

Ergonomics

Leap Productivity and Health Impact Study

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Leap makes a measurable difference in two separate health and productivity studies.

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?

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 these field studies were 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?

"The fact that we were able to demonstrate similar health and productivity improvements in more than one type of business shows that the chair with office ergonomics training is a robust ergonomic intervention." said Ben Amick, Ph.D., University of Texas, School of Public Health.

"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

STUDY DESIGN

Two companies participated in the study, and over 450 employees at both locations were studied for one year.

Over 200 volunteers were selected from the first company, a public sector agency that collects sales taxes. The second company, a private sector insurance agency, had 250 participants. 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:

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 public sector company; calls completed and claims processed in the private sector company), rather than a subjective performance measure. The companies provided performance data 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 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

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-with-training, 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-with- training 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 up to a 17.8% increase in productivity in the public sector company. This number reflects the increase in taxes collected per hour worked, which was an average increase of \$6,250 collected per month, per employee. The private sector company achieved up to a 8.3% productivity increase in calls per hour and a significant increase in the quality of claims processed in the group that received Leap chairs and office ergonomics training.

“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.”

“It’s not surprising that workers do a better job when they experience fewer aches and pains while sitting in front of the computer. What is remarkable is not just the size of the effects but the fact that improvements were found in different work settings in two different companies,” said Kelly DeRango.

“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,” Kelly continues. “Based on the findings of this study, we believe it makes good business sense for companies to provide Leap chairs to their employees.”

“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

THE LEAP CHAIR’S DESIGN INCLUDES SEVERAL UNIQUE FEATURES THAT CAN CONTRIBUTE TO IMPROVED WELL-BEING AND PRODUCTIVITY.

LIVEBACK®

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 LOWERBACK 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, DEPTH, AND PIVOT ARMS

Arms telescope, pivot, move forward and backward 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.

FLEXIBLE SEAT EDGE

Eases pressure on thighs and widens the angle between legs and torso without users feeling like they’re sliding out of their chair.

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.

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.

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 a Professor at the University of Texas in Houston, School of Public Health.

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**KELLY DERANGO, PH.D.,
W.E. UPJOHN INSTITUTE FOR EMPLOYMENT RESEARCH**

Dr. DeRango works with health and productivity issues, combining that with an economic understanding. He worked as a research fellow at the W.E. Upjohn Institute for Employment Research. As an economist with the Upjohn Institute, Kelly was 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. 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. Currently he has a consulting business focused on health and productivity issues.

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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.

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