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# **Participatory Ergonomic Interventions in Meatpacking Plants**

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**DHHS (NIOSH) Publication No. 94-124**

## **ABSTRACT**

In-depth reports of intervention projects to reduce ergonomic hazards at three meatpacking plants are described. The projects used a participatory approach involving front-line workers, supervisory personnel and others organized into teams for such problem-solving purposes. The work at each site was directed by university investigators with expertise in ergonomics and, in one case, organizational behavior. They facilitated efforts in team-building and team function and furnished observations of the processes involved and assessments of results. Reports of the three site studies depict a variety of contexts and opportunities for observing the merits of a participatory team approach in dealing with ergonomic problems in the meatpacking industry.

In one case, the intervention advanced the company's initial efforts to develop an ergonomics program, providing training of workers and supervisors selected for teams to direct these efforts. In a second case, the corporate program already included use of ergonomics teams and the report described the team's progress in addressing selected problem operations at one plant site. In the third case, the plant had no prior experience in using a team approach in solving worksite problems and the effort described involved selecting and training the team members to analyze ergonomic problems in their operations and to propose remedies for implementation.

Findings from these various experiences include:

- Successful participatory ergonomics programs require strong in-house direction, support, and ergonomic expertise.
- Training programs must develop both teamwork and ergonomic skills among participants.
- Teams should include supervisors, maintenance and/or engineering staff (who will actually implement

recommended changes), as well as production workers engaged in the jobs being studied.

- Access to information, such as illness and injury data, is vital to proper team functioning.
- Realistic measurable goals need to be set and communicated.
- Evaluation criteria must be planned.

In providing general background for the individual case reports, the document also includes historical material referencing ergonomic problems in the red meatpacking industry and related risk of musculoskeletal injuries, and a review of the literature offering rationale for worker involvement in participatory approaches to problem-solving in workplace settings.

## FOREWORD

The National Institute for Occupational Safety and Health (NIOSH) conducts research to identify and evaluate workplace hazards. The objective is to establish a dose-response relationship between an agent and an adverse outcome to establish exposure limits and control measures. NIOSH research has contributed greatly to the knowledge of different occupational hazards and to recommendations aimed at reducing risk-producing conditions. A current priority of NIOSH is the application of effective control approaches to current and emerging workplace problems. In this report, three case studies are described using intervention efforts to control ergonomic hazards found in the meatpacking industry. The cases accent a participatory approach involving front-line workers, supervisors and others to identify and control ergonomic hazards in three different meatpacking plants. Team-building processes and functional activities are illustrated as are the lessons learned from these experiences. This is a forerunner of other NIOSH projects focussed on problem-solving strategies to complement its problem-defining research on workplace safety and health issues.



Linda Rosenstock, M.D., M.P.H.  
Director, NIOSH

## **ACKNOWLEDGMENTS**

In addition to the authors of the original case reports and the workers and managers of the meatpacking plants with whom they worked, the editors wish to thank the following persons for their advice, insight, and assistance in developing this project and this document.

Brad Joseph of Ford Motor Company, Bill Hopkins of Auburn University, Ray Donnelly of OSHA, and Mike Colligan, Dan Habes, and Marie Sweeney of NIOSH provided the Peer Review of the original project plan that resulted in the granting of three cooperative agreements to conduct the demonstration studies. Deborah Berkowitz of the United Food and Commercial Workers Union and Deborah Atwood of the American Meat Institute were helpful in the early planning stage by conveying the perspectives and concerns of their respective constituencies.

We also wish to thank Vern Anderson, Phil Bierbaum, Tom Bobick, Mike Colligan, Jim Gideon, Kathy Grant, Dan Habes, Janet Johnston, Jay Jones, Jim McGlothlin, Jack Parker, Marie Sweeney, and Joann Wess, our fellow members of the NIOSH team formed to carry out this project.

Finally, thanks are extended to Patricia Morris of Pat Morris and Associates for her assistance in editing the penultimate draft of this document.

# **EXECUTIVE SUMMARY**





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Ergonomic hazards in meatpacking jobs have been well documented. A participatory approach, using "ergonomic teams," has been suggested as an effective way to identify and solve ergonomic problems and reduce musculoskeletal injuries. Ergonomic teams involve personnel from various plant departments working together to identify and improve ergonomic problem areas. This project sought to examine the utility of participatory approaches to solve ergonomic problems through three demonstration studies at meatpacking plants. This document summarizes the findings of this project with introductory material, including a review of worker participation literature, case reports from these demonstrations, and a discussion of the lessons learned.

The literature review yields a set of pointers bearing on the success of using worker participation techniques. These pointers serve as reference markers to discuss the team-building processes and aspects of team performance observed in the three case studies.

The three case reports describe the observations and experiences of three different investigative groups. Each group collaborated with a different meatpacking plant and provided guidance in team building and ergonomic problem-solving processes, and applied various measures to characterize the effectiveness of such efforts.

Both similarities and differences are noted among the reports with regard to factors judged to be of consequence to worker participation and team problem-solving efforts such as management commitment, extent of training in both team building and ergonomic skills, representations on the team and/or higher level groups, information sharing, orderliness of team actions, motivational incentives, and techniques for evaluating results. Among the major lessons learned from the case studies or simply reaffirmed based upon the literature are:

- Sustained participatory efforts in ergonomics problem solving will require strong in-house direction and support plus significant staff expertise in both team building and ergonomics.

- Training in both team building and ergonomics can create the in-house knowledge and team activities reflecting an orderly approach to problem solving, and lays a strong foundation for a program.
- Team size should be kept minimal, but should include production workers engaged in the jobs to be studied, area supervisors, and maintenance and engineering staff who can effect proposed job improvements. Higher level management or labor representatives may also facilitate decision-making but their presence on teams may intimidate front-line workers and limit their input. These people may best serve on second level groups, providing oversight to the team activities and approvals of actions as may be needed.
- Effective team problem solving requires member access to, and sharing of, information bearing on the issues under study. In addition, reports on the team's objectives, progress, and accomplishments need to be circulated to the plant workforce to keep all parties informed about the program. Goals for the program need to be realistic and take account of the fact that solutions to some problems may not be immediately forthcoming. Opportunities to address and solve simpler problems can build confidence in newly formed teams and provide positive motivations about undertaking the tasks involved.
- Means for evaluating team efforts and results need to be written into the overall plan for a participatory ergonomic program. Varied techniques exist for measuring aspects of team building and team function, the perceived level of effectiveness, and performance in both subjective and objective terms. Such data will enable the teams to appraise their progress, provide feedback to affected or interested parties, and make suitable corrections where necessary to improve the overall effort.

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