

# Chapter XVI

## End User Computing Ergonomics: Facts or Fads?

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### ABSTRACT

*Until recent years, the end user computing ergonomic focus has primarily been on stationary computer use. A new trend for the end user is mobile computing. An increasing number of end users are working outside of the traditional office. Mobile computing devices allow for these workers to perform job functions while in the field, at home, or while traveling. The organizational and end user benefits abound for the use of such enabling technology. However, the mobile computing environment introduces a new area of ergonomic concerns. Are businesses and end users monitoring the use of these devices from an ergonomic perspective? The good news is the outcome can be influenced and/or determined with intentional efforts on the part of both end users and managers. This paper includes an in depth review of the current and emerging issues, especially the mobile end user environment, that is important to the end user, manager, and organization as a whole. It also provides end user ergonomic suggestions and resources and addresses the management challenges rising from ergonomic issues.*

### INTRODUCTION

A casual perusal of the current information technology (IT) literature supports the notion that interest in computing ergonomics is relatively low. Design improvements and technological advances have helped to reduce and even eliminate many of the early computing ergonomic problems.

However, any perception that computer ergonomics is yesterday's news overlooks two important computer use trends: expanding variety of use, especially as related to mobile computing and alternative office arrangements, and extended volume of use. These trends suggest that IT managers can expect a resurgence in ergonomic related challenges in the near future.

Expanding variety in the type of computer use is likely to be the real culprit in precipitating a rise in ergonomic challenges. PDAs (personal digital assistants), mobile computing, “hot desk-ing” (Hanson, 2004), and telecommuting are introducing new ergonomic challenges daily.

Until recent years, the computing ergonomic focus has primarily been on stationary computer use. Mobile computing is an exploding trend for end users working outside of the traditional office. Mobile computing devices allow for these workers to perform job functions while in the field, at home, or while traveling. Benefits abound for the use of such enabling technology.

For example, mobile devices allow salespeople to more efficiently perform the sales process from start to finish. With wireless connections and a laptop, up to date data regarding a particular product (availability, price, delivery options, etc.) are readily accessible for immediate use. Hand-held devices, such as PDAs, improve business processes by increasing portability. Data accessibility, immediate processing, and virtual office capabilities provide positive returns.

However, the mobile computing environment introduces a new area of ergonomic concerns. Is the ergonomic impact of the use of mobile devices being carefully monitored? Is the work environment while on the airplane suitable? What about the size of the keyboard on laptops or handhelds, especially as it relates to posture and vision? Is that so called “lightweight laptop” (including accessories) really lightweight? How are “shared workstations” designed to meet the specific needs of different users? Is the “home office” properly designed or is it “lowest cost furnishings” used in leftover space? Are mobile end users “making do” by adjusting themselves to fit the technology? If so, then an ergonomic dilemma may be just around the corner.

The extended volume of computer use is driven by three factors: the growing number of people using computers at work (Bureau of Labor Statistics, 2005), the expanding computing component

in existing jobs, and increasing work day length. To paraphrase, more people are using computers to do more things and escalating productivity demands are adding hours to the work day. One survey reports that 9 out of 10 computer users say that workstation setup ergonomic issues directly affect their productivity. Since almost half of the survey respondents use a computer for work 8 or more hours per day, it is clear that any impact on productivity has the potential to be significant. (The Comfort Connection, 2004) Even with design improvements and technology advances the sheer volume of use will extract a toll on workers.

This article includes a review of the important current and emerging ergonomic issues, especially in the mobile end user environment. It also provides suggestions and resources and addresses management challenges rising from ergonomic issues.

## **WHY ERGONOMICS NOW?**

Historically, the computer ergonomic emphasis found in research and the media was on musculoskeletal disorders (MSD), vision problems, and radiation effects, especially on pregnancy. (Clark, 2001) The research produced useful awareness of advice and products that reduced, or in some cases even eliminated, ergonomic concerns. Even with improvements, some of these problems, such as repetitive stress injuries (RSI) like carpal tunnel syndrome (CTS), muscle fatigue and neck and shoulder pain, remain a source of concern. Are businesses paying attention to these issues today? Should they be? Or is computer ergonomics an outdated fad?

A tight economy and the demise of federal regulations (Tahmincioglu, 2004), rather than resolved problems, may be key contributing factors to the reduced ergonomic emphasis. Does this mean that the potentially negative consequences have disappeared and are no longer of concern?

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