

# Repetitive Strain Injury

## What is a Repetitive Strain Injury & Why is there So Much Confusion?

Repetitive Strain Injuries (RSIs) are also known as:

- repetitive stress injuries (also RSI) or repetitive stress disorders (RSDs)
- cumulative trauma disorders (CTDs)
- occupational overuse syndrome (OOS)
- work-related musculoskeletal disorders (WRMSDs)
- or a number of other less-familiar terms

Different regional areas and different groups of practitioners tend to use different terms even though they are speaking of the same type of injury. In fact, in one newsletter related specifically to repetitive strain injuries, three different terms were found on the same page within the same article! It's no wonder there is much confusion associated with these injuries.

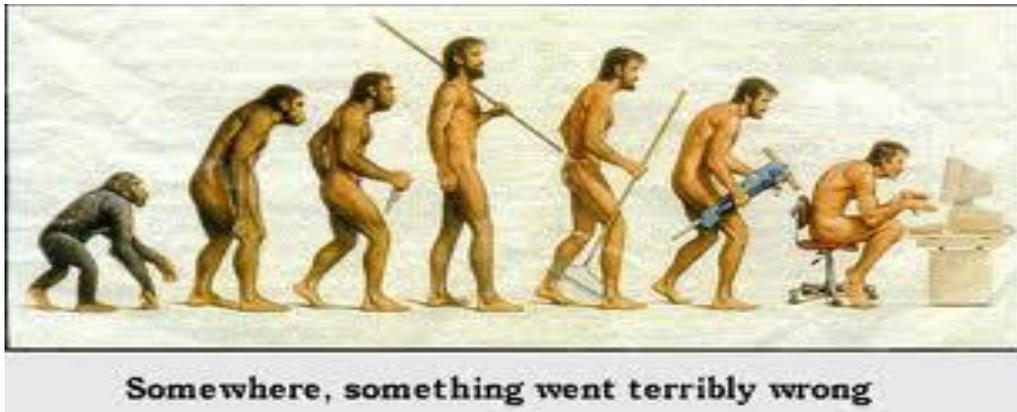
The term repetitive strain injury is a *general term* that is used to describe a *type of injury* (for example, inflammation from overuse versus a traumatic injury) that often occurs from excessively repetitive or stressful activity. The term *does not* describe a *specific diagnosis* (for example, carpal tunnel syndrome). As there are many specific diagnoses that can fall under the general category of repetitive strain injury, symptoms can vary dramatically from person to person.

Although often associated with computer users or grocery store clerks, these injuries can occur in just about every occupation including office administrators, medical assistants, surgery technicians, teachers (pre-school through college), dental hygienists, sign language interpreters, lawyers, telephone operators, assembly line workers and musicians. However, injuries do not only occur in the workplace. For example, athletes (tennis players, golfers, gymnasts), weight-lifters, and hobbyists (knitting, crocheting, painting, model-making) can also be at risk. And recently, thumb injuries are on the rise as our use of portable technology



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changes (increased use of blackberries and text-messaging). Also, as children use technology at an earlier age, the potential for children and young adults to develop injuries is increasing.



## Causes of Repetitive strain injuries?

Repetitive strain injuries are typically slow to develop. Occasionally, a particular event can be linked to the increase in pain - such as shoveling snow, working overtime to complete a project, or a change in work environment (for example, changing a style of mouse or using a new computer program that requires additional typing). Most often, there is no particular event that seems to cause the pain. It can take quite awhile before someone realizes that their symptoms are not healing - and may even be getting worse!

As we go about our daily activities, microscopic trauma and damage occur in our musculoskeletal system. This can take place in the muscles, the tendons or the nerves. When we rest and sleep, the damage heals. A healthy body maintains a neutral balance between damage and repair.

This neutral balance may be interrupted if healing is slowed or if the damage is too great to be quickly healed. The rate of damage becomes greater than the rate of daily repair. For example: diabetes and aging can both slow down healing ability; pregnancy or obesity may place additional strain on the body or cause increased pressure on structures that are already naturally tight; overtime, repetitive tasks, and awkward positioning can cause excessive damage that the body cannot heal in a reasonable length of time; stress increases muscular tension causing the body to work harder than normal, decreases our immunity to injury, and delays healing.

Little by little our bodies swing out of neutral balance until the daily damage accumulates to the point that we “suddenly” begin to notice inflammation and

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pain. When the healing deficit is this extreme, it is difficult for the body to pay off its healing debt. That is why these soft tissue injuries can take so long to heal.

## GENERAL CAUSES OF REPETITIVE STRAIN INJURIES

- Direct trauma - bumps, bruises, falls, crush injuries that cause delayed healing or awkward movements to compensate for injured area
- Disease processes- arthritis, diabetes
- Metabolic changes - hormonal (pregnancy, pre or post menopausal, birth control) or thyroid function
- Anatomical - fractures can change bony structure placing unusual stress on tendons or nerves
- Developmental - congenital (atypical muscle or nerve anatomy)
- **Postural** - forward head, rounded shoulders, weak core muscles
- **Occupational**



Most of these general causes may be beyond our ability to change or may need to be addressed medically. However, we can easily address **postural and occupational causes** to **minimize our risk of injury and promote recovery.**

## OCCUPATIONAL CAUSES OF REPETITIVE STRAIN INJURIES

- Repetitive movements
- Forceful movements
- Direct Pressure - leaning on the arm
- Awkward Postures & Prolonged Muscular Tension
- Vibration
- Environmental Factors - temperature, noise, lighting
- Personal & Social Issues - stress, work climate, deadlines

## Types of REPETITIVE STRAIN INJURIES

In the arm, there are three categories of injury that fall under the general term of REPETITIVE STRAIN INJURIES. Within each category, a doctor may make a specific diagnosis which describes the exact location and type of injury.

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1. **Nerve compressions** - the nerve becomes pinched as it passes through tight areas or through ligamentous tunnels. Pain areas may be large so it may be difficult to isolate a particular location of injury. Pain may radiate throughout the arm and into the shoulder and neck. Headaches can also be common with these injuries. Symptoms can increase with use, but they also tend to increase at night. Numbness and tingling are common with these injuries.

- carpal tunnel syndrome
- pronator teres syndrome
- cubital tunnel syndrome
- ulnar nerve compression at the wrist (guyon's)
- radial tunnel syndrome
- thoracic outlet syndrome



2. **Tendinitis (tendonitis) or tenosynovitis** – an inflammation of the tendon or it's covering (sheath). This typically occurs as the tendon passes through tight areas or ligamentous tunnels. These injuries usually occur close to joints and areas of tenderness can be very specific. Symptoms usually increase with activity. In a more severe injury, pain may radiate.

- tennis elbow (lateral epicondylitis) or golfer's elbow (medial epicondylitis),
- trigger finger
- DeQuervain's Disease
- Intersection syndrome

3. **muscle strain, spasm & fatigue** - occur within the muscle. Symptoms may feel more like a cramp or muscle knot. The arm may feel as if it gets tired easily and it may feel very heavy.

- writer's cramp
- forearm strain

## Levels of Severity of REPETITIVE STRAIN INJURIESs

Repetitive strain injuries may be divided into different grades, or severity, of involvement.

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**Grade 1** - you may notice some pain after an activity but it gets better quickly; you are able to perform all activities normally.

**Grade 2** - you notice pain consistently with activity but it gets better when you stop the activity; you may notice that your ability to perform activity is affected.

**Grade 3** - your pain becomes constant with an activity and even continues after the activity has stopped; you may need to take breaks while performing the activity and may begin noticing other symptoms including weakness, numbness and tingling, and clumsiness.

**Grade 4** - pain now occurs not only with a particular activity but with all types of hand activity; you have pain for a majority of the time; you may need to stop certain activities or modify them because of pain.

**Grade 5** - your pain is now chronic and never seems to go away; you cannot work and all your activity is affected.

## Symptoms of Repetitive Strain Injuries

Symptoms of REPETITIVE STRAIN INJURIESs can vary depending upon the person, the severity, and the specific type of injury involved. General symptoms may include:

- pain
- a sense of fatigue in the arms
- weakness
- cramping, spasms, or twitches in the muscles
- joint stiffness
- numbness or tingling sensations
- fingers feeling cold
- swelling
- feeling clumsy and dropping objects frequently
- lack of hand control or coordination
- avoiding daily work, self-care or leisure activities because of pain



## What should I do if I have symptoms?

**It is important to seek medical consultation if:**

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- you are experiencing pain that does not fade in a reasonable length of time and becomes chronic
- you have pain or symptoms that become worse with activity
- you have pain or symptoms that are out of proportion to the type of injury received or activity performed
- you experience episodes of numbness or tingling
- you notice muscle weakness or wasting

In *addition* to medical treatment, use the symptom guidelines below to find more information about your particular symptoms. Or link to a specific diagnosis. Here you will find the information about specific injuries, answers to frequently asked questions, and hints and tips developed over years of clinical practice.

## What can I do to help my body heal more quickly?

- **Develop Good Work Habits and Follow Sound Ergonomic Principles**
  - ✓ Computer and work area
  - ✓ Ergonomic equipment
  - ✓ Work habits
  - ✓ Work environment conditions (temperature, noise, organization)
- **Exercise Regularly**
  - ✓ Stretch tight muscles
  - ✓ Strengthen weak muscles
  - ✓ Perform 15-20 minutes of cardiovascular activity daily
  - ✓ Strengthen core and postural muscles
- **Practice Healthy Habits**
  - ✓ Maintain a good body weight
  - ✓ Practice good posture
  - ✓ Drink plenty of water to keep your tissues hydrated
  - ✓ Practice deep breathing techniques
  - ✓ Eat a nutritious and well-balanced diet
  - ✓ Practice stress reduction techniques

## Information for High Risk Groups and Activities

- Laptop Users
- Blackberries and text messaging
- Video Gaming
- Young Adults and Injuries
- New Moms
- Grocery Store Employees
- Hairdressers
- Weightlifters
- Musician