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Five Critical Elements For Managing an Ergonomics Program

The long-term success of a company's ergonomics program is dependent on a well-established foundation endorsed by leadership. Too many organizations have launched ergonomics programs that lack strong foundations, only to have them fizzle when the business climate and direction change or when key leaders roll over. Failure to start a program effectively results in wasted resources, and loss of credibility and trust by employees and management. This article identifies key elements of successful and sustained ergonomic programs and summarizes top-performing programs.

Five Critical Elements For Managing An Ergonomics Program

The goal of this article is to share the elements of successful ergonomics program management and provide guidance for strengthening strategic elements of current programs to improve performance. The five key elements presented are:

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

Target Cause

The goal of most 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, rather than predict where they could occur. As a result, these measures do not allow a program to move from a reactive to a proactive approach.

As Tony Robbins says, "People are not lazy. They simply have impotent goals—that is, goals that do not inspire them." Successful ergonomic 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 (NIOSH, 1997). In addition, secondary risk factors include vibration, cold temperature, impact stress and soft-tissue compression. These valid, known and measurable risk factors provide a means for quantifying employee exposure to MSD risk in the workplace. This provides an early warning system for employers to anticipate and control the causes of MSDs (Choi, 2010; David, et al., 2008; Marley & Kumar, 1996; 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 exposure measures to MSD risk factors to focus efforts on preventing injuries is analogous to exposures to hearing loss, another cumulative trauma. Provided valid, quantifiable MSD risk assessment tools are used, 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 an exposure' s root causes. Specialized assessment tools for the back and vibration provide finer resolution and assessment when needed in special cases.

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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 OSHA's 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."

Common Goal

A common goal for an ergonomics program should be to reduce MSD risk exposure to a low or no level; this provides a common goal for every one to work toward. It also establishes a proactive measure that enables workers 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 ergonomics goal to "reduce exposure to MDS risk factors to a low/no level of risk." This approach is proactive, keeping focused on cause (exposure to MSD risk factors) instead of reacting to consequences (MSD injuries).

Ergonomics is not restricted to simply injury management and prevention. NIOSH describes occupational ergonomics 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" (U.S. Dept. of Health and Human Services, 1997). Improved fit of the worker to his/her workplace has also demonstrated improvements to 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) notes "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 pro- grams, 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 enables top management to focus individuals in their role supporting an ergonomics program, and hold them accountable for results within their responsibility area. Tracking the reduction of high and moderate risk tasks is used to hold plant managers accountable for performance across the whole operation, managers accountable for ensuring safety and preventing injuries within their department, and supervisors for the safety of their respective lines. MSD risk assessments and compliance to ergonomic design criteria are mechanisms that hold engineers accountable for the quality of the tools, workstations, processes and the products they design.

Top Down

Commitment, sponsorship and resources by top leadership are critical drivers to sustain an effective ergonomics program. Top management engagement is as critical as employee involvement but harder 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. Ken Kesey says, "You don't lead by pointing and telling people some place to go. You lead by going to that place and making a case." Leaders of organizations with successful ergonomic 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, key performance indicator (KPI) 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 its 2013 State of American Workplace Report. Gallup "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."

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 a safety/environmental management system. This approach has many advantages over a program. Traditionally, a program consists of several prescriptive elements that are not aligned, are described in a written program document and are owned by one or a few people.

Ergonomic programs are typically owned and driven by the safety department. Examples include the past publications on ergonomics programs by NIOSH and OSHA. In contrast, processes are based on a sequential series of steps that happen 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.

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

Plan

-Determine the areas 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 (e.g., engineering controls) to 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 focus area.

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

Regular Checks

A lesson learned early in one of the authors' careers is that "What gets measured, gets done. And, what gets measured and tracked, gets done quickly." This is a key element to sustain an effective ergonomics improvement process, maintain momentum and effort, and keep the process a priority amongst ever-changing business challenges. The common goal and improvement measures (common goal), which focus on the common goal (target cause) must be reviewed regularly and communicated by top management (top down).

In benchmarking studies, we found that regular monitoring and tracking of ergonomic process measures, or check points, were one of the delineators between ineffective and successful ergonomic processes/pro- grams. Common challenges reported by companies that struggled to maintain an ergonomics program were that "management does not care" and "we don't know if we are improving."

Every business has processes for tracking performance such as throughput, quality and profit. Tracking performance of ergonomic performance is most effective when it aligns with the same method used to track business performance. This includes monitoring performance at (the very minimum) 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. This should be done at least monthly once the process is established.

•Annual review of the site ergonomics process. A comprehensive evaluation of the plans and system established at a site 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 to change and improve the process based on lessons learned.

Advanced Preparation

Although we have addressed the top five critical elements for managing an ergonomics program, another key element is worth mentioning. Advanced engineering or prevention through design (PTD) are systems that anticipate and prevent the introduction of MSD risk factors through good ergonomic design in the design and selection of new tools, workstations, equipment, processes and new product design. The return on investment for PTD is significant (Goggins, Spielholz & Nothstein,2008; Mallon, 2013; Rostykus & Ip, 2013).

This approach also allows companies to shift 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," says Haslegrave and Holmes (1994).

Incorporating ergonomics in PTD requires the following:

•Establish expectation for engineers to provide good ergonomic design in all projects (e.g., low MSD risk exposure).

•Follow a systematic review and approval process.

•Apply common ergonomic design criteria.

•Hold engineers accountable for the quality of their designs (e.g. equipment/tools that are within parameters of the ergonomic design criteria.

A 2011 benchmarking study revealed 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 of participants did not have a process for reviewing ergonomics in new equipment and tools. Of those who did have a review process, half indicated that 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 ergonomic processes, however it takes effort and direction from top leaders to initially engage engineers in the process.

Conclusion

The concept of ergonomics has many interpretations, as do approaches to controlling MSDs in the workplace (Rostykus & Ip, 2013). The tactical programs and tools vary widely. However, key strategic elements of successful ergonomics program management boil down to just a few; they provide a strong foundation from which to build a program/process that is sustainable across time and business fluctuations, and one that is effective, efficient and leverages evidence-based tools and methods.

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