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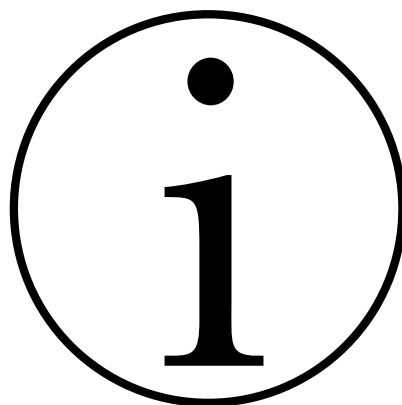
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## **Employment Relations & Union Services: Health & Safety – Repetitive Strain Injury (RSI)**

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## Introduction

This briefing paper aims to provide a brief overview of the information available regarding repetitive strain injury (RSI). It covers the background to RSI, common terminology and existing caselaw in the area. It also discusses why CSP members might be vulnerable to developing RSI and briefly considers issues relating to the diagnosis and treatment of RSI.

## Terminology and characteristics

Repetitive Strain Injury (RSI) is a term commonly used to describe a range of conditions (almost always occupational in origin) which are characterised by pain and dysfunction, often of an incapacitating nature, of the upper limb. The pain is often described as “burning” and may be accompanied by tenderness, sensory disturbance and autonomic dysfunction. The pain may be present from the hand distally and moving proximally over the wrist, forearm, upper arm, shoulder and scapula and reaching as far as the neck.

Other terms which have been used to describe the same range of conditions include Work Related Upper Limb Disorders (WRULDS) and Cumulative Trauma Disorder Syndrome (CTDS). WRULDS became popular as a term as it specified the occupational origin of the condition and recognised that such symptoms can arise as the result of a single event as well as from a cumulative process. However, RSI is the term most clearly known and understood by the general public and recently the term’s popularity has increased once again.

## Background and types of RSI

Upper limb pain and dysfunction caused by work (usually of a repetitive nature) is not a new phenomenon and has been well documented for 300 years in jobs such as clerical work and telegraphy.

However, from the late 1970s countries as diverse as Australia, Russia, Japan, Finland, the US and the UK reported dramatic increases in RSI conditions; this period of time was significant as it oversaw the widespread replacement of typewriters with computers and a consequent increasing automation of work. Many workers spent long periods in a fixed position, performing a range of tasks without moving from their workstation and using only a limited range of movement to operate their keyboard. This trend has continued over the last 20 years with rapid technological advance and the rise of the service industries, with large numbers of workers spending their entire working day inputting data onto computers, often at a rapid pace.

During the last 20 years, opinion (both medical and legal) has become polarised over both the types of RSI and indeed its very existence. The conditions are usually grouped into two types:

## Specific pathological RSI conditions

Specific types of RSI are those easily diagnosed by the use of standard clinical techniques or examination. They include:

- Carpal Tunnel Syndrome
- Epicondylitis (tennis and golfer’s elbow)
- Bursitis
- Cellulitis
- Osteoarthritis
- Ganglion
- Tendinitis
- Tenosynovitis
- Tenovaginitis

- Writer's Cramp
- Trigger Finger
- Vibration White Finger

A number of these conditions are "Prescribed Diseases". This means that the Industrial Injuries Advisory Council (IIAC) has agreed that they are occupational diseases and, therefore, may attract industrial injuries benefits from the Department of Social Security.

These are:

- Writer's Cramp
- Cellulitis of the hand
- Bursitis of the elbow
- Tenosynovitis (hand/forearm)
- Vibration White Finger
- Carpal Tunnel Syndrome (in some forms)

The IIAC is currently reviewing the list of prescribed industrial diseases, so the range of recognised conditions may be amended in the near future.

## **Non-specific diffuse RSI**

A significant proportion of those with upper limb pain and dysfunction do not show signs which are easily recognised and which are observable or easily reproducible on examination. These people may have pain which is not focussed on one area or areas; additionally, their pain may change or jump from one site to another. For example, while there may be tenderness of the ligaments around joints, there will be no visible joint swelling. Examination often produces very little, if anything, in the way of objective abnormalities and yet patients may be complaining of ever worsening symptoms.

These conditions are known as diffuse RSI, which is not recognised as an industrial disease. Diffuse RSI has been at the centre of much medical and legal controversy, as well as the subject of some recent research studies and it will be addressed again at several points later in the briefing paper.

## **Prevalence and economic consequences**

There is no doubt that while RSI has been reported for a very long time, the prevalence of these conditions has been increasing rapidly over the last twenty years.

Exact prevalence is unclear for a number of reasons, including under reporting and mis-diagnosis. However, the Health and Safety Executive (HSE) conducts a regular household survey on self reported work-related ill health. This is called the Labour Force Survey and was last conducted in 1995. The extrapolated results were as follows:

- Slightly more than half a million people in Great Britain have a work-related neck or upper limb disorder;
- RSI affects significantly more women than men;
- RSI is more common in older workers (both men and women);
- Over 1% of all workers or ex-workers are affected by RSI;
- Additionally, an estimated 36,000 workers in Great Britain have Vibration White Finger, a cumulative condition related to hand held power tools.

Also, the TUC estimates that RSI is the cause of almost 300,000 lost working days in Britain each year.

The rising prevalence of RSI has a significant impact on the economy. Employers whose employees develop RSI as a result of work face a range of costs, some overt, others hidden. These may include:

- Sickness payments for those unable to work;
- Ill-health retirement costs for those permanently unable to work;
- Injury benefits payments in some industries e.g. NHS Trusts have to fund Temporary Injury Allowance and Permanent Injury Benefit under the NHS Industrial Injuries Scheme;
- Recruitment and retraining costs as skilled and experienced workers are lost, meaning new ones have to be employed and trained up; the HSE estimates that the average cost to employers from employees leaving their jobs through illness or early retirement is £500-£2000 per employee. This is average cost and is likely to be greater for experienced staff, for example, the Audit Commission estimates that the cost of replacing a NHS professional is £5,000.
- Poor staff retention;
- Poor worker morale;
- “Presenteeism”; workers being at work when they are not fit to be there, but are afraid to be absent;
- Poor productivity caused by a combination of some of the above factors; for example the Audit Commission estimates that the cost of replacing a NHS professional is £5000.
- Bad publicity;
- Difficulties with recruitment, due to a number of the above factors;
- Compensation payments to workers who successfully pursue negligence claims;

Preventative action which tackles the causes of RSI at source makes economic sense for employers as well as avoiding the absolute misery of pain and loss of function caused by the disease to those who develop it. Preventative action will be discussed in further detail later in the briefing.

## Recent research

The specific pathological RSI conditions outlined earlier are generally not those which have caused controversy and vigorous debate in medical and legal areas. While there may be some dispute over the occupational origin of such conditions the diagnosis is usually uncontroversial.

This is not the case, however, for diffuse RSI where diagnosis is harder. Many diffuse RSI sufferers have been accused of “hysteria”, of their symptoms being “all in the mind” or, at the very least, of having genuine symptoms which are nonetheless “psychogenic” in origin.

However, a number of more constructive hypotheses have been put forward to explain diffuse RSI. These include:

- Abnormal postures result in overuse of one set of muscles with underuse in the opposing set, resulting in muscle pain and tension. Chronic tension and nerve compression may damage blood flow leading to scarred and tethered nerves (Higgs PE et al, Ann Rev. Med. 1995, 46: 1-16);
- Muscle overuse leads to pain and changes in muscle fibres (Fry HJH, Dennet X, Lancet I, 905-8);
- People with chronic diffuse upper limb pain show heat changes in their hands, giving a future potential for diagnosing and evaluating diffuse RSI;

Two recent studies conducted by CSP members have been extremely helpful in identifying a physiological basis for diffuse RSI for the first time:

## Jane Greening and Bruce Lynn

“Vibration sense in the upper limb in patients with repetitive strain injury and a group of at-risk office workers”.

International Archives of Occupational and Environmental Health 1997.

Greening and Lynn conducted sensation testing using a vibrametre on a group of patients with RSI; an “at risk” group of keyboard users and a control group. The patient group showed greatly reduced vibration sense, which was further reduced after five minutes of keyboard use.

When the vibration was increased to a strong level, the RSI group exhibited a pain response to this non-painful stimulus. This reduced initial sensitivity and increased responsiveness once a stimulus can be felt is similar to that in neurological conditions such as post-herpetic pain and diabetic neuropathy. This points strongly to a neurological cause of diffuse RSI.

The asymptomatic “keyboard user” group did not have the painful response of the RSI patients, but did show reduced vibration sensation when compared with the control group, which suggested they may have some early changes and be at risk of developing RSI at a later stage.

This team, based at University College London, is now conducting further studies on the subject of diffuse RSI.

## Gaynor Jarvis

“The relationship between upper limb disorder and lower limb neurodynamics”.

Journal of Orthopaedic Medicine 1997.

This study used Straight Leg Raise (SLR) testing to examine neural involvement in upper limb disorder. The results found all members of the patient group exhibiting positive SLR testing with reduced range of SLR and a greater number of responsive symptomatic areas than the control group.

These results indicate alterations in peripheral, central and sympathetic neurodynamics and therefore support a hypothesis of nerve involvement in diffuse RSI.

## The law

There are a number of pieces of health and safety legislation which may be pertinent to RSI, including:

- Health and Safety at Work Act 1974 (HASAWA);
- Management of Health and Safety at Work Regulations 1992 (MHSW);
- Display Screen Equipment Regulations 1992 (DSE);
- Manual Handling Operations Regulations 1992 (MHO);
- Safety Representatives and Safety Committees Regulations 1977 (SRSC).

These, and others, are not explored in further detail in this briefing paper, although some legal aspects will be covered later under “Preventative Action”.

People who have developed a work-related condition such as RSI due to negligence on the part of their employer can make a civil claim for compensation, citing the employer’s breach of its common law duty of care to its employees. Common law is a body of caselaw consisting of decisions made by judges in individual cases over many years; this common law duty requires employers to take reasonable care to protect workers from risks of foreseeable illness or injury at work.

Around 2,500 such civil claims are pursued by people with RSI every year, although a large proportion of these are settled out-of-court, often for significant sums, such as £30,000-£85,000.

RSI cases which do proceed to court hearings have had a very mixed history, with some high profile examples of both successful and unsuccessful claims. Generally, cases of specific types of RSI are far easier to pursue than those involving diffuse conditions.

The emerging picture of diffuse RSI caselaw was affected considerably by the Prosser judgement in Mughal and Reuters in 1993. Judge Prosser stated that RSI had “no place in the medical text book” and that those with the condition were “eggshell personalities who needed to get a grip on themselves”. At the time, this judgement represented a significant setback to those fighting for recognition of RSI as a condition.

However, matters have improved somewhat since then and 1998 saw five Midland Bank workers successfully pursue a claim against the Bank for their diffuse RSI conditions. (Alexander and Others v Midland Bank).

However, also in 1998, the House of Lords turned down a claim for writer’s cramp (a specific type of RSI) in Pickford v ICI and a diffuse RSI case pursued by the National Union of Journalists on behalf of Financial Times journalists was unsuccessful.

Therefore, while both these cases turned on their facts and should not set wide and unhelpful precedents for people with RSI, caselaw remains unpredictable and variable in outcome. It is hoped that the UCL research will assist in broader acceptance of diffuse RSI in both medical and legal fields.

## Who gets RSI?

RSI affects many thousands of workers in a wide variety of occupations and is certainly not associated solely with those jobs traditionally involving repetitive work, such as keyboard workers, although this group certainly exhibits the greatest prevalence.

The following list of “at risk” industries and workers was identified in Croners Health and Safety Briefing in 1997:

- Electronics and Telecommunications;
- Armed Forces;
- Construction workers;
- Poultry and food processing;
- Garment and carpet manufacture;
- Domestic appliance manufacture;
- Packing and manufacture of small items;
- Cleaning operations using heavy polishers;
- Display screen equipment users;
- Supermarket checkout operators;
- Laboratory technicians.

Thus it can be seen that production line workers across a wide range of trades are particularly at risk due to the repetitive (and often fast-paced) nature of their job tasks.

In addition, the HSE’s 1995 Labour Force Survey identified four occupational groups in which RSI was particularly prevalent:

- Armed Forces;
- Construction workers;

- Textile processing worker;
- Other processing workers.

These results indicate that 2% of all workers in these occupations were affected.

It should also be considered whether or not CSP members themselves may be at risk of developing RSI. Most physiotherapists and (although often to a much lesser extent) assistants are fortunate in having jobs which entail a considerable variety of tasks and also offer significant autonomy and self direction.

Nonetheless, many CSP members will be familiar with the cumulative strains (particularly back pain) of spending long periods in particular postures or using repeated movements. While these would not constitute upper limb disorders, others (such as thumb pain in outpatient staff using mobilisation techniques) are more akin to RSI as we currently understand it.

## **Preventative action**

Employers have a legal duty to take action to prevent the occurrence of risks of injury or illness which are reasonably foreseeable in relation to their employees.

All such preventative action should be based on a systematic assessment of risks as required implicitly by the Health and Safety at Work Act 1974 and explicitly by the six- pack of 1992 Regulations, including the Management of Health and Safety at Work, Display Screen Equipment and Manual Handling Operation Regulations.

Having identified the hazards, and related these to risks, these Regulations impose a duty on employers then to take action to eliminate the risks, combat them at source or, where this is impossible, to reduce risk to the lowest possible level. Such risk assessments must be subject to regular review and to monitoring.

Thus, in relation to RSI, such preventative action should include:

- Comprehensive, regular workstation risk assessments, conducted by fully trained competent risk assessors;
- Consequent changes to workstations when necessary, based on good ergonomic principles;
- Changes to job tasks when needed, which may include greater task variety or job rotation;
- Regular breaks from repetitive and/or fast-paced work;
- Appropriate training about posture, exercise and breaks.

All of the above measures should be arranged and implemented on the principle, enshrined in the Regulations, that work should be adapted to the worker.

## **Treatment of RSI**

Work related upper limb disorders are preventable and therefore action taken should aim to do exactly that. Nonetheless, preventative action has been woefully inadequate in many areas, meaning that many thousands of workers have this debilitating condition and, therefore, need treatment and rehabilitation.

For treatment to be successful an early and accurate diagnosis is essential, along with referral to physiotherapy, which has been found to be particularly helpful in treating the condition. While many physiotherapy techniques have been used in the treatment of RSI, people with the condition have found the following to be particularly successful:

- Adverse neural tension (neurodynamics techniques);
- Assessment at the workplace;
- Ergonomic and posture advice;

- Self-management advice, including pain management;
- Home exercise programmes;
- Advice regarding a graduated return to work.

Whichever treatment techniques are used it is now widely accepted that it is highly desirable for physiotherapists treating people with RSI to have had some postgraduate training in the management of these conditions.

There are many physiotherapists with expertise in the treatment of RSI working in industry and private practice, in addition to those in the National Health Service. However, many people with RSI work in small firms where an occupational health treatment service is not available. Additionally, they are often low paid and may have lost their jobs as a result of the condition.

It is, therefore, vital that the NHS can respond to the needs of people with RSI. Currently, there are some barriers to this including:

- Problems with early, accurate diagnosis of the condition and referral on to appropriate agencies, such as physiotherapy.
- Long waiting lists for physiotherapy in some areas, meaning that peoples' conditions become increasingly chronic while awaiting treatment.
- Rationing of physiotherapy in some areas. For example, people with RSI may receive 4-8 treatment sessions when a longer and more flexible course is necessary.
- Vacant posts and pressure of work render it difficult for physiotherapists to have time off to access relevant continuing professional development (CPD).
- Budgetary constraints make funding for CPD courses hard to obtain in many areas.

## **Contacts and references**

A number of organisations can offer support and advice to people with RSI. These include:

### **RSI Association**

Chapel House  
152 High Street  
Yiewsley  
West Drayton  
Middx UB7 7BE

Tel: 01895 431134

Fax: 01895 437300

### **The Chartered Society of Physiotherapy**

14 Bedford Row  
London WC1R 4ED

Tel: 020 7306 6666  
Fax: 020 7306 6611

### **Trades Union Congress**

Congress House  
Great Russell Street  
London WC1

Tel: 020 7636 4030  
Fax: 020 7636 0632

## **References**

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- **RSI Lives! – Alexander v Midland Bank plc** John Foy QC and Roger Hiorns, Association of Personal Injury Lawyers, Vol 8 Issue 4
- **Vibration Sense in the upper limb in patients with repetitive strain injury and a group of at-risk office workers** Jane Greening and Bruce Lynn International Archives of Occupational and Environmental Health 1997
- **The Relationship between upper limb disorder and lower limb neurodynamics** Gaynor Jarvis Journal of Orthopaedic Medicine 19(2) 1997
- **Working with VDU's** Health and Safety Executive IND (G) 36 (L) 03/97 C1500
- **Repetitive Strain Injury** UNISON CD/96/6749/1057
- **Self-reported work-related illness in 1995** Health and Safety Executive ISBN 0-7176-1509-x
- **The Sufferers' Story** Hilary Arksey Lancaster University
- **Risk Assessment: Policy Statement and Guidance** CSP Industrial Relations Department Health and Safety Briefing No.3