humantech®

The 30-Inch View®

Five Mistakes Companies Make with Ergonomics

By Walt Rostykus, CSP, CIH, CPE

About Humantech

About Humantech
For over 30 years, global companies have relied on Humantech for workplace improvements. By combining the science of ergonomics and our unique 30-Inch View®—where people, work, and environment intersect—we deliver practical solutions that impact safety, quality, and productivity. At Humantech, we believe people make productivity happen.

The 30-Inch View®
Within an arm's length of every employee are the obstacles to and opportunities for workplace improvement. A fresh perspective here—where people, work, and environment intersect—can have dramatic and far-reaching effects on the entire business. People make productivity happen: This is the 30-Inch View®.

Share this E-book!
www.humantech.com

humantech®

Workplace Ergonomics Services

Ergonomics Program Management

Humantech uses a practical approach to ergonomics management by applying a management system model that has the flexibility to fit an organization's structure and culture, yet is based on effective practices of leading employers in the industry. We provide implementation solutions by assisting organizations in developing strategic and tactical plans, ergonomics policies and standards, guidance documents, proactive program measures, and documents for program evaluation and review.

Workplace Ergonomic Assessments

Resolving workplace issues requires a data-driven approach to assessing and managing ergonomic risk. Our focus is on identifying low-cost, high-impact solutions in both industrial and office settings. Our RAPID Team Events® focus on creating solutions now, using a Find It – Fix It methodology. Cross-functional teams in a RAPID Event will identify challenges, brainstorm solutions, and implement immediate solutions during the course of a week.

Ergonomics Engineering and Design

Cost-effective, comprehensive solutions are derived by combining extensive industry experience with group problem solving and scientific ergonomic analysis. Humantech's engineering and design solutions improve productivity and profitability while accelerating health and safety excellence. We provide implementation support including design guidelines to accommodate 95% of the population, illustrations, and vendor and cost information.

On-Site Ergonomics Training Courses

Training is an essential element of a successful ergonomics process. Humantech has developed a worldwide reputation for outstanding ergonomics education. Our training programs emphasize a hands-on approach and are custom-matched to your work environment. Easy-to-apply assessment tools and problem-solving methods ensure that your staff develops the practical knowledge to identify ergonomics challenges, find the right solutions, and gain the support needed to implement those solutions.

Ergonomics Software Solutions

One of the major challenges with any improvement initiative is how to best use data to drive your efforts. Ergonomic risk data is critical to a successful ergonomics program, yet the data can be overwhelming. Humantech offers ergonomics software solutions to assist with turning data into information you can act upon. Ergopoint® Office Suite is an online training and management solution for the office environment. Humantech's RPM™ (Risk Priority Management) is a web-enabled software solution for industrial organizations seeking a tool to manage their ergonomic improvement process across the enterprise.

Call us today at 734.663.6707 to learn how Humantech can help you improve your workplace.

Share this E-book!
www.humantech.com

About Walt

Walt Rostykus, **Vice President** and **Ergonomics Engineer** for Humantech, has over 30 years of experience delivering and managing ergonomic, occupational safety, industrial hygiene, and environmental programs.

Prior to joining Humantech, Walt established and managed environmental health and safety programs for manufacturing and service operations at Hewlett-Packard, Compaq Computers, and Agilent Technologies. In addition, he was the Ergonomics Program Manager for Hewlett-Packard, guiding process implementation across the organization.

Walt received a Bachelor of Science degree from Washington State University in Pullman, Washington. He earned a Master of Science degree in Public Health, with a focus on Industrial Hygiene and Safety/Environmental Health and Sanitation, from the University of Washington, in Seattle, Washington.

Walt is a Certified Professional Ergonomist (CPE), a Certified Safety Professional (CSP), a Certified Industrial Hygienist (CIH), and has served as an Environmental Management System Lead Auditor. Walt and his wife live in Albuquerque, NM.

Share this E-book!
www.humantech.com

Contents

Share this E-book!
www.humantech.com

About this E-book

My job as an ergonomist and consultant is pretty cool. On a weekly basis, I get to step inside the operations of Fortune 1000 companies across the country. I see what works well and what doesn't. I see experienced employees performing activities that add extreme value to the business, but I also see that many other activities slowly rob workers of their health and morale and often hurt a company's productivity and bottom line.

This e-book was created for you if you are dealing with the challenge of improving the way people work at your company. I've boiled it down to the top five lessons learned from companies of all sizes, industries, and locations, to identify what has made them successful (or not) in managing workplace ergonomics. While this guide describes what not to do, I also include "keys to success" so you can avoid making these same mistakes when it comes to establishing an effective ergonomics process and driving real improvements in your workplace. You might even have an "aha moment" or two as you read.

to Success

But let's not stop there. I invite your comments, questions, and reactions to this e-book on our blog, The 30-Inch View. And if you enjoy what you read, please share it with colleagues and co-workers.

1

2

3

4

5

Share this E-book!
www.humantech.com

Introduction

Today's increased demand for proper ergonomic conditions in the workplace results from many factors including

- safer working conditions, which, in turn, have reduced the number of serious, acute injuries (amputations, burns, chemical exposures, lacerations, etc.). As a result, injuries caused by exposure to stresses over time (musculoskeletal disorders, or MSDs) are now more prevalent.

- more sedentary postures and/or highly repetitive motions.

- leaner operations, which increase work demands.

Ergonomics, as defined by NIOSH, is "designing the workplace and job demands to fit the capabilities of the working population." In other words, it is the practice of designing and locating the workplace, tools, and equipment so that their use is within people's capabilities. It's making the workplace and tools fit the worker—an approach to improving the performance of people.

> " Ergonomics is an approach to improving the performance of people. "

1

2

3

4

5

Share this E-book!
www.humantech.com

Over the past forty years, employers have begun integrating ergonomics into the design and operation of their organizations. The purpose of the traditional "ergonomics program" was to reduce MSD injuries. Through a series of benchmarking studies Humantech has conducted over the past 10 years, we have identified the practices and approaches of companies that are successfully managing ergonomics. But what does "success" in ergonomics actually mean? At Humantech, we define successful ergonomics processes as:

- **Effective:** They can solve a specific problem or issue. For some companies, the problem is the occurrence of MSD injuries and the high costs associated with them. Others focus on improving productivity and quality, or employee retention.

- **Efficient:** They can solve a specific problem with a low investment of resources (time, money, and people).

- **Sustainable:** Once a problem is resolved, they keep the issue in check. They maintain the improvement across time and changes (in leadership, programs, business focus, and business conditions).

- **Compliant:** In addition to solving a problem through ergonomics, they meet all local, regional, or national requirements regarding occupational ergonomics. A recent review of regulations found over 40 laws (state, province, or country) specific to ergonomics in the workplace.

The results of Humantech's benchmarking studies have been presented at professional conferences and in publications, and they are summarized in white papers on Humantech's website.

So where do companies go wrong? Read on.

1

2

3

4

5

Share this E-book!
www.humantech.com

1

A Focus on the Wrong Goal

The primary reason most companies strive to improve ergonomics in the workplace is to prevent injuries (MSDs) and reduce the costs associated with them. In the U.S., the traditional measure for safety is the rate of injuries and illnesses that must be recorded per OSHA recordkeeping requirements (IIR). Most organizations measure their ergonomics program by this general metric of consequence. To be frank, it's the wrong measure to use because the focus is on the consequence (injury) and not the cause (exposure).

First of all, because IIR is a measure of consequence, it will always be a lagging measure, tallying a score after the injury has occurred. And, the IIR is not specific to the risk factors that cause MSDs. IIR is dependent upon diagnosis and treatment by a health care provider, determination that the injury was work-related, and the quality of the injury investigation and root cause analysis.

Companies successful in ergonomics use a *leading* indicator to give them an early warning system of exposure to the causes of MSDs. They can then take action to prevent an injury from occurring. They proactively measure and track the level of exposure to MSD risk factors.

1

2

3

4

5

Share this E-book!
www.humantech.com

The three primary risk factors known to contribute to the development of an MSD are:

1. awkward posture,

2. high force, and

3. long duration and/or high frequency (time).

Through scientific research, we know the limitations of posture, force, frequency, and duration for each joint structure of the body (wrist, elbow, shoulder, back, etc.), and they are the basis for the *quantitative* ergonomic risk assessment tools available today. Using these tools, companies can determine where job tasks exceed the limitations of the body and which tasks are acceptable. The key point here is that you can address problem jobs before a person is injured.

Focusing on the cause (exposure to MSD risk factors) instead of the consequences (injuries) is like staying afloat in a leaking boat. Stop the leaks—don't wait until you have to bail!

to Success

Manage the causes (exposure to risk factors), not the consequences (injuries).

1

2

3

4

5

Share this E-book!
www.humantech.com

2

An Unsustainable Approach

Many organizations establish their "ergonomics program" by requiring a laundry list of elements to be in place including employee and management involvement, assessments, workplace changes, training, and injury management. But this dated, programmatic approach can result in a narrow mindset that ergonomics is

- owned by a few (typically the safety department),

- not well understood by most, and

- difficult to sustain as staff, leadership, and business conditions change.

Instead, companies should manage workplace ergonomics as a process—a **continuous improvement** process. Aligning key elements of ergonomics management with an existing, active improvement process (such as a quality process, continuous improvement process, or lean manufacturing system) results in more acceptance and widespread support. Managed as a process, ergonomics is

- owned by many, mostly those outside of the safety department (engineering, operations, managers, employees, etc.),

- understood and supported by all levels of the organization,

- familiar in process steps (for example, Plan, Do, Check, and Act),

- measured and tracked as providing payback (value), and

- sustained over time as people and business focus change.

1

2

3

4

5

Share this E-book!
www.humantech.com

The best approach to managing ergonomic improvements as a process is to

- establish a single, common goal based on reduction of MSD risk factors,

- use quantifiable, valid assessment methods to measure level of exposure to MSD risk factors, and

- align the elements of the ergonomics process to one the organization is already familiar with and using (PDCA, Six Sigma, OHSMS 18001, ASIZ10, etc.).

to Success

Manage ergonomics as a process, not a program.

1

2

3

4

5

Share this E-book!
www.humantech.com

mistake

3

A Narrow View

When interviewing operations and safety managers about ergonomics for our benchmarking study, I found that many of them saw ergonomics as a safety discipline, with an aim toward preventing injuries. This is a limited understanding of the application of ergonomics, and it keeps many organizations from achieving the full benefit of workplace improvements.

1

2

3

4

5

Share this E-book!
www.humantech.com

Companies that expand their view and application of good workplace design can improve many aspects of performance, not just injury prevention. The truth is that fitting the workplace and tools to the operator will not only reduce the causes of MSDs, but also

- reduce or eliminate non-value-added motions,

- improve productivity and throughput,

- reduce barriers to quality,

- improve operator comfort and acceptance of workplace changes, and

- improve employee engagement and morale.

Through our benchmarking studies and our experience with clients, we've found that companies successful in ergonomics engage their engineers (including space planners, maintenance, and new product designers) as full partners or owners of the ergonomic improvement process. They also integrate MSD risk assessment tools and ergonomic design principles into lean teams, kaizen events, quality teams, and other existing resources and tactics for performance improvement. Their results show simultaneous reduction of injuries, increased productivity, and improved quality.

to Success

Expand the ergonomics process to an engineering discipline that addresses additional aspects of performance, beyond just injury reduction.

1

2

3

4

5

Share this E-book!
www.humantech.com

mistake 4

Ineffective, Inconsistent Tools

Over 25% of companies we surveyed use some form of qualitative tool for conducting ergonomic assessments. Over half did not use design guideline criteria to define correct ergonomic dimensions and limits for workplace changes. The problem is that using subjective assessment methods can result in inefficiencies and frustration. Qualitative tools (like checklists) are good for screening the workplace to determine if an ergonomic issue might exist. But, there are as many versions of these qualitative tools as there are authors. Often, the result is an assessment that is not

- repeatable (different assessors measure differently).

- based on valid data.

- measurable (cannot be quantified and compared to a threshold).

- based on MSD risk factors or exposure time (instead, they measure workplace conditions).

- able to define the root cause of the problem or exposure.

Companies with effective ergonomics processes use a defined set of valid tools for conducting ergonomic assessments. The tool set typically includes qualitative screening for MSD risk factors, a whole-body risk assessment and manual lifting risk assessment (quantitative), and a push/pull/carry assessment (qualitative). For a limited number of industries, whole-body and segmental vibration assessments are conducted.

1

2

3

4

5

Share this E-book!
www.humantech.com

Using a small set of simple, shared tools allows everyone involved (employee teams, ergonomists, and engineers) to assess and measure exposures consistently, identify the root-cause exposures to MSD risk factors, and rank-order jobs for improvement. And, because quantitative tools provide a number or score, these results can be used to classify jobs as low, moderate, or high risk. This allows clear communication to management and a measurable goal (see Mistake #1).

The flip-side of performing ergonomic assessments is developing solutions. All too frequently, companies have poor or no design criteria, which causes frustration among those trying to make improvements. Anthropometric (measurement) tables, static strength tables, and design guidelines exist to ease the task of improving the workplace, tools, and equipment. Unfortunately, these resources are either not used or used incorrectly, resulting in workstation heights and tool sizes based on

- best guess,

- fitting the person designing it,

- fitting the average sized person, or

- employees preferences.

Companies that provide their engineers and space planners with ergonomic design criteria can require their use in the design review process. The design guidelines ensure that new tools, equipment, and workstations are designed to fit the working population and are not introducing new exposures to MSD risk factors.

to Success

Use a few valid assessment and solution tools appropriate for your workplace conditions and employees.

1

2

3

4

5

Share this E-book!
www.humantech.com

5

A Failure to Check

Whether you manage ergonomics as a program or a process, failure to close the loop (verifying that your workplace changes were effective in reducing MSD risk factors) will prohibit sustained success. Many companies focus on conducting assessments, which lead to solutions. These are changes to the workplace with the goal of improving fit to the employee. However, many organizations (about 40-60% of our benchmarked companies) do not conduct follow-up assessments to verify that the solution actually achieved the intended improvement.

Checking, or verifying that a change to the workplace has been effective, is a major step in the continuous improvement process (see Mistake #2), but it's also critical to ensuring that the same improvement can be duplicated elsewhere. This step is dependent on knowing the goal for improvement (Mistake #1), using the right measures (Mistake #2), engaging the right communities (Mistake #3), and using valid and repeatable measurement tools (Mistake #4).

Failure to close the loop will prohibit sustained success.
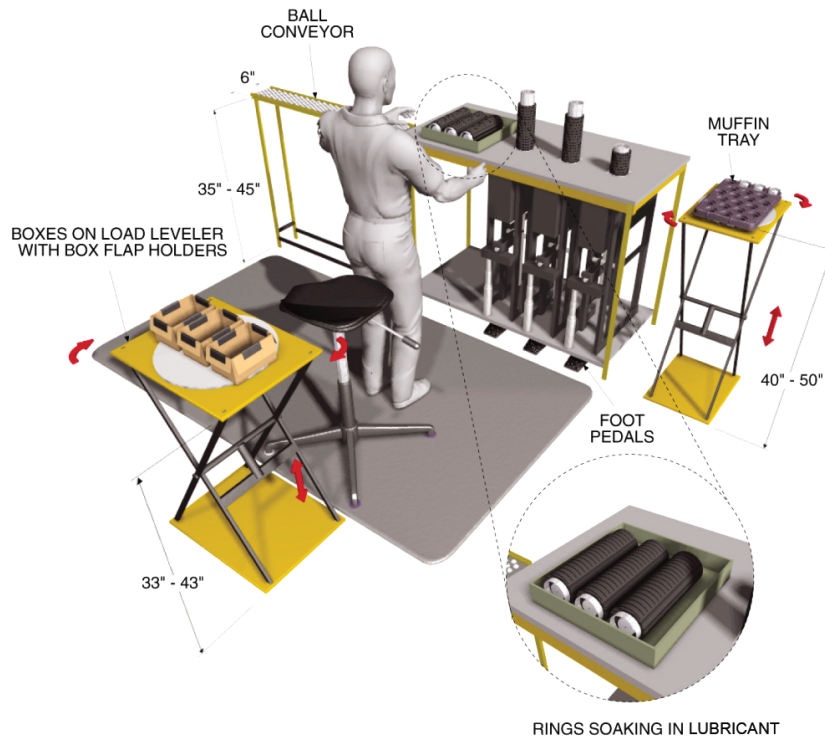
1

2

3

4

5

Share this E-book!
www.humantech.com

Without two data points (for example, level of MSD risk exposure), you don't know if the ergonomic solutions put in place were really effective in solving the problem or if they reduced the level of exposure to an acceptable level.

Organizations with successful ergonomics processes look at this "check" phase to ensure their efforts were successful. This occurs at two levels: (1) the improvement of an individual job task, and (2) the effectiveness of the overall ergonomic improvement process. The most common indicator used today is the percentage of job tasks at a low/no level of MSD risk exposure. Tracking this metric as a regular business performance measure will ensure you are proactively identifying and reducing exposures that cause MSD injuries.

BALL CONVEYOR
6"
35" - 45"
BOXES ON LOAD LEVELER WITH BOX FLAP HOLDERS
MUFFIN TRAY
40" - 50"
FOOT PEDALS
33" - 43"
RINGS SOAKING IN LUBRICANT

Always verify that the changes you've implemented reduce MSD risk exposure and achieve the intended results.

to Success

1
2
3
4
5

Share this E-book!
www.humantech.com

Final Thoughts…

So, you may be thinking, "Wow, there's a lot of information in this little e-book!" But hopefully most of it seems fairly common-sense. Simply put, effective management of any business, process, or program is based on doing what works and avoiding what does not. By sharing the top reasons why companies struggle with ergonomics, I hope to guide you away from unsuccessful practices (what does not work), and lead you to establish a basis for successful ergonomics management.

I have focused on the higher-level strategic issues because they really apply to all workplaces and the full range of companies, and they are the core foundation of an ergonomic improvement process. The tactical steps of improving ergonomics (training, assessments, workplace changes, employee involvement, and ergonomic design) will vary by workplace, company culture, resources, and size, but all depend on a strong foundation for success.

1

2

3

4

5

Share this E-book!
www.humantech.com

Additional Resources

But that's not all, folks! To help you take the next step toward a successful ergonomics process, we've compiled the following resources:

- **Benchmarking Summary.** Effective Ergonomics Program Management. In-depth interviews with Fortune 500 companies provide the basis for this series of benchmarking studies.

- **Ergonomics Process Self-Assessment.** Humantech developed this tool to help companies assess their existing program or process based on the Ergonomics Maturity Curve™.

- **Case Studies**. Browse through some impressive results in safety, quality, delivery, and cost, from Humantech clients.

- **Archived Webinars**. View recent recorded events presented by board-certified professional ergonomists and trainers covering topics like office ergonomics, justifying ergonomic improvements, sitting versus standing, and warehouse ergonomics.

1

2

3

4

5