information

ONE HEALTH AND FITNESS CENTRE
ONE
PHYSIO ONE SPORTS INJURY CLINIC
269 Palmer Rd. N., P.O. Box 20024, Belleville, ON K8N 5V1

REPETITIVE STRAIN INJURY

A major occupational hazard

Repetitive strain injury (RSI) is a blanket term used to describe more than 20 disorders of the musculoskeletal system, including carpal tunnel syndrome, tendonitis and bursitis. RSI can affect anyone involved in work that requires frequent repetitive motion of their arms or hands. Its more likely to happen if these movements are combined with awkward posture and/or excessive force in work or leisure activities. For example, office workers on computers, musicians, labourers and assembly line workers may all experience symptoms of RSI at some point in their career.

RSI is one of today's major occupational hazards, affecting approximately 2.3 million Canadians[1] annually. Many of these injuries can be prevented with improved work habits and posture (ergonomics). Ergonomics is an applied science directed at the design and arrangement of work tools and equipment to ensure products and environments are comfortable, safe and efficient for people to use.

SIGNS AND SYMPTOMS

Numbness, tingling, sharp pain, dull ache, weakness, loss of grip strength and restricted mobility in the affected joints may be signs and symptoms of developing RSI. In its severest form, RSI can render people incapable of carrying out even simple tasks, at home and at work.

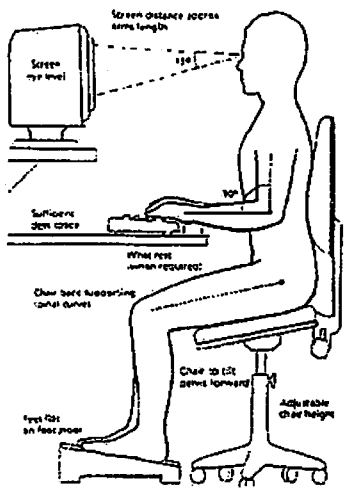
While most cases of RSI are treatable, it can recur and may become chronic without appropriate management. It is easier to prevent RSI than to 'cure' it. Individuals who feel they are at risk should take preventative measures before a serious RSI condition develops. Early diagnosis and treatment are vital to ensure recovery from the symptoms of RSI.

PREVENTING INJURY

The importance of RSI prevention cannot be over-emphasized. Making the right changes to your work habits could save you endless amounts of pain and disability.

Physiotherapists recommend these simple tips to help prevent RSI:

- Maintain correct posture while working to reduce strain on joints;
- Have your work station evaluated to make sure it is ergonomically correct for you;
- If your work involves heavy activity, warm up before you start and do simple stretches during the day;
- Decrease excessive force in any activity. For example, avoid typing forcefully; or use a dolly to transport heavy items etc;
- Change your posture often and take frequent breaks, alternating between sitting and standing when possible, especially if you have a sedentary job;
- Report problems early so that something can be done to help you or to change the work process;
- Aim to be fit and healthy. Good muscle strength, flexibility and endurance help improve your body's ability to absorb repetitive strain; and



[1] Statistics Canada August 2003

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ONE TO ONE HEALTH AND FITNESS CENTRE
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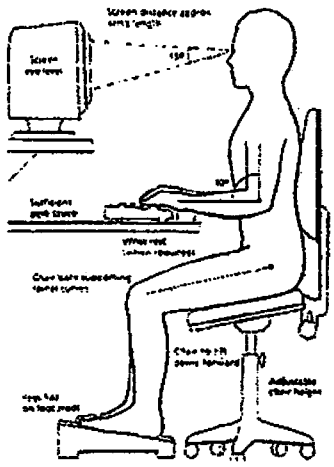
HEALTHY COMPUTER HABITS:
TIPS FOR YOU AND YOUR FAMILY

In this highly computerized world, more and more people of all ages are experiencing aches and pains that come from sitting at a computer for long periods of time. These aches and pains are felt in the neck, shoulder, upper and lower back, wrist and elbow joints. In some cases, the nerves to the hand become compressed, causing weakness and/or tingling in the fingers. These symptoms can occur in the onset of Repetitive Strain Injury (RSI), which may include damage to tendons, muscles, nerves and other soft tissues from repeated physical movements over time.

There are a number of factors that contribute to the onset of RSI, including:

- **Posture** – is the most critical component. Slouching at the keyboard puts your spine and limbs in positions that contribute to increased strain and tension, as well as increasing the risk of eye strain;
- **Office set-up** – a poorly designed workstation, or one that does not fit you well, can contribute to the onset of RSI (i.e. reaching for the mouse or keyboard too high or low, wrists extended during keyboarding);
- **Worker technique** – pounding the keyboard, using your wrists to move the mouse, or gripping the mouse tightly increases the demands on the hand and wrist and can trigger or aggravate symptoms of RSI; and
- **Work Habits** – sitting for extended periods of time without changing position is hard on your whole body and is a factor in developing RSI.

Don't ignore the early warning signs, such as weakness of your grip, numbness, and discomfort or pain in the arms, hands, wrists or shoulders. Early diagnosis and treatment are vital to ensure recovery from the symptoms of RSI. More information on RSI can be found at the Canadian Physiotherapy Association's web site at www.physiotherapy.ca/informationsheets.htm.



The Canadian Physiotherapy Association has created the following S.M.A.R.T. guidelines for computer use that you and your family can follow at home, at school and at work. S.M.A.R.T. is an acronym for Stretch, Move, Add it up, Reduce strain, Talk to a physiotherapist:

- **Stretch** – Include regular stretching into your work routine. Every 20 to 60 minutes, do three or four stretches – for hands, shoulders, neck and trunk. The key is to move your joints through their normal range of motion. Inquire about computer software that is set to interrupt work at chosen intervals with appropriate stretches, or set your onscreen timer to remind you to take "micro-breaks" as needed to momentarily change your arm position or to shift your weight. You can find some great 'Exercise Breaks' at www.computerfit.com.
- **Move** – Get up from your work station for a short stretch or walk around to promote blood flow to fatigued muscles every hour. No one has ever become more fit by sitting at a desk. Get regular daily exercise, away from the computer. It could be as simple as a walk around the office or getting off the elevator one floor early and taking the stairs. Move out of the pattern that the work is creating (i.e. stretch the opposite motion). Ensure you are not putting pressure on the carpal tunnel; slow key strokes to allow the median nerve to move off the tendons.
- **Add it up** – Add variety to your tasks. Take every break as an opportunity to go for a short walk and stretch. Keep track of activity and build up to 30 minutes of stretching and exercise every day. Vary your tasks (keyboarding, filing, telephone, reading documents, etc.).

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S M A R T

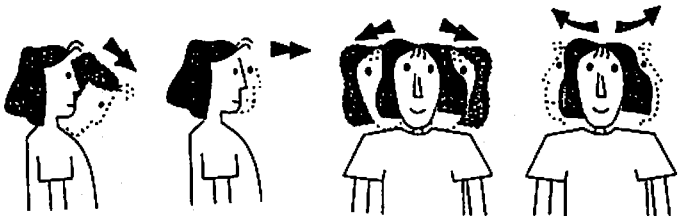
This information sheet is part of the CPA's **S.M.A.R.T.** approach to your mobility (focusing on Stretching, Moving, Adding it up, Reducing Strain and Talking to a physiotherapist). The information provided is intended for general use and is not meant to substitute for the professional, personal assessment your physiotherapist offers.

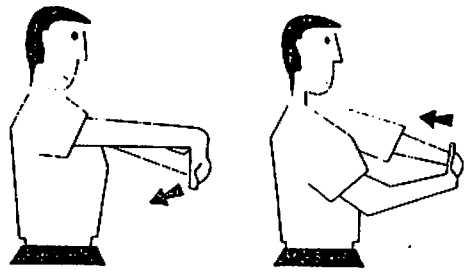
Cette fiche de renseignements fait partie du programme de l'ACP « cinq points pour assurer votre liberté de mouvement » (1. Étirez-vous; 2. Bougez; 3. Additionnez les minutes; 4. Réduisez la fatigue; 5. Consultez un physiothérapeute). Ces renseignements sont fournis à titre général seulement et ne prétendent pas remplacer l'évaluation professionnelle, personnalisée offerte par votre physiothérapeute.

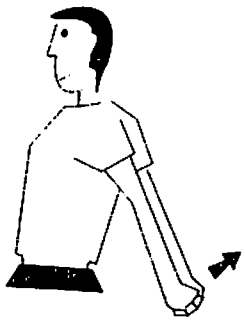
Example of Suggested Break Schedule

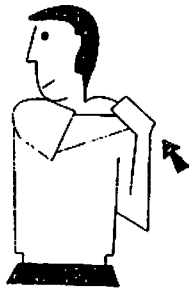
Galinsky et al. (2000)

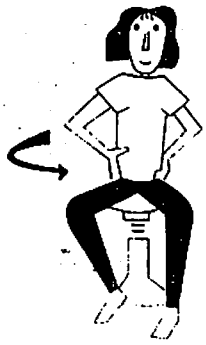
Time (hours)	Standard 3 Break Day	Suggested Breaks
0.0 - 1.0		5 minute break
1.0 - 2.0	15 minute break	15 minute break
2.0 - 3.0		5 minute break
3.0 - 4.0	30 minute lunch	30 minute break
4.0 - 5.5		5 minute break
5.5 - 6.5	15 minute break	15 minute break
6.5 - 8.0		5 minute break

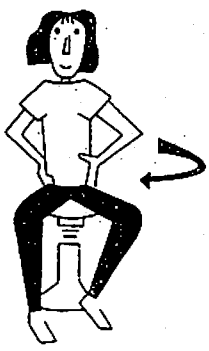


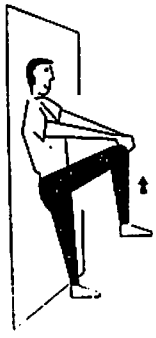












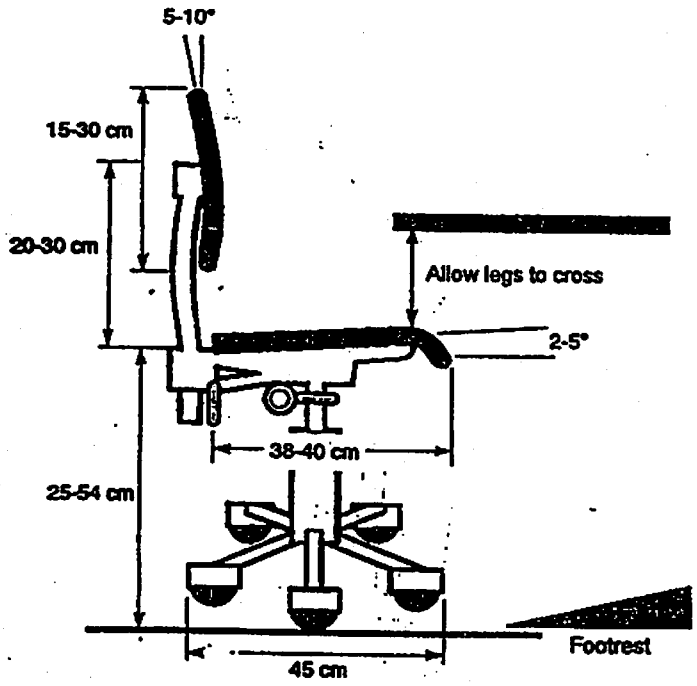
Canadian Centre for
Occupational Health and Safety

ERGONOMIC INFOGRAM E-B04

VDT WORKPLACE

CHAIR AND WORK SURFACE

Well-adjusted chairs improve body position and blood circulation, reduce muscular effort, and decrease pressure on the worker's back. Chairs should swivel, have five wheels for stability, have a breathable fabric on the seat, and have a rounded front edge.



TIGHTEN the chair backrest so that it does not give way with body weight.

READJUST the chair throughout the day to vary body position.

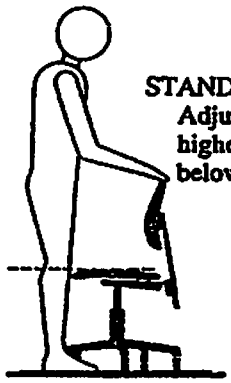
USE only chairs with arms that do not interfere with the work surface.

CHECK that there is enough leg room under work surface. Do not store materials under work surface.

CHECK that the work surface is large enough to hold work materials.

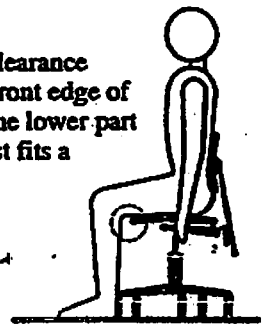
STORE items not used frequently.

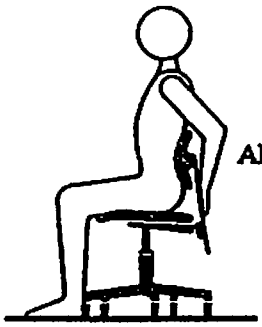
Adjustable work surfaces provide the most flexibility and accommodate the largest number of users. Adjust chair according to body size, then adjust work surface or keyboard height.



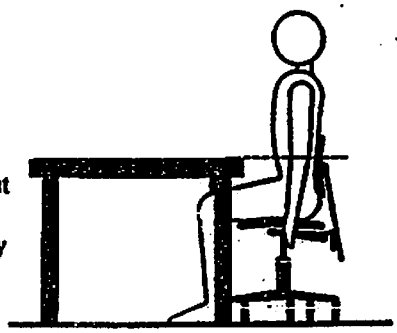
STAND in front of the chair. Adjust the height so that the highest point of the seat is just below the knee cap.

SIT so that the clearance between the front edge of the seat and the lower part of the legs just fits a clenched fist.





ADJUST the backrest of the chair so that it supports the hollow in the lower back.



ADJUST work surface to about the height of elbows with the arms hanging straight by the sides.

If temporarily using an unadjustable work surface:

ADJUST seat height so that elbows are about the same height as the home row on the keyboard.

USE a footrest if there is pressure on the back of the legs or if the feet are not resting flat on the floor. The footrest should support the whole foot and be adjustable.

Canadian Centre for
Occupational Health and Safety

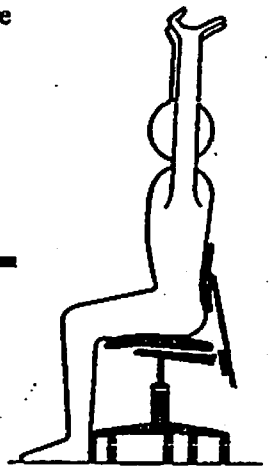
ERGONOMIC INFOGRAM E-D05

OFFICE WORKPLACE

EXERCISES TO DO IN THE OFFICE

Many office workers have jobs where they sit or stand for long periods. Working in one position can lead to muscle pain and strain.

Exercises done at the desk can help.

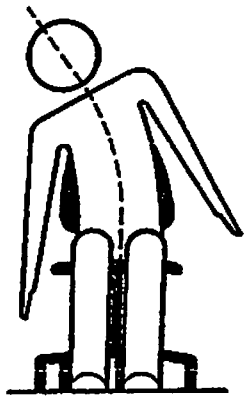


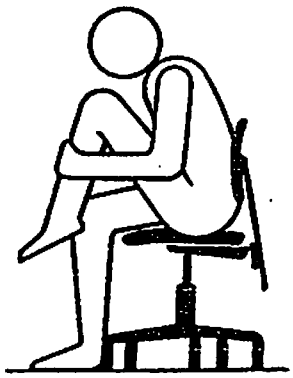
TALL STRETCH

Interlock fingers, palms up. Stretch arms above the head until they are straight. Do not arch the back.

SIDE STRETCH

Drop left shoulder, reaching left hand towards the floor. Return to starting position. Repeat on right side.



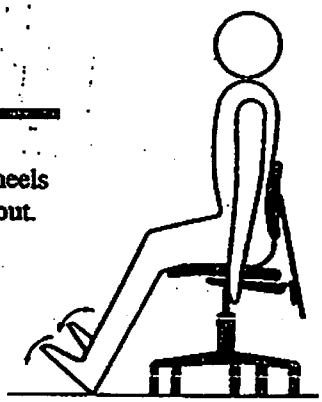


BACK CURL

Grasp shin, lift leg off the floor. Bend forward (curling the back), reaching nose toward the knee.

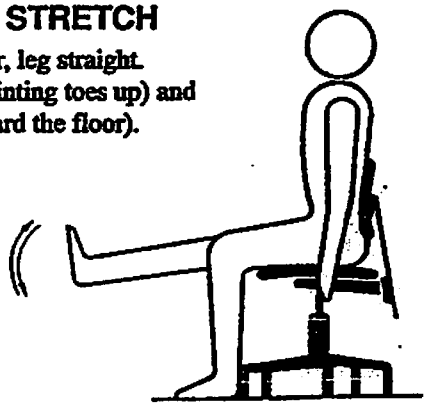
TOE-IN, TOE-OUT

Place feet shoulder-width apart, heels on the floor. Swing toes in, then out.



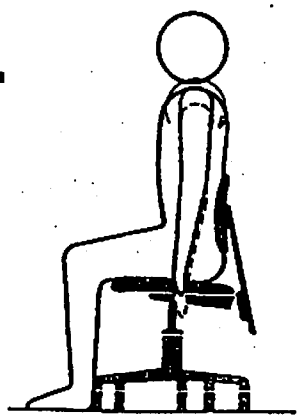
ANKLE FLEX AND STRETCH

Hold one foot off the floor, leg straight. Alternately flex ankle (pointing toes up) and extend (pointing toes toward the floor). Repeat with the other leg.



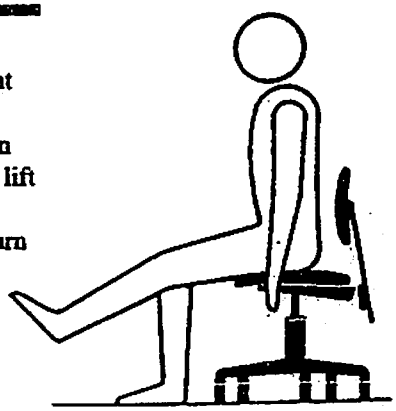
SHOULDER ROLL

Roll the shoulders—raise them, pull them back, then drop them and relax. Repeat in the opposite direction.



LEG LIFT

Sit forward on the chair so that your back is not touching the chair's back. Place feet flat on the floor. With a straight leg, lift one foot a few inches off the floor. Hold momentarily, return it to the floor and repeat with the other leg.



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smart Stretching

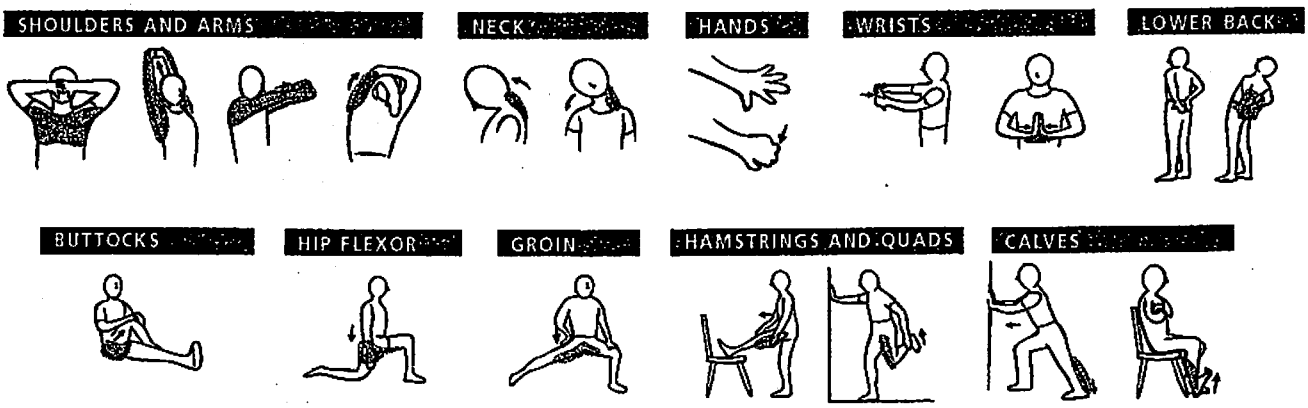
IS VITAL IN ALL ACTIVITIES

Stretching - as a warm-up, as a break during repetitive activities, and as a cool-down after activities – helps you to move easily, keeps muscles flexible and relaxed, joints mobile and relieves tension and strain.

When stretching, remember:

- Movements should be slow and controlled.
- You should feel a gentle stretch of the muscle - stretching should not be painful.
- Once you feel a stretch, hold the position for 10 - 15 seconds. Do not bounce or jerk.
- Repeat each stretch two or three times.

The following stretches can help maintain flexibility and should be done before, during (if needed) and after activity. Please remember that these stretches are general in nature. If you have a specific condition, consult a physiotherapist for an individualized program.



TALK TO A PHYSIOTHERAPIST

A physiotherapist will assess your injury and provide appropriate treatment that will promote an earlier return to activity as well as advice on how to prevent recurrence of injury. Physiotherapists are healthcare professionals who help people of all ages and lifestyles gain and maintain their desired level of active living and physical functioning. With their applied knowledge and understanding of the human body in action, physiotherapists are able to help you to increase mobility, relieve pain, build strength and improve balance and cardiovascular function, Physiotherapists not only treat injuries, they also teach you how to prevent the onset of pain or injury that can limit your activity.

HOW DO I FIND A PHYSIOTHERAPIST?

Finding a physiotherapist may vary from province to province. Here are some suggestions:

- Check the yellow pages of your local telephone book for listings of physiotherapists and physiotherapy clinics. You can make an appointment with a physiotherapist directly anywhere in Canada;
- Ask for a recommendation from your family doctor. While a direct referral is not necessary, your physician may be able to suggest a physiotherapist for your particular concern. Further, while many physiotherapy services are covered by provincial health care plans, Workers' Compensation plans and private insurance, some insurance companies require a doctor's referral for reimbursement;
- Visit the web site of the Canadian Physiotherapy Association at www.physiotherapy.ca to access our "Find A Physiotherapist" directory and to find out more information about physiotherapy. The CPA web site can also link you to resources for finding physiotherapists through provincial association branches and regulatory colleges.

Canadian Physiotherapy Association / Association canadienne de physiothérapie

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