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Five Critical Elements for Managing an Ergonomics Program

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Introduction

The long-term success of a company's ergonomics program is dependent upon a well-established foundation endorsed by leadership. Too many organizations have launched an ergonomics program without a strong foundation, only to have it "fizzle" when the business climate and direction change, or when key leaders change. Failure to start a program effectively results in loss of credibility and trust by employees and management, and wasted resources. We've identified key elements of successful and sustained ergonomics programs and summarize the top five in this paper. The findings are derived from over 30 years of Humantech experience, assisting a wide variety of Fortune 500 companies in establishing and improving the ergonomics of their workplaces. In addition, we've drawn from current research and five comprehensive benchmarking studies (Humantech 2011).

The goal of this paper is to share with attendees the elements of successful ergonomics program management, and to provide guidance for strengthening the strategic elements of their current programs in order to improve performance.

The five critical elements presented in this session are:

1. Target Cause
2. Common Goal
3. Top Down
4. Familiar System
5. Regular Checks

1. Target Cause

The goal of most company ergonomics programs is to reduce the incidence of musculoskeletal disorders (MSDs). Unfortunately, many companies use the total injury/illness rate and percent of

injuries attributed to poor ergonomics as their only measures. Both of these are lagging measures that tell managers where injuries have occurred, but they do not predict where they could occur. As a result, using these measures does not allow a program to move from a reactive to a proactive approach.

> People are not lazy. They simply have impotent goals - that is, goals that do not inspire them.
>
> − Tony Robbins

Successful ergonomics programs focus on identifying, measuring, and reducing the risk factors of MSDs. Research has identified these key risk factors to include awkward posture, high force, and long duration/high frequency (DHHS 1997a). In addition, secondary risk factors include vibration, cold temperature, impact stress, and soft tissue compression. These valid, known, and measurable risk factors are a means for quantifying employee exposure to MSD risk in the workplace, providing an "early warning system" for employers to anticipate and control the causes of MSDs (Choi 2010, Marley and Kumar 1996, David et al. 2008, Marras et al. 1999). This focus on MSD risk management aligns with the current practices of environmental and safety management systems (e.g., ISO 14001, OHSAS 18001, ANSI Z10).

Using quantifiable measures of exposure to MSD risk factors to focus efforts on preventing injuries is analogous to exposures to hearing loss, another cumulative trauma. If valid, quantifiable MSD risk assessment tools are used, and there are several available, the site can establish a risk map to know where ergonomic improvements are needed, based on risk exposure. Whole-body risk-assessment tools help identify the root causes of the exposure. Specialized assessment tools for the back and for vibration provide tools for finer resolution and assessment when needed in special cases. MSD risk-assessment tools should provide a reference point that allows the exposure level to be compared with an acceptable threshold level. This enables employers to determine if the exposure is an acceptable or unacceptable level. Furthermore, within the U.S., this approach aligns with the responsibility of employers, as stated in the OSHA General Duty Clause, "shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees."

2. Common Goal

A common goal, based on reducing exposures to MSD risk to a low- or no level, should be established for all involved in the ergonomics program. This also provides a proactive measure that enables people to anticipate and prevent injuries, and allows for objective measure of improvements at all levels of the organization. Leading companies using MSD risk-based measures typically establish a common goal for ergonomics to "reduce exposure to MSD risk factors to a low/no level of risk." This approach is proactive, staying focused on cause (exposure to MSD risk factors) rather than reacting to consequences (MSD injuries).

Ergonomics is not restricted to injury management and prevention. NIOSH describes occupational ergonomic as, "the science of fitting workplace conditions and job demands to the capabilities of the working population. Ergonomics is an approach or solution to deal with a number of problems – among them are work-related musculoskeletal disorders." (DHHS 1997b). Improved fit of the worker to his or her workplace has also been shown to improve other aspects of performance, including productivity, quality, and employee retention. When ergonomics is

applied to continuous improvement, lean manufacturing, quality, and other initiatives, additional goals are needed. These additional goals are most effective when they are based on measurable results. Monroe et al. (2012) noted "More often than not, existing ergonomics processes are considered separate initiatives by upper management and struggle to gain a seat at the table. To effectively maintain their programs, ergonomics program managers need to overcome those obstacles and demonstrate how ergonomics initiatives are a natural fit with continuous improvement philosophies."

Establishing a risk-based goal and tracking MSD risk reduction will enable individuals to focus on their roles in supporting an ergonomics program, and enable top management to hold them accountable for results within their areas of responsibility. Reduction of high- and moderate-risk tasks is tracked to hold plant managers accountable for performance across an entire operation, managers accountable for ensuring safety and preventing injuries within their departments, and supervisors accountable for the safety of their respective lines. MSD risk assessments and compliance to ergonomic design criteria are mechanisms used to hold engineers accountable for the quality of the tools, workstations, processes, and even the products they design.

3. Top Down

Commitment, sponsorship, and resources provided by top leadership are critical drivers to sustaining an effective ergonomics program. Engagement of top management is as critical as employee involvement but more difficult to establish and maintain. Without the top leader's commitment to an established improvement goal, resources for ergonomics team development and workplace improvements, and holding people responsible for results, the tactical program elements of workplace assessment and improvements do not happen.

> You don't lead by pointing and telling people some place to go. You lead by going to that place and making a case.
>
> − Ken Kesey

Leaders of organizations with successful ergonomics programs provide strategic ongoing drive for their programs through a few simple actions:

- Establish a common risk-based goal for the organization and a common measure of results.
- Provide resources needed to ensure the site plans and goals are met.
- Review and track program measures and progress to the plan on a regular basis.
- Hold the people who report directly to them accountable for results.
- Demonstrate their commitment to achieving the goal.

Gallup confirmed the power of engaged leaders in their 2013 "State of American Workplace Report." They "consistently found that leaders play the most significant role in driving employee engagement, so a greater effort made to engage more managers at every tenure level may hold the key to jump-starting workplace engagement nationwide."

4. Familiar System

Successful companies manage ergonomics as a continuous improvement process aligned with an existing, familiar system or process such as Continuous Improvement, Six Sigma, or Safety/Environmental Management System. This approach has many advantages over a program.

Traditionally, a program consists of several prescriptive elements that are not aligned in any order, are described in a written program document, and owned by one or a few people. Ergonomics programs are typically owned and driven by the safety department. Examples include the past publications by NIOSH and OSHA on ergonomics programs. In contrast, processes are based on a sequential series of steps that occur in a logical and systematic order, have a start and end point, are owned by and involve people across the organization, and tend to be sustained over time as people and business climates change. Examples include the Shewart (Quality) Cycle, ISO 14001, OSHAS 18001, ANSI Z10, CSA Standard Z1004-12, and the AIHA Ergonomics Program Guidance.

The elements of these published program and process approaches are the same. The tactical elements of the improvement process consist of the following (as aligned with the Shewart Cycle);

- Plan
  - Determine the areas of focus for improvement
  - Conduct screening and MSD risk assessment
  - Rank-order jobs for improvement based on MSD risk and opportunity
  - Establish improvement plans
- Do
  - Make changes (engineering controls) in the workplace to reduce level of MSD risk
  - Include ergonomic design criteria in new and modified equipment and tools
- Check
  - Conduct follow-up MSD risk assessments to verify reduction in risk level
  - Evaluate suspected MSD injuries using risk assessment tools
  - Evaluate and check on progress to improvement plans
- Act
  - Standardize proven engineering controls at similar workstations
  - Communicate progress and results
  - Address next area of focus

This approach works for all types of work environments including office, production/ manufacturing, delivery, field tasks, laboratory, health care, and more.

5. Regular Checks

“What gets measured, gets done. And what gets measured and tracked, gets done quickly.” This is a key element for sustaining an effective ergonomic improvement process, maintaining momentum and effort, and keeping the process a priority among ever-changing business challenges. Simply put, the common goal and improvement measures (element 2), which focus on the common goal (element 1), must be reviewed regularly and communicated by top management (element 3).

In benchmarking studies, we found that regular monitoring and tracking of ergonomics process measures, or checkpoints, was one of the delineators between ineffective and successful

ergonomic processes/programs. Common challenges reported by companies that struggled with maintaining an ergonomics program were, “Management does not care” and, “We don’t know if we are improving.”

Every business has processes for tracking performance, like throughput, quality, profit, etc. Tracking ergonomic performance is most effective when it aligns with the same method used to track business performance. At a minimum, this includes monitoring performance at three levels:

- Reduction of MSD risk factors achieved through workstation changes (engineering controls)
- Regular tracking of ergonomics process risk-based measures and progress to the common goal at least monthly, once the process is established
- Annual comprehensive evaluation of the site ergonomics process, including plans and system established, to determine if all elements are in place and effective

Regular checks provide the opportunity to see how, and if, the organization is progressing toward its common goal, and also to change and improve the process based on lessons learned.

Advanced Preparation

Although we’ve addressed the top five critical elements for managing an ergonomics program, there is another key element worth mentioning. Think of this as a bonus! Advanced engineering or Prevention through Design (PtD) are systems for anticipating and preventing the introduction of MSD risk factors, through good ergonomic design, in the design and selection of new tools, workstations, equipment, processes, and even new product design.

> It does not do to leave a live dragon out of your calculations, if you live near him.
>
> − J.R.R. Tolkein

The return on investment for PtD is significant (Goggins et al. 2008, Rostykus & Ip 2013, Mallon 2013). Plus, this approach allows companies to shift their efforts from changing and retrofitting the existing workplace to true prevention by designing the workplace to be low risk (or safe) from the start. However, the opportunities to practice PtD are limited by the frequency of change in equipment and tools and the uptake by production and process engineers.

> It is often suggested that ergonomics is a "fuzzy" discipline providing vague recommendations, while engineering specifications are well defined (if not exact), and this has contributed to many designers' views that ergonomics is simply common sense.
>
> − Haslegrave & Holmes (1994)

Incorporating ergonomics in Prevention through Design requires the following elements:

- Establishing expectation for engineers to provide good ergonomic design in all projects (i.e., low MSD risk exposure)
- Following a systematic review and approval process
- Applying common ergonomic design criteria
- Holding engineers accountable for the quality of their designs (for example, equipment/ tools are within the parameters of the ergonomic design criteria)

In a 2011 benchmarking study, we learned that only 33% of participants had created a new equipment review process for ergonomics. Typically, the review was tied to an

existing phase gate review and approval process. Sixty percent (60%) of participants did not have a process for reviewing ergonomics in new equipment and tools. Of those that did have a review process, half indicate the new equipment review and approval process was a "weak link" and/or needs to be improved. Their reasons included that it is not formal, not always used by engineers, not effective, not followed, engineers are not accountable, or it could be strengthened.

Advanced engineering (PtD) is an integrated and standard practice of companies with successful ergonomics processes; however, it takes effort and direction from top leaders to initially engage engineers in the process.

Conclusion

Currently, there are many interpretations of what ergonomics is and approaches to controlling MSDs in the workplace (Rostykus and Ip 2013). The tactical programs and tools vary widely, but the key strategic elements of successful ergonomics program management boil down to just a few. This presentation illustrates the five key elements for a strong foundation from which to build a program/process that is sustainable across time and business fluctuations, effective, efficient, and leverages evidence-based tools and methods.

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