Nuts and Bolts of Effective Ergonomics Programs

Jill Kelby, PT, CEA
President
Kelby Ergo Design, LLC
Minneapolis, MN

Introduction

For the past 20 years the author has worked with numerous organizations on single ergonomics projects to developing, sustaining and improving ergonomics programs. Over the years it has become apparent that organizations continue to often misunderstand ergonomics and struggle to implement it successfully. Ergonomics is a term that is heard and talked about a lot with organizations and amongst safety professionals but yet having an effective ergonomics program still remains somewhat of a mystery. Many companies implement ergonomics programs with the idea that this will solve their injury problems. However, all too often they are left frustrated and disappointed in the results from their efforts. There are multiple factors as to why ergonomics programs fail to produce the expected results. This paper will discuss two of most common reasons for failure of ergonomics programs and describe the key elements that are essential for effective and sustainable ergonomics programs. These ergonomic program principles are applicable to all industries.

Most Common Mistakes in Ergonomics Programs

What are the common mistakes in ergonomics programs?

The two most common mistakes organizations make in their ergonomics program are:

1. Incomplete understanding of ergonomics and human factors. In most cases this involves using only the physical component of ergonomics and disregarding the other two components—cognitive and organizational.
2. Inclusion of other non-ergonomic methods to "control" injuries that limit the scope and effectiveness of ergonomics programs. Key misconceptions include:

The first mistake involves the inclusion of only the physical component of ergonomics while disregarding the other two components—cognitive and organizational. These two components are equally important to understand and integrate into the ergonomics program, as without them the likelihood for the continuation of errors and injuries will continue at the same rate.

The second mistake involves common misconceptions of ergonomics that inhibit the effectiveness of the ergonomics program. Typical missteps or misconceptions include the location

of ergonomics in non-optimal departments, the mindset that ergonomics is expensive, and that ergonomics focuses on posture, body mechanics and stretching.

5 Key Essential Elements for Effective and Sustainable Ergonomics Programs

Now that we listed the common mistakes in ergonomics the next question to ask is, "What are the key elements to include in an ergonomics program?" These elements are not the ones given by NIOSH for ergonomics programs or noted in OSHA's ergonomics program guidelines for variation industries. These elements look beyond them and take a 30,000' view on ergonomics programs from a business system and organizational structure perspective. This view allows the ergonomist or safety professional to focus on building the foundation of the program into the culture and existing business systems of an organization. These essential elements are based upon the author's years of experience in working with organizations that have had successful and sustainable ergonomics programs there are 5 key elements that are common to all of them. They are:

1. Use of a systems approach to ergonomics throughout the organization
2. Incorporation of ergonomics into the mission and strategic initiatives of the organization
3. Development of an effective business case by identifying and including all key stakeholders
4. Ergonomics performance standards built into job descriptions and/or performance reviews at all levels of the organization
5. Continuous evaluation and improvement of the ergonomics program

The first element is the use of a systems approach to ergonomics. A systems approach means to approach your ergonomics program as a system instead of a project. Thinking of the program from a project based mentality means there is a beginning and an end to ergonomics. On the contrary, successful ergonomics programs never end; they only improve and get better over time. A helpful graphic to explain the project vs. system approach to ergonomics this is the following:
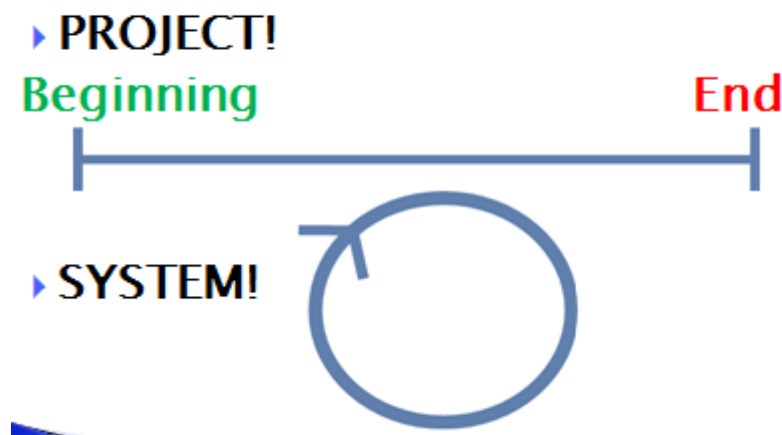
In addition, a systems approach is necessary to look at the whole (work) system and avoid "silo-ing" the ergonomics program and the issues tasked for resolution to one area or department. This will ensure that the program continually looks at issues from an organizational perspective as well as "problem area" itself.

The second element is the incorporation of ergonomics into the mission and strategic initiatives of the organization. It would probably be a very safe bet that ergonomics isn't mentioned in the mission and value statements of organizations. It might be listed as a strategic initiative, but again that would be highly unlikely. It typically isn't on too many organizations' top 10 list of things to accomplish in a given year. However, many organizations have strategic initiatives that are focused on increasing employee engagement, reducing production time/unit or improving quality. Those initiatives "code words" for ergonomics initiatives those initiatives require some or a great level of ergonomics to be successful. For instance, a company goal that is always there, even if not spelled out, is to improve the bottom line (profit margin), i.e. maximize revenues and minimize expenses. Ergonomics affects the bottom line by focusing on methods of improving workflow, human productivity and efficiency while reducing errors, defects and injuries. Oftentimes those who lead the strategic initiatives are not aware of how useful and effective ergonomics can be. The challenge in implementing and sustaining ergonomics programs comes from ignorance of organizational leaders regarding ergonomics and/or misperception and stereotype of ergonomics as just a "cost" or an "employee perk instead of a bottom line benefit.

The third element is the development of an effective business case by identifying and including all key stakeholders. The sustainable business case for ergonomics is not built only on safety numbers rather it is built on the return on investment for all stakeholders in the organization. The most common stakeholders aside from EHS are the following: plant manager, engineering/operations managers, human resources manager, supervisors and employees. The business case needs to focus on how ergonomics will benefit each stakeholder. Examples could include: Increased productivity and/or better quality for operations, improved employee engagement and satisfaction for human resources, increased profit margin for the plant manager, and reduced staffing issues such as less time needed for them to concentrate on return to work practices and risk management.

The fourth element is the inclusion of ergonomics performance standards built into job descriptions and/or performance expectations at all levels of the organization. Everyone within an organization has certain performance standards which they are expected to meet. Management positions are typically expected to meet or stay under budget while front line employees are expected to meet a certain production rate and/or complete tasks within a specified timeframe. The one way to establish ergonomics within an organization is to add specific ergonomics standards to each position's "score card". The cliché that states "what's important to my boss is important to me" is very true. If employees are held accountable for their participation in ergonomics then they will devote the time and attention to it. Not having a defined performance standard will allow ergonomics to be "lost" in the ever increasing and overflowing plate of tasks that employees are assigned.

The fifth element is the continuous evaluation and improvement of the ergonomics program. This is probably one of the easiest elements to incorporate for organizations that already have continuous process improvement systems in place, i.e. six sigma or similar. Ergonomics programs can fail or become irrelevant if the program isn't consistently evaluated. With any business system the need to measure, monitor and continuously evaluate is vital to ensure it is working as expected. By doing so weaknesses or gaps in the process can be identified early and actions taking to fix them before they become so large as to require a full reset. In addition, constant monitoring allows improvement to occur for things that are going well. Obviously having meaningful metrics is the key in this fifth element. A common question asked of metrics is how one knows they are the right ones, i.e. are they meaningful? I've found the easiest way to test metrics to see if they are meaningful and timely is to ask the following question: "How

effective is our ergonomics program *today*?" You know you have the right metrics in place if you are able to answer that question. If you cannot, then you need to revise your metrics.

A sixth element could be added to that list—that is the integration of ergonomics within the operational excellence/quality department and/or business systems of an organization. For example, ergonomics is being embedded into the organization's lean and six sigma (or other similar continuous improvement methodologies) program. This is because ergonomics by definition and design automatically brings added benefit and effectiveness to operational excellence programs.

Measuring Ergonomics Program Success

Once the ergonomics program is established the next step is measuring outcomes—how successful is the program. Metrics need be established for the program as a whole as well as for specific projects. The metrics need should include both health & safety metrics and productivity & performance metrics. The metrics should align with the goals of the key stakeholders involved. Below are examples of measurements that would align with common stakeholders:

- Reduction in injury incidence and/or rate
- Time savings (reduced cycle time)
- Reduction in errors and/or defects
- Reduction in employee turnover

Keep in mind the ergonomics program that an organization implements today should not be the same six months, 1 year, or 5 years from now. Organizations undergo changes on a continual basis, the same should occur in the ergonomics program. Using continuous improvement principles, the ergonomics programs should be measured, analyzed and improved upon on a regular basis.

Conclusion

In summary, the ideal foundations for ergonomics programs are the following:

1. Senior level management sponsor
2. Manage as a business system, i.e. proactive improvement process
3. Place ergonomics leadership in engineering or operations
4. Define roles and responsibilities at all levels
5. Establish leading goals and measures that speak to your stakeholders needs

Ergonomics programs go through phases on their way to maturity, from reactive to proactive to advanced. New programs at the beginning tend to focus on incident investigation and complaints. As programs mature they look at reducing risk. In the advanced stage ergonomics programs focus on organizational systems and evaluate the processes and/or products during conceptual design phase, i.e. before they are made, purchased, or implemented. Effective ergonomic programs depend on having a complete understanding of ergonomics, avoiding common pitfalls and continually advancing the knowledge and culture of ergonomics throughout the organization.

Bibliography

Meadows, D., *Thinking in Systems*. White River Junction, VT: Chelsea Green Publishing, 2008.

National Institute of Occupational Safety and Health (NIOSH), "Elements of Ergonomics Programs", http://www.cdc.gov/niosh/docs/97-117/pdfs/97-117.pdf. March 1997.

Occupational Safety and Health Administration (OSHA), "Guidelines for Poultry Processing—Ergonomics for the Prevention of Musculoskeletal Disorders", http://www.osha.gov/ergonomics/guidelines/poultryprocessing/poultryprocessing.html#process. 2004.