Physical exercises

Physical exercise, practised after a break from the gym, will efficiently reduce muscular and skeletal damage and can only be complimentary to ergonomic recommendations. It encourages muscular blood flow, activates little used muscles and relaxes muscles which are over-use when sitting still.

Various exercises can be used:

Eye exercises

♦ look away from the screen and focus intensely on an object in the distance

♦ look far to the right and to the left without moving your head, repeat this movement ten times. Then do the same thing looking up and down

Neck relaxation

♦ roll your shoulders front to back and then back to front

♦ do this slowly without twisting your head, then tilt your head forward and back

Back relaxation

♦ whilst sitting down, stretch the back by pushing your hips down and your head up

♦ whilse standing, stretch the back by trying to "touch the ceiling" with your upper limbs outstretched and your heels pushed to the ground

♦ rotate your body

Finger and wrist relaxation

♦ shake your hands as if they were wet

♦ rotate your wrists inwards and then outwards

Lower limb relaxation

♦ lower your seat so you can stretch your legs out. Point your feet up and down around a dozen times.
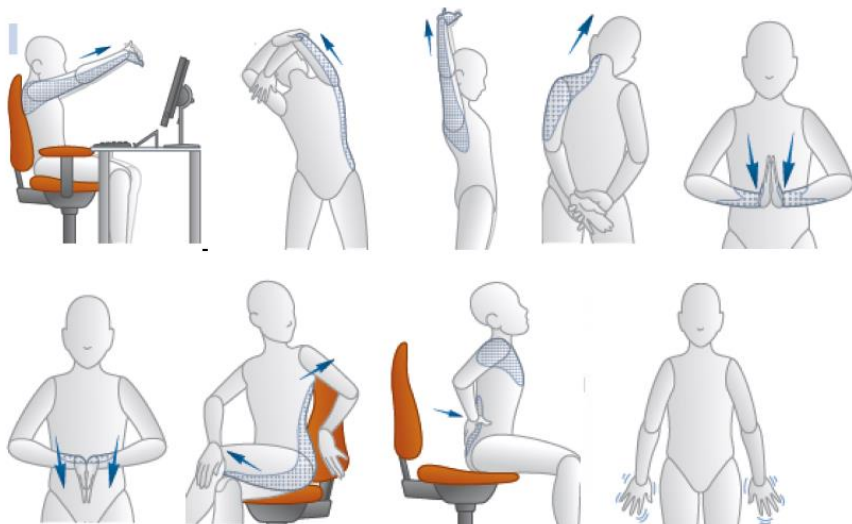
Source : Worksafe Travail Sécuritaire

Service
de **santé au travail**
Université de Strasbourg

ERGONOMICS

AND WORK AT A SCREEN

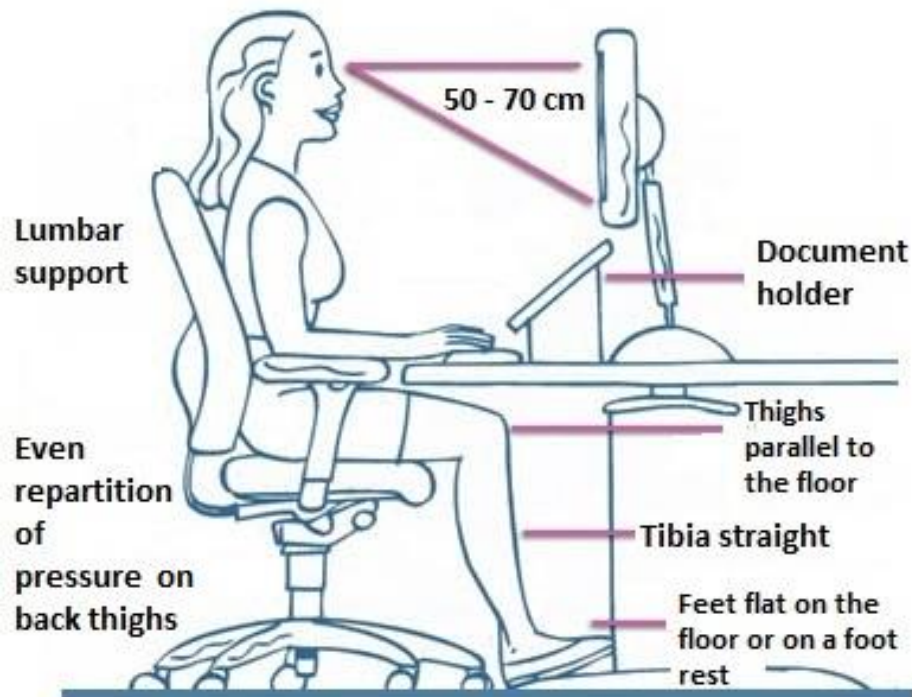Working at a screen brings visual, mental and postural stress.

It can cause visual signs of fatigue which regress at rest, as well as possible headaches.

In general, working at a screen notably reveals visual anomalies which were before unnoticed.

Screen work can lead to muscular-skeletal disorders (MSDs) associated with static posture, often poor, as well as poor ergonomics at the workstation. These MSDs are favoured by the type of work (long periods of stillness ...), stress, and the configuration of the workstation.

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Adopt a balanced posture

- Neck: straight.

- Arms and shoulders: horizontal forearms resting on the armrests or the work desk, in line with shoulders, elbows at ≥90 ° , wrists in line with forearms, shoulders relaxed.

- Back: straight, leaning on the backrest with lumbar support.

- Thighs: horizontal.

- Legs: ≥90 ° knees, feet on the floor.

- Avoid compression between the inside of the knee and seat, adjust the seat depth.

Problems, pain, discomfort	Possible Causes	Solutions to consider
for arms and forearms	- Hands and forearms unsupported - Angle of arm/forearm incorrect - Mouse too high - Mouse too far away - Speed of mouse cursor too fast	- Adjust and use restraints or supports compatible with work activities - Adjust the chair height - Adjust the height of the table supporting the keyboard - Place the mouse close to the keyboard - Adjust or reduce the speed of the mouse cursor
for wrists	- Incorrect wrist angle for keyboard and/or mouse use - Speed of mouse cursor too fast	- Adjust the level of the keyboard and mouse - Drop the keyboard stands - Adjust the chair height - Use a palm rest - Adjust or reduce the speed of the mouse cursor
for legs	- Blood circulation impeded at the thighs - Legs holding back the movement of the chair - Legs holding back the footrest	- Lower the height of the chair - Use a footrest - Ensure that the wheels of the chair are fixed (when on a smooth floor) - Check the condition of the non-slip material on the footrest (above and below)

Problems & solutions

Warning signs:

- ✓ Your eyes are heavy, tired;
- ✓ You have burning eyes, itchy;
- ✓ You vision is blurry in the evening after work;
- ✓ You have a sore neck and head during or after work;
- ✓ You have a sore neck, back, or shoulders, arms, hands.

Problems, pain, discomfort	Possible Causes	Solutions to consider
for the neck	- Head too tilted back or forward - Body leaning forward too much - Head turned (neck twisting) - Unsuitable bifocal or progressive lenses	- Adjust the screen height - Lower the screen if you wear glasses - Adjust the height of the desk - Place the screen directly in front of you - Consult an eye specialist
for the shoulders	- Hands and forearms unsupported - Keyboard too high - Mouse too high - Mouse too far away	- Adjust and use restraints or supports compatible with work activities - Adjust the height of the table and chair - Ensure you have enough space on the table to position the mouse at the same height as the keyboard and near it
for the back	- Back too upright or too rounded - Frequent twisting of the back - Legs holding back the movement of the chair - Legs holding back the footrest	- Adjust the chair height - Adjust your chair by checking the supporting points - Ensure that the wheels of the chair are fixed (when on a smooth floor) - Check the condition of the non-slip material on the footrest (above and below)

Table adapted from Poirié P.- *Terminal display screen - ergonomic principles.*City of Montreal, 1988 p29-31.

Tips for arranging and adjusting your equipment

Avoid placing the workstation against a wall, enabling you look into the distance.

1) *Screen*

- ◆ Place the screen in front of you at between 50-70 cm from your eyes (distance from the arms) and such that the upper limit of the screen is at the same height as your eyes. Tilt the screen if you wear progressive lenses.
- ◆ Place the screen perpendicular to the window.
- ◆ Avoid placing the screen on the CPU.
- ◆ The display must be of good quality, large, swivelling and adjustable.
- ◆ Favour dark figures on a light background (positive contrast) and use of a matte or sapphire crystal screen. Adjust the brightness and contrast directly on the screen.

2) *Base and seat*

- ◆ Use an ergonomic chair (adjustable seat, backrest and armrests).
- ◆ Then adjust the height of your chair so your elbows are placed at right angles to facilitate typing on the keyboard.
- ◆ Seat as far back in the seat as you can, adjust the seat depth if possible.
- ◆ Adjust the back of the seat: adjust the backrest height to fit the lumbar region and adjust the tilt tension to ensure free and effortless movement, with permanent contact. This setting requires you to unlock the back of the chair and turn the handle that allows you to adjust its flexibility and resistance.
- ◆ Bring you chair as close as you can to your work station.
- ◆ Place your front legs, uncrossed, with your feet on the floor or on a footrest if your feet do not touch the ground.
- ◆ Armrests are optional and are there for you if you need them. Use height and width adjustable armrests.

3) *Mouse and keyboard*

- ◆ Place the keyboard far enough away from you so that you have room to rest your wrists and forearms. To reduce wrist extension, try to use a flat keyboard, without stands.
- ◆ Move the mouse closer to the keyboard.

Hardware and other advice

◆ Maintain a plain workstation, with an appropriate surface without sharp edges or protruding angles.

◆ Ensure that the lighting level of the workstation is correct.

Briefcase if you are rendering documents, you can make use a brief case or a writing stand, with an inclined surface, placed between the screen and keyboard. This device helps prevent cervical torsion and relieves the neck.
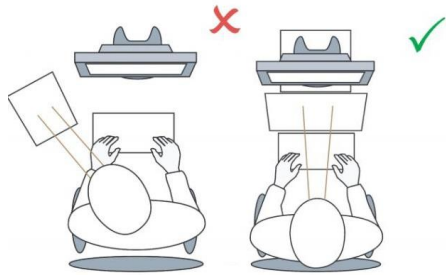
Phone : Placing the telephone on the side of the non-dominant hand (left if you are right handed) facilitates taking notes during a phone conversation and avoids awkward postures.

Wrist Rest : Wrist rests for the keyboard and mouse are available (sometimes integrated into the mouse pad), which provide extra comfort by placing the forearm in the axis of the wrist and hand.

Setting up the mouse : Adjusting the speed of movement of the cursor provides better accuracy (on a slow setting) or on the contrary allows faster, and therefore fewer, movements (on a faster setting).

(Accessed via the "start" button", Control Panel, Hardware & Audio, Devices and Printers, Mouse, Pointer Options)

Work organization :

◆ Alternate tasks regularly, interrupting screen work for tasks which do not require short-sighted vision, allowing you to look into the distance.

◆ Take time to have a break, relax, stretch your muscles. A 10 minute break every 2 hours is recommended.

◆ Entry tasks which require you to alternatively switch between lookingat a paper document and the screen are the most tiring: avoid doing this for more than four hours a day.

Working on a laptop

Laptops are not suited to working for extended periods of time. Indeed, the keyboard is fixed, and the screen is too low and too close, creating a leaning posture with an outstretched neck. If your screen is large enough, you can use a **laptop stand**, which is height adjustable, so that you can place the screen at the correct height and distance. If your screen is too small, you can connect an external larger monitor. **A keyboard and mouse** complete the installation.

If using dual screen or multiple screens

◆ Use identical screens (size, resolution).

◆ Place the 2 screens in a chevron pattern facing you; if there are more than 2, place them in an semi circle.

◆ Most screens can be placed in a vertical position if necessary.

(If using a laptop, place it on a support; if using a screen, place it in front of you.)