel spasms become more sustained, this can cause pain as well as ulceration of the fingertips. Ulcerated fingers can become infected and in extreme circumstances, with continued lack of oxygen, gangrene may set in.

Over many years, exposure to hand-arm vibration may lead to reduced grip strength and it may be more difficult to work with **hand-held tools**.

Prevention

There is no known cure for Raynaud's Disease; therefore, effective preventative measures are essential. Adjusting an existing lifestyle can control Raynaud's. This may include protection from the cold, avoiding excessive emotional stress, minimizing the use of vibrating tools and wearing **Personal Protective Equipment**.

If the use of vibrating tools is unavoidable in the workplace, IMPACTO™ offers a line of CE approved anti-vibration gloves as well as an assortment of CE approved impact absorbing gloves and wrist supports.

Treatments

- More severe cases may require medical treatment, such as drugs to help dilate blood vessels. Consult your physician before taking any medications.
- In rare cases surgery is necessary.

Tendonitis/Tenosynovitis

What is it?

Tendonitis/Tenosynovitis is the tender swelling of the rope-like structures (tendons) which connect muscles to the bones in order to work the joints of the body and their slithery covering (synovial sheath). Common terms include tennis elbow, runner's knee, jumper's knee and trigger finger.

Causes

The most common cause is overuse through heavy and/or repetitive physical activity. It occurs when the repetitive activity becomes excessive and the tendon sheath can no longer lubricate the tendon. The tendon sheath thickens and becomes aggravated. Examples of this are repeated overuse of the wrist. Other causes include arthritis or rheumatism and in some cases it is difficult to identify what led to the condition.

Symptoms

The friction resulting from the **excessive repetitive activity** causes a sharp or achy pain, tenderness and stiffness of the joint, which is moved by the tendon. It may last for only a few days, but in some cases can go on for many weeks or even months. However, treatment usually helps.

Prevention

Rotate repetitive activities and job duties to reduce stress and take frequent breaks throughout the day. Use **Personal Protective Equipment** that will provide support during repetitive tasks. IMPACTO's wrist supports will help to prevent over flexion and over extension of the wrist. IMPACTO's Thermo Wraps will provide comfort and support for the wrist, elbow, forearm and back.

Treatments

- Strict rest of the affected area.
- Application of ice to reduce swelling for the first 24 to 48 hours.
- After 48 hours try applying moist heat for muscle relaxation.
- Anti-inflammatory pain relievers may help but it is best to consult a physician beforehand.

If the pain continues after 14 days of home care a doctor may recommend:

- Physical therapy or ultrasound treatments to reduce pain and swelling.
- Anti-inflammatory medications.
- Surgery to repair the tendon.

Carpal Tunnel Syndrome

What is it?

Carpal Tunnel syndrome occurs when the nerves and tendons become irritated and swell. This occurs when there is added pressure on the nerve as it runs into the wrist through a passage called the carpal tunnel. The bottom of the tunnel is made up of the bones of the wrist and the top of the tunnel is made up of the carpal ligaments. The nerves and tendons run through this tunnel to the hand.

Causes

CTS has a variety of causes and is often a result of a combination of factors. Among these factors are injuries and trauma (such as a blow to the wrist or lower arm), genetic predisposition, over flexion and over extension of the wrist as well as repetitive motion and vibration.

Flexor tendons rub against the walls of the carpal tunnel when you flex your hand or finger. In most cases if your hand is allowed time to recover this rubbing will not lead to irritation. The recovery time can vary from person to person.

Symptoms

Symptoms of Carpal Tunnel Syndrome can originate when hands and wrists are not given time to recover from flexing.

Sensory

Numbness
Tingling
Burning
Coldness
Pain at night
Stiffness

Motor

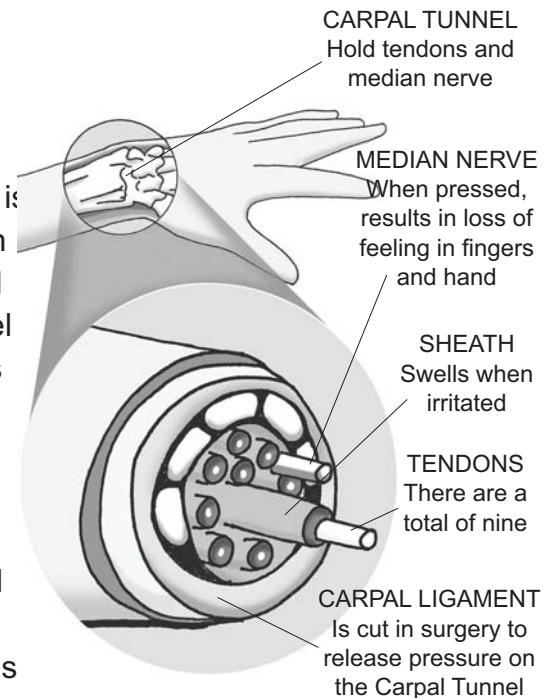
Loss of hand strength
Weakness of thumb
Reduced muscle development
Difficulty holding or pinching items

Prevention

Modifying or adjusting a workstation can help prevent CTS as well as changing the length of time spent on a computer or any other activity that aggravates the wrist. During the day an IMPACTO™ wrist support will help increase circulation, prevent over flexion and over extension and still allow flexibility while working.

Treatments

- A resting splint may help relieve symptoms, especially at night.
- Physiotherapy can also be an effective form of treatment in the early stages of CTS. A physiotherapist may recommend light exercises or ultrasound.
- In some cases surgery is required.



Prepatellar Bursitis/Knee Bursitis

What is it?

Knee Bursitis occurs when the bursa sack (a fluid-filled protective cushioning sack over the kneecap) becomes inflamed, swells and becomes painful. Over time, major knee problems will develop when the cartilage and tissue cushion located between the bones of the knee joint wear out causing bone to wear against bone. Additionally, the excessive pressure can cause a variety of problems including knee burn pain, fluid build up, tissue swelling, loose joints and associated arthritic conditions. Major knee damage will occur when combining the existing trauma from prolonged excessive pressure and irritations along with the turning and twisting motions.

Causes

Knee bursitis is caused by the inflammation of the bursa. Most commonly, bursitis is caused by local soft tissue trauma or strain injury from continuous pressure on the knee due to working in a kneeling position. It has been referred to as "housemaid's knee", "roofer's knee," "miner's knee" and "carpet layer's knee," based on occupational history of the person affected.

Symptoms

- Varying degrees of swelling
- Limited range of motion of the joint
- Usually aggravated by kneeling, and relieved when sitting still
- Warmth, tenderness, and redness in the overlying area of the knee
- Often associated with significant pain when kneeling and can cause stiffness and pain with walking

Prevention

Avoidance of the aggravating activity is the best method of prevention of knee bursitis. The use of **Knee pads** help to successfully reduce both the occurrence of knee injuries and medical incident rate. Knee Pads also protect against injuries and inflammation caused by hard surfaces, pieces of gravel and similar objects on the ground. IMPACTO™ offers an extensive variety of knee protectors ranging from styles worn under clothing to gel and foam pads with hard durable shells for rough terrains and applications. The use of a wedge pad behind the knee can help prevent knee strain during prolonged squatting or kneeling.

Treatments

- Applying a heating pad on a low setting for 10-20 minutes at a time can help relieve some of your pain
- It can also be treated with ice compresses, rest, and anti-inflammatory and pain medications
- As patients with bursitis are at risk for infection, doctors may recommend antibiotics or occasionally, aspiration of the bursa fluid
- **Use of knee pads, supports and braces** to provide stability and natural pain relief.

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IMPACTO™
Protective Products Inc.

PO Box 524, 40 Dussek St. Belleville, ON K8N 5B2 Canada

Toll free N.America (888) 232-0031, UK 0800 0280 243

Tel (613) 966-0062 Fax (613) 966-0067

E-mail: impacto@impacto.ca

www.impacto.ca

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