

# Repetitive Strain Injury (RSI)

## What is RSI?

RSI is one of several terms used to describe a group of activity-related soft-tissue injuries. The affected areas of the body can include only the upper limbs (shoulder, wrist, hand, upper back, elbow and/or lower arm), the neck and upper back. Symptoms can also develop in the lower back and legs.

Common injuries related to repetitive strain include: carpal tunnel syndrome (affecting the wrist and fingers); tendonitis (inflammation of a tendon); bursitis (often affecting the shoulder); and epicondylitis (also known as “tennis elbow” or “golfer’s elbow”).

Pain and discomfort occur when individuals engage in repetitive or forceful motions, or they assume prolonged static (unchanging) or awkward postures. These activities may create inflammation and swelling in the muscles, tendons and/or bursae (small, fluid-filled sacs that act as cushions between muscles, tendons, ligaments and bones). In some cases, muscle fibres may be damaged or nerves may become “entrapped,” causing pain or changes in sensation.

RSI has been known by other names, including “cumulative trauma disorder,” “occupational overuse disorder,” “repetitive motion injury,” and “repetition strain injury.” More recently researchers have classified some RSIs as “work-related musculoskeletal disorders” (WMSDs).

## How common is RSI?

According to a recent report from Statistics Canada, 10 per cent of Canadian adults—that’s about 2.3 million people aged 20 or older—reported having an RSI at some point in the past year before taking part in the Canadian Community Health Survey (2000-2001). They also said their symptoms were serious enough to limit their normal activities. This marks a slight increase in prevalence: in 1996-1997 only eight per cent of adults surveyed said they were affected.

## What causes RSI?

According to the recent Statistics Canada report, about 20 per cent of people reporting an RSI thought their symptoms were largely caused by sports or leisure activities. But most felt their symptoms were either triggered or aggravated by the work environment. It is now believed that work-related RSIs are the result of both physical and organizational factors. Research at the Institute and elsewhere suggests that, while some of these factors are unique to the individual worker, others relate more to the person’s job and/or to the workplace itself, says IWH Scientist Dr. Donald Cole.

**Physical risk factors include:** substantial amounts of time spent working at a computer, especially if the screen is placed too high; uncomfortable workstations that result in poor posture; awkward postures that are maintained for long periods of time (for example, doing lots of overhead work); repetitive loading or lifting actions; forceful hand applications (twisting, gripping); working in extreme (hot or cold) temperatures; and body vibrations (from using power tools).

**Workplace organizational risk factors include:** prolonged periods of work without adequate breaks; long hours and/or tight deadlines; excessive workload; monotonous work; low job control; lack of input into decisions about how work and workstations are designed; unclear job roles; job insecurity or dissatisfaction; and poor workplace social support.

According to the national survey, some people reported that their RSI symptoms tended to come and go—the pain was aggravated by certain deadlines or activities, then relieved by weekends or holidays. However, many who admitted to symptoms did not even associate them with RSI, nor did their health care providers.

## Are some people especially vulnerable to RSI?

Men and women are just as likely to report being affected by RSI, according to the Statistics Canada report. However, some research suggests the percentage of women affected by these injuries is rising.

Being a worker did not, in itself, increase a person's chance of developing an RSI, the report stated. But among those who were employed, job type seemed to matter. Those who worked in sales or service; trades, transport or equipment operating; farming, forestry, fishing or mining; and processing, manufacturing or utilities were more likely to report an RSI, compared to those in management. This was particularly true for women in traditionally male-dominated occupations.

People said they felt at least some degree of "stress" at work were also more likely to report an RSI than were those who said they didn't feel stressed on the job. This relationship was especially pronounced for women, the survey found.

## How is RSI treated?

People with RSI symptoms who seek medical treatment may be given short-term anti-inflammatory medication and advice about "active resting"—that is, staying active while protecting the affected body part from further strain. Other options may include: physiotherapy, chiropractic manipulation, application of ice, limited use of splints or supports, local injections of anesthetic and/or corticosteroid drugs, and specific exercises.

Research shows that the effectiveness of treatments for RSI varies widely, and what works for one person may not work for someone with a similar problem. Clinicians who treat RSI agree it's important for the patient to avoid activities at home and at work that might aggravate the injury.

## Can RSI be prevented?

Workplace changes that may help prevent RSIs include: proper work design, ergonomic assessments and, if necessary, interventions such as modifying workstations and equipment. Workers should also be encouraged to take frequent breaks from repetitive motions or static postures to relieve muscle tension.

Changes in workplace organization—involving workers in production or equipment changes, changing work volume, and providing a consistent workflow schedule—may also reduce RSI risk.

Work-health experts say taking steps to prevent RSIs is not just "the right thing to do"—they believe prevention may actually be far less costly than treating these injuries and paying out workers' disability claims. However, more research is needed to determine the economic benefits of prevention programs.

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