



**Slide #1**

*Ergonomics in Action, A Guide to Best Practices for the Food-Processing Industry* is written to give management, “front-line” supervisors, and facility/maintenance personnel general guidance on how to reduce work-related musculoskeletal disorders.

The booklet uses a “best-practices” approach with examples that illustrate how actual food-processing facilities have reduced work-related musculoskeletal disorders. It includes ideas for making practical ergonomic improvement. Companies can reduce or eliminate the contributing factors (e.g., physical, environmental, individual, and work organization factors) that lead to the development of musculoskeletal disorders.

## How Can “Ergonomics in Action” Help?

- ◆ Learn how ergonomics can help reduce work-related musculoskeletal disorders.
- ◆ Find out if your workplace has contributing factors that can cause musculoskeletal disorders.
- ◆ Involve your employees in the ergonomic improvement process.
- ◆ Take action by using the three easy step-by-step work sheets to make your workplace safer.

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## Benefits of Using Ergonomics

- ◆ By fitting the work tasks to the capabilities of most workers, employers can:
  - ➔ Reduce or eliminate the contributing factors that lead to musculoskeletal disorders.
  - ➔ Decrease injuries, illnesses, and workers' compensation costs.
  - ➔ Decrease absenteeism and turnover.
  - ➔ Improve workers' health outcomes.
  - ➔ Increase employee morale and productivity.
  - ➔ Make it easier for workers to do high-quality work.

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## Improving Your Workplace

- ◆ What are ergonomic improvements?
- ◆ Which tasks should we improve first?
- ◆ How do we make informed choices about improvements?
- ◆ How do we know if our improvements are working?

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## Setting the Stage for Action

- ◆ Section 3 of *Ergonomics in Action: A Guide to Best Practices for the Food-Processing Industry* provides a “best practices” approach for improving your workplace.
- ◆ The booklet outlines a process to help you identify jobs with factors that contribute to musculoskeletal disorders and select tasks for ergonomic improvements.
- ◆ This ergonomic improvement process emphasizes:
  - Training employees
  - Involving employees
  - Developing an ergonomics team

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## Training Employees

- ◆ Train all employees on the symptoms and contributing factors associated with musculoskeletal disorders
- ◆ Educate employees on the benefits of ergonomics in the workplace
- ◆ Train employees on safe work practices and encourage the buddy system by having new employees learn the best practices from experienced employees
- ◆ Give employees an opportunity to learn new skills whenever new processes, procedures, tools, or equipment are introduced in the workplace

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#### Work Practice Training

For improvements to be effective, employees need to be trained thoroughly and given opportunities for hands-on practice with any new tools, equipment, or work procedures. The goals for training should include a mix of the knowledge and the skills needed to work safely.

Employees should always be informed of any workplace changes. Remember that you have gathered a lot of good information in looking at your work tasks and in considering improvements. Share this information and the materials in ***Ergonomics in Action: A Guide to Best Practices for the Food Processing Industry*** with your employees.

Inform employees about the:

- Factors that may contribute to the development of musculoskeletal disorders and ways of identifying these factors
- Types of improvement options and the process of implementing them in your workplace
- Nature of musculoskeletal disorders

Give some thought to how employees are trained. The most effective approaches for adult learners are interactive and involve combining:

- Multiple types of visual aids (e.g., pictures, charts, graphs, and videos of actual jobs or tasks at your workplace)

## **Ergonomics in Action: A Guide to Best Practices for the Food-Processing Industry**

- Hands-on exercises with new tools, equipment, or procedures
- Case studies that focus on problem solving in similar operations
- Small group discussions, brainstorming, and problem-solving sessions

Try to provide ample opportunity for questions and answers, and limit the use of traditional lectures or printed materials. Consider language and literacy issues among your employees when you train them.

Finally, remember that videos may be used as a training aid but they are not sufficient if used alone. Can you imagine how effective it would be to try to teach someone to drive or play baseball by just showing them a video?

## Involving Employees

- ◆ Employee involvement is the *key* to improving the work environment
- ◆ Open communication between management and employees
- ◆ Open communication allows for a flow of information critical to identifying contributing factors and solving problems

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**Involving Employees**

Employee involvement is the key to improving the work environment. Open communication between management and employees throughout the ergonomic improvement process allows for a flow of information critical to identifying contributing factors and solving problems. Once the communication channel is in place, it is time to form an ergonomics team. The members can begin looking for job tasks that may lead to fatigue and musculoskeletal disorders.

## Involving Employees *(continued)*

- ◆ Create an environment where employees can voice their opinion without fear of reprisal
- ◆ In a supportive environment, employees will be motivated to participate in the ergonomic improvement process
- ◆ Management needs to take action and follow through with suggested job improvements

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#### Developing a Supportive Environment

A critical aspect of a team approach is the creation of an environment in which workers have the freedom and are encouraged to voice their opinions without fear of reprisal. Such an environment makes employees motivated to participate in the ergonomic improvement process. Management will need to demonstrate the value of the team approach by taking action and following through with suggested job improvements.

## Developing an Ergonomics Team

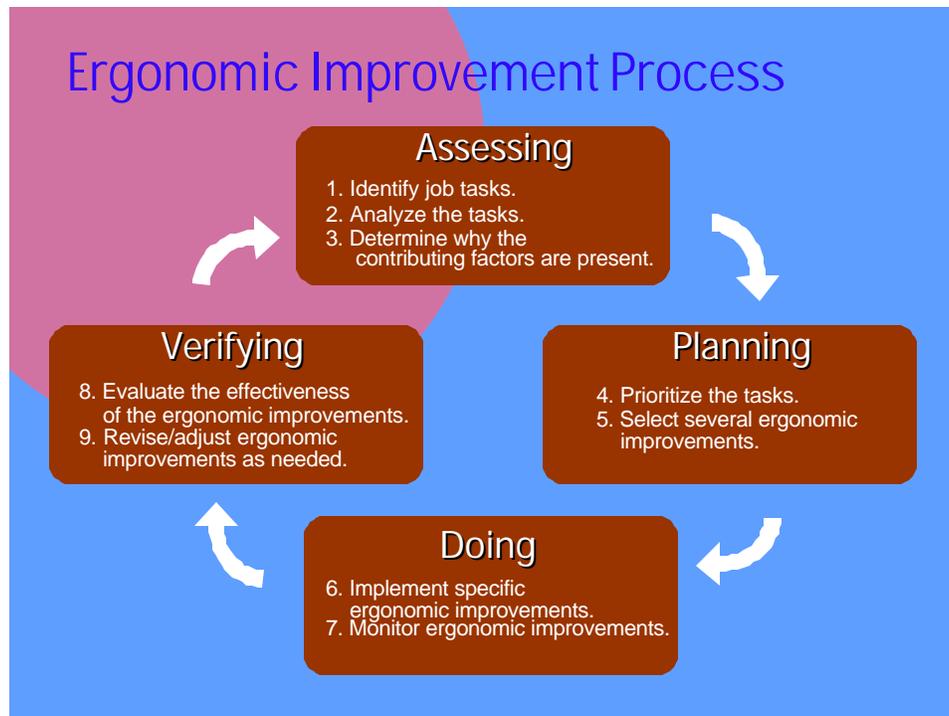
Include on the ergonomics team:

- production workers
- front-line supervisors
- engineering staff
- maintenance/facilities personnel

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When putting together an ergonomics team, you should include production workers because their opinions come from the users' perspective. Employees often know exactly what is wrong and how to fix it. When given the opportunity to participate in problem solving, workers closest to the problem will support, adopt, and use the improvements they helped to create.

The ergonomics team should also consist of front-line supervisors, engineering staff, and maintenance/facilities personnel. They understand how existing equipment works and whether the equipment can be retrofitted or modified. They may offer suggestions that can be easily implemented with minimal cost and mechanical intervention.

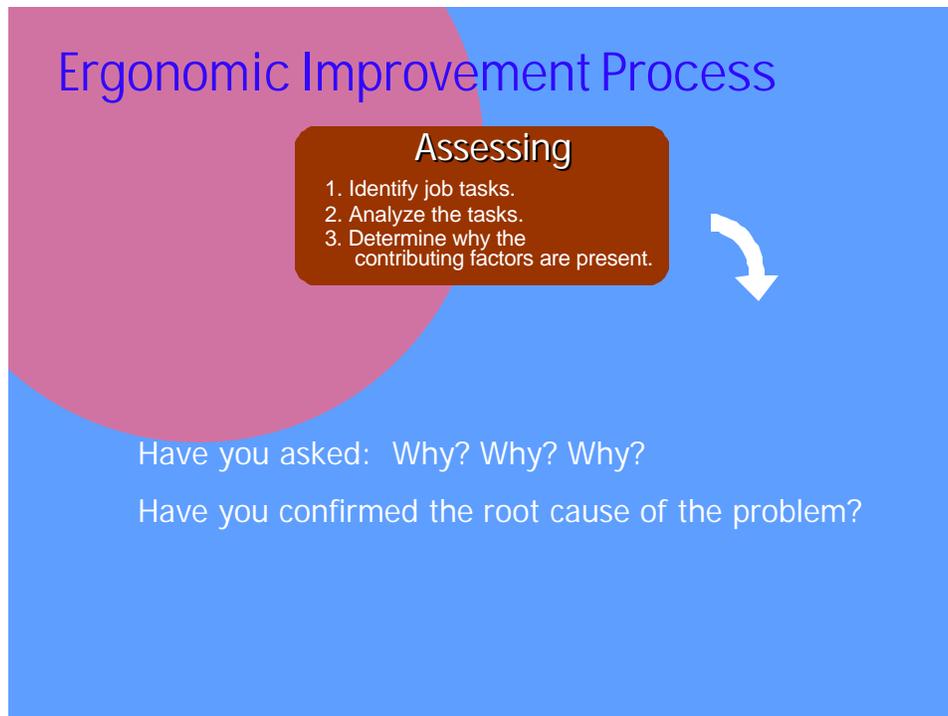


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**Making Improvements Step by Step**

Ergonomics should be thought of as a process of making improvements a little at a time rather than as a one-time “fix” or a “solution.” The workplace is a dynamic environment, always changing. Ergonomics is one way in which you can continue to improve the workplace. The process may mean looking at work tasks, selecting improvements and trying them out, looking again to see if they are working, making needed modifications, and so on. Some people refer to this process as continuous improvement.

**Slide #10** illustrates the ergonomic improvement process, which is similar to quality management concepts discussed in different management and leadership textbooks.



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**1. Identify job tasks.**

Try to find out which jobs may be contributing to musculoskeletal disorders. Look around the workplace, talk to employees, and be aware of early warning signs, such as:

- Employee fatigue or discomfort
- Employees restricting their movements or range of motion because of fatigue or discomfort (e.g., a stiff neck, sore shoulder, or backache)
- Employees modifying tools, equipment, or workstations on their own
- Employee reports of problems
- High absenteeism or employee turnover rates
- Poor product or service quality
- High error rates or waste of materials
- Customer complaints
- Production bottlenecks
- Missed deadlines

Besides talking to employees, you can determine the types, numbers, and severity of musculoskeletal disorders and particular work tasks associated with them by reviewing written records.

These records may include:

- Cal/OSHA Form 300, “Log of Work-Related Injuries and Illnesses”
- Cal/OSHA Form 301, “Injury and Illness Incident Report”
- “Employers’ and Doctors’ First Reports of Occupational Injury and Illness”
- Workers’ compensation claim records
- Medical or first aid records
- Workplace inspections, maintenance records, and incident or accident records

For each job you have identified as having contributing factors, rate the tasks in that job. For each task you have noted for this job, ask the employee who performs the work the following questions:

- How physically difficult is the task? (intensity)
- How often is the task done? (frequency)

Next, rate each task listed and multiply the two numbers together to get a total score for the task. The total score for the task is an indicator of the chances of developing musculoskeletal disorders. You may refer to this score later when you prioritize tasks for improvement. The higher the score, the higher will be the priority to seek improvements.

### **2. Analyze the tasks.**

Analyze the tasks by observing the work being performed in each job you have selected. Look at each task in the job separately. Begin with those tasks that receive the highest total score. Any tasks that are rated “very difficult” (i.e., score of 5) should be looked at immediately because they might contribute to fatigue and musculoskeletal disorders even if they are performed very rarely (e.g., on a seasonal basis). For each task, list the contributing factors you observe and describe the reasons or root causes for them.

Talk to each employee or a representative sample of employees who perform the tasks. Employees who perform the work can provide valuable information about why particular tasks are difficult and how they may be improved.

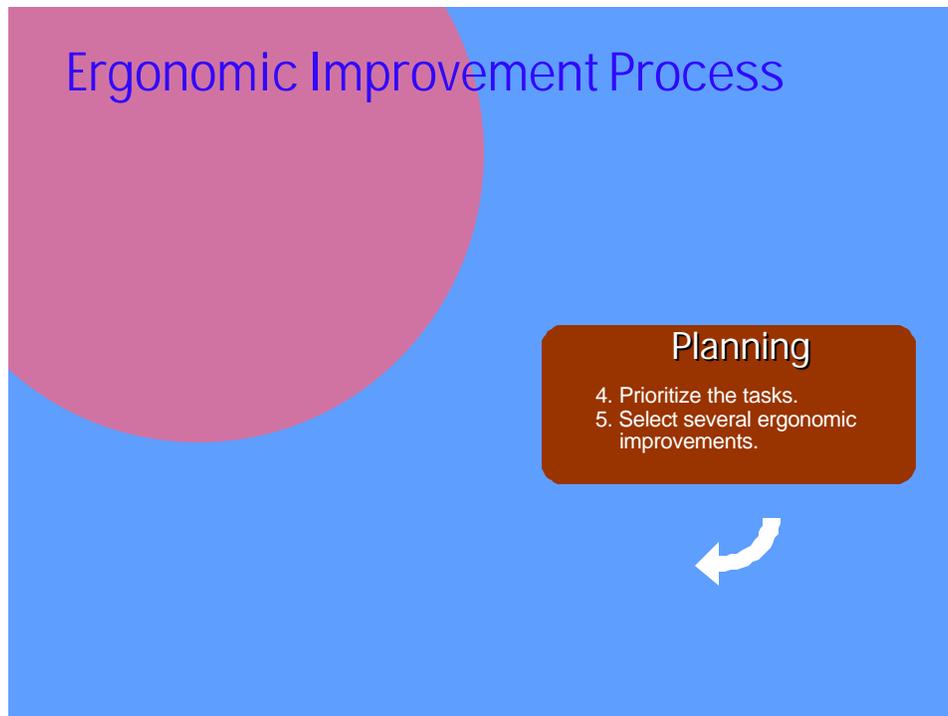
Note: Musculoskeletal disorders can be associated with a combination of risk factors in multiple tasks.

### **3. Determine why the contributing factors are present.**

How do you know when repeated movements, forceful exertions, and/or other contributing factors may lead to fatigue or symptoms of musculoskeletal disorders? It is important to uncover the reasons or root causes for contributing factors occurring in job tasks. Understanding the why is important because it allows you to fully understand the

nature of the problem and eventually come up with cost-effective ergonomic improvements.

Look at the whole system to find the root cause of the problem. Continually ask the question Why? Ask employees why they perform a task in a certain way. Try to follow the “why” questions back to the real reason for the problem. Do not try to solve the problem by coming up with ergonomic improvements until you have determined why the contributing factors are present.



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**4. Prioritize the tasks.**

Setting priorities will help to sort out which tasks to improve first. To determine which tasks to address, consider the following:

- Frequency and severity of complaints, symptoms, and musculoskeletal disorders
- Risk factors or other contributing factors you have identified in a particular task
- Technical and financial resources at your disposal
- Difficulty of implementing various improvements
- Your time frame for making improvements
- Employees' ideas for improvements
- Potential effects on productivity, efficiency, and product or service quality

Taking into account these important considerations or others in your organization, prioritize the tasks within each job you plan to improve.

**5. Select several ergonomic improvements.**

Next, for each task you plan to improve, identify several potential task improvements. Start with the tasks assigned the highest priority. For each task, focus on making a list of improvements that you think will most effectively address the reasons (root causes)

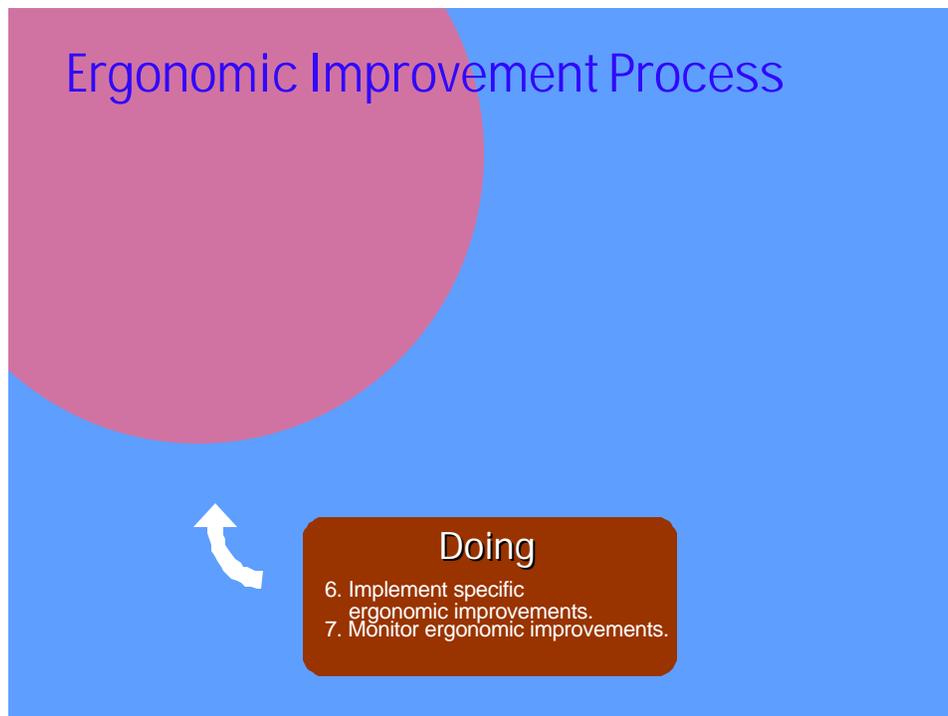
for the contributing factors or other issues identified. Remember that a single ergonomic improvement may reduce or eliminate multiple contributing factors.

At this stage the ergonomics team, with its open communication and employee involvement, can play a major role in coming up with cost-effective ergonomic improvements. Always involve employees and ask what improvements they think will work best. Improvements are more likely to be successful if employees are a part of the problem-solving process.

Once the team members have listed potential improvements for each task, evaluate each one separately by asking the questions listed below. Then mark or highlight the particular improvements selected for use in the workplace.

Will this improvement:

- Reduce or eliminate most or all of the identified contributing factors and the reasons for those factors?
- Add risk factors or other contributing factors that have not been previously identified?
- Be affordable for this organization (e.g., is there a less expensive alternative that could be equally effective)?
- Be feasible from an engineering standpoint?
- Be able to be fully implemented in a reasonable amount of time?
- Increase or decrease productivity and efficiency?
- Handle the required volume of work for the operation, job, or task?
- Increase or decrease the pace or volume of the work?
- Be accepted by employees?
- Affect employee morale in a positive way?
- Affect the rate of pay or a collective bargaining agreement?
- Require much training to implement properly (e.g., is there a simpler alternative)?
- Require training this organization can provide (either in-house or through outside experts)?



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#### **6. Implement specific ergonomic improvements.**

Now that you have selected specific improvements, it is time to try them in your workplace. Consider setting up a trial period to test new tools, equipment, or work practices. You may want to use one or more of the following arrangements:

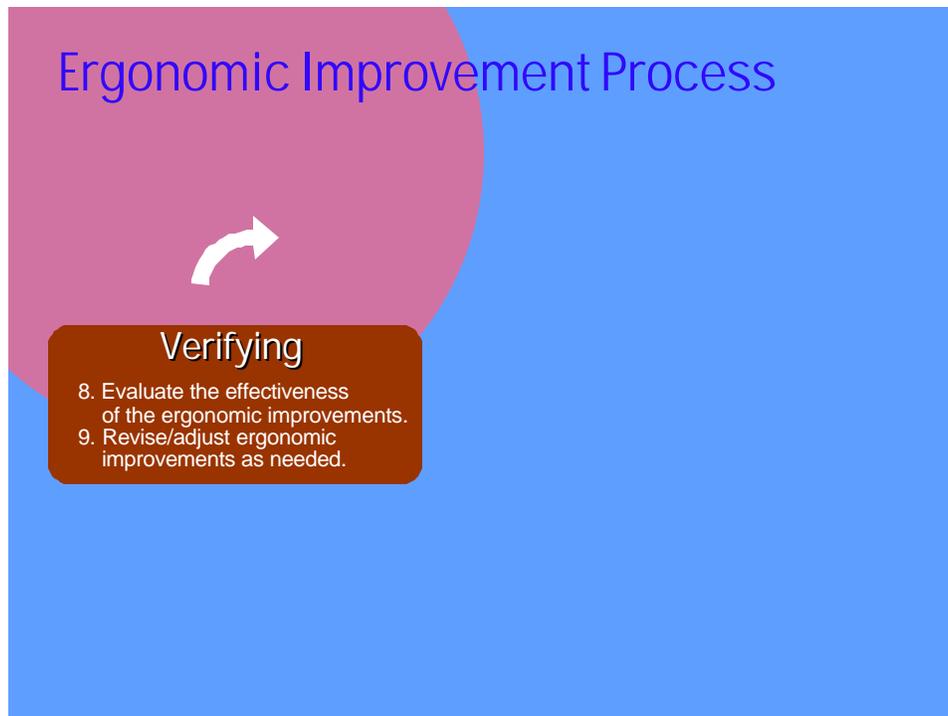
- Set up a mock-up of an improved workstation.
- Modify a single workstation first (put in full-scale changes to other workstations later).
- Insert an extra workstation on a full-speed production line.
- Provide demonstration periods for new equipment, tools, or work practices.

#### **7. Monitor ergonomic improvements.**

During the trial period, the selected improvements should be examined to determine how effective they are. Do not make final decisions on the effectiveness of the improvements until employees have had enough time to adjust to the changes. Employees should have a “break-in period” during which they have a chance to practice, at a slower pace, using the new workstation, tool, piece of equipment, or work practice and then ramp up to production speed. An adjustment period may prevent rejection of an otherwise beneficial ergonomic improvement. Some modifications may require employees to use new muscle groups or different parts of the body, causing employees to feel initially fatigued, tired, or sore. Remember to check periodically with

employees to find out how they think the improvements are working, and always seek their suggestions for further improvements.

Keep in mind that the process of improving the workplace is not exact. Do not expect to find the best solution right away. Expect to try out improvements, see how they are working, and either tinker with them or discard them in favor of alternatives.



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**8. Evaluate the effectiveness of the ergonomic improvements.**

After an appropriate adjustment period, evaluate the effectiveness of each improvement separately by asking questions.

Has this improvement:

- Had enough time to work (e.g., are employees used to the changes)?
- Reduced or eliminated fatigue, discomfort, symptoms, and/or musculoskeletal disorders?
- Reduced or eliminated most or all of the contributing factors and the reasons for them?
- Reduced or eliminated other identified problems and the reasons for them?
- Added any new contributing factors or other problems?
- Worked from a financial standpoint?
- Had a positive effect on productivity and efficiency?
- Matched the production requirements of the job?
- Had a positive effect on product and service quality?
- Been accepted by employees (e.g., raised employee morale)?
- Been fully implemented in a reasonable amount of time?

- Had a positive effect on absenteeism and turnover rates for jobs where changes were made?
- Been supported with the training needed to make it effective?

**9. Revise/adjust ergonomic improvements as needed.**

A good way to determine whether you have reduced or eliminated contributing factors or other problems associated with a particular task is to go back to step 1 and review the job task analysis process. Check to see if you need to adjust the ergonomic improvements that you have implemented.

## For More Information

- ◆ To receive a copy of *Ergonomics in Action: A Guide to Best Practices for the Food-Processing Industry*, fax a request to Cal/OSHA Consultation Service, Research and Education Unit at (916) 574-2532.
- ◆ Cal/OSHA Consultation Service has a series of publications designed to assist employers and employees in California.
- ◆ Current Cal/OSHA publications may be viewed, ordered, and downloaded from the Department of Industrial Relations web site:

<http://www.dir.ca.gov/dosh/puborder.asp>

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