



Unit 2

Identifying and Assessing Ergonomic Hazards

Learning Outcomes

By the end of this unit the learner will be able to:

- ✓ Assess your environment for ergonomic hazards, create ways to resolve those issues, and plan for implementation
- ✓ Review and evaluate your ergonomic efforts
- ✓ Use change management techniques effectively

Unit 2

Identifying and Assessing Ergonomic Hazards

How to Identify Ergonomic Hazards

Identifying possible hazards is the first step in making the workplace more ergonomic. This is a task that the ergonomics team can take on, with the assistance of all employees in the workforce. The purpose of this step is to identify areas that appear to have ergonomic issues. The next step will be to assess the severity and impact of these issues.

Because there are so many variables to consider from workplace to workplace, hazards will differ depending on where you are. However, here are some of the most common types of hazards.

Area	Description
Biomechanical	Hazards posed by person's posture, movement, and actions
Operative	Hazards caused by human interaction with systems and machines
Environmental	Hazards caused by environmental factors, such as noise, light, and air quality

Now, let's look at how to identify where hazards may exist.

Look at safety data.

Review safety and injury data and look for patterns that might point to an ergonomic hazard. You are looking for non-specific complaints like headaches, back pain, hand and wrist pain, etc. Also be on the lookout for specific disorders like carpal tunnel syndrome, carpet-layer's knee, and other industry-specific ailments. (If you are not sure what to look for, look at worker's compensation data for your industry and region.)

Perform a job analysis for each position.

Although this can be time-consuming, it is the best way to identify ergonomic hazards. With this method, you review each job thoroughly, looking at each task that the job entails and the methods used. Ideally, this analysis will be performed with the employee. You can also use pictures and/or videos if available.

Remember, you are looking for:

- Frequent and/or heavy lifting, pushing, and/or pulling
- Extended time spent in awkward postures (such as holding a piece of ceiling drywall up for several hours of the day)
- Exposure to excessive noise and/or vibration (commonly through hand tools)
- Frequent, forceful, and/or lengthy exertion

Also be aware of exacerbating factors like:

- Multiple factors present
- People being exposed to a risk for lengthy periods of time
- Extreme temperatures

Look at production data.

Production problems can also point to ergonomic issues. Look for quality problems, bottlenecks, and/or recent slowdowns. See if there is a documented solution to these issues; if not, include these areas in your assessment for further evaluation.

Ask about complaints.

Are the typists always complaining about sore necks? Does the warehouse team grouch about the super-bright light? Does the packaging team grumble about the hard plastic chairs? Although objective, these are all signs that an ergonomics problem exist. Take them seriously and perform a further assessment.

Use software.

There are many software packages out there that can analyze common workplace scenarios, identify possible ergonomic hazards, and offer tips for improvement.

An Assessment Toolkit

Once you have identified possible hazards, you need to perform a more thorough assessment.

Use a checklist.

A checklist can help organize the analysis and ensure that nothing is missed. It can also help identify common industry hazards. However, it may be too comprehensive or it could exclude aspects particular

to your workplace. If you're going to use a checklist, have the ergonomics or safety committee review it first to ensure that it is applicable and appropriate.

Use lifting calculators.

Take the guesswork out of whether a lifting task is safe or not by using calculators to determine how much strain the worker is putting on their body. There are many formulas out there; consult with your regulatory organization to find the best one to use.

Have employees complete a symptom survey.

Symptom surveys ask employees to identify areas of discomfort and check off terms to describe that discomfort, like aching, burning, swelling, stiffness, weakness, etc. Or, they are asked to rate the level of pain that they feel in that area. Ensure that these surveys are legal in your jurisdiction. As well, be sure to have them approved by your human resources and legal teams before using them. Confidentiality policies and limits of data gathering should also be clearly outlined and adhered to.

Complete employee interviews.

Another method of assessing the severity of an ergonomic hazard is to interview employees. Questions to ask include:

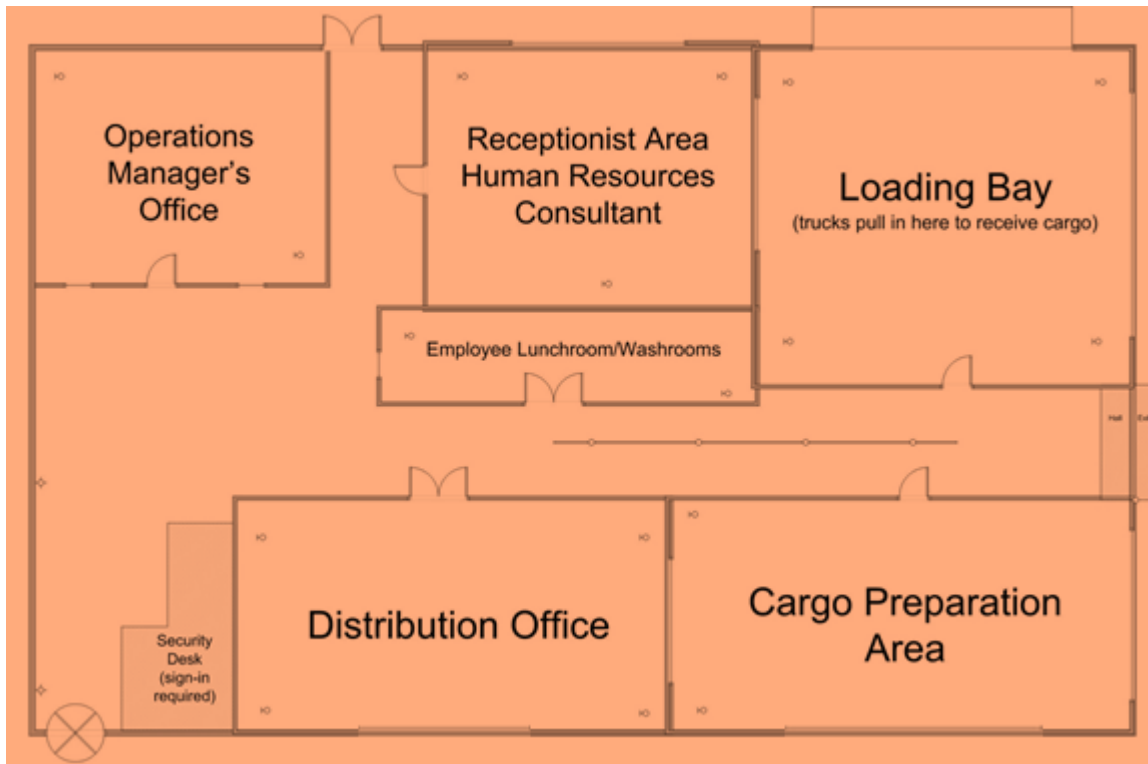
- What kind of work do you do?
- What lifting, pushing, or pulling is involved in your work?
- How many hours a day do you spend at a computer or other machine?
- What repetitive tasks do you perform?
- How long does each task take?
- Do you feel tired during a particular task?
- Do you feel pain or discomfort during a particular task?
- What health problems do you have (diagnosed or undiagnosed)?
- How do you sleep at night?
- What concerns do you have?
- What ideas do you have for improvement? What else would you like to share?

Remember, have questions approved by your human resources and legal teams before using them. Confidentiality policies and limits of data gathering should also be clearly outlined and adhered to.

Case Study: The Acme Widget Company

Part One: Background Information

The Acme Widget Company manufactures and distributes widgets. It occupies the main floor of a warehouse. The floor plan looks like this:



The staff and their hours are outlined below.

Staff Member	Responsibility	# of Staff	Hours Worked
Security guards	<ul style="list-style-type: none"> Patrol building and grounds every half hour Monitor security desk and cameras 	2	7 am to 7 pm (Sun-Wed)
		2	7 am to 7 pm (Thu-Sat)
		2	7 pm to 7 am (Sun-Wed)
		2	7 pm to 7 am (Thu-Sat)
		1	Backup; varies

Operations manager	<ul style="list-style-type: none"> Oversee all staff 	1	8 am to 4 pm
Distribution clerks	<ul style="list-style-type: none"> Check invoices and prepare cargo Transport cargo to loading bay 	2	7 am to 7 pm (Sun-Wed)
		1	7 am to 7 pm (Thu-Sat)
		2	7 pm to 7 am (Sun-Wed)
		1	7 pm to 7 am (Thu-Sat)
		1	Backup; varies
HR consultant	<ul style="list-style-type: none"> Manage all human resource issues 	1	8 am to 4 pm, although can be called in off-hours
Receptionist	<ul style="list-style-type: none"> Respond to incoming phone calls, e-mails, faxes Prepare invoices and send to distribution clerks 	3	8 am to 4 pm
		2	4 pm to midnight
		1	Midnight to 6 a.m.
Warehouse Workers	<ul style="list-style-type: none"> Let trucks into loading bay Place cargo onto trucks Ensure paperwork is signed/cash received 	4	8 am to 4 pm
		4	4 pm to midnight
		4	Midnight to 6 a.m.

Log of Safety Incidents		
Incident	Date and Time	Action(s) Taken
Truck driver backed into boxes in warehouse; boxes fell onto employee	Saturday, January 7, 2012, 7:19 p.m.	<ul style="list-style-type: none"> Employee taken to hospital Off work for 17 days
Tape dispenser fell off top shelf of cargo preparation area; hit employee on head	Tuesday, February 14, 2012, approximately 10 p.m.	<ul style="list-style-type: none"> None
Senior receptionist diagnosed	February 2012	<ul style="list-style-type: none"> Employee on short term disability until August 2012

with carpal tunnel syndrome		
Distribution clerk pulled back muscle moving box onto truck	Monday, April 9, 2012, 7:12 a.m.	<ul style="list-style-type: none"> ● Clerk off work permanently ● Purchased forklift to assist with moving boxes
Warehouse worker dislocated shoulder opening garage door	Thursday, May 24, 2012, approximately 3:30 p.m.	<ul style="list-style-type: none"> ● Worker taken to hospital ● Off work for 7 days; continued pain and weakness ● Investigating automatic garage door opener

Part Two: Discussion Questions

How might you identify possible ergonomic issues for this company?

How would you do further assessment and evaluation?

What issues do you think you might find?

Developing a Plan to Address Ergonomic Issues

Three Key Methods

There are three main ways to reduce or prevent ergonomic issues. Let’s discuss them in the order of preference.

Engineering

The best way to reduce ergonomic hazards is to change the hazard itself. Here are some examples:

- Purchase new tools that have ergonomic handles
- Improve flooring so that it is level (to reduce lifting strain)
- Install muffling panels to reduce noise
- Install air filters to improve air quality

Methods like these solve the problem at the root and don’t require the user to do anything, removing the possibility of human error.

Organizational

Another method to reduce hazards is to implement organizational strategies and policies. Some examples:

- Requiring that individuals complete training on safe lifting procedures
- Restricting shift length
- Changing work tasks and/or pace to reduce repetitive motions
- Adjusting production goals to reduce the risk of over-exertion

Although these measures are often necessary, they do rely on people to implement them.

Individual

You can also ask the individual to change the way they do certain things in order to reduce the ergonomic hazard. Some examples might include:

- Wear earmuffs
- Improve their posture
- Report ergonomic issues early
- Take frequent rest breaks

Categorizing

Hazard	Type of Resolution

Identifying and Implementing Solutions

Where to Find Ideas?

At this point in the cycle, you know what the major ergonomic hazards are and you know that there are three main categories of solutions. But where do you find concrete, practical ideas to resolve ergonomic hazards? Here are a few starting points.

Ask the person doing the job.

The best place to start is to talk to the person doing the job. What would make their job more comfortable? Getting their input on options (and their buy-in on the choices made) will make it easier for employees to adopt the recommended changes and more likely that your efforts will succeed.

Use company resources.

Involve everyone in the company in the solution-gathering process. Have brainstorming meetings to come up with ideas to resolve various hazards. Encourage creativity; don't let people get bogged down in practical details like cost and implementation at this point.

Use ergonomic software.

There are many software applications that can assess situations for ergonomic hazards and recommend possible solutions. Just make sure that the solutions it suggests work for your organization.

Read ergonomic books and industry journals.

Other materials, such as ergonomic literature and industry journals, can also provide a good starting point for ideas.

Use the Ergonomics Ideas Bank.

The Internet can be a great resource, but it can be hard to know what information you can trust. One excellent resource is the Washington State Department of Labor & Industries’ Ergonomics Ideas Bank (<http://www.lni.wa.gov/Safety/Topics/ReduceHazards/ErgoBank>). Here, you can search for specific problems based on your industry and see what has worked for other people. You can also submit ideas that have worked for you.

Test your knowledge

What hazards did you identify in your pre-assignment?

Where might you find resources to resolve these hazards?

What specific solutions do you have in mind?
