

BOOSTING EMPLOYEE PRODUCTIVITY AND COMFORT WITH EXTERNAL MICE

Comparing the impact of external mice to trackpads

With an assist from technology, the modern workforce has been set free. “Mobility” has moved beyond buzzword status and now truly describes the way the world goes to work. That’s made the nimble laptop the computer of choice for workers across the globe who increasingly can be found working from home, a conference room, a coffee shop or practically anywhere with a Wi-Fi connection. Trackpads promise convenience and simplicity yet a large number of workers eschew these built-in navigators in favor of an external mouse. Is this simply an inconsequential matter of personal choice akin to choosing a favorite color or are there more profound differences separating the two methods of pointing, clicking and dragging?

Executive Summary:

The simple act of issuing an external mouse along with a laptop can not only turbocharge employee productivity but also help improve worker comfort, health and overall satisfaction.

- **Mice are more ergonomic than touchpads¹**
- **People are 50% more productive when using a mouse vs. a trackpad²**
- **People are 30% faster when using a mouse vs. a trackpad³**



Logitech MX Anywhere 3 Wireless Mouse

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Laptops are the new standard

Among standard equipment issued to workers in corporate settings large and small, the personal computer is undoubtedly the centerpiece in terms of both cost and utility. Tasked with evaluation, sourcing and procurement, IT departments fall under enormous pressure to justify the significant capital expenditure computer purchases entail. Maximizing ROI means selecting a computer, operating system and peripherals that enhance employee productivity by equipping them with the proper tools while simultaneously promoting comfort and a sense of well-being.



Logitech M310 Wireless Mouse

As standard equipment, laptops have left desktop computers in their wake and the gap is only expected to widen going forward. Prior to 2020, IT departments were just as likely to issue a desktop computer as they would a laptop. Post 2020, however, has seen a dramatic shift as IT is now **twice as likely** to issue a laptop over a desktop⁴ and the trend shows no signs of slowing. Even within the confines of an office, laptops are overtaking desktop computers as cubicle

culture has given way to hot-desking or collaborating in huddle rooms. Work from home (WFH) is only going to become more entrenched. A 2020 Logitech proprietary study revealed that **67% of workers in the U.S. expect to continue working from home at least twice a week. In Germany and China, the number was 57% and 51% respectively.**⁵



Logitech Ergo M575 Wireless Trackball

2X

Post 2020, IT is twice as likely to issue a laptop over a desktop.⁴

Laptops enable mobility, but do they leave workers shortchanged?

Despite the convenience of choosing where to start the workday—from home or elsewhere—worker mobility has introduced a new set of challenges for employers and employees alike. Often, workers aren't outfitted with the equipment necessary to create an ergonomic setup while using a laptop. The practical impact of this carries real-life consequences and mobile working has only made the problem more acute, especially among those new to the practice. A recent Logitech survey revealed that 50% of employees new to working from home are experiencing pain and discomfort in the neck compared to only 16% when previously working in an office. 31% reported pain and discomfort in the shoulder during WFH but only 17% reported the same for in-office work.

The culprit is often a non-ergonomic workspace which can negatively impact productivity. **The good news, however, is that simply including an external mouse with a laptop can go a long way toward improving ergonomics in non-conventional setups.**



Logitech MX Anywhere 3 Wireless Mouse

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31%

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External mice: the laptop's key missing ingredient

Pain caused by a poor ergonomic setup is a common workplace hazard. When external mice are issued along with laptops, workers are not only vastly more efficient, but are also more likely to avoid poor ergonomic setups which can lead to fatigue and discomfort.⁶ Using a built-in trackpad requires additional activation of the muscles in the neck and shoulder areas compared to the effort required to use an external mouse.

These conclusions arose from a study conducted by a unique Logitech asset—the Logi Ergo Lab.

The Logi Ergo Lab study

To gain a deeper understanding of what actually transpires when using a trackpad or external mouse, Logitech turned to the Logi Ergo Lab. More than a physical space, the Logi Ergo Lab is a human-centered and science-driven approach to designing, developing and reinventing tools that help people feel better at work. It lives at the center of Logitech product development and includes a diverse group of professionals—from engineers to designers to product designers and business groups. The Ergo Lab conducted a study comparing the use of integrated trackpads



Assessing relative arm positions while using an external mouse vs. a trackpad, *The Logi Ergo Lab*

to external mice with laptop computers in order to determine the following:

- What are the effects on **performance**?
- What are the differences in **muscles** activated?
- What are the effects on **posture**?

The study involved 23 participants who were given two different laptops and asked to perform tasks using the built-in trackpad and again using two portable mice. The tasks consisted of point-and-click and drag-and-drop exercises.

How external mice boost worker productivity

The Ergo Lab study considered the relative performance that could be achieved with mice versus trackpads by measuring “throughput”—the amount of data moved from one place to another in a given time—or this case, how quickly and accurately participants could complete the tasks. When using a mouse, participants were a whopping 50% more productive than when using a touchpad.²

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Logitech M317 Wireless Mouse

External mice reduce muscle strain

Sensors attached to the study participants showed that muscles in the neck and shoulder are less activated and therefore more relaxed while using a mouse rather than trackpad. In fact, trackpad users recorded a 45% increase in muscle activity in the neck and shoulder compared to when a mouse was used. Further, 25% more muscle activity in the forearm was detected with trackpad use which can increase fatigue or discomfort.



Logitech M535 Wireless Mouse

The link between external mice and posture

Existing studies⁷ related to workplace ergonomics have shown that trackpads generally require users to lock their upper arm with the forearm bent toward the body, a position referred to as elbow “flexion.” A locked arm requires a locked upper body which can lead to fatigue and discomfort. Logitech’s Ergo Lab took a closer look at the joint angles in the shoulders and found that trackpad use requires nearly a 40-degree internal shoulder rotation. In contrast, participants using a mouse exhibited better posture with less shoulder rotation and elbow extension.

The study determined conclusively that workers get more done ... a lot more ... using a mouse versus a built-in trackpad, and with less exertion of the muscles in the neck, shoulder and forearm.



Measuring effects of external mice on posture, *The Logi Ergo Lab*

Workers get more done ... a lot more ... using a mouse versus a built-in trackpad.

*“Use of a laptop computer is associated with constrained poor postures that may contribute to discomfort in the neck, shoulder and arm. Use of an external mouse, compared to the built-in trackpad on a laptop, allows greater flexibility of arm postures with reduced work of some arm muscles. **In side-by-side tests, an external mouse is more productive (speed combined with accuracy) than a trackpad.** An external mouse should be one of the first steps to improving employee’s daily comfort and performance while using a laptop, whether at home or in the office.”*



David Rempel, MD, MPH (UC Berkeley, San Francisco) and Logitech Scientific Advisory Board member.

How external mice safeguard capital investments

Issuing external mice with laptops may be one of the smarter investments IT can make. Beyond boosting performance, **an investment in external mice may help lessen the effects on employee comfort that a poor computer setup can trigger, from general fatigue to tension.**

The costs incurred by companies for a single one of these injuries can be staggering and include worker's compensation, medical and hospital rehabilitation and legal costs. Indirect costs include high turnover, absenteeism, lost productivity and low morale.

The soft benefits of external mice

In addition to improving worker efficiency while mitigating discomfort, there are other subtle but powerful forces at work when employers include external mice along with laptops. The number of jobs requiring computer use continues to grow—some estimates predict that by 2023, 90% of the workforce will need basic computer literacy to perform their jobs.⁸ This will only increase the risk posed by a poorly-arranged computer setup. Millennial workers, who now comprise the largest generation in the workforce, have adopted a comprehensive view of wellness that goes far beyond simply not being sick. They're much more likely to invest in their own wellness and expect their employers to do the same.⁹

Yet there's often a disconnect between the non-monetary needs expressed by employees and what employers actually provide. A 2020 study conducted by GlobalWebIndex found that more than one out of five people working from home say they don't have the right physical set-up. **Two out of three people working in enterprise-level companies say they want their employer to provide better home office equipment.**¹⁰



Logitech MK540 Advanced Wireless Keyboard and Mouse Combo

What providing proper tools really says to workers

Although employers and employees agree on the business benefits of providing employees with the tools needed to work comfortably, more company leaders (75%) believe their organization prioritizes its employees' work/health conditions while they're working at a desk than the employees themselves (52%). A key contributor to this perception gap is ineffective communication of ergonomic workplace policy and procedures.¹¹ For employers, this often represents a missed opportunity to connect with employees on a deeper, emotional level. When employers go the distance and provide workers with tools that make working more comfortable, they demonstrate respect for the worker's health and happiness which in turn engenders loyalty and increased job satisfaction.

Issuing laptop rather than desktop computers is only half the battle when it comes to empowering the new mobile workforce. Including external mice with a laptop setup is a crucial step toward unlocking employee productivity while improving daily comfort.

Including external mice with a laptop setup as a standard practice is an easy way to improve worker productivity and daily comfort whether they're at home, in the office or anywhere else.

Logitech solutions cater to a diverse workforce

Logitech offers reliable solutions that can cater to any need and workflow with a product portfolio that helps a diverse workforce achieve greater comfort. We understand that one size doesn't fit all and offer mice and keyboards in a variety of shapes and sizes. Durable as they are reliable, our products are quality tested to ensure years of use.



Logitech MK540 Advanced Wireless Keyboard and Mouse Combo



Logitech MX Anywhere 3
Compact Wireless Mouse

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Footnotes:

- 1 Logitech Ergonomic Lab study on 23 participants in Oct. 2019 with two Logitech standard mice and two standard, embedded trackpads.
- 2 Based on throughput computation in bits/second combining speed and accuracy averaged for all devices participating in the study. Logitech Ergonomic Lab study on 23 participants in Oct. 2019 with two Logitech standard mice and two standard, embedded trackpads.
- 3 Based on bits/second for averaged movement time for all devices participating in the study. Logitech Ergonomic Lab study on 23 participants in Oct. 2019 with two Logitech standard mice and two standard, embedded trackpad.
- 4 Logitech proprietary scientific study, 2020.
- 5 Logitech July 2020 survey of 804 IT and business decision makers in organizations with 1,000+ employees (U.S.) and 500+ employees (Germany and China).
- 6 Logitech proprietary scientific study titled "Understanding How Mice and Touchpads Affect Posture and Muscle Activity During Laptop Computer Use," 2020.
- 7 Conte, et al. (2014). Kinematic and electromyographic differences between mouse and touchpad use on laptop computers. *International Journal of Industrial Ergonomics* 44, 413–420.
- 8 Tindula, Rob. "Is Your Employer Responsible for Ergonomic Related Injuries?" Thrive Global, 2 Nov. 2018, <https://thriveglobal.com/stories/is-your-employer-responsible-for-ergonomic-relatedinjuries/>
- 9 Welltok, "Millennials: Raising the Bar for Wellbeing," 2019.
- 10 GlobalWebIndex study, 2020.
- 11 Logitech proprietary scientific study, 2019.