

Health and Ergonomics Study

January 2001 — December 2003

Fifteen months per company, two companies, almost 450 participants, four separate prestigious universities and research institutes, one independent health research and consulting company...

and results from the first company are in.

Employees who received the Leap chair and office ergonomics training experienced a 17.8% increase in productivity.

HWO

Health and Work Outcomes

Asking questions. Getting answers. Improving life.

Health and Work Outcomes coordinated the HEALTH AND ERGONOMICS STUDY which took place over a three-year period. This landmark study set out to use a “real world” setting to test the measurable effects of a highly adjustable office chair and ergonomics training.

Our research team looked specifically at:

[1] would there be a real health benefit, and

[2] would there be an increase in productivity.

If an increase in productivity was seen, the study would also evaluate how quickly that would produce a return on investment for the company.

This study worked with two U.S. companies. Participants included workers of all ages, both men and women, who typically spent most of the day in their office chair working at their computer.

In each company, study participants were divided into three groups:

- A group receiving Leap chairs and ergonomics training
- A group receiving ergonomics training using their existing office chairs
- A control group which received ergonomics training using their existing office chairs ONLY after the end of the study and all data had been collected.

After collecting baseline data, Health and Work Outcomes managed the intervention, consisting of the two elements: chair and training. The Leap chair, made by Steelcase Inc., is a highly adjustable, ergonomic office chair offering certain features not found on other chairs, such as the Live Back™ and Natural Glide System™. The custom training was designed by ergonomics experts and was implemented by HWO as an office ergonomics training workshop based on adult learning models.

The study went on in each company for nearly 15 months. During this time there was initial communication with employees explaining the study and inviting their participation and two months of baseline surveys (pre-intervention), followed by one full year of data collection post-intervention.

This report highlights some of the results from the first company. Data is still being analyzed from the second company.

More and more people are spending more and more hours sitting in their office chairs in front of their computers.

As the number of knowledge workers grows worldwide, so does the need for ergonomic products and programs that really make a difference.

Many studies have analyzed ergonomic programs, but since they generally look at overall changes to the office, it can be very difficult, even impossible, to tell *which* change really caused *which* benefit.

Health and Ergonomics Study

Study Procedures

Both objective and subjective information were used, with key data coming from online surveys participants completed. For the first week of each round of data collection, participants filled out their Daily Health Diary at the beginning, middle, and end of their work day. The following week they completed a 20-minute Work, Environment, and Health Survey. Each of 5 data collection rounds (two and one month prior to intervention, then two, six, and twelve months post-intervention) went through this process.

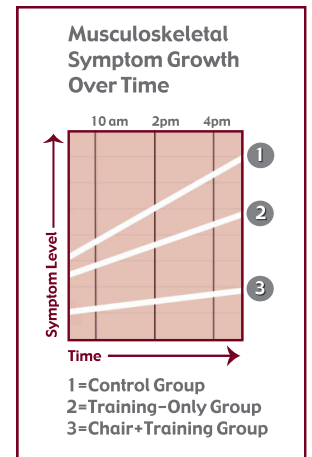
Ergonomists also observed participants, using the RULA (Rapid Upper Limb Assessment) and OEA (Office Environment Assessment) to record body postures and proper use of workstation equipment.

Productivity data was supplied by each company's human resources department.

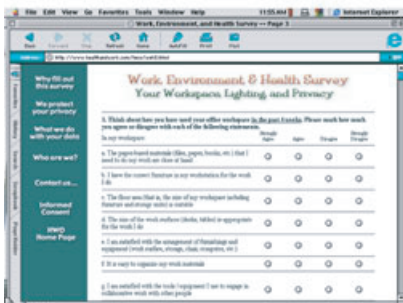
Study Results

Based on the data collected from the first company, both overall health benefits and specific productivity increases were seen in the group that received the Leap chair and office ergonomics training.

Employees showed a significant decrease in bodily pain and discomfort (musculoskeletal symptoms). These benefits showed up in two separate ways. One, they simply showed fewer symptoms overall than the other two groups. Even more interesting, the study showed that normally people feel greater pain at the *end* of the day, compared to how they felt at the *beginning* of the day. But in the Leap chair and training group, that increase was negligible. In other words, not only were they healthier overall, they were healthier for longer. The group that received training only (no new chair) did not show a similar symptom reduction over the course of the day, but did have lower pain levels overall compared to the control group.



In addition to the overall health benefits, the study also showed a 17.8% productivity increase. The first company involved in the study was a state organization that collected tax revenues. The Leap chair and training group had a significant increase in the amount of taxes they collected per hour worked. There was an average increase of \$6,250 per employee per month. "In contrast," reported Kelly DeRango, the researcher who led the productivity analysis, "the training only and control groups did not show any significant increase in productivity." Study findings suggest that businesses may benefit substantially by improving the seating of their office workers in conjunction with a training program in office ergonomic principles and practices.



REFERENCES

Amick III, Benjamin C; Robertson, Michelle M; Bazzani, Lianna; Rooney, Ted; Moore, Anne; Harrist, Ron. "Effects of an Office Ergonomic Intervention on Musculoskeletal Symptoms." SPINE Journal, December 15, 2003.

DeRango, Kelly; Amick III, Benjamin C; Robertson, Michelle M; Rooney, Ted; Moore, Anne; Bazzani, Lianna. "The Productivity Consequences of Two Ergonomic Interventions." Upjohn Institute Staff Working Paper No. WP03-95, May 2003, available at www.upjohn.org

Ben Amick, Ph.D., University of Texas, Health Science Center at Houston



Ben is an internationally recognized leader in building healthy workplaces. He received his Ph.D. from The Johns Hopkins University in 1986. From 1992 to 1999, Ben served as a research scientist at The Health Institute at Boston's New England Medical Center. He was also a faculty member at both the Harvard School of Public Health and Tufts School of Medicine. Ben is currently an associate professor at the University of Texas School of Public Health and a scientist at the Institute for Work and Health in Toronto.

Kelly DeRango, Ph.D., W.E. Upjohn Institute for Employment Research



Kelly is a research fellow at the W.E. Upjohn Institute for Employment Research which is internationally recognized for its research in labor economics and employment issues. He also researches urban labor markets and the effects of racial discrimination on housing and labor markets. Kelly received his Ph.D. in economics from the University of Wisconsin, Madison, in 2000. He earned an MBA from the University of Michigan in 1992, where he received a Ford Scholarship.

Ted Rooney, RN, MPH Health and Work Outcomes



Ted is a nationally recognized leader in workplace health. He received his M.P.H. degree from Loma Linda University School of Public Health in 1990 and his B.S. and R.N. degrees from Montana State University. He also holds a B.A. in Sociology from Hobart College. From 1984 to 1999, he managed employee health and disability programs for L.L. Bean. His leadership helped establish L.L. Bean as a company that is nationally known for caring about the well-being of its employees. He is president of Health and Work Outcomes.

CREDITS

The University of Texas Health Science Center at Houston

7000 Fannin, Suite 1200
Houston, Texas 77030
713.500.4472
www.uth.tmc.edu

W.E. Upjohn Institute for Employment Research

300 South Westnedge Avenue
Kalamazoo, Michigan 49007
269.343.5541
www.upjohn.org

Health and Work Outcomes

47 Rossmore Road
Brunswick, Maine 04011
207.729.4929
www.healthandwork.com

**For more information,
contact Ted Rooney,
Health and Work Outcomes
207.729.4929 or
trooney@healthandwork.com**

HWO

Health and Work Outcomes

Asking questions. Getting answers. Improving life.