NAOSH Week 2008

Participatory Ergonomics: Process and Implementation

Presented by
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Health Researcher.
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Who we are

The Institute for Work & Health is an independent, not-for-profit organization whose mission is to conduct and share research with workers, labour, employers, clinicians and policy-makers to promote, protect and improve the health of working people.
Presentation overview

Systematic reviews – what are they and how are they done?

Systematic review of Participatory Ergonomics Process and implementation

- Question
- Literature search
- Relevance quality and content
- Findings
What is a Systematic Review?

A research project that focuses on answering questions about the current evidence on a topic by:

- identifying,
- appraising, and
- summarizing the results of primary research

Minimize bias by using replicable, scientific and transparent approaches

Inform decision makers, e.g., clinicians, researchers, consumers, and policy makers
Steps of a Systematic Review

Develop question
  ▶ Researchers, stakeholders, key literature

Conduct literature search
  ▶ Researchers, stakeholders, library experts

Identify relevant publications
  ▶ Criteria based on answering question

Quality appraisal
  ▶ Adapting existing criteria, or developing new

Data extraction
  ▶ The data necessary to answer question

Evidence synthesis
  ▶ Stakeholders input about potential messages
Stakeholder involvement in systematic reviews

1. Stakeholder topic consultation
2. Initial research question
3. Literature search
4. Assessment of study
5. Dissemination of report
6. Report written and published
7. Stakeholder as review team member
8. Data extraction and evidence synthesis
9. Draft of findings drawn
10. Stakeholder reaction meeting
11. Stakeholder involvement in dissemination
12. Stakeholder input meeting
Participatory Ergonomics review:

**Title:** Participatory ergonomics interventions: implementation and process, a systematic review.

**Co-authors:** Donald Cole, Judy Village, Nancy Theberge, Marie St. Vincent, Kiera Keown, Judy Clarke, Quenby Mahood, Emma Irvin, Kim Cullen
Review question

“What is the evidence regarding context, barriers and facilitators to the implementation of participatory ergonomic interventions in workplaces?”

Definition of participatory ergonomics:

- Kuorinka, 1997 “practical ergonomics with participation of the necessary actors in problem solving”

- Our interpretation was to be inclusive but we felt that “workers” should be involved to be truly participatory
Literature Search

17 electronic databases searched
   - Including grey literature
Conference proceedings
   - Hand-searched
Content experts
   - International
Reference lists
Stakeholders

Over 2100 documents found
Relevance

Relevance: did the document describe a participatory ergonomics intervention or program

Not “how to” but describe an actual or attempted intervention

256 documents were relevant
Quality and content

Quality and content: developed criteria based on previous work

- Want to be able to trust the information in the documents
- Needed details in the documents to answer questions about PE process, facilitators and barriers
- 52 documents had content and quality to answer our question
What we found in the 52 documents

First of all:

Documents described PE from many different countries and industries

- So we think this will be helpful to anyone interested in PE

Reason for PE intervention was most often to reduce injury rates or absenteeism or improve return to work
Teams

A team was described in all of the documents:

- Department/work group (53.8%)
- Steering committee (46.2%)
- Change team (across dept) (40.4%)

Frequency of team meetings

- Varies greatly: once only, up to 4x/week
- Different teams meet with different frequencies

Length of team meetings

- When meeting length was reported it varied greatly: from 30 minutes to 2 full days
Training

Provided by
- Ergonomist (39.5%)
- Researcher (28.9%)
- Other (29.0%)
- Not reported (34.2%)

Who got training
- Workers (52.6%)
- Change teams (39.5%)
- Supervisors (23.7%)
- Senior management (7.9%)
- Other (18.4%)
- Unclear (18.4%)

Length of training
- Varied: 2 hours to 100 hours
- Single session vs. multiple sessions

Nature of training
- Most often “general ergonomic training” covering: mechanisms of injury, risk factors, identification of hazards (including training on tools), strategies for reducing hazards
PE process – how to do this

We used a Participatory Ergonomics Framework by Haines & Wilson (2002) that had 9 dimensions:

- Permanence
- Involvement
- Level of influence
- Decision making
- Mix of participants
- Requirement for participation
- Focus
- Remit (responsibilities)
- Role of ergonomic specialist
PE Process (PEF)

Permanence

Was the intervention a one-time process?

- Ongoing (61.5%)
- Temporary (28.8%)
- Unclear (9.6%)

<table>
<thead>
<tr>
<th>Ongoing</th>
<th>Ongoing participatory mechanisms ... more integrated into the structure of the organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporary</td>
<td>Participatory ergonomics mechanisms functioning on a temporary basis</td>
</tr>
</tbody>
</table>
PE Process (PEF)

Involvement

How were workers involved in this process?

- Full Direct (19.2%)
- Direct representative (78.8%)
- Delegated (1.9%)

<table>
<thead>
<tr>
<th>Involvement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Direct</td>
<td>Each employee participates directly in decisions about their work</td>
</tr>
<tr>
<td>Direct Representative</td>
<td>Employee representatives are selected to represent viewpoints of a large number of workers</td>
</tr>
<tr>
<td>Delegated</td>
<td>Representatives not actively representing the views of others but represent a typical subset of a larger group</td>
</tr>
</tbody>
</table>
**PE Process (PEF)**

**Level of influence**

Where were the changes focused within the workplace?

- Department/ Work group (44.2%)
- Entire Organization (51.9%)
- Group of Organizations (3.8%)

<table>
<thead>
<tr>
<th>Department/ Work Group</th>
<th>The PE process takes place in a department or workgroup within a single organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire Organization</td>
<td>The PE process takes place at a single organization or workplace</td>
</tr>
<tr>
<td>Group of Organizations</td>
<td>The PE process takes place across a number of organizations working or belonging to a group (such as a professional association)</td>
</tr>
</tbody>
</table>
PE Process (PEF)

Decision making

How were decisions made?

- Group consultation (84.6%)
- Group delegation (9.6%)
- Individual consultation (5.8%)

<table>
<thead>
<tr>
<th>Group Consultation</th>
<th>The PE team is encouraged to make their views known on work-related matters but management retains the right to take action or not</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Delegation</td>
<td>Management gives employees increased discretion and responsibility to organize ... their jobs without reference back</td>
</tr>
<tr>
<td>Individual Consultation</td>
<td>An individual worker is encouraged to make their views known on work-related matters but management retains the right to take action or not</td>
</tr>
</tbody>
</table>
PE Process (PEF)

Mix of participants

Outside of the team, who specifically was involved in the overall process?

<table>
<thead>
<tr>
<th>Internal specialist/Technical Staff</th>
<th>Internal specialist or technical staff (such as engineers, or health and safety specialists) involved in team</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Advisor</td>
<td>External advisor (such as ergonomic consultant from outside of company) involved in team</td>
</tr>
<tr>
<td>Cross-Industry Organization</td>
<td>Cross industry or organization personnel (such as industry association representative) involved in team</td>
</tr>
</tbody>
</table>

- Worker/Operator (100%)
- Line mgr/supervisor (78.8%)
- External advisor (65.4%)
- Internal specialist (61.5%)
- Senior manager (44.2%)
- Union representative (19.2%)
- Supplier/purchaser (3.8%)
- Cross-industry org (0%)
PE Process (PEF)
Requirement for participation

How were participants recruited?
Were workers selected or did they volunteer?

- Compulsory (13.5%)
- Voluntary (30.8%)
- Not Reported (55.8%)

<table>
<thead>
<tr>
<th>Compulsory</th>
<th>Participation required as part of job specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voluntary</td>
<td>Voluntary participation in PE process</td>
</tr>
</tbody>
</table>
PE Process (PEF)

Focus

What type of workplace change was the PE process attempting?

- Tools/equipment (84.6%)
- Work processes (63.5%)
- Workplace Organization (13.5%)

<table>
<thead>
<tr>
<th>Tools/equipment</th>
<th>Physical aspects of Equipment/ Workstation were the focus of the intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work processes</td>
<td>Design of Job Teams or Work Tasks were the focus of the intervention</td>
</tr>
<tr>
<td>Workplace organization</td>
<td>Workplace organization/ Policies or Strategies were the focus of the intervention</td>
</tr>
</tbody>
</table>
PE Process (PEF)

Remit (responsibilities)

What was the role of the workers within the process? How were they involved?

- Set-up/structure (30.8%)
- Monitor/oversee (40.4%)
- Problem Identification (98.1%)
- Solution development (98.1%)
- Implementation (88.5%)

<table>
<thead>
<tr>
<th>Role</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set-up/Structure Process</td>
<td>Involved in setting up or structuring the process</td>
</tr>
<tr>
<td>Monitor/Oversee Process</td>
<td>Involved in monitoring or overseeing the process of the initiative</td>
</tr>
<tr>
<td>Problems Identification</td>
<td>Involved in identification of problems</td>
</tr>
<tr>
<td>Solution Development</td>
<td>Involved in generating solutions to problems identified</td>
</tr>
<tr>
<td>Implementation of change</td>
<td>Involved in implementing change</td>
</tr>
</tbody>
</table>
PE Process (PEF)

Role of ergonomic specialist

At what stages of the process was the ergonomic specialist involved? How did they assist the overall PE process?

- Initiates/guides process (71.5%)
- Acts as expert (53.8%)
- Trains members (48.1%)
- Consultation (53.8%)
- Not involved (11.5%)

<table>
<thead>
<tr>
<th>Initiates and Guides Process</th>
<th>Ergonomist is key in initiating and guiding process as integral part of duties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acts as Expert</td>
<td>Ergonomist is part of the team to provide expertise in ergonomic matters</td>
</tr>
<tr>
<td>Trains Members</td>
<td>Ergonomist primarily focuses on training</td>
</tr>
<tr>
<td>Available for Consultation</td>
<td>Ergonomist is available for consultation as needed (therefore may not be member of team)</td>
</tr>
</tbody>
</table>
What changes were implemented?

Tools and equipment (83%)

Work Processes (54%)

Workplace organization (12%)

Unclear (14%)

* Note that multiple changes and effects could be presented in each document
What are the Facilitators / Barriers to PE process and implementation

<table>
<thead>
<tr>
<th>Facilitator/Barrier</th>
<th>Total #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support of PE program</td>
<td>39</td>
</tr>
<tr>
<td>Resources</td>
<td>36</td>
</tr>
<tr>
<td>Ergonomics training</td>
<td>36</td>
</tr>
<tr>
<td>Create appropriate team</td>
<td>29</td>
</tr>
<tr>
<td>Communication</td>
<td>27</td>
</tr>
<tr>
<td>Organizational training</td>
<td>21</td>
</tr>
<tr>
<td>Follow detailed plan</td>
<td>18</td>
</tr>
<tr>
<td>PE facilitator/champion</td>
<td>16</td>
</tr>
<tr>
<td>Working relations</td>
<td>15</td>
</tr>
<tr>
<td>Easy changes first</td>
<td>12</td>
</tr>
<tr>
<td>Climate of workplace</td>
<td>11</td>
</tr>
</tbody>
</table>

Other facilitator/barrier categories less reported include:
- resistance to change, production requirements, research issues, personnel turnover, awareness of PE, nature of work, intervention history
Facilitators - Support of PE (quotes from documents)

“Health and safety specialists and safety executives and management played an important role in the adoption of solutions and their support during the process was necessary. The CEO of the company opened this meeting ...to show commitment of top management.”

“Buy-in by top level management is critical to success. There were no dramatic changes until that occurred. Buy-in brought resources.”

“The support of coworkers was important for the operators in the working group. The operators said that co-worker’s attitudes had developed positively during the project...”
Barriers – Resources (quotes from documents)

“Major obstacles were lack of time to devote to the project and an insufficient budget. Insufficient resources.”

“Lack of funding would prevent fixing the problems recognized.”

“Not all of the changes recommended by the researchers or the changes recommended by members were implemented. Primary reasons for this were financial and organizational constraints within the organization.”
Recommendations from the review

Create PE teams with appropriate members
- including workers, supervisors and advisors

Involve the right people in the PE process
- Provide ergonomic training
- Involve a PE champion

Define participants’ responsibilities
- problem-solving, developing solutions and implementing change

Make decisions using group consultation
Facilitators/Barriers from the review

...most often reported in the literature:

Management support of PE intervention
Resources
Ergonomic training/knowledge
Creation of an appropriate team
Communication
Organizational training/knowledge
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Thank You

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