# OFFICE ERGONOMIC ASSESSMENT

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Course: 68.252 OT Mgmt MSK
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**Purpose of Assessment**

The following is an ergonomic office assessment completed for C.S. at her workplace on October 26, 2001. The purpose of this assessment is to evaluate workstation design and environment and to provide recommendations that encourage a safe and effective working environment.

**Background & Employment Data**

C.S. is a Clerk 3/Supervisor employed in the mail return municipal audit department at Manitoba Health. She is responsible for keeping up to date files on Manitoba residents for the purpose of health records. This includes caring for vital statistics (births and deaths) of the population, making address changes, finding people when they've moved, and performing municipal audits.

**Description of Task & Body Position/ Functional Body Positions**

The job is categorized as sedentary work as C.S. spends most of the workday seated at her computer.

- Essential task/position: Seated at computer (keyboarding) occurs frequently (50-60% of shift). C.S. spends much of her workday sitting and she uses fingering skills for keyboarding.
- Marginal or optional task/position: Seated while sorting mail, answering telephone and signing documents occurs occasionally (10-15% of shift). Walking occurs occasionally as well.

**Strength & Endurance & Speed Demands**

C.S.'s job does not require lifting of heavy objects, carrying, pushing or pulling, with the exception of occasional carrying of small objects such as files. Distances for walking are usually restrained to the same floor. C.S. is at work for 8 hours per day, from 8:30 until 4:30 and works 40 hours per week. Breaks consist of two 15-minute coffee breaks and one 45-minute lunch break. She does not take overtime and is a salaried employee. The speed at which she works is self-determined.

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**Environmental Conditions**

C.S.'s workstation is indoors and at room temperature. She reports using a small heater at her feet occasionally during the colder months. The office space is very clean and quiet and has adequate ventilation.

**Psychosocial, Cognitive & Credential Demands**

Employment in this position requires a Grade 12 education and on the job training. C.S. is frequently required to be involved in decision-making (with regards to making changes on master files) and is supervisor to four staff members, of which she is responsible for production levels. C.S. reports good peer and social support in her workplace and works mostly independently. Measured on a visual analogue scale, with 1 being none at all and 10 being the maximum, C.S. reports accuracy requirements of her job to be a 10, information processing complexity to be a 5, and attention, concentration and memory to be an 8. Job task speed is not excessive as speed of work is self-determined.

**Perceptual Demands**

It is necessary to have adequate hearing in this position, as it is required for communication on the phone and with co-workers. With respect to ability to write, only occasional document signing is required. Visual demands of this job are high, and the ability to read is important. C.S. enters data from paper into computer files and it is therefore imperative that she has good sensory/touch perception required for keyboarding skills.

**Wellness Survey**

Completion of the wellness survey identified the following problems:

- Physical: Frequent backaches in upper back (trapezius muscle) of severity that is distracting or requires breaks. Rare neckaches and headaches with severity hardly noticeable. Occasional wrist aches resulting from tendonitis with severity described as uncomfortable.
- Visual: Eye "floaters" occurring occasionally of severity described as noticeable.

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- Stress-Related: Rare boredom, depression, fatigue, stress and irritability, all of hardly noticeable severity. Occasional fatigue of noticeable severity.

**Workstation Layout and Description of Equipment**

- **Size, shape and height of desk:** C.S.'s workstation is composed of one desk with a return, placed in an L-shaped configuration. The desks have contoured edges, with the desk alongside a wall that is a full window, and the return against a wall. The desk measures 153 cm wide, 74 cm deep, and 77 cm high. The desk holds a monitor, a file container, a mouse, a keyboard, a drive computer, and a radio. The return measures 136 cm wide, 59 cm deep and 77 cm high and holds a phone and some books. C.S.'s workstation offers ample room for upper and lower extremity clearance.
- **Shelves:** There is a shelf which is also placed at a right angle to the window, 59 cm above the return, that houses some binders and file holders.
- **Size of working space:** C.S.'s workspace is a cubicle divided by dividers. The workplace is measured 290 cm by 210 cm.
- **"Work flow" in office:** Workflow in the office cubicle is good. C.S. spends most of her time seated at the computer and occasionally swivels and moves her chair to the right to answer the phone or sign documents. She sometimes needs to get up and walk to other locations in the building, most frequently on the same floor.
- **Telephone- placement/type:** C.S. uses a telephone with a hand held receiver. The telephone is placed on the left side of the return in a diagonal position, and is within arms reach to allow for easy access while seated at the computer. To answer the phone, C.S. must swivel her chair and reach for the phone.
- **Placement of monitor:** The monitor is placed with the back facing the window. It is on top of a slight rise, and is tilted back slightly. When seated, the monitor is located directly in front of C.S. and the top of the monitor is slightly below her eye level. C.S. reported that there is glare on the screen in the morning because of the sun shining in through the window, however, she is able to close the blind to avoid the glare.
- **Placement of keyboard:** The keyboard is located on an adjustable extension, measured approximately 46 cm by 17 cm, 71 cm off the ground, and is tilted, with the back of the

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keyboard being 2 cm higher than the front of the keyboard. C.S.'s forearms are alongside her body and elbows are flexed at 100 degrees when she is seated at the computer with her hands on the keyboard. Her wrists are in a neutral position, however there is nothing supporting them. C.S. reports that her fingers and hands feel comfortable when typing.

- **Placement of mouse:** C.S. uses a "roller" type mouse, which is placed on an extension placed to the right of the keyboard that measures 71 cm from the floor. Her arm is in slight shoulder abduction when using the mouse and although she has a wrist rest, her wrist is in 20 degrees extension when using the mouse.
- **Chair evaluation:** Completion of the Chair Evaluation Form revealed the following problems: C.S. reported that the shape of the backrest did not seem to fit the shape of her back all that well, but that it supports her well when she leans back, preventing her from leaning unnaturally and uncomfortable far. She complained that the armrests of the chair bump the desk return that she uses when signing paperwork and answering the phone. She also reported that she becomes confused when using chair controls, adjusting one control when she means to adjust another. Overall, the chair is quite comfortable, moves about easily, and does not roll away uncontrolled.
- **Lighting:** An ample amount of window light is available, as one entire wall is made up of a window. This light is adjustable by opening and closing vertical blinds. A fluorescent light is overhead and off to the right side, directly above the return.

**Recommendations:**

Please see the following chart for the identified problems and solutions.

| Problem | Solution |
|---|---|
| -When sitting, level of knees is below level of hips (hip flexion-100° & knee flexion-105° ) | -Adjust chair height so knees are level with the hips (with approximately 90° of hip flexion & 90° of knee flexion) and feet are flat on floor. |
| -Frequently flexing body forward and neck downward to look at documents while typing.<br>-Lumbar support of chair not supporting curve of back while working in forward position. | -Use a copyholder to place documents so that they are at eye level and near monitor.<br>-Complete chair adjustment recommendations already mentioned |

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| Problem | Solution |
|---|---|
| -Elbows at 100° when using the keyboard and mouse.<br>-Wrists bent and slightly extended when using mouse. May be aggravating carpal tunnel syndrome and contributing to wrist aches | -Move armrests up so that elbows are flexed at 90° , and wrists are in a straight line when using mouse and keyboard.<br>-Continue use with current keyboard support and use a higher support for mouse |
| -Top of monitor screen slightly below eye level. May contribute to neck strain and backache. | -Move monitor up so that monitor screen is at eye level<br>-Phone book can be used |
| -Glare from window on computer screen | -Continue to close blinds during sunny periods |
| -Occasional Visual “floaters” after looking at monitor for long periods of time | -Look up and away from monitor frequently, while blinking eyes to reduce eye fatigue |
| -Frequent backaches (upper back, trapezius muscle) & occasional fatigue & wrist aches | -Take frequent breaks (5 minutes every hour) to stretch or change body positions<br>-Avoid over stretching and twisting |

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