Choosing the Correct Mouse for the Home Office

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Problem

Scenario #1: John and Mary have avoided purchasing a home computer because of the expense, but their children are being given more assignments that require Internet research that cannot be done at school. They have also decided that it really would be best if their kids learned how to type reports on a computer. John also wants to try out doing the home bookkeeping on the computer as well. They checked out merchandise at a few large computer stores and felt they got a good deal on the desktop unit and software bundle that was available. They chose to upgrade the monitor that came with the original package, and a printer was added for no extra charge.

Scenario #2: Bill's son is going to college out-of-state. The school has stipulated purchase of a laptop with certain requirements. Bill's friend has told him some good deals can be obtained on-line, so he does some research. He makes his purchase, following the school's guidelines and adding some extra software he thinks will be useful for his son over the long term. The laptop will be delivered to his son's dorm during the first week of school.

The above two scenarios illustrate that when purchasing a computer, most people do not even think about the mouse; they just keep the mouse that comes with the package they bought. Rarely do they consider whether or not this mouse truly meets their needs. Few can identify what their needs are. They do not realize that not using the correct mouse can lead to chronic physical problems.

Background

When considering what type of mouse will work best for the user, one must determine the following

- What software will be used? Office suites—word-processing, accounting, etc; Internet search engines; simple to complex gaming; photography/graphics—all require different varieties of mouse use. A user must take into account the best mouse for the software applications that will be used most often.

- What are the ages and hand-sizes of the users? Small children and elderly have different needs than teens and adults. A user with large hands will be uncomfortable with a mouse that is too small. The reverse will be true for an individual with small hands trying to use a large mouse.

- Does the user have any preexisting physical conditions or problems? Special mouse alternatives exist to accommodate physical limitations. Examples of these can be found at Enablemart.com. (This website also shows a selection of special keyboards for the disabled.)

- Is the user left- or right-handed? Although estimates of left-handedness of the population vary from 5-15%, it is obvious that right-handedness is more common. Some mouse devices can be adjusted for use by both types. (Note: Dictionaries and style manuals suggest that the plural for a computer mouse can be "mice," "mouses," or "mouse devices." "Mouse devices" will be used in this paper to indicate the plural.)

- How much space is available for comfortable use? Tight spaces may require a mouse that operates without having to move across a flat surface.

- How will the mouse connect to the computer? A physical wired connection is still the most common, but wireless is useful for laptops or desktops with limited space. However, wireless mouse devices are less sensitive (less precise) than the wired.

- How much does the mouse cost? A mouse usually comes bundled with a retail computer purchase, but users should consider that their needs may be met by an alternative mouse for anywhere from $20 to $100 extra.

- How much will the mouse be used relative to the keyboard? While it is obvious that word processing is mostly done by keyboard, many other functions—"point-and-click," "drag-and drop," etc.—are performed via mouse. The user must consider what percent of the time they will use a mouse device. Most software today is designed to take advantage of mouse short-cuts. The mouse itself usually comes with customizing software.

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Analysis

There are various types of mouse devices available for both the desktop and laptop computer. Some of the most common are listed below.

- Optical-mechanical mouse—a ball on the bottom rolls a wheel inside as the user moves it across a flat surface. It also contains a sensor which reads an LED or laser as it moves. According to ComputerHope.com, a free instructional web site, this is the most commonly used mouse with PC or MAC computers.

- Trackball—has the ball on top which the user rolls to move the cursor. The device itself remains stationary.

- Wheel mouse or scroll mouse—a mouse that has a wheel in the middle which adds functions in addition to cursor movement. This allows finger clicks where device movement would otherwise be required.

- Touchpad—a sensor pad on which the finger is drawn across the surface to move the cursor. This device is usually found on laptops.

- Joystick—a hand-grip device usually used for games, but can be effective with other programs.

- Gaming mouse—These devices are among the most unusual available. Many contain extra programmable buttons to perform functions related to complex games. Some are unusual shapes, contain adjustable weights, or are specially

contoured to the hand. Photos and descriptions of some of the most popular are

listed on GamingWeapons.com.

HFE Measures

Long use of a mouse irritates the wrist and elbow and can cause or exacerbate Musculoskeletal Disorders (MSD). According to "Avoiding Mouse Elbow" by Malachy Foley, "the mouse…may cause more MSD than an intensely used keyboard." This is "because the mouse usually causes the wrist to bend at an acute angle, requires more exacting movement than the keyboard, and uses the whole arm rather than just the fingers."

The body continuously experiences strains in response to physical tasks, and they usually heal naturally. MSD is a group of conditions caused when these small stresses build up and "outpace the body's ability to heal and repair itself," (Foley, 2005) thus gradually damaging muscles, tendons, ligaments, joints, nerves, etc. That is why these conditions are also known as Cumulative Trauma Disorders (CTD). Foley asserts that "because MSD develops gradually, you can literally be fine one day and in pain the following day."

Probably the most famous MSD is Carpal Tunnel Syndrome, compression of the nerve in the wrist which causes pain and weakness in the hand. Foley's "Mouse Elbow" is the same condition as the more famous Tennis Elbow—inflammation of the elbow tendon from overuse of the lower arm muscles—but caused by mouse overuse rather than overindulgence in tennis.

Foley makes the following recommendations to help relieve mouse-caused stress on the body.

1) Move the mouse to the left side of the keyboard. This redistributes the workload more evenly to both hands. Learning to use the mouse with the user's weaker hand reduces stress on the dominant hand.

2) Transfer some functions from mouse to keyboard. Many navigation shortcuts can be created with the Alt or Windows keys on the keyboard. (Consult Windows Help or the help section of specific software.) Again, this distributes stress to both hands.

3) Use a mouse alternative such as a trackball or joystick. Use of these puts the wrist and lower arm in a more natural position than does a traditional mouse.

It is important for any user to prevent problems by taking steps before physical symptoms present themselves. Choosing and using the correct mouse can minimize MSDs.

Conclusion

Users should investigate the mouse devices available that fit their needs. There is a wide selection stocked in the larger computer stores. An even greater variety exists on-line. Most are affordable enough to purchase and try out. One size does not have to fit all. Mouse connectivity is simple enough that each computer user can have his own mouse if necessary.

Several choices of mouse devices and mouse alternatives are available that are affordable, will prevent or minimize physical problems, and are comfortable for most users. Choose well.

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