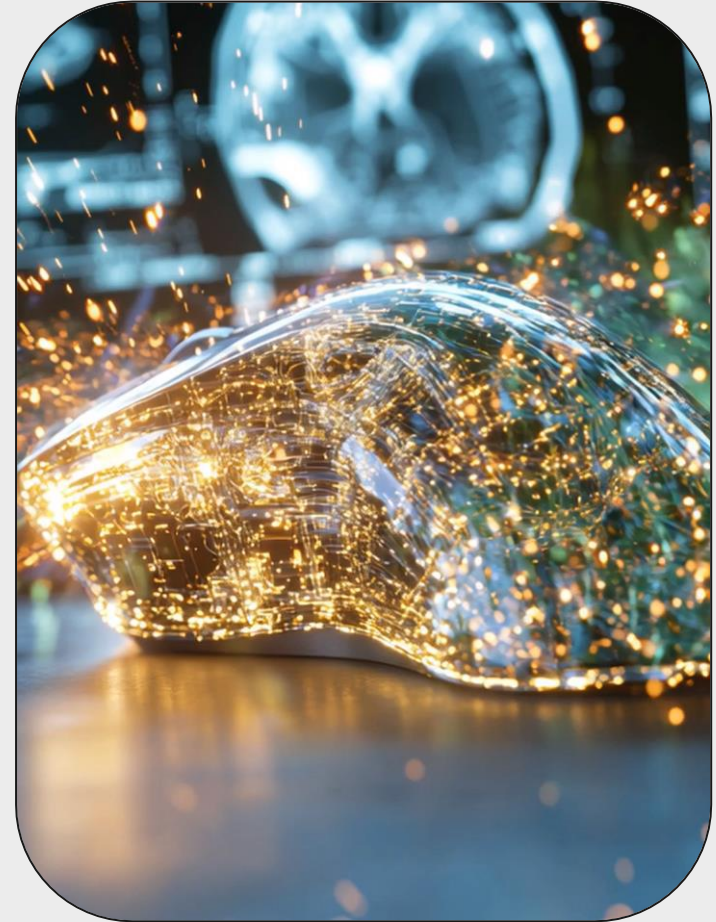


Can Changing a Mouse Improve Radiologist's Efficiency?

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Mouse efficiency matters

During a Single 8-Hour Radiology Shift:

Mouse traveled: **1.37 miles**

Total input actions: **10,778**

87% of Radiologists Report MSK Discomfort on a Weekly Basis:

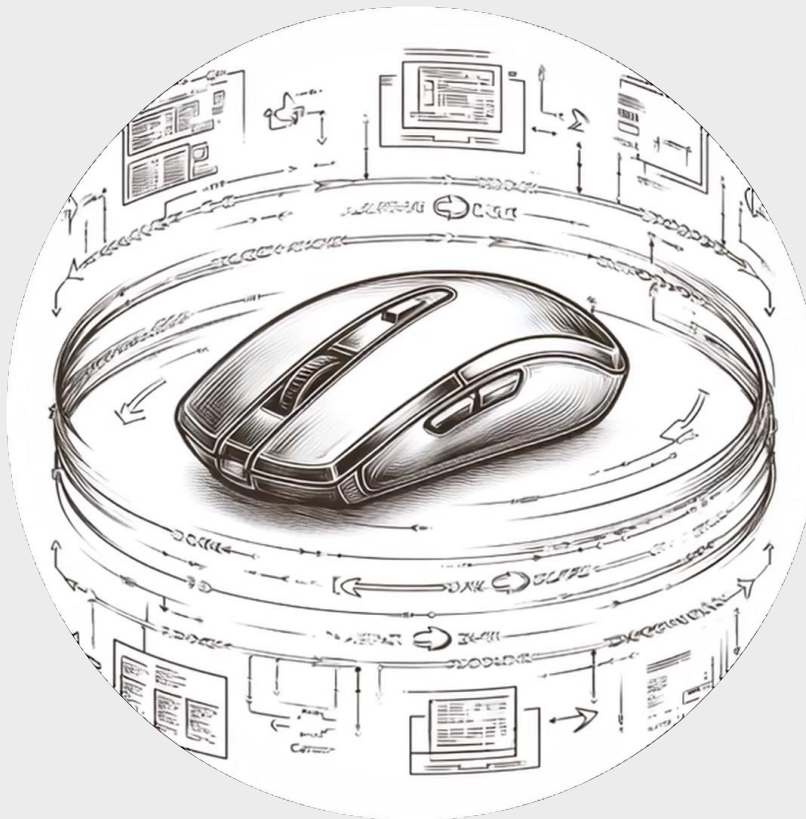
Neck (66%)

Lower back (61%)

Upper back (43%)

Right shoulder (36%)

Right wrist (33%)



Scrolling

Fine windowing

Windowing
Presets

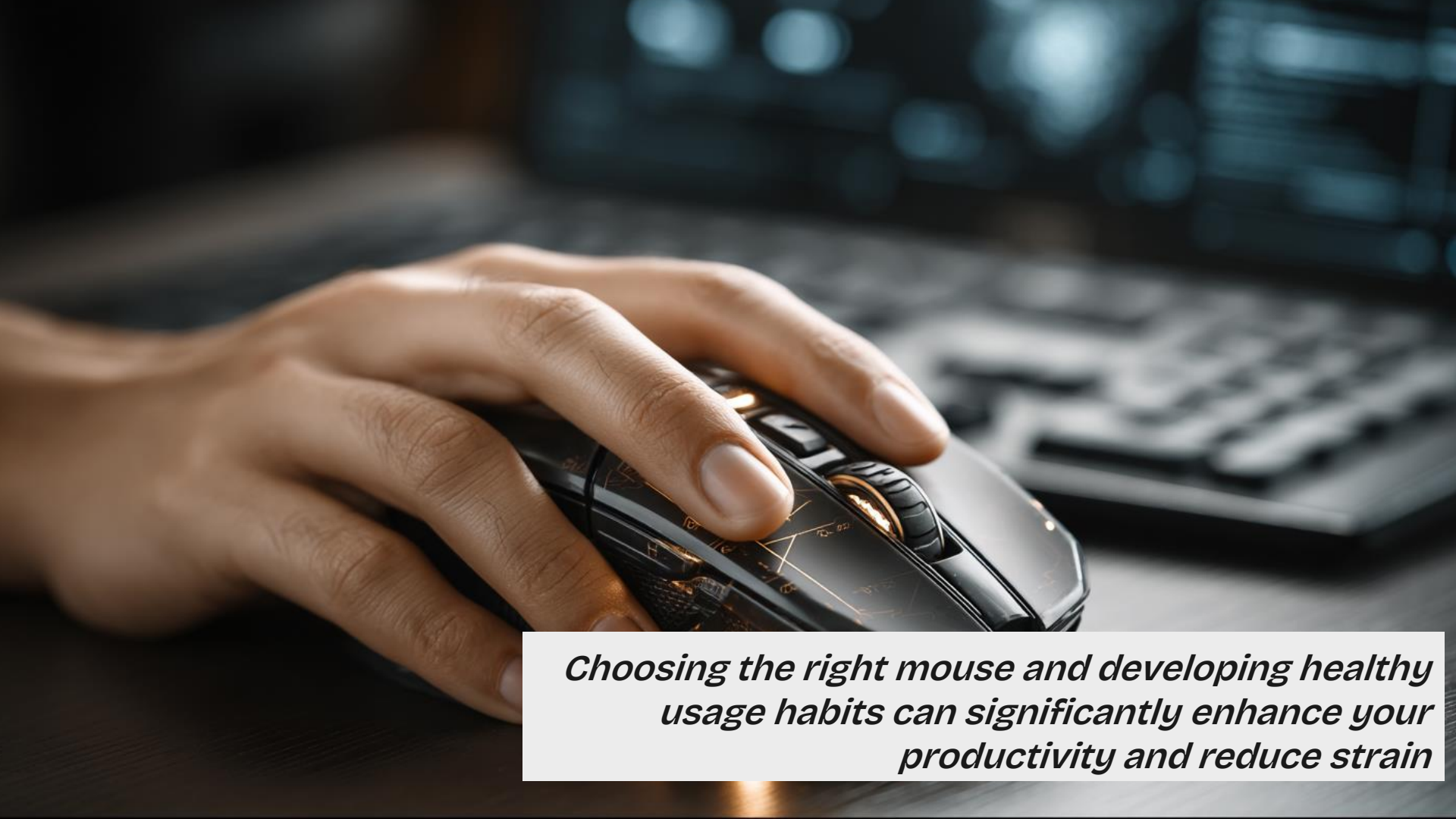
Measurements

Annotations

Hanging studies

Non-PACS
related actions

...



Choosing the right mouse and developing healthy usage habits can significantly enhance your productivity and reduce strain

Many Mice, Many Choices



Standard Optical
Mouse



Ergonomic
Vertical/Angled Mouse



Programmable
Gaming Mouse



Trackball Mouse



Alternative inputs

Understanding the Ideal Mouse

User Factors

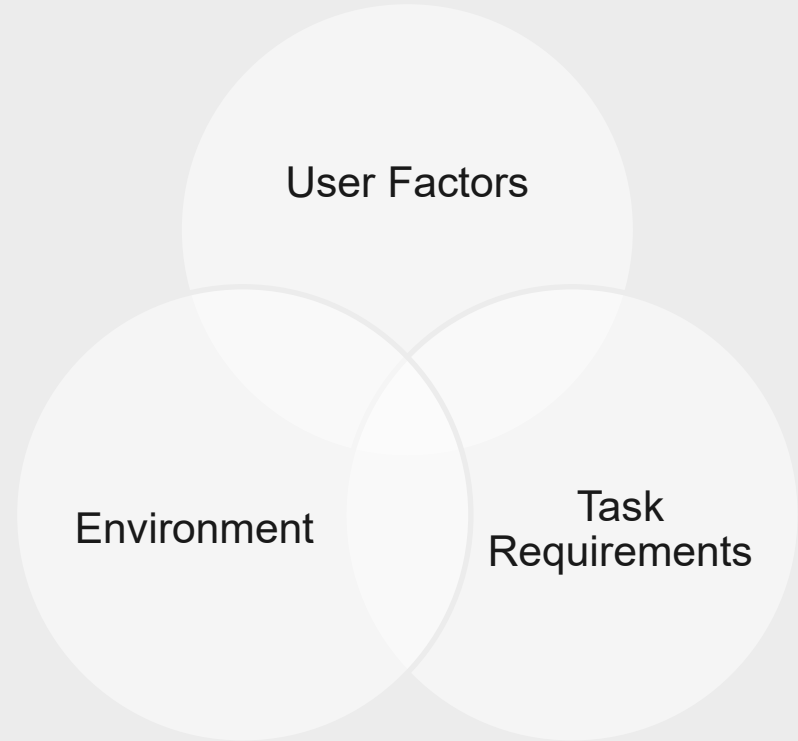
- Repetitive stress injuries
- Mouse grip style
- Preference

Task Requirements

- Most commonly performed mouse actions
- Subspecialty-related practice patterns

Environment

- PACS specific capabilities
 - Drag to scroll vs. scroll wheel
 - Built-in hotkeys
- Ability to install software or carry devices



Selected Factors to Consider



Shape

- Impacts grip comfort
- Different mouse shapes may be more suitable for different mouse grips
- Vertical/contoured mice may reduce pronation and strain

Weight

- Lighter mice improve mousing speed and accuracy
- Heavier mice may dampen unintended motions

DPI

- Higher DPI: faster cursor movement
- Lower DPI: May be better for precise actions
- DPI Toggle buttons can allow switching
- Built-in windows software mouse sensitivity “DPI”

Scrolling

- “Hyperscroll” (free spinning mode) continuous scrolling without resistance
- “Notched scrolling” standard small increments
- Alternative scroll (joystick inputs)

Programmable Buttons

- Enable quick access to custom commands without hand transfer
- Can integrate with automation software for complex workflows

Quick Guide to Common Mousegrips



PALM

- Entire palm rests on mouse. Shoulder /forearm driven movement.
- Considered most ergonomic grip.
- Lower speed and fine precision.
- Elbows and shoulder strain.
- Wider (“hand-sculpted”) shapes with long chassis preferred.

CLAW

- Palm rests on mouse’s rear with fingers arched to form claw shape.
- Higher precision?
- Tension in arched fingers and wrist (extensor tendons)
- Shorter mice with arched shape preferred.

FINGERTIP

- Only fingertips contact mouse with palm hovering.
- Highest speed but may be unstable.
- Higher strain in fingers (especially 4th/5th fingers) and wrist
- Lighter mice with flat shape preferred.

Considerations for Programmable Buttons



Important!

Number of Buttons

- Ranges from 1-22+
- Number needed varies with workflow

Button Placement

- Many predominantly on the thumb side
- Some distributed across multiple locations.

Onboard memory vs. Software-dependent

- Onboard memory saves programmed functions to mouse
- Some mice may limit the specific types of onboard functions
- Software dependent **requires specific software** for button functionality

Profile switching

- Allows separate profiles of programmed buttons
- Good for maintaining consistency across multiple PACS or for different custom workflows

Enhancing Programmable Buttons with Scripting

Example: Binding dictation commands to mouse buttons

Multiple scripting software such as AutoHotKey (AHK), Autoit, VoiceMacro, as well as functions in python etc.

Institutional policy may limit availability

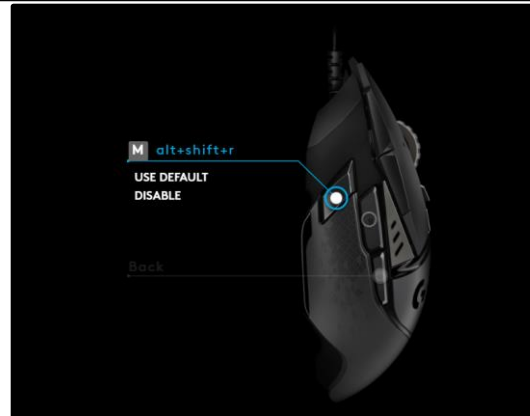
1. Create script binding process to keypress

```
SetTitleMatchMode, 1  
  
!+r:: ; Alt + Shift + R  
{  
    IfWinExist, PowerScribe  
    {  
        WinActivate  
        WinWaitActive, PowerScribe  
        Send, {F5}  
    }  
    else  
    {  
        MsgBox, PowerScribe window not found.  
    }  
    return  
}
```



This AHK script switches the active window to PowerScribe and presses f5 when the combination [Alt]+[Shift]+[R] is pressed.

2. Bind keypress to specific button



Example of the [Alt]+[Shift]+[R] combination being bound to a specific mouse button.

Personal Case Study

User factors

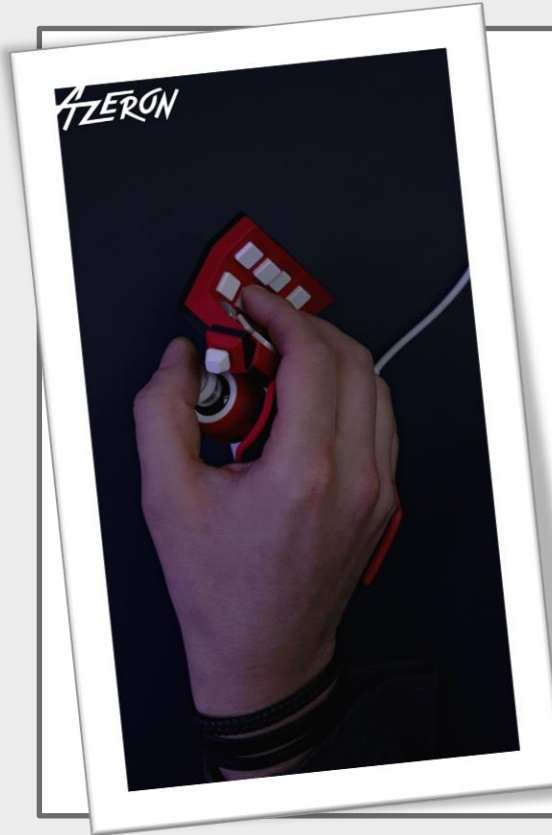
3rd digit extensor
tendinitis.
5th digit pain.
Fingertip grip default.

Task requirements

100% Neuroradiologist.
Scrolling through series,
windowing presets and
measurements.

Environment

Home workstation.
ISITE PACS (no drag
scroll).
Automation software
installed.



Key features of my currently used mouse:

- Angled shaped forcing palm type grip (reduces 5th digit pain).
- Scrolling through series with joystick (Most important due to painful 3rd digit tendinitis).
- 22+ programmable buttons. 5 commonly used window presets.
- Dictation commands mapped to specific buttons.

Practical Tips and Resources

Reflective questions

User factors

1. Where do you feel the most strain related to mousing?
2. What is your default mouse grip?

Task requirements

1. What mousing actions do you perform most frequently?
2. Which mousing actions specifically cause pain?
3. Do you use windowing presets? If so, how many?
4. How often do you look at the keyboard keyboard or right click menu to perform actions that could be mapped to mouse buttons?

Environment considerations

1. Does your institution allow installation of software for programming mouse buttons, or do you need to use onboard memory?
2. Does your institution allow installation or use of portable automation software?
3. Do you work at a consistent workstation or rotate between multiple locations?

Resources



EloShapes

Compare Mouse Shapes and Weights:
<https://www.eloshapes.com/mouse/compare>



Mouse Ratings
<https://www.rtings.com/mouse>

Puneet Bhargava

Puneet Bhargava's Tool Recommendations
<https://puneetbhargava.com/tech-tools>



VoiceMacro

Automation software
<https://www.voicemacro.net/>



AutoHotkey

Automation software
<https://www.autohotkey.com>

Conclusion and Takeaways

- Mouse usage is a central part of radiology work – **it's worth optimizing.**
- The ideal mouse depends on your **ergonomics, task demands and computing environment.**
- **Identifying your strain and usage patterns** guides better hardware choices.
- **Programmable buttons** give fast access to commonly performed functions.
- **Scripting tools can extend the capabilities** of programmable buttons.

Optimizing your mouse isn't a luxury, it's a **practical investment in comfort, speed, and longevity.**

Thanks!

If you have any questions, feel free to reach out to me:

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radcompanion.com/presentations/RS
NA2025/mouse.html

