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Roles and Relationships for Making Ergonomics Change: Results of a 2-Day focus

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Roles and Relationships for Making Ergonomics Change: Results of a 2-Day focus session with industry personnel

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A series of group focus sessions were held with both union and management representatives who were involved in ergonomics programs in a number of different manufacturing facilities. This paper summarises the participant comments on important components of ergonomics programs.

1. Introduction & Methods

Focus groups are a useful approach to identifying and capturing the information, knowledge, and experiences of a group of individuals on a particular topic of interest. A series of three focus group sessions were held over the course of a 2 day ergonomics workshop held at the University of Waterloo. This workshop was held as part of the Ergonomics Initiative in Injury Prevention; a joint initiative between the University of Waterloo, General Motors of Canada, The Woodbridge Group, and A.G. Simpson Ltd. These sessions were attended by 42 people involved in ergonomics in the participating companies including both worker and management representatives. Each focus group session addressed a different aspect of the practice of ergonomics in industrial environments. The first session addressed objectives within the organisation which need to be considered and accommodated in a successful change attempt. The second session focussed on the various stakeholders and their possible roles in the ergonomics process. The third session addressed specific issues related to making change happen in these industrial environments. For each session three separate groups were formed and each group dealt with the same issues. The results were then collated and summarised.

2. Organizational Goals & Ergonomics

Ergonomics could affect the plant beyond just its health and safety operations and could benefit the manufacturing plant in the following aspects:

2.1 Quality - An ergonomically designed workstation would allow the worker to pay more attention to monitoring quality than to performing the operations. If an individual is working in pain, or struggling to keep up with an operation, then he/she is less likely to be as concerned with quality and more likely to make errors which result in decreased quality. Common problems may be decreased identification of quality issues, damaged or mishandled parts, and increased re-

work costs. Operations with high absenteeism may also be forced to use replacement workers who are not as familiar with the operations or the quality control issues in their new workstation

2.2 Health & Safety - Ergonomic principles can be used to control injuries resulting from physical loading on the job and to help injured workers return to work by controlling the physical loads at the injured workers station. A well-designed workstation can also help reduce unnecessary fatigue and may result in reduced numbers of accidents.

2.3 Production - Ergonomic changes don't necessarily slow production - in many cases it is possible to improve the ergonomics of a workstation and still maintain or increase throughput. The reductions in absenteeism due to ergonomics improvements can also help Production reach its targets more easily. The challenge for Production to decide when to invest time and money into ergonomics changes sometimes makes it difficult for the ergonomics committee to meet its goals and may contribute to problems in reaching production and profitability targets.

2.4 Early Return to Work - Ergonomics can be of assistance in returning an injured worker to work promptly by controlling/limiting the physical operations which the injured worker finds difficult to perform. While the collective agreement and the workers' own restrictions sometimes constrain the possible interventions, the ergonomic analysis can be useful information for the medical practitioner who is treating the injured worker.

2.5 Continuous Improvement - Ergonomics can be one of the tools used to demonstrate the existence and operation of a continuous improvement process. The ergonomics process provides an opportunity for the company to engage in a cooperative team-based approach to solving problems and issues in the plant - an ability which is much needed in a rapidly changing manufacturing environment.

3. The Players: Roles in Ergonomics

Successful ergonomic change demands the participation of a variety of people - it can't be achieved by a single person or group. Here are some of the players in the ergonomic process and the roles they might play in making ergonomics change in the plant:

3.1 Ergonomist - While an Ergonomist provides a local source of expertise in ergonomics, they cannot solve a plant's problems single-handedly. Instead the Ergonomist can act as a resource person for plant personnel, as a facilitator for solving immediate problems (e.g. work refusals), and as a trainer to educate workers and management on ergonomics issues. Although few plants have achieved it; the most cost effective use of an Ergonomist would be a pro-active role in ensuring that sound ergonomics principles are designed into plant operations right from the start.

3.2 Purchasing - Purchasing is a control point for the acquisition of tools and equipment which are used on the plant floor. Consequently, many of the decisions made during the purchasing process affect, for better or for worse, the ultimate ergonomic design of the target workstation.

At this time some purchasing departments are, some are not, part of the ergonomic process. However, few plants had a communications channel between the ergonomic and the purchasing processes.

3.3 Maintenance - Maintenance can play an important role in the ergonomics process of the plant as they are often responsible for building or installing the equipment to be used in the modified workstation. Regular maintenance of tools and assistive devices is critical in ensuring proper function and avoiding the jolting and increased effort associated with poorly maintained tools. While not always included in the ergonomics process, maintenance personnel can be helpful both in the solution development and solution implementation stages of the ergonomics change.

3.4 Supervisor - The line supervisor can be under conflicting priorities to maintain production schedules while trying to be responsive to operator complaints. The supervisor is management's closest contact with the ergonomics problems on the floor but he/she often lacks the training and tools to identify or handle these problems. Ideally the supervisor would have sufficient training to be involved in the ergonomics process in his/her area and would be given the authority and responsibility to handle these problems both proactively and immediately as they arise.

3.5 Union Leadership - Union leadership plays a supporting role in the companies' ergonomics process and can act as a resource to the plant representatives in reactive ergonomics. Union leadership can provide a strong voice supporting ergonomics issues and could be more active in promoting pro-active long term ergonomics strategies. In addition union leadership could help overcome some limitations to ergonomic intervention which result from clauses in the collective agreement.

3.6 Union Rep. - Union Ergonomics representatives are currently being given ergonomics training in many of the participating companies' plants. The union rep is one of the first people involved in the ergonomics issue and is involved throughout the process. The union rep often carries more credibility with the worker when trying to implement changes to a workstation and provides a communication link between the workers and management.

3.7 Worker - Poor ergonomic designs have adverse impact on workers. As a result, workers are often ergonomic problem identifiers (not the source of the problem). The worker is the local expert on the workstation. He or she has the most in-depth knowledge of the physical loading demands of the job and is a valuable asset to the ergonomics team. Workers are sometimes concerned about job losses relating to automation changes and technology improvements. Workers must be included in the change process as they are the ultimate users of any solution that is implemented. - worker buy-in is crucial to the success of any ergonomics intervention.

3.8 Ergonomics Consultants - Consultants can act as an external source of expertise who can provide technical measurements and access to the latest ergonomics information. Unfortunately there are no standards or certification for ergonomists so quality can be a concern. The

consultant may also lack an understanding of the specific work-place situation which could hinder the solution building process.

3.9 Engineers - The engineering staff must coordinate any ergonomics changes in workstations with the manufacturing process generally. For this reason the responsible engineer should also be involved in the solution generation process. Incorporating ergonomic principles in the job design stage is key to pro-active ergonomics and is a strategy being developed in many plants. Unfortunately, very few engineers have ergonomics training making pro-active ergonomic intervention during the job design stage very difficult.

3.10 Occupational Health Nurses - Nurses can provide detailed injury information which can be used to drive the ergonomic investigation process.

4. Making Ergonomics Change Happen

Implementing an ergonomic change can be difficult for a variety of reasons. People are generally resistant to change, old habits can be difficult to break, and some people will always be resistant to exploring new ways of doing things and/or unwilling to participate in the change process. Often there can be difficulty accessing the resources required to make a change in the way a plant gets work done. In each instance of ergonomic change then it will be necessary to include the right people in order to guide and push the particular change process through to completion. Most roadblocks to successful change come from an individual or group who are not directly involved in the change process and who have work priorities which conflict with the change process. For example:

4.1 Production - Production may be resistant to ergonomics changes due to concerns with down time during the change, loss of efficiency due to the change, and general concern due to the uncertainty involved in the ergonomics change process. Including a production representative in the change process is one of the best ways of ensuring that production concerns are addressed. Return to work and injury risk data are possible ways of justifying the need for change while time statistics and production monitoring systems can help address concerns about disruptions to production.

4.2 Accounting - This is one of the potential major roadblocks to making ergonomics change, especially for larger more expensive interventions. Many accounting systems require a 15-18 month payback period for any intervention and few ergonomics committees have a discretionary budget with which to work. In addition, the savings due to injury prevention, or the production benefits due to decreased absenteeism, are generally not well quantified benefits of ergonomic interventions. While WCB data can be used if a claim can be linked directly against a manufacturing process, this does not allow development of pro-active ergonomics interventions.

4.3 Union & Workers - Resistance to change is a common finding among workers who fear job losses due to “ergonomic” interventions. Other potential problems include the loss of recovery or

rest time due to ergonomic changes, conflicts between individual and collective interests, peer-pressure, or changes which disrupt the usual job seniority hierarchy. Most of these concerns can be overcome with good communications and by using participatory approaches so that the individuals affected in some way “own” the changes being made.

4.4 Medical - For most plants there appears to be very little communication between the clinician and the company. It was felt that the clinicians had very little understanding of the industrial work-place and that lack of involvement inhibits early return to work.

4.5 Engineering - The importance of ergonomic design for the engineer will depend on the priorities set by the engineer’s supervisor. Engineers need both sufficient knowledge and an appropriate priority list to ensure that a workstation is designed with both the operation and the operator in mind.

5. Conclusions

The results of the group focus sessions identified a number of ways that ergonomics can support existing programs and goals in industrial systems. By ensuring that ergonomic efforts are consistent with existing corporate goals it is possible to take advantage of existing momentum to achieve ergonomic objectives. Making sure everyone in the organisation is appropriately involved in the process and trying to achieve the same goals will result in better solutions and smoother implementation. Roadblocks can exist in any change process but careful planning and anticipation of possible problems can reduce the extent to which these obstacles slow the ergonomics process. While senior management was not discussed explicitly in these sessions the elements discussed are all intended to help secure necessary senior management buy-in. Management support is critical to any ergonomics activity within the organisation. Finally the results of this session can be used to integrate ergonomics change efforts with the existing corporate personnel and functions which will reduce the costs and delays associated with special projects while ensuring optimal solutions are implemented.

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Objectives

To identify important components of successful ergonomic programs

Methods

- 42 worker and management personnel
- 3 focus group sessions held over the course of 2-day Ergonomics Initiative workshop:
 1. Objectives within organisation to be considered during successful change attempt
 2. Stakeholders and possible roles in ergo process
 3. Specific issues related to ergo changes in industrial environments

Organisational Goals & Ergonomics

Ergonomics could affect the plant beyond its health & safety operations and may benefit the manufacturing plant in many aspects:

- Quality
 - allows worker to focus on quality
 - ↓ replacement workers
- Health & Safety
 - ↓ fatigue, injuries, accidents

Ergonomics change may affect:

- Production
 - maintain or ↑ throughput
- Early Return to Work
 - ergo analysis can help Health Care Practitioner understand job demands, ↓ loads
- Continuous Improvement
 - encourages team problem solving
 - ergo improvements as a CI element

The Players: Roles in Ergonomics

Successful ergonomic change demands participation of variety of people

- cannot be achieved by single person or group

Roles in Ergonomics

- Ergonomist
 - local source of expertise
 - resource person, facilitator, trainer
- Workers
 - identifier of ergonomics concerns
 - local expert on workstation
 - ultimate user of implemented solution



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Roles in Ergonomics

- Purchasing
 - decisions can influence ergo design of workstation
 - rarely formalised into ergo process
- Maintenance
 - implement changes
 - maintain tools
 - help develop solutions



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Roles in Ergonomics

- Supervisors
 - floor level management
 - recognise ergo problems
 - fast, proactive response
- Union Leadership
 - support ergo process
 - resource for plant representatives
 - promote pro-active ergo



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Roles in Ergonomics

- Union Representatives
 - involved throughout process
 - credible with workers
 - communication between workers and mgt.
- Ergonomics Consultants
 - external source of expertise
 - unfamiliar with workplace



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Roles in Ergonomics

- Engineers
 - key to pro-active ergonomics
 - solution generation
 - few trained in ergonomics
- Nurses
 - treatment of injuries, involvement in return to work
 - collection of injury info to drive ergo intervention
- Management
 - provide support (\$)



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Making Change Happen

Implementing ergonomic change can be challenging for a variety of reasons

- people resist change
- hard to break old habits
- groups unwilling to participate in process
- difficulty accessing resources

Most roadblocks come from an individual or group not involved in process



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Union & Worker Concerns

- job loss due to technology improvement
- decreased rest time due to changes
- conflicts between individual vs. collective interests
- interruptions of usual job seniority hierarchy
- ∴ must ensure strong communication lines and use participatory process for making change

Production Issues

- resistant due to down time during change
 - initial loss of efficiency with change
 - concern about uncertainty with ergo project
- ∴ should include a production rep to make sure issues are addressed, justify need for change with risk data, monitor production throughout process

Accounting Issues

- Many accounting systems require a 15-18 month payback period for intervention
- Savings due to injury prevention not well quantified

Conclusions

- Ergonomic efforts must be consistent with existing corporate goals
- Everyone in the organisation must be appropriately involved
- Potential problems must be anticipated and planned for
- Management must be supportive
- Continuous communication is critical

Roles in Ergonomics

- | | |
|------------------------|--------------------------|
| • Ergonomist | • Worker |
| • Purchasing | • Ergonomics Consultants |
| • Maintenance | • Engineers |
| • Supervisor | • Nurses |
| • Union Leadership | • Management |
| • Union Representative | |

Ergonomists

- Local source of expertise in ergonomics
 - resource person for plant personnel
 - facilitator for solving immediate problems (e.g. work refusals)
 - trainer to educate workers and management re: ergonomics issues

Purchasing

- Control point for acquisition of tools and equipment
- Purchasing decisions can influence ergonomic design of workstation
- Rarely formalized into ergonomic process

Maintenance

- Responsible for implementing changes
- Regular maintenance of tools required to ensure proper function
- Can be helpful in developing and implementing solutions

Supervisors

- Management's closest contact with ergonomics problems on the floor
- Should be educated to recognize ergonomics problems
- Given authority, can handle ergonomics problems both proactively and immediately

Union Leadership

- Supporting role in ergonomics processes
- Resource for plant representatives regarding reactive ergonomics issues
- Promotion of long term *pro-active* ergonomics
- Ensure language in collective agreement supports and fosters ergonomic change

Union Representatives

- One of first people involved in ergonomics issue and often involved throughout process
- Good credibility with workers
- Provides communication link between workers and management

Workers

- Identifier of ergonomics concerns
- Local expert on workstation
 - most in-depth knowledge of physical loading demands of job
- Ultimate user of implemented solutions

Ergonomics Consultants

- External source of ergonomics expertise
 - provides technical measurements and access to latest information
- Quality of expertise limited by lack of standards and certification for ergonomists
- May lack understanding of work- place situation

Engineers

- Incorporation of ergonomic principles at job design stage is key role to *pro-active* ergonomics
- Should be involved in solution generation process
- Very few engineers trained in ergonomics

Nurses

- Treatment of injury
- Return to work
- Provide detailed injury information that can be used to drive ergonomic intervention process

Management

- Provides support for ergonomics processes