

Ergonomic Study

LEAP PRODUCTIVITY AND HEALTH IMPACT STUDY

In a year-long study of over 200 participants, people who received the Leap chair and office ergonomics training achieved a 17.8% increase in productivity.



“Employees who received the Leap chair along with training experienced a significant reduction in musculoskeletal symptoms.”

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

As the number of knowledge workers grows worldwide, so does the need to design ergonomic programs that improve the health and productivity of these workers. So what creates a healthy, inspiring office that helps people do their best work—an ergonomic chair, a keyboard support, a window view, good lighting, great tasting coffee?

It's not the coffee.

Objectives

Many studies analyze the effectiveness of ergonomic programs, but since they look at overall changes to the office, they don't readily identify which changes actually led to reduced symptoms and injuries.

Leap® seating technology was designed based on extensive research of the human body and how to support it. The Leap chair had been proven, in biomechanic laboratory tests¹, to provide exceptional fit, movement, and support. The goal of this study was to test the measurable effects of the Leap chair and office ergonomics training on employees' well-being and productivity in a "real world" setting.

The study looked at three things:

- What is the real health benefit of an ergonomic program?
- Can an ergonomic program lead to increased worker productivity?
- How quickly can an increase in productivity yield a return on investment for the company?

"This study was one of the most comprehensive scientific efforts to link an ergonomic product and training to health, employee productivity, and return on investment for a corporation," said Ben Amick, Ph.D., University of Texas, Health Science Center at Houston.

The Study Team

Academic and research institutes in the U.S. and Canada participated in conducting the study and analyzing the results, including the University of Texas Health Science Center at Houston, W.E. Upjohn Institute for Employment Research, and other partners.

The research was coordinated by Health and Work Outcomes, an independent health research and consulting company.



"This study was designed to assess how well a highly adjustable chair and office ergonomics training could affect ergonomic knowledge, postural behavior, health and productivity." – Ben Amick

One year + over 200 participants = one in-depth study.

Study Design

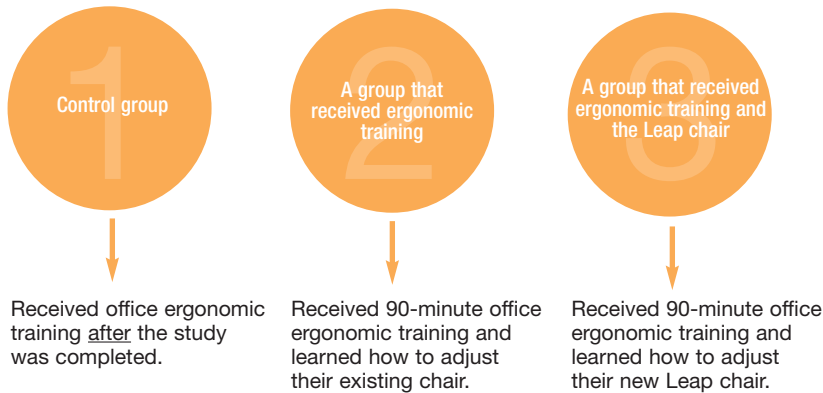
Two companies participated in the study, and hundreds of employees volunteered as test subjects. The results from the first company—tracking 200 knowledge workers for one year—are complete. By the time the entire study is complete, over 450 individuals will have participated.

For the first company, over 200 volunteers were selected from a state agency that collects sales taxes. In order to qualify, each participant had to spend at least six hours a day sitting in their chair, and at least four of those hours working on a computer.

Data was collected in two areas, over a one year period:
(see side-bar for detail)

A. Health Status B. Productivity

Volunteers were divided into three study groups:



A. Health Status Measures

Researchers created a baseline measure (the “before” measure) by collecting data prior to the ergonomic program. After the ergonomic program began, data was collected at two, six, and twelve months. During each data collection period, participants completed short symptom surveys three times a day for one week to rate pain in different parts of the body. They also completed a longer Work Environment and Health Questionnaire to rate overall pain and discomfort.

B. Productivity Measures

One of the most significant aspects of this study was that the productivity data was objective (amount of sales tax collected per worker in the first company), rather than a subjective performance measure. The agency provided data for revenue collected and hours worked for the eleven months prior to the ergonomic program (the “before” measure), and for the twelve months following the ergonomic program.

“The Leap chair-with-training group experienced a significant reduction in symptom growth over the course of the work day, compared to both the training-only group and the control group.” — Ben Amick

Feeling good makes good business sense.

Study Results*

The Leap chair-with-training group showed significant improvements in both health status and productivity.

Health Status Results

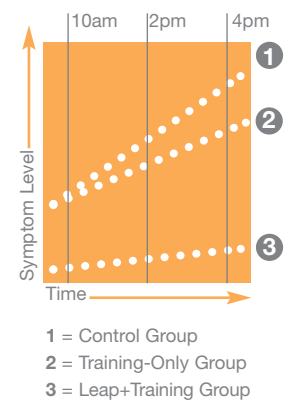
The employees who received a Leap chair and ergonomic training reported significantly lower pain and discomfort in their symptom surveys and in their Work Environment and Health Questionnaires. Their overall musculoskeletal symptoms were lower than the other two groups. But that's not all. Researchers made another interesting finding.

You can normally expect people to feel more discomfort at the end of a day of sitting, compared to how they felt in the morning. For both the control group and the training-only group, the data showed this was certainly true. However, for the people receiving a Leap chair, any discomfort at the end of the day was only a slight increase compared to the morning. So not only were the people who received a Leap chair more comfortable overall, they were comfortable for longer.

Productivity Results

The study results also showed an increase in productivity. After one year, the Leap chair-with-training group achieved a 17.8% increase in productivity. This number reflects the increase in taxes collected per hour worked, which was an average increase of \$6,250 collected per month, per employee. "In contrast," reported Kelly DeRango, the researcher who led the productivity portion of the study, "the training-only and the control group did not show any significant increase in productivity."

Musculoskeletal Symptom Growth Over Time



“The productivity benefits shown by the Leap chair-with-training group were quite large compared with the program’s costs. In contrast, the training-only group did not show any statistically significant changes in productivity.” — Kelly DeRango

* Individual customer results may vary from those shown in this study.

Comparing the cost of the Leap chair to the increase in productivity, this study determined that the Leap chair paid for itself in less than ten working days.

The Leap chair's design includes several unique features that can contribute to improved well-being and productivity.

Live Back™

The Leap chair's back changes shape to support the entire spine. This can reduce the chance of lower back sag and a hunched posture, which weakens disc walls, stresses back ligaments and causes deterioration of the spine.

Upper and Lower Back Controls

Upper back force control enables users to set the amount of "push back" that they desire as they recline, regardless of their body size. Lower back firmness control enables users to set a constant amount of firmness to maintain their lower back's natural curve.



Height, Width, and Pivot Arms

Arms telescope, pivot and adjust up and down so users can find a natural position that comfortably supports the wrists, forearms, shoulders and neck.

Natural Glide System™

Seat glides forward so users can recline without leaving their Vision and Reach Zone, so they stay oriented to their work. This encourages more varied postures so there's less static load on the spine.

Seat Edge Angle Control

Enables people to ease pressure on thighs and widen the angle between legs and torso without feeling like they're sliding out of their chair. Plus, shorter people gain nearly two inches of seat height.

Adjustable Seat Depth

People don't fit neatly into three average sizes. Leg and torso lengths can vary independent of a person's overall height. Adjustable seat depth accommodates different body shapes for long-term comfort.



**Leap Chair-With-
Training Group's
Productivity
Increase**

17.8%

In this study, individuals who received office ergonomic training and sat in Leap chairs increased average productivity by 17.8% after a year.

“Most importantly, the findings of this study suggest that companies may benefit by improving the seating of their office workers in conjunction with a training program in office ergonomic practices,” said Kelly DeRango. “Based on the findings of this study, we believe it can make good business sense for companies to provide Leap chairs to their employees.” As this study continues, the results from the second company will provide additional data to researchers on the effects of the Leap chair and office ergonomic training.

Resources



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

Dr. Amick is an internationally recognized leader in building healthy workplaces and developing new outcome-based measures of people's ability to enjoy their life and work. 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, world-renowned for its research on health outcomes. He was also a faculty member at both the Harvard School of Public Health and Tufts School of Medicine. Ben has also worked in the private sector as an ergonomics consultant and in management consulting with The Hay Group.

Currently, Ben is an Associate Professor at the University of Texas Health Science Center at Houston, School of Public Health.
www.benamick.com



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

Dr. DeRango is a research fellow at the W.E. Upjohn Institute for Employment Research. As an economist with the Upjohn Institute, Kelly is responsible for data analysis, instrument design, and program evaluation for projects sponsored by The Department of Labor, The Social Security Administration, and Health and Work Outcomes. He also researches urban labor markets and the effects of racial discrimination on housing and labor markets. Kelly received a 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.

Credits

The University of Texas Health Science Center at Houston

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

W.E. Upjohn Institute for Employment Research

300 South Westnedge Avenue
Kalamazoo, Michigan 49007
Tel. 269.343.5541
Fax: 269.343.3308
www.upjohninst.org

Health and Work Outcomes

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

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." Published in the December 15, 2003 issue of SPINE Journal.

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.upjohninst.org.

If you would like further information, please call 1.888.783.3522.