



Work Dangers and Solutions

This is a chapter from the forthcoming book by the Hesperian Foundation, *A Factory Workers' Guide to Organizing for Safe Jobs and Healthy Communities*. We welcome your comments and suggestions for improving this draft. Please contact us at:

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This chapter has information about the health dangers of working in garment, shoe, electronics assembly, auto parts and toy factories. These factories make very different products, but workers in all these industries do similar jobs, use some of the same tools, and face many of the same dangers. For example, workers sew materials together to make shoes, clothes, hats, toys, and seat covers for cars. Workers also mold plastic and foam to make many kinds of toys, auto parts, electronics, and shoes.

Each work danger can harm people doing different jobs in different industries. For example, strain and overuse injuries are a danger to any worker who uses her hands to cut, sew, pinch, press, push, pull, or twist any kind of material. Some dangers, such as noise or lack of water and toilets, often affect all workers in one factory. Other dangers, like exposure to chemicals, harm workers doing certain jobs more than workers doing other jobs in the same factory.



Workers doing different jobs face similar dangers.

On pages 4 to 21, we show examples of jobs and work dangers at each stage of the manufacturing process. On pages 24 to 159, we describe each type of danger and suggest ways you or your employer can remove or reduce the dangers.

The drawings in this chapter may not show the exact equipment you use. There are too many different jobs and machines to show solutions for each one. Instead, we show different types of dangers and give examples of some solutions. You can decide what information is useful, what is not useful, and which ideas can be changed to make them more useful in your factory.

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What workers in export factories produce

The workers in each industry make many different products using different materials, machines, and tools. Some products, like shirts and shoes, are familiar to everyone. Other products, like valves and sensors, may be familiar only to people who have worked in electronics or auto parts factories. The pictures and summaries on these pages show some of the products of each industry and the materials they are made from.

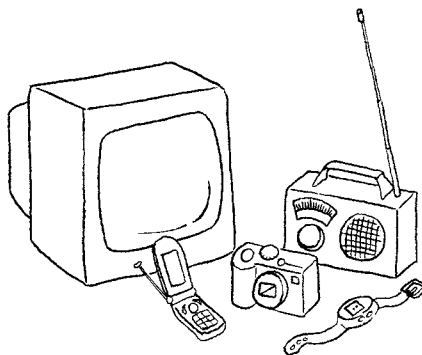
Garment workers make all kinds of clothes, such as pants, shirts, dresses, underwear, sleepwear, hats, jackets, coats, gloves, and uniforms.

Garments are made with natural or *synthetic* fabrics or leather, natural or synthetic dyes, and chemical treatments.



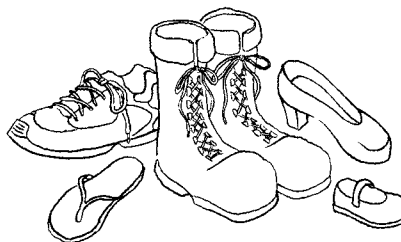
Electronics workers make computers, printers, monitors, modems, cables, scanners, drives (floppy, zip, DVD, CD, hard, tape), telephones, radios, televisions, disc and tape players, remote control devices, digital watches, cameras, recorders, medical equipment, sensors, monitoring devices, switches, lights, pacemakers, hearing aids, and other devices.

Electronic equipment is made with printed circuit boards and components, many types of metal, plastic, chemicals, and other materials.

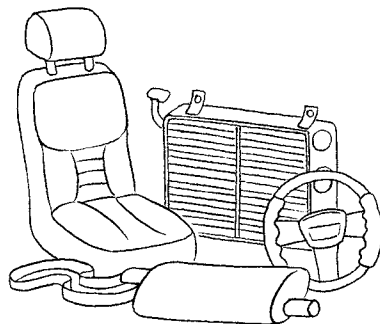


Shoe workers make all kinds of shoes, sandals, slippers, and boots for men, women, and children.

Shoes are made from leather, rubber, metal, foam, plastic, glue, and natural or synthetic fabrics, natural or synthetic dyes, and chemical treatments.



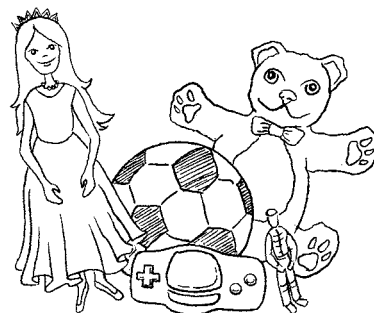
Auto parts workers make all kinds of parts for assembling or repairing cars and trucks, such as handles, pipes, hoses, panels, housings, upholstered and stuffed seats, panels, and steering wheels. They also assemble components such as sensors, valves, meters, switches, batteries, brakes, windshield wipers, wiring harnesses, steering columns, transmissions, and other engine and drive train parts.



Auto parts are made with metal, leather, glass, natural and synthetic fabric, resins, plastic, and chemicals.

Toy workers make all kinds of toys, such as board games, stuffed toys, dolls and figurines, building blocks, balls, electronic toys, and many others.

Toys are made with natural or synthetic fabric, metal, plastic, stone, wood, and paper. These materials are often combined in one toy, but most toys are made from plastic.



Where to look for dangers at work

To find work dangers in your factory, you can look at the jobs workers do in each step of the manufacturing process. These steps are almost the same in both large and small factories. First, workers unload materials into a warehouse or storage room. Other workers then prepare the raw materials and assemble the product. Different workers test, clean, inspect, package, and ship the products to buyers. Workers also deliver supplies to work areas in the factory and remove waste. For the process to run smoothly, workers must also keep the work place and equipment clean and in good repair.

On the following pages, we give examples of the jobs and dangers common to each step of the manufacturing process in both large and small factories.

After reading this chapter, it may be helpful to draw a map of your factory. You can track the flow of materials into, around, and out of the factory. You can then make a **hazard map** that shows the dangers in the factory by work area. For information about making a hazard map, see page xx.

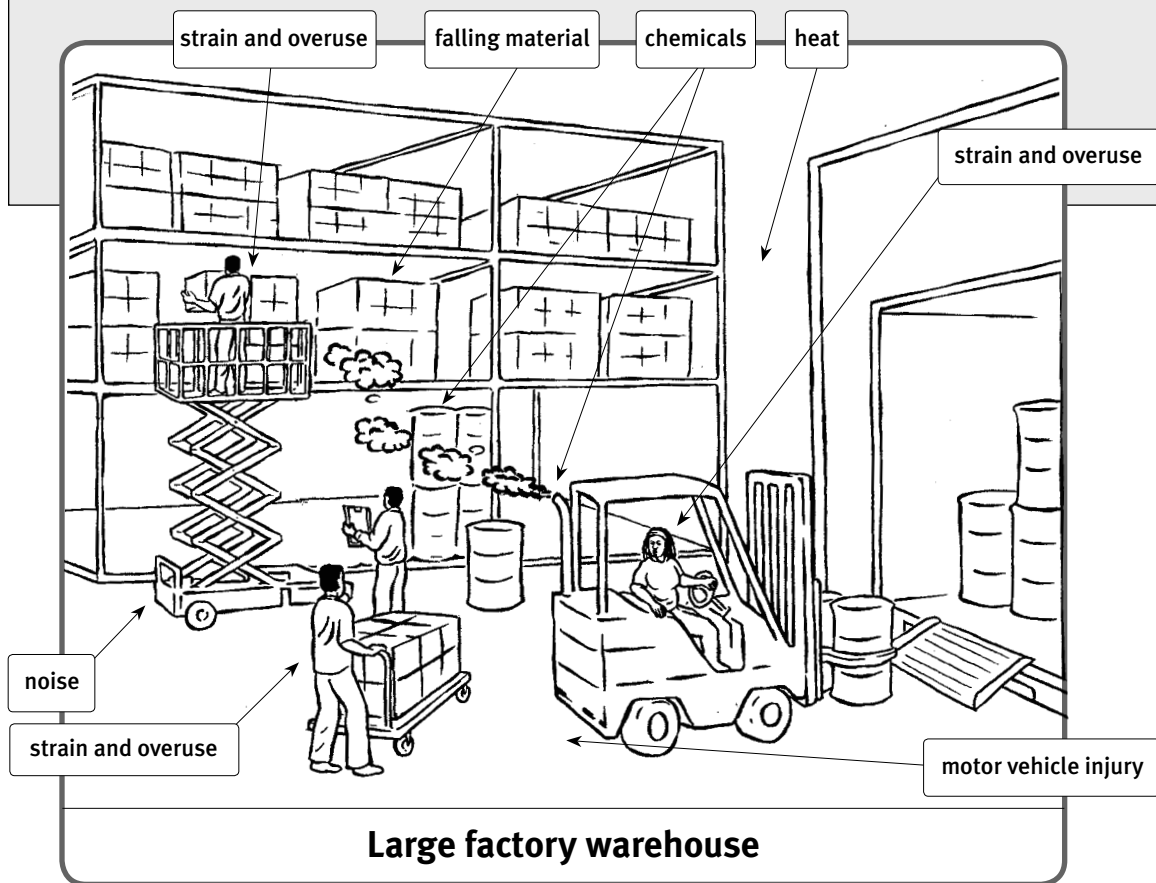
Warehouse and material handling

Supplies and raw materials are delivered to a warehouse where workers:

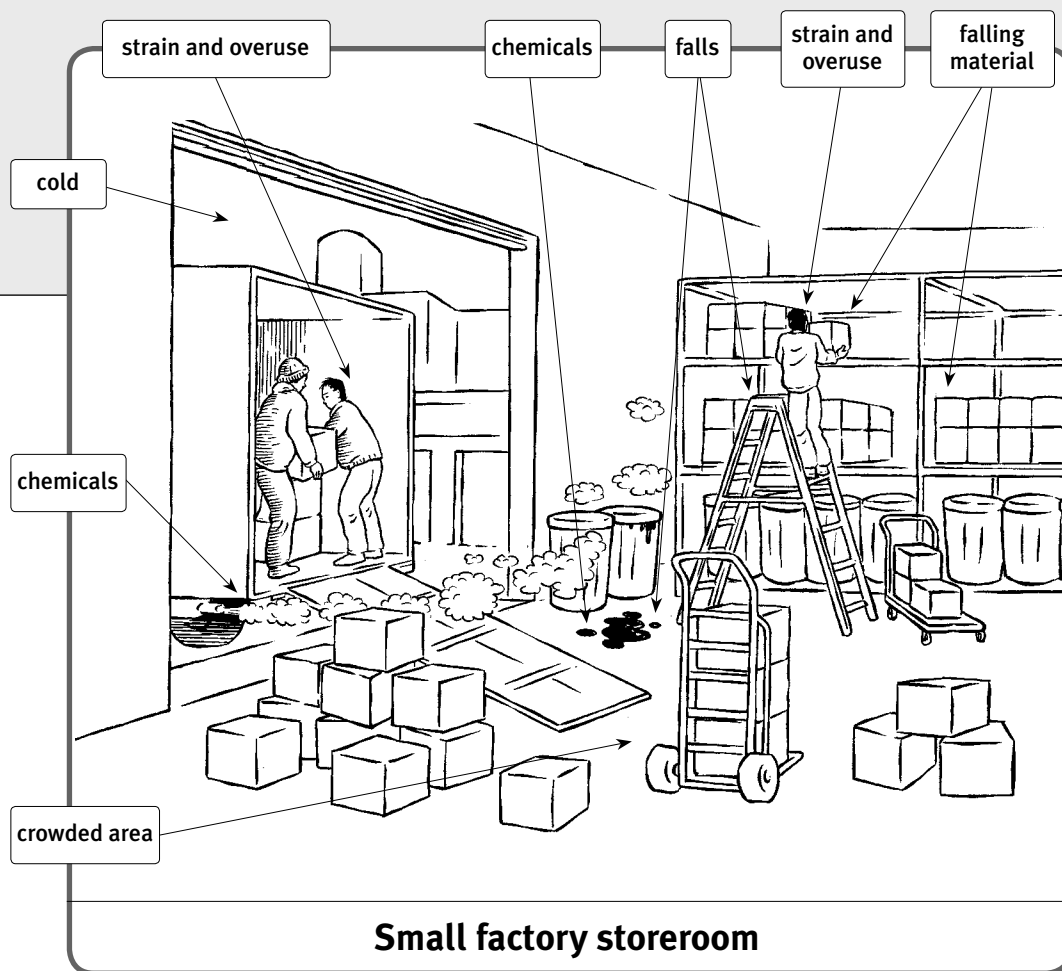
- receive and store boxes, bags, rolls, bottles, and barrels of materials.
- divide and repackage stored materials.
- deliver materials to work areas in the factory.
- prepare and store finished goods before they are shipped out .
- store and dispose of waste materials from the factory.

Dangers include:

- **strain and overuse** from lifting and carrying supplies on and off trucks or rail cars, moving materials on and off storage shelves, and carrying materials to the factory floor.
- **chemicals** from leaks or spills, in materials such as fabric or metal, and in motor exhaust from trucks, fork lifts, and other vehicles.



- **noise** from motors.
- **heat or cold** from sun and poor ventilation in a hot climate, or no insulation, warm clothes, or heating in a cold climate.
- **crowded work areas** that limit a worker's ability to see and move materials safely without hitting other people or objects.
- **motor vehicle injury** from being struck by fork lifts, carts, trucks, or rail cars. This can happen inside the warehouse or factory, at the loading dock, or between the warehouse and factory.
- **falls** from ladders or raised platforms while reaching high shelves or stacks, tripping over equipment or debris, or slipping on wet or sticky floors..
- **materials falling** onto workers from above.



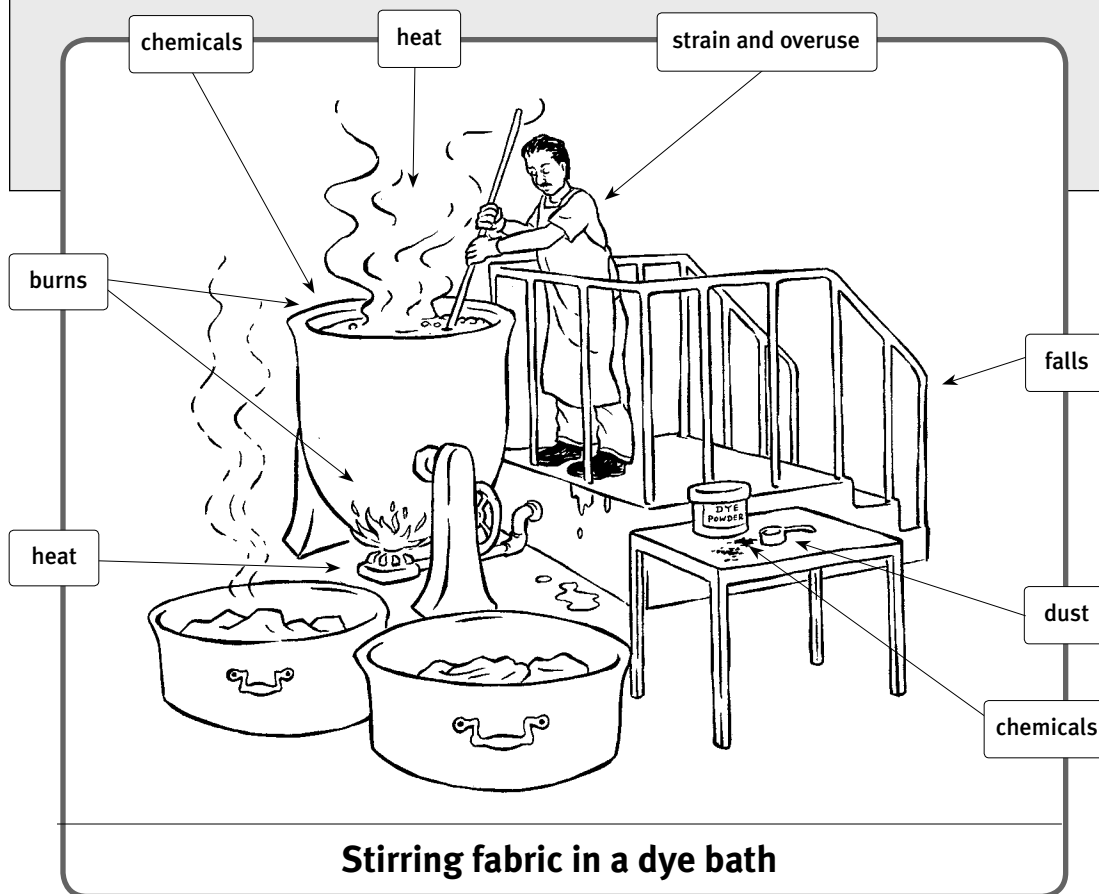
Making the product

Preparing materials and assembling a product is done in several steps. Each step can be dangerous to workers in several ways.

PREPARING RAW MATERIALS

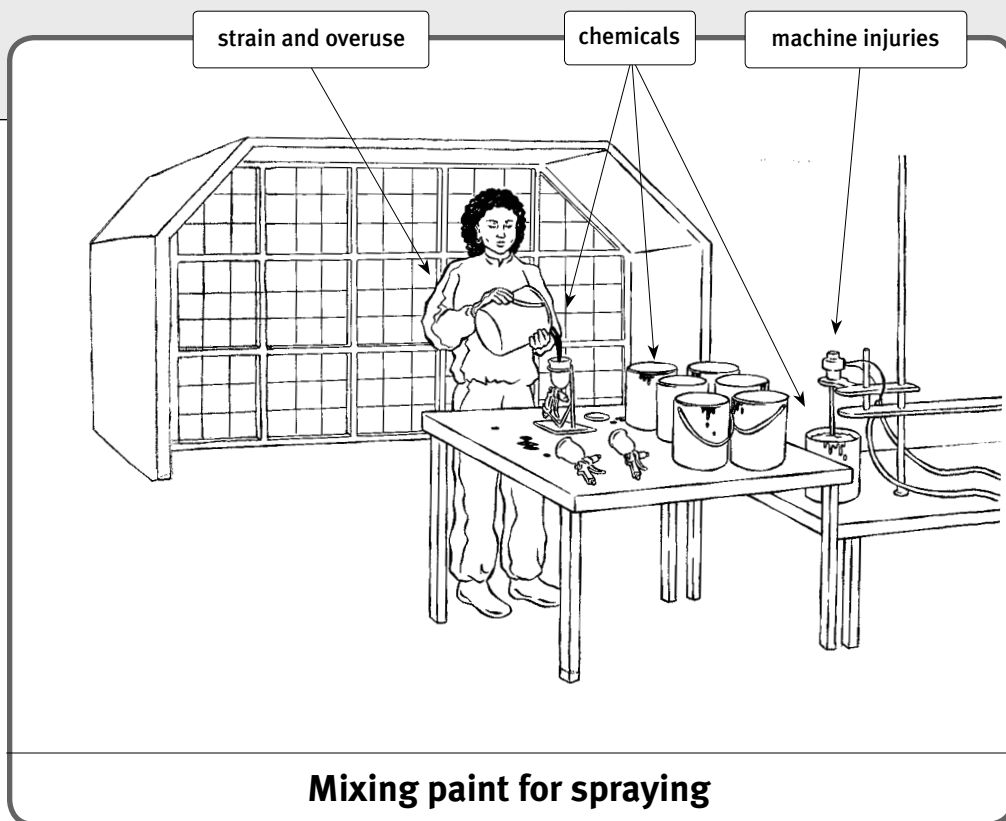
For some products, workers must:

- **clean surface of material** by machine or using chemicals to remove dirt, grease, rust, or scale.
- **mix raw materials to make plastic, dye, paint, or coating materials.** The raw materials are usually chemicals in powder, solid, or liquid form. They may be mixed in small or large batches by hand or by machine.
- **dye or treat fabric** or other materials with chemicals, by hand or using machines.
- **add a pattern or texture to fabric.** This is usually done using a machine.



Dangers include:

- **strain and overuse** from lifting and carrying materials.
- **chemicals** in the raw materials, or created during mixing or using dyes, plastic and foam. This danger includes fumes from heated plastics, dyes, and additives.
- **dust** from opening containers, handling fabric and other materials. Dust is also created by machinery.
- **machine injuries** from sharp or moving machine parts that can cut, crush, or amputate a hand, an arm, or other part of the body. Injuries can also be caused by a liquid or debris sprayed from a machine.
- **burns** from hot machinery and materials, such as melted plastic, molten metal, and dye baths.
- **heat** from working around hot machines and materials; such as molten metal, plastic, or chemical baths; especially in a hot room with poor ventilation.
- **falls** from stairs or a raised platform, tripping over equipment or debris, or slipping on wet or sticky floors.



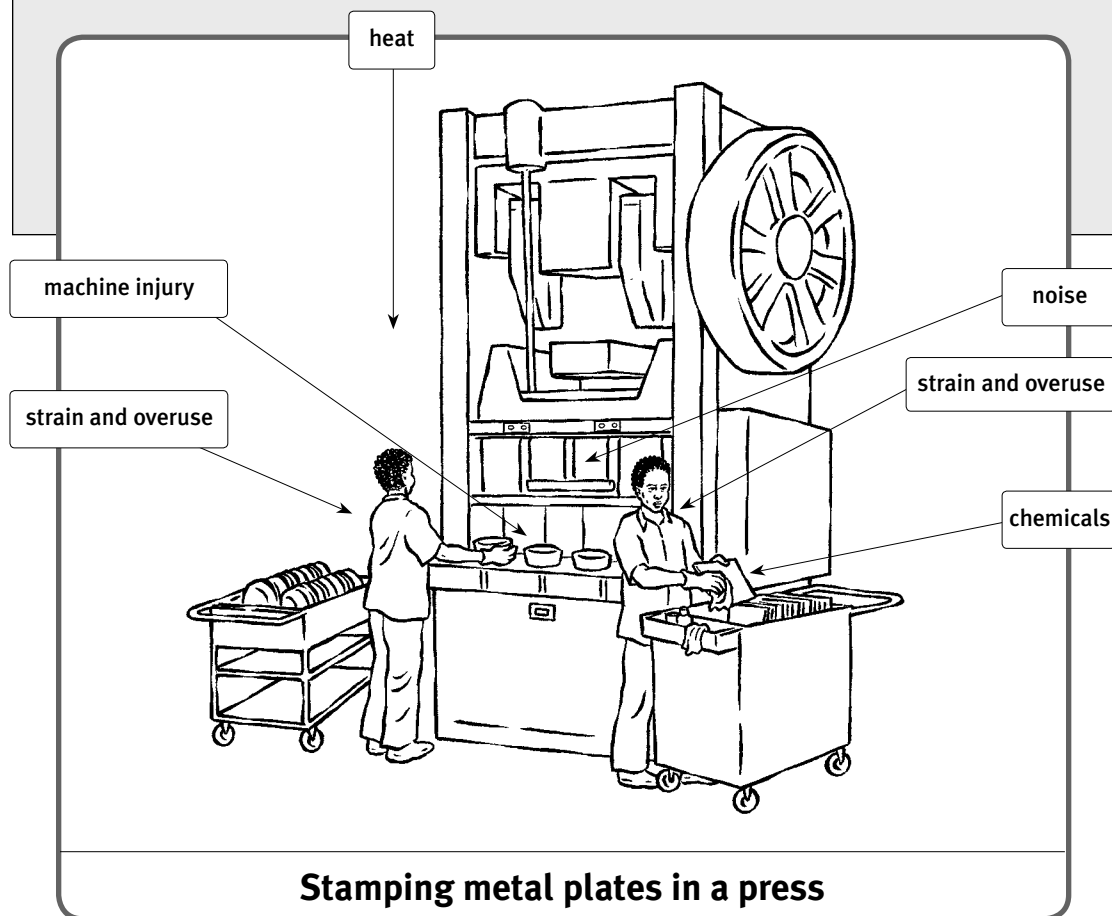
FORMING MATERIALS BEFORE ASSEMBLY

For most products, workers often do one or more of these tasks:

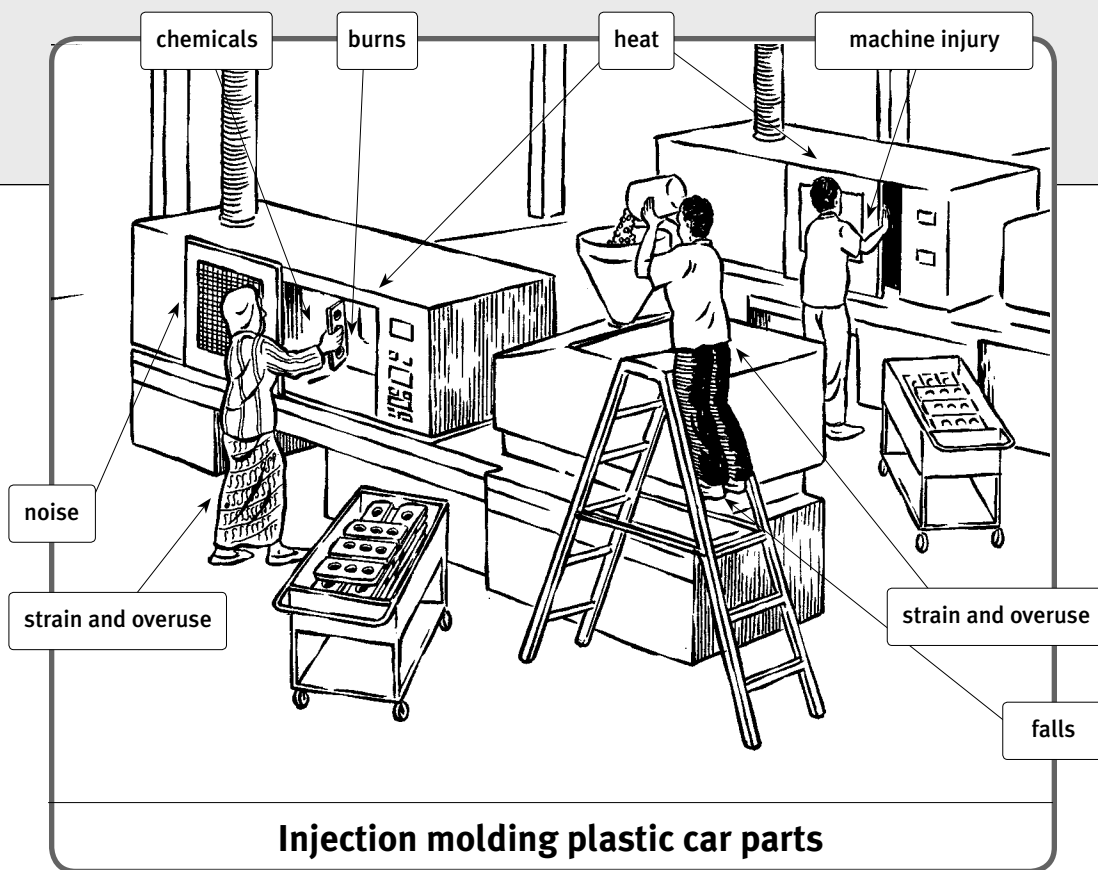
- **cut** fabric, wood, metal, leather, or synthetic materials.
- **mold raw plastic** into parts by injection, blowing, or rotational molding.
- **die cast** molten metal into parts.
- **drill, punch, stamp, and bend** metal, wood, or plastic pieces into parts.
- **trim, grind, or sand** plastic, metal, or wood parts after they have been formed.
- **clean or degrease** parts after they are formed.

Dangers include:

- **strain and overuse** from standing all day; from reaching, lifting, pushing, pulling, and bending to load, unload, and operate machines; from lifting and carrying parts and supplies; from holding parts and tools; and from doing the same tasks many times each day.



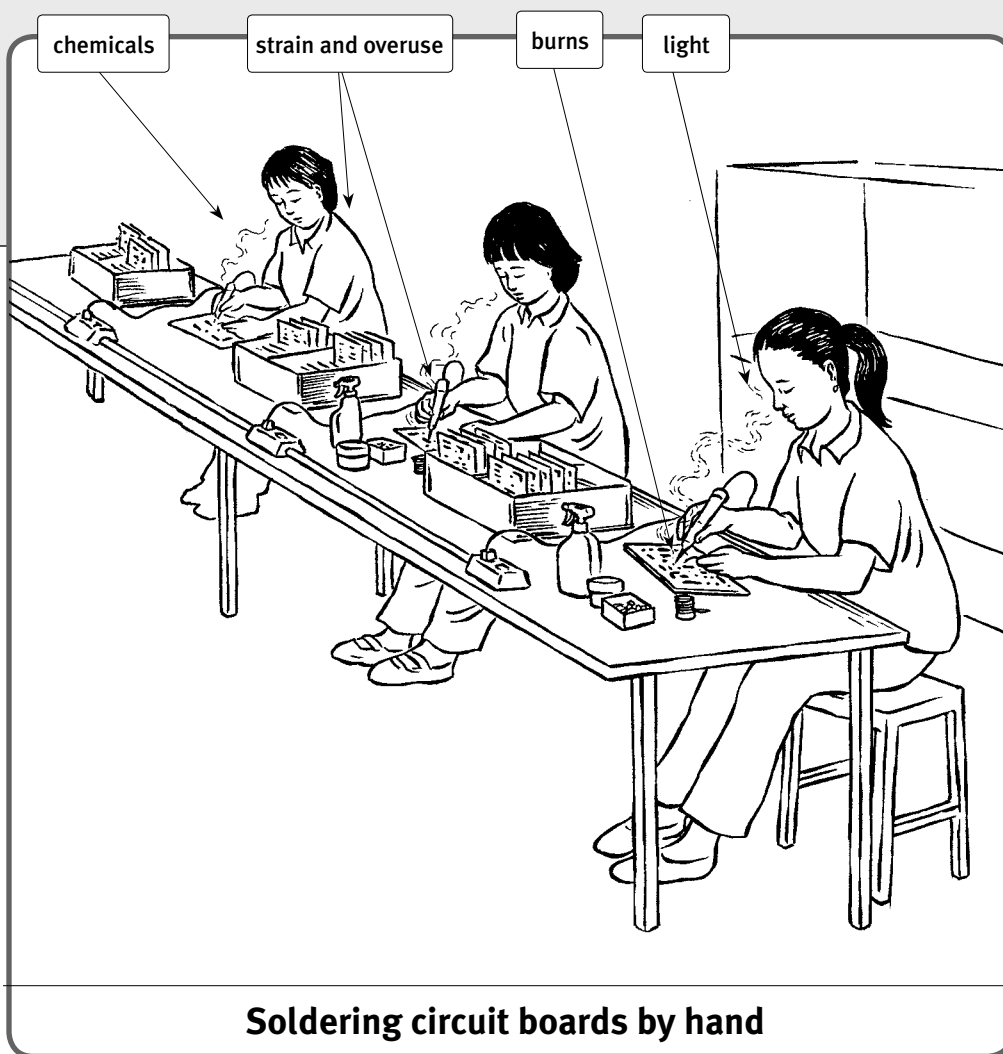
- **chemicals** from metalworking fluids, welding fumes, hot plastics, cleaners, fluids used to separate plastics from molds, and other substances.
- **dust** in the air from cutting, grinding, knocking out, cleaning, and sanding parts.
- **machine injuries** from sharp or moving machine parts that can cut, crush, or amputate a hand, an arm, or other part of the body, or from debris flying into the eyes, face, or skin from grinding, trimming, or using force on parts. Debris or liquids can also spray from machines that jam or break down.
- **burns** from hot machinery, hot plastic or metal parts, hot oil, or hot material leaking from equipment.
- **noise** from grinding, shaping, or bending materials, or from operating machinery.
- **heat** from working around hot equipment in a poorly ventilated work area.
- **falls** from a ladder or raised platform while loading a machine or reaching materials on high shelves, or from tripping over equipment or debris, or slipping on wet or sticky floors.



BONDING MATERIALS TOGETHER

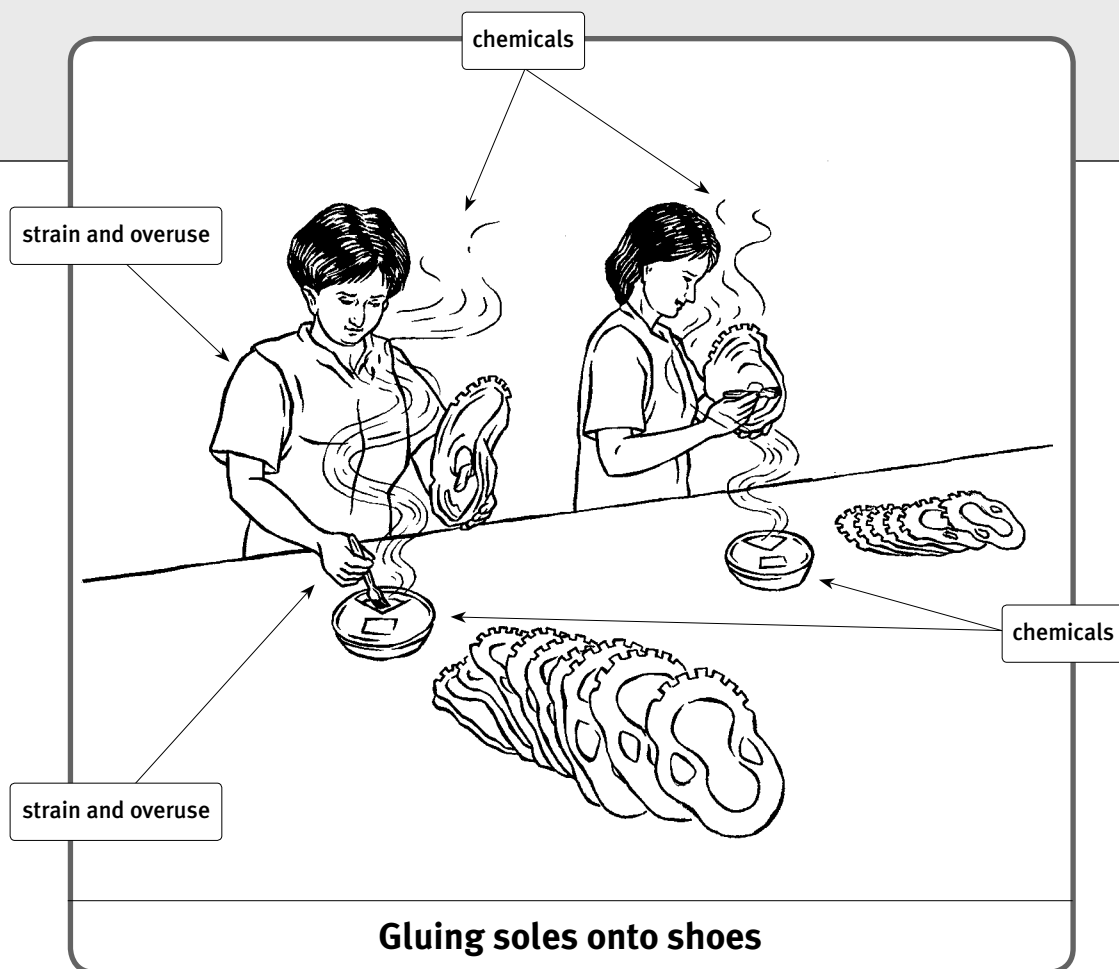
Before materials are assembled, or as part of making the final product, workers often:

- **weld** metal parts together.
- **solder** electrical parts together.
- **glue** materials together.
- **solvent bond** plastic, rubber, or other synthetic materials to each other.
- **ultrasonic weld** plastic or metal parts together.
- **hot melt or fuse** together surface decorations, layers of materials, labels, or soles of shoes with heat or RF (radio frequency).



Dangers include:

- **strain and overuse** from standing all day; from reaching, lifting, pushing, pulling, and bending to load, unload, and operate machines; from lifting and carrying parts and supplies; from holding parts and tools while soldering, welding or gluing them together; and from doing the same tasks many times each day.
- **chemicals** from solder paste, welding fumes, solvents, glues, and cleaners.
- **burns** from hot equipment and materials, and from soldering and welding.
- **noise** from ultrasonic welding equipment.
- **light** from welding, and poor light when connecting very small parts.
- **heat** from working around hot equipment in poorly ventilated areas.



COATING PARTS, FABRIC, OR THE FINAL PRODUCT

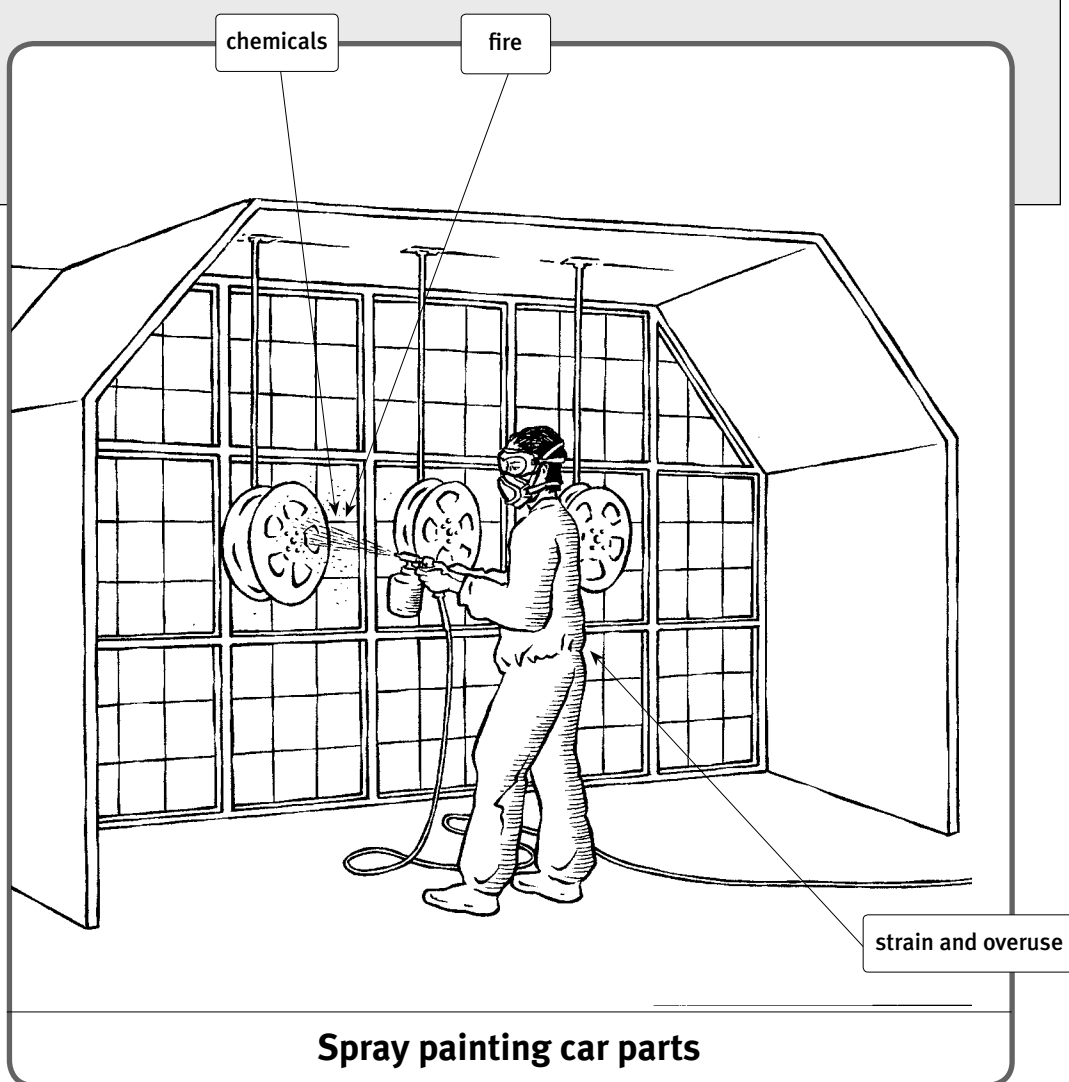
Before or after some products are assembled, workers:

- **dip, spray, or brush** coatings or protective treatments, such as paint, dye, primer, texture, anti-static, insulating, water proofing, or fire proofing.
- **silk screen or decorate fabrics** with a dye, pattern, or textured finish.
- **metal plate and metalize** surfaces by dipping or spraying them with chrome or other metals.



Dangers include:

- **strain and overuse** from standing all day; from reaching, lifting, pushing, pulling, and bending to load, unload, and operate machines; from lifting and carrying parts and supplies; from holding parts and tools; and from doing the same tasks many times each day.
- **chemicals** from coating materials, such as primer, paint, additives, anti-oxidant, sealant, polish, metalizing and metal plating baths and materials.
- **fire** from flammable solvents and other chemicals in coatings.



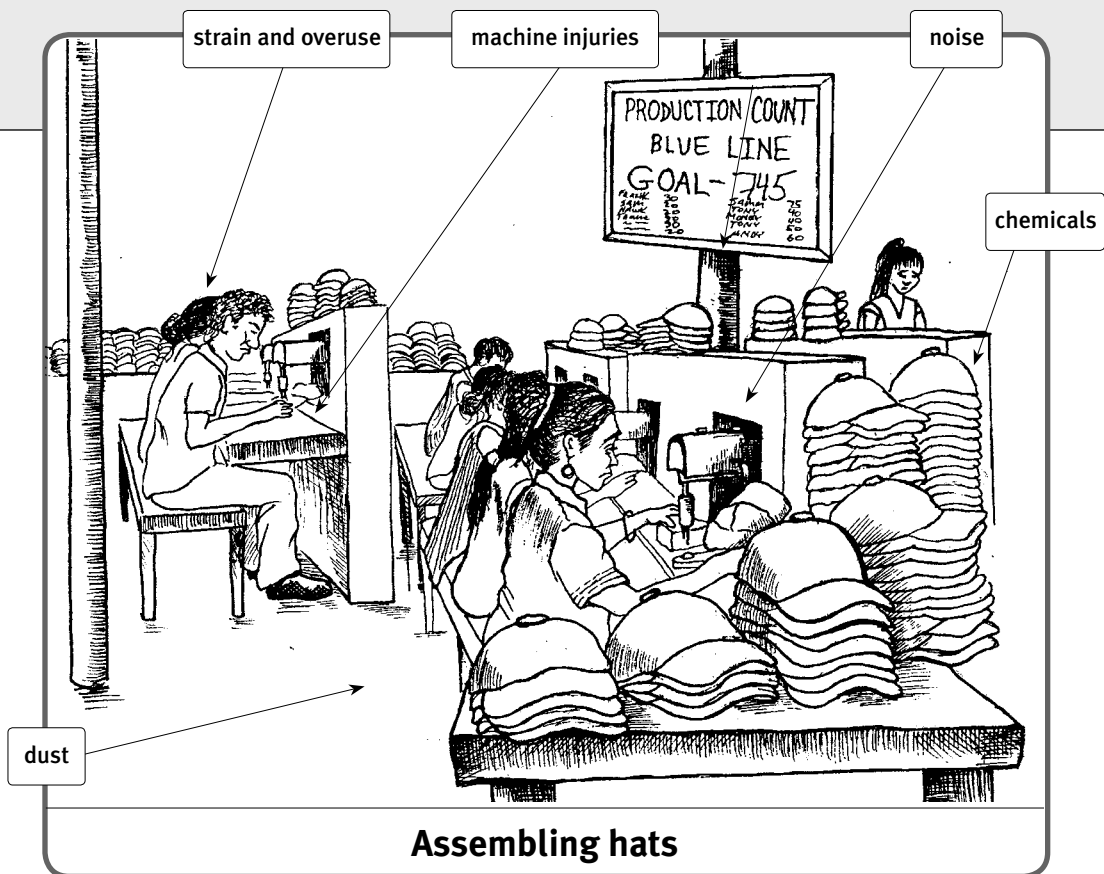
ASSEMBLING THE PRODUCT

To assemble the parts into the final product, workers:

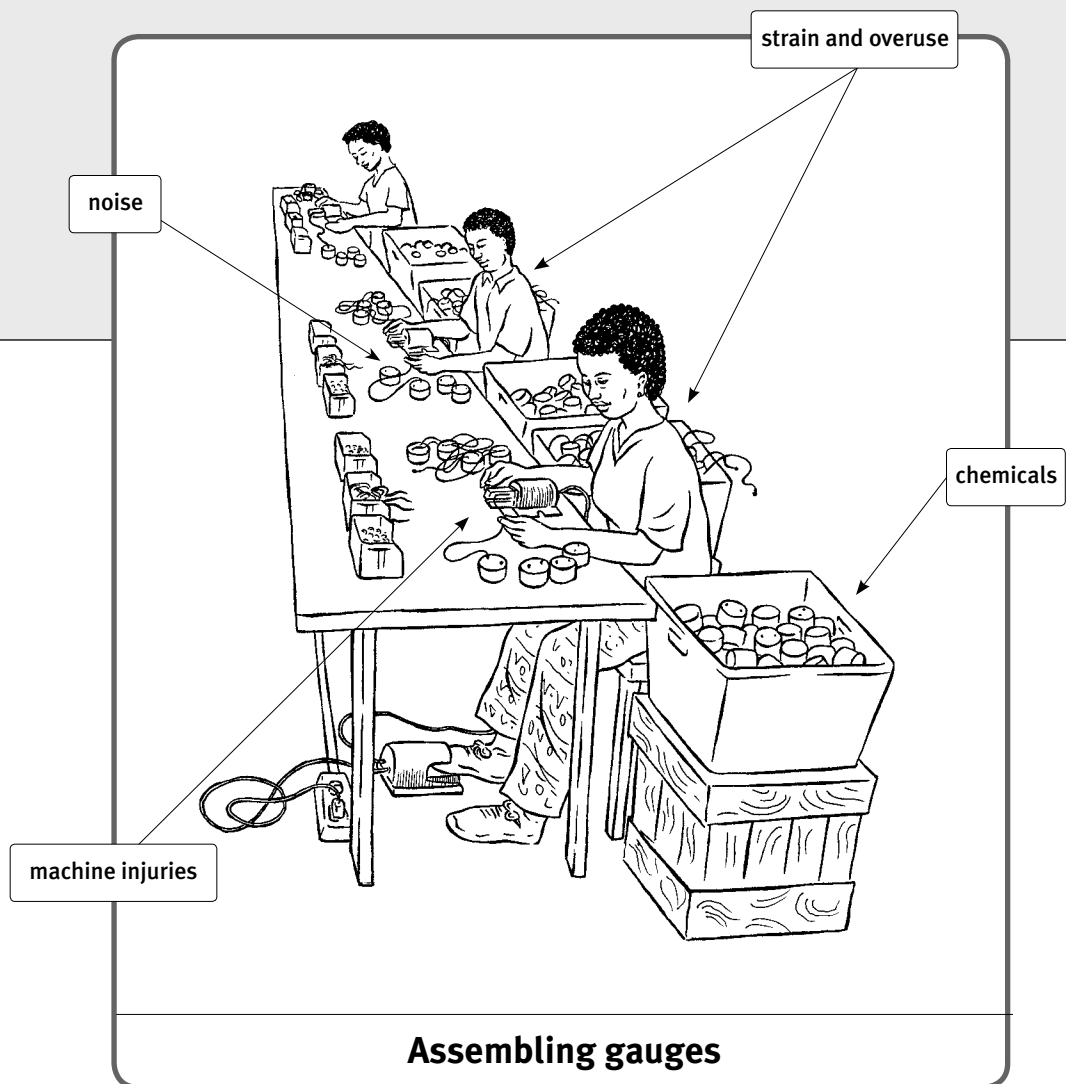
- **push, pull, press, and insert** parts into each other, and into or out of machines.
- **handle** parts and tools using small, precise movements of their hands and fingers.
- **sew and stuff** garments, shoe, and toys.
- **screw, rivet, and crimp** parts together.
- **trim or grind** off extra material during or after assembly of the product.
- **clean** dirt, oil, or other unwanted material from parts with chemicals, water, soap, cleaners, brushes, cloth, or tools.

Dangers include:

- **strain and overuse** from sitting or standing all day; from reaching, lifting, pushing, pulling, and bending to load, unload, and operate machines; from lifting and carrying parts and supplies; from holding and pushing, pinching, gripping, and pulling parts and tools; and from doing the same tasks many times each day.



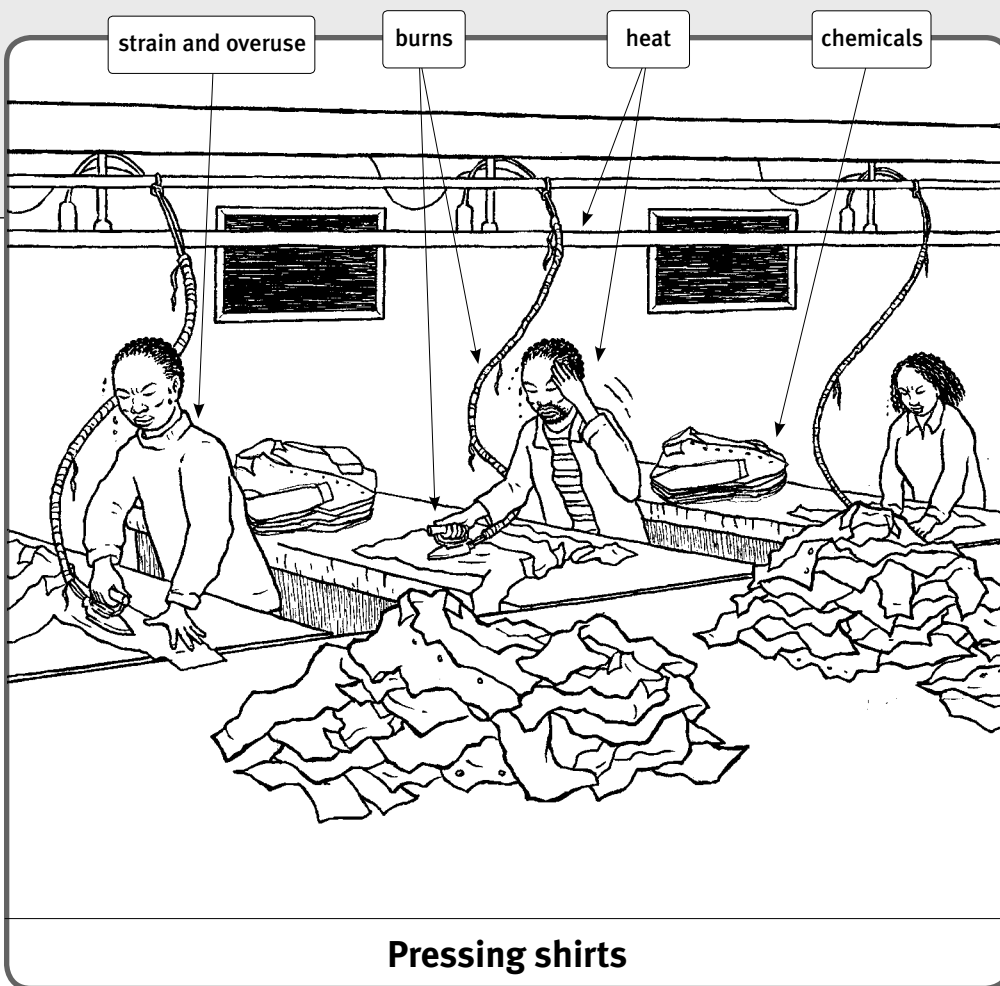
- **chemicals** cleaners, oils, and finishes on parts being handled for assembly, and adhesives or cleaners used during assembly.
- **dust** from handling, trimming, and grinding parts.
- **machine injuries** from sharp or moving machine parts that can cut, crush, or amputate a hand, an arm, or other body part, or from, debris flying into the eyes, face, or skin from grinding, trimming, or using force on parts. Debris or liquids can also spray from machines that jam or break down.
- **noise** from machines.



FINISHING AND CLEANING

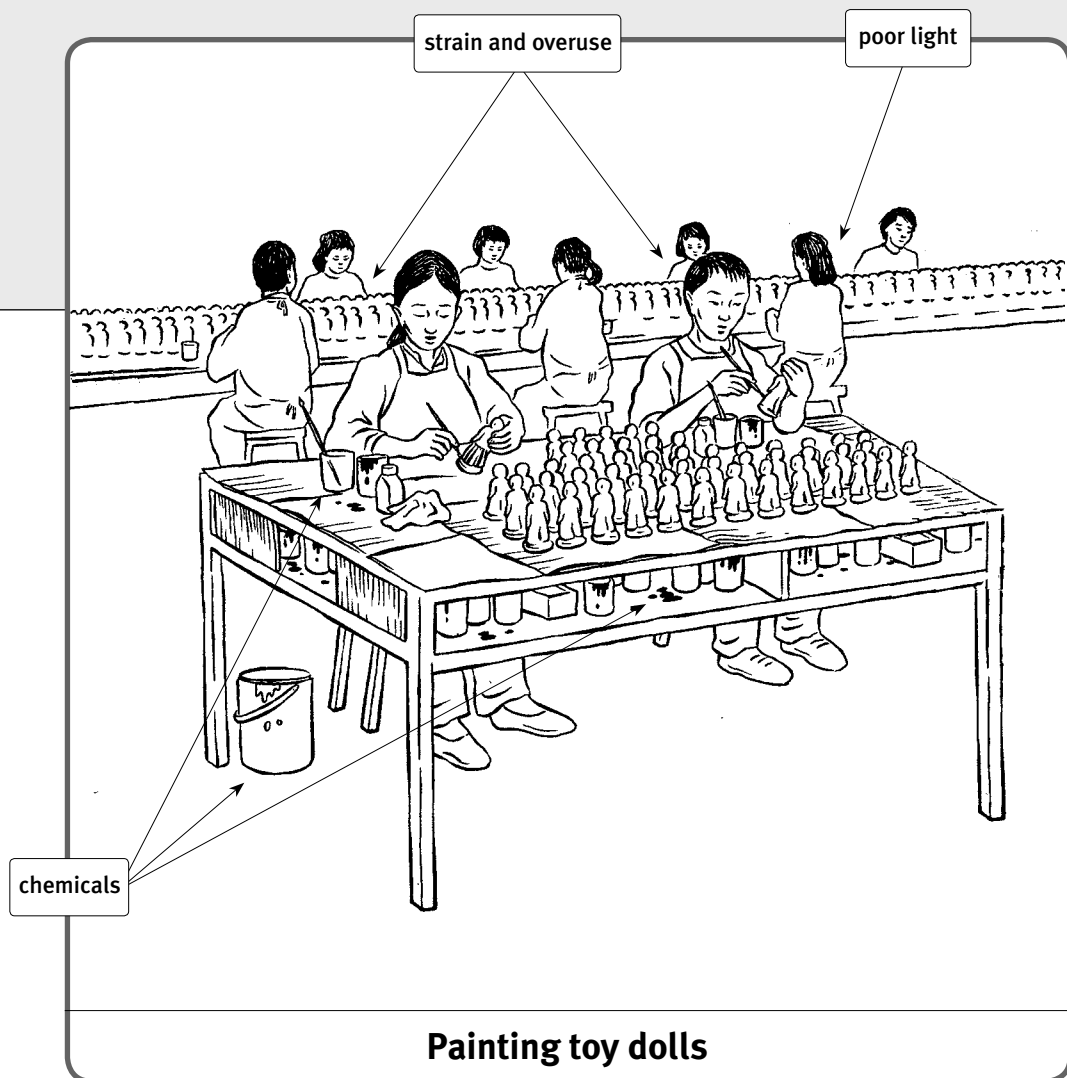
To put the finishing touches on the assembled product, workers:

- **hand paint and glue** final details onto the product.
- **attach stickers or labels** to the finished product.
- **press** fabrics after assembly.
- **hand sew** final details on sewn products.
- **hand repair** flaws from production and assembly.
- **spot clean** dirt, oil, or other unwanted material with chemicals, water, soap, cleaners, brushes, cloth, or tools.
- **polish** surfaces using chemicals and a cloth, or a buffing machine.
- **fold, fasten, or arrange** the product for packaging.



Dangers include:

- **strain and overuse** from fine finger and hand work to finish details and clean the product.
- **chemicals** such as paint, glue, cleaner, or polishes.
- **heat** from hot equipment, such as an iron, a garment press, or a hot air blower.
- **burns** from hot equipment, materials, or steam.
- **poor lighting** that makes it difficult to see detailed finishing work.



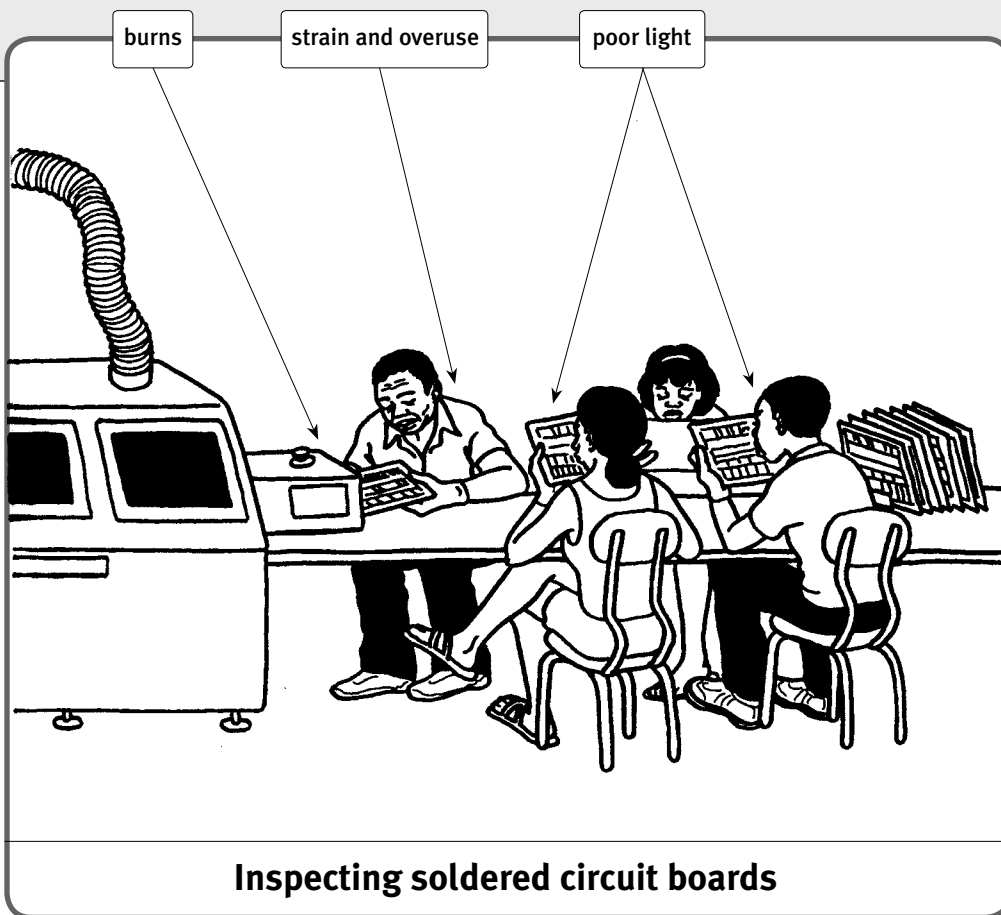
Testing and inspecting

During assembly and after the product is finished, workers usually:

- **inspect** the product with their eyes or with a microscope, and by hand, to see if the quality meets factory standards.
- **test** the product electronically or in other ways to see if it works properly and meets technical standards.

Dangers include:

- **strain and overuse** from making the same movements over and over again, such as picking up, handling, or looking at the product; or operating, testing, or inspecting finished electronic or mechanical equipment or parts.
- **poor lighting** that make it difficult to see the product or to use testing or inspection equipment.
- **burns** from hot products coming out of machines, such as wave soldering.

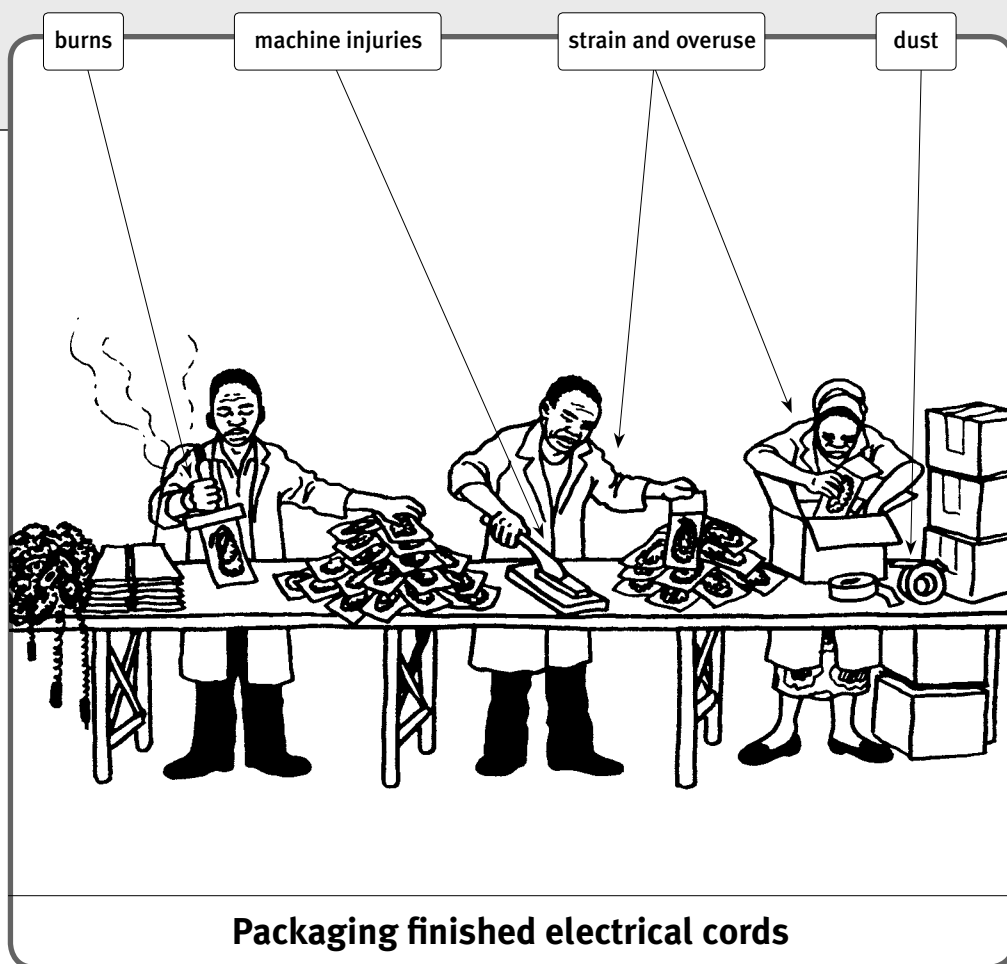


Packaging

Workers **fold, tie, fasten, and insert** the product into a box, bag, or other container for storage, shipping, and display.

Dangers include:

- **strain and overuse** from making the same movements over and over again, and from working in an uncomfortable position for many hours.
- **chemicals** on products and packaging.
- **dust** from packaging materials, especially paper.
- **machine injuries**, such as cuts and bruises, from staplers, cutters, and other packaging equipment, and from packing materials with sharp edges.
- **burns** from melting packaging materials together.



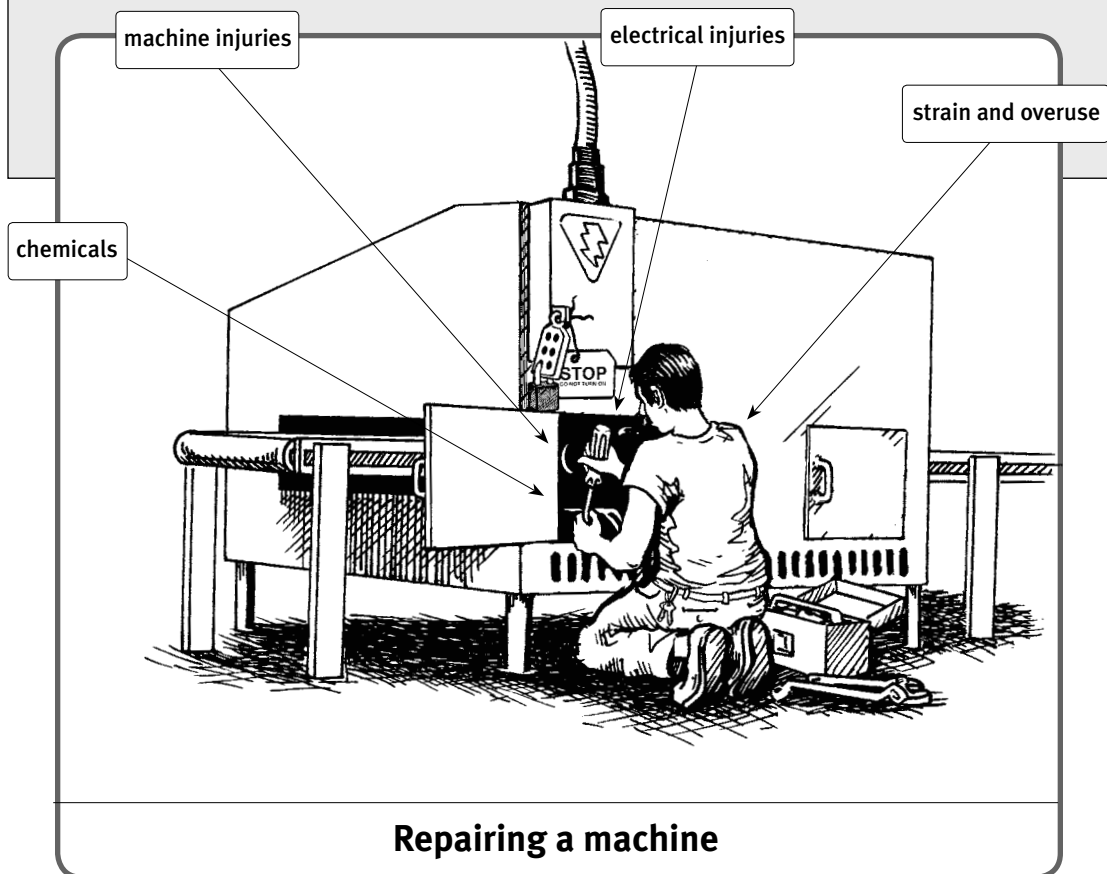
Maintaining and repairing machines, tools, and work areas

Workers face fewer dangers when all equipment and the factory building are kept clean and in good repair. Regular maintenance includes:

- **adjusting, cleaning, and repairing** tools, machines, and ventilation systems
- **removing dust, debris, waste, and spills** from floors, walls, and windows
- **maintaining and repairing** lights, electrical wiring, doors, windows, stairs, fire alarms, fire extinguishers, plumbing, and the water supply
- **keeping passageways and exits clear** of materials and supplies
- **storing flammable material away from heat or sparks**

Dangers to workers doing maintenance and cleaning include:

- **strain and overuse** from trying to free stuck parts, badly designed job tasks, or using the wrong tools.



- **chemicals** in cleaners, paint, or welding fume, or from leaks, spills, and residue on equipment.
- **dust** from cleaning floors and other surfaces, and from repairing dust-catching equipment and ventilation systems.
- **machine injuries** from machines that are not locked and blocked for maintenance, from trying to free stuck parts or from using the wrong tools.
- **electrical injuries** from machines that are not locked out for repair, and from improperly wired machines and electrical outlets.
- **burns** from hot equipment.
- **heat or cold** if cleaning and maintenance are done after hours when heating or cooling systems are turned off, or from working outside the building.
- **falls** from ladders or platforms used to reach high windows, lights, fans, ventilation systems, overhead conveyor systems, and other areas above the floor.



Make work safer by getting rid of dangers

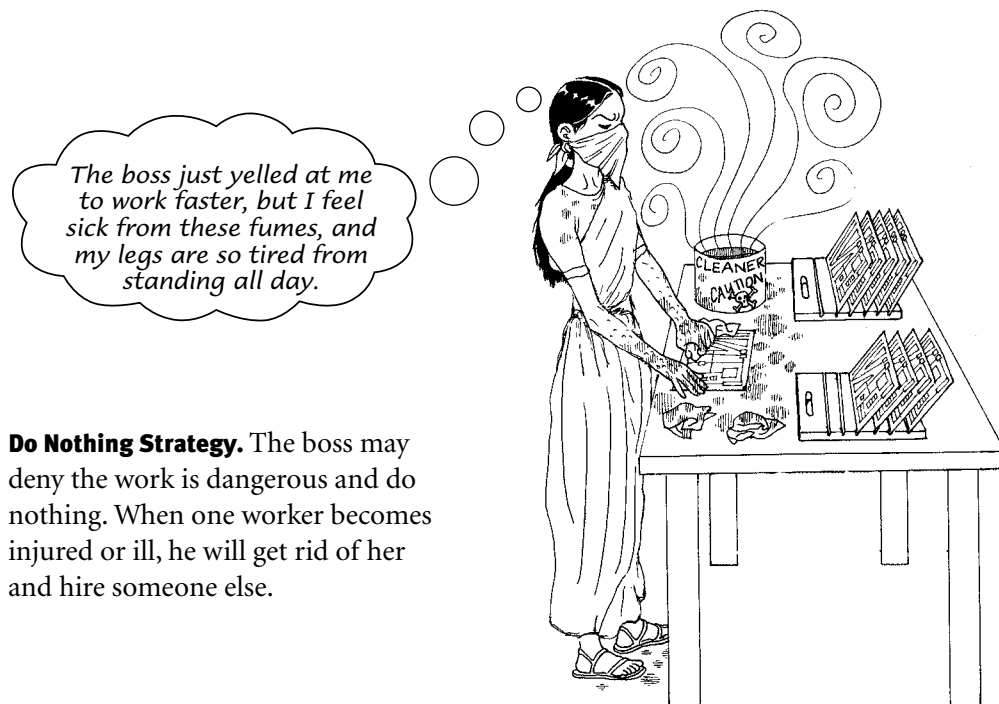
The best solution to a health and safety problem at work is the solution that eliminates the danger completely. Some solutions are simple and easy to achieve. Others require a long, difficult struggle. You can often make improvements that reduce some danger while you continue the struggle to get rid of all dangers. A good short-term solution protects workers now and can win the support of more workers for a long-term solution.

Even when you win one solution, there are always more improvements to be won. A solution that seems good enough at first may create a new, unexpected problem. You may need to try more than one solution until you find the one that works best for you and your coworkers.

The information in this chapter will help you identify work dangers in your factory and solutions that can reduce or eliminate those dangers. We show a variety of solutions to give you options and ideas for changes you can try in your factory.

STRATEGIES FOR SAFER WORK

A boss can respond to the dangers of a specific task in different ways. Which strategy does your boss use? Which would you prefer to use?



Do Nothing Strategy. The boss may deny the work is dangerous and do nothing. When one worker becomes injured or ill, he will get rid of her and hire someone else.

This is what I get for complaining that the cleaner makes me feel sick and makes my hands red and sore.

Change the worker strategy. Or the boss may try to change the worker by making her do the work differently or forcing her to wear uncomfortable safety equipment.



I feel much better since we talked about making this job safer! The new brush cleans the parts better, too.

Change the workplace strategy. A good boss will change the workplace by fixing or replacing equipment, tools, and processes to eliminate dangers and make the work safe.



Strain and overuse injuries



Do workers have body aches at the end of the work shift?

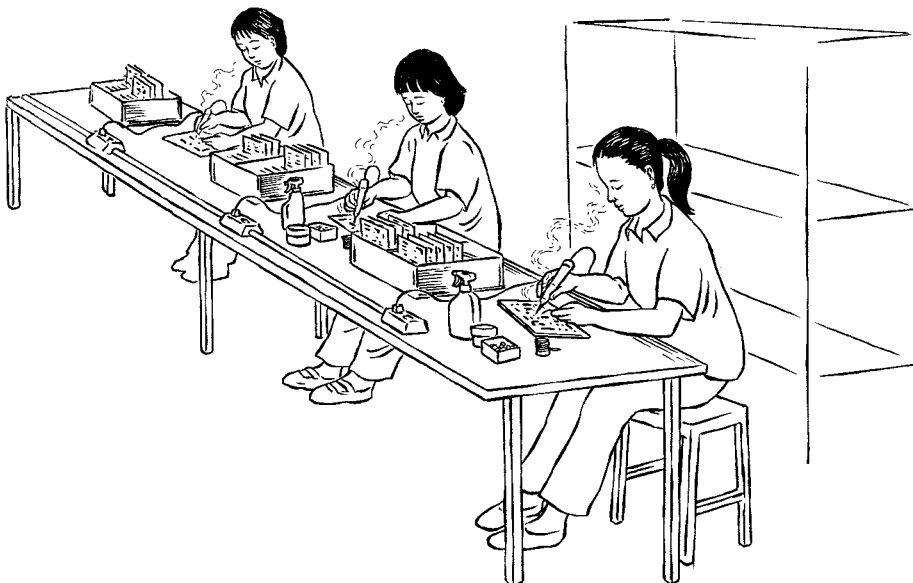
Which work tasks make workers' shoulders sore?

Have workers been hurt while lifting heavy things?

Jobs that look easy can hurt

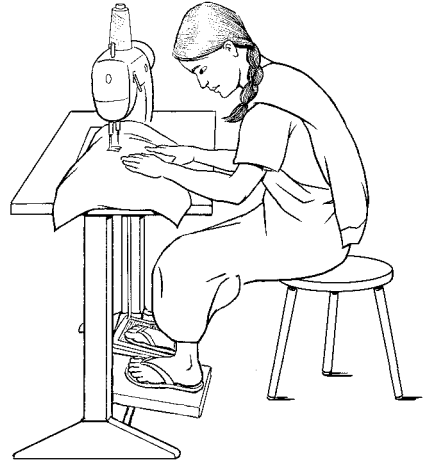
People often think making shoes, clothes, auto parts, toys, or electronics is not dangerous because these jobs look easy. Many factory workers sit down or stand in one place all day. Their jobs rarely make them sweat or breathe hard. And most workers in export factories are young women. They do not look strong enough to do hard or dangerous work.

But many factory workers use the small muscles of their arms, hands, fingers, and eyes to make the same movements hundreds or thousands of times each day. They often sit bent over their work for many hours. At the end of the day, their eyes and muscles are strained by constant overuse, and their bodies are stiff and cramped from staying so long in the same position.



Factory workers are often forced to keep working hard even when they are tired, uncomfortable, or in pain. Overwork and strain can injure any part of the body that moves—even a finger. Factory jobs often cause this type of injury to workers' hands, arms, neck, shoulders, back, hips, knees, and legs.

Work may be harmful even if it does not cause any pain right away. When an injury becomes serious, the worker may feel pain, numbness, weakness, or tingling. Usually, you cannot see these injuries. Sometimes there may be some swelling, but you can be in great pain and not have any other sign of injury.

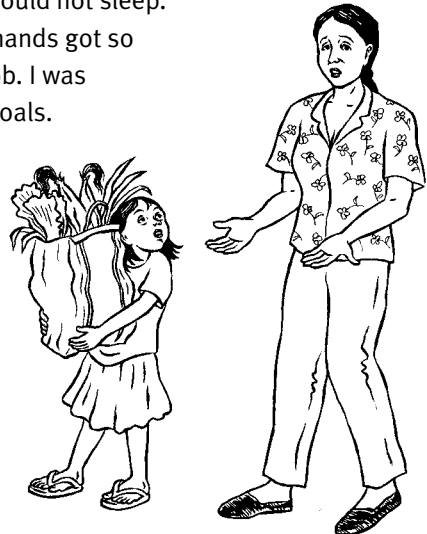


Juanita's story — Mexico

I was a sewing machine operator in a garment factory for 5 years. After about 1 year, my wrists and arms began to ache and tingle at night. As long as I could still work, I did not worry. But after awhile, the pain got so bad I could not sleep. I started dropping things all the time. Finally, my hands got so weak and hurt so much I could no longer do my job. I was fired six months ago for not meeting production goals.

My hands do not look injured, but they still hurt a lot. I cannot hold anything heavier than a cup of tea. I can barely pull a comb through my hair. I cannot prepare meals, wash the pots, or carry a jug of water. My sister and the children have to do almost everything.

I hope my hands will get better, but I do not know what to do to stop the pain.



Ergonomics

Injuries caused by strain and overuse are also called **ergonomic injuries**. The study of what a job does to the muscles, joints, tendons, and other soft parts of the body is called “ergonomics.”

Ergonomics is also the study of how to prevent injuries by designing work and equipment that does not push workers beyond their limit.

Ergonomics proves what most workers know already: each person's body is different and has its own limits. When the limits are not respected, people get hurt.



Ergonomic dangers

The working conditions that force workers to strain and overuse their bodies are also called **ergonomic dangers**. Many job tasks are easy and harmless if you only do them a few times at a comfortable pace. But the same tasks can be dangerous when you:

- **repeat the same movement** over and over again
- work in an **uncomfortable position**
- stay in the **same position** for a long time
- use **too much force** with any part of the body
- feel **pressure** on any part of the body from a hard object, such as a tool handle or table edge
- feel **vibration** from a tool, machine, or vehicle
- work in a place that is very **hot** or very **cold**

All of these dangers are made worse by working for long hours without rest.



What do you think?

Why do some workers deny their work causes pain?

Why do some workers accept pain as a normal part of work?



Moving a small bag of rice once from one table to another without bending is easy, but doing this many times every day can cause strain.



Picking up the same bag from the floor to the table requires bending, reaching, and lifting. Doing this causes more strain than moving the bag from one table to another table.



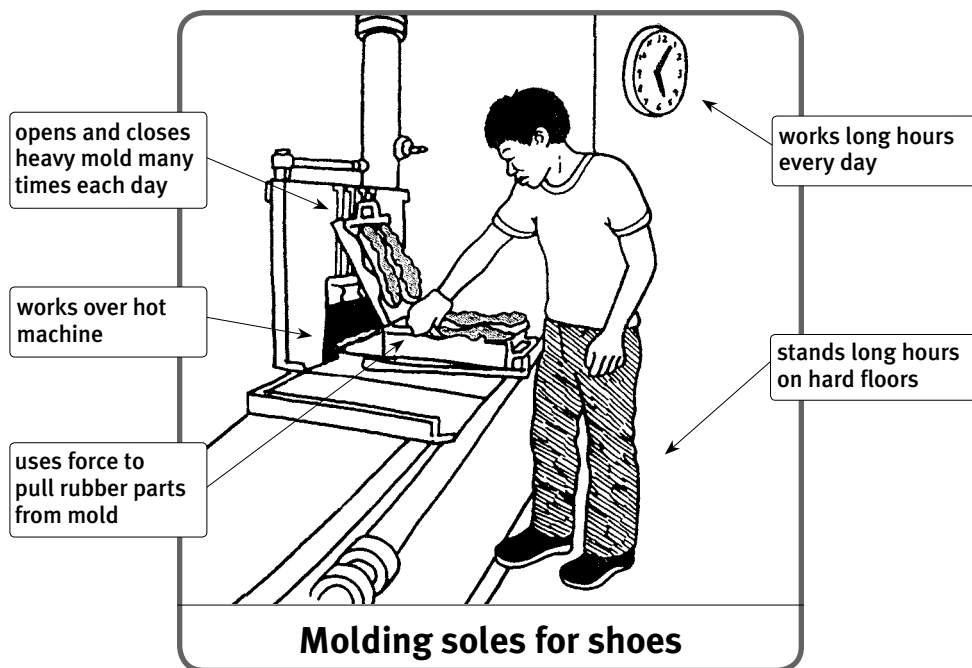
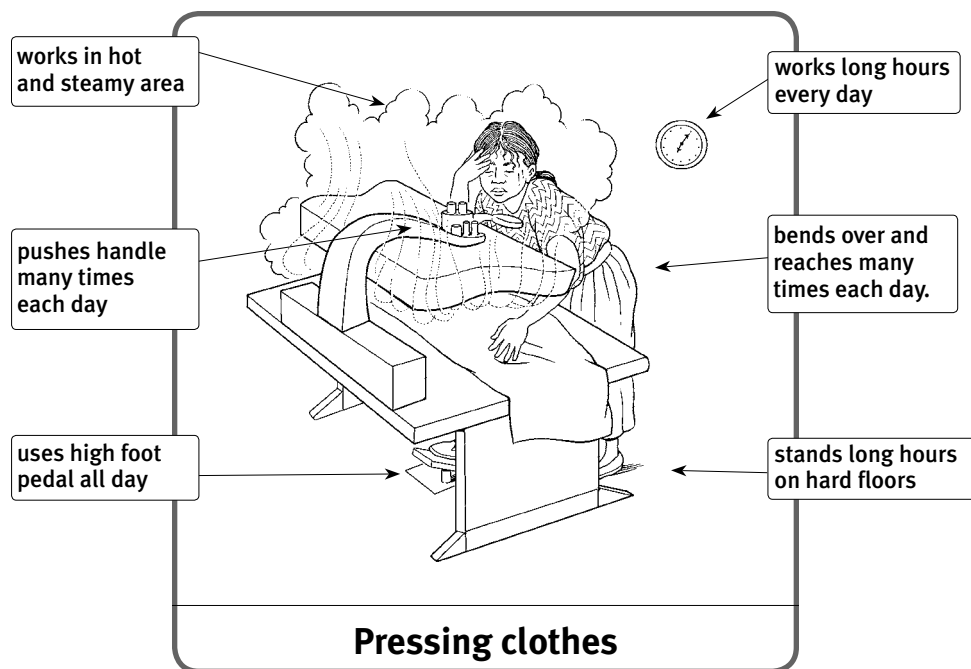
Placing the same bag on a high shelf from the table requires lifting the bag with one hand and stretching the whole body. This also causes more strain.



Placing the same bag in a box on top of the table causes more strain than moving the bag from one table to another at the same height. This work is more dangerous when you must keep up with a machine.

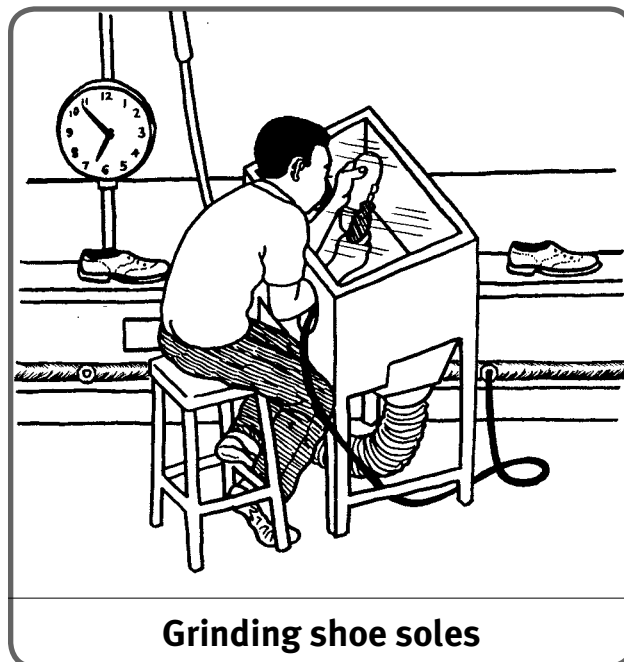
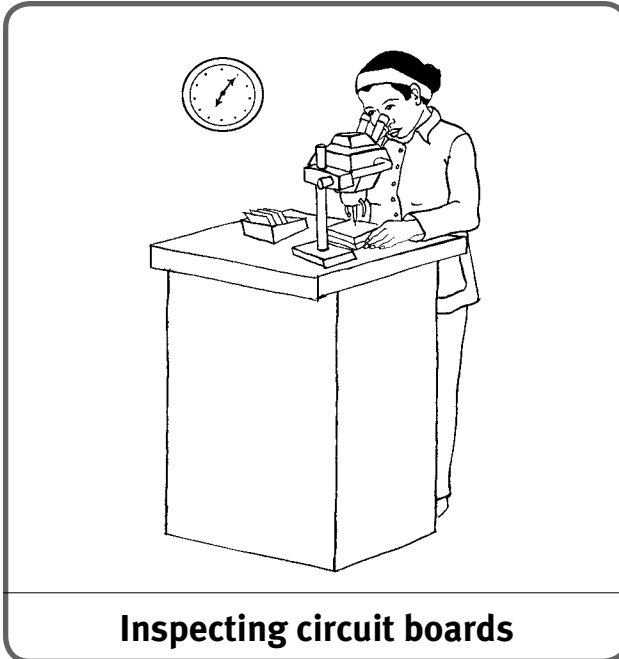
Learning to see ergonomic dangers

The ergonomic dangers faced by each worker depend on her job tasks and the general working conditions in her factory. Most workers face more than one danger.



Which ergonomic dangers can you find in these pictures?

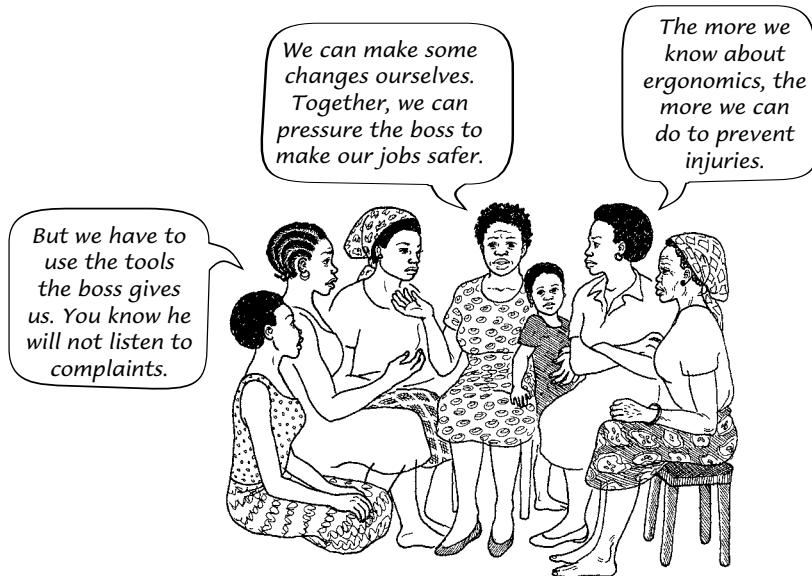
Which of these dangers do you and your co-workers face?



Preventing injuries by making jobs fit workers

Most strain and overuse injuries can be prevented if every worker

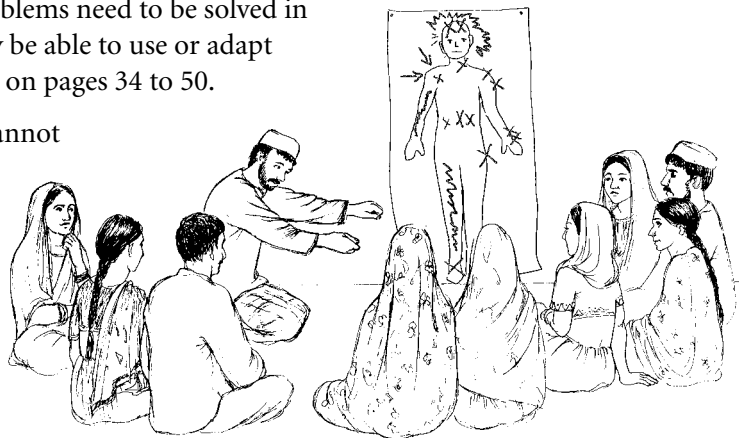
- has the **right equipment and tools** for her job
- uses **tools and equipment that fit** her body size and weight
- **is not forced to work** beyond the body's limits



Learning how job tasks strain your body

There are many ways to make jobs safer. The first step is learning which tasks may be causing injuries. You and your coworkers can use the **body map activity** on page xx and the **survey activity** on the next page to find out how your work may be hurting you. These activities will help you know which ergonomic problems need to be solved in your factory. You may be able to use or adapt some of the solutions on pages 34 to 50.

But most problems cannot be solved unless workers organize and gain power to bargain with the boss to make the factory safer.



ACTIVITY**Strain and overuse survey**

A survey like this can be used in many ways. One way is to take turns asking and answering questions with a partner. If you can, do the survey while you watch each other work. One of you may see problems that the other person is not aware of.

You and your coworkers may decide to use the survey in other ways. You may want to ask other questions to find out more about each danger. For example, when a person answers “yes” to a question, ask her to describe what she feels or what she does. Compare your answers with co-workers in a group. This will help everyone see dangers that are shared and dangers that only affect workers doing certain job tasks.



For more ideas about using surveys, see ‘Talk with your co-workers’ on pages xx to xx.

DOES YOUR JOB CAUSE STRAIN AND OVERUSE?

Do you have **pain, tingling, or numbness** in your body that you think is caused by work?

Do you **repeat the same movement** over and over again?

Do you work in **uncomfortable positions**, such as twisting, bending, or stretching your back, arms, or neck?

Do you stay in the **same position for a long time** while you work?

Do you **lift or carry** heavy loads?

Do you work with tools or equipment that **vibrate**?

Do you **use a lot of force** with your fingers, hands, or arms to pinch, push, pull, or manipulate tools, materials or equipment?

Do you use or lean on furniture, equipment, or tools with **hard edges** that press into your fingers, hands, arms, hips, or other parts of your body?

Do you work in a **very cold or very hot** area?

Does your work area have **poor or harsh lighting**?

Does your work cause strain or pain in any other way?

Which of these dangers would you like to eliminate first?



Preventing injuries with workplace changes

The next step to reducing ergonomic dangers is learning how job tasks, tools, and equipment can be changed so they do not cause harm. On pages xx to xx, we show examples of workplace changes that can prevent strain and overuse injuries.

There are too many types of factory jobs and equipment to show all the dangers of each job. You may be able to adapt the solutions shown in this book and also think of new ideas to fit the jobs in your factory.

ORGANIZING FOR ERGONOMIC SAFETY

Jobs are safer when the work processes, equipment, and tools are designed with the needs of the factory workers in mind. But the people who set up a factory usually think about the fastest and least expensive way to make a product. When they arrange the work space and supply the tools, they often do not put the workers' health and safety first. As a result, they create factory jobs that cause pain, injury, and disability.

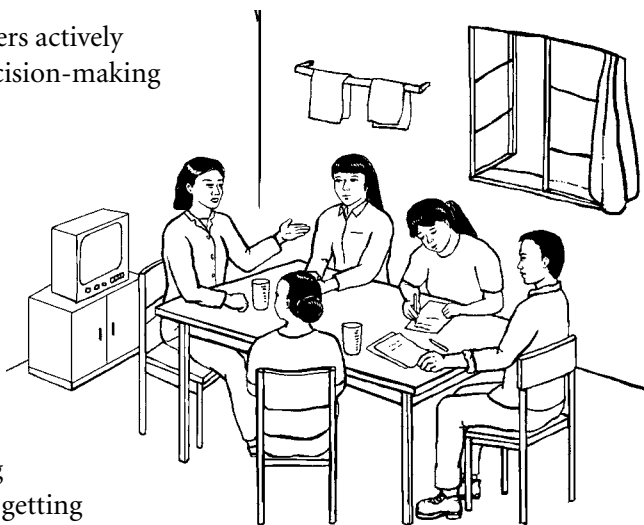
But this is not the only way to run a factory. Job tasks and workstations can be arranged so workers can do their jobs as safely as possible. Most of the time, you will need a strong, united union to get the boss to buy new tools or change the way the work is done. The stories on pages xx and xx tell how unionized workers in 2 factories won safer equipment.

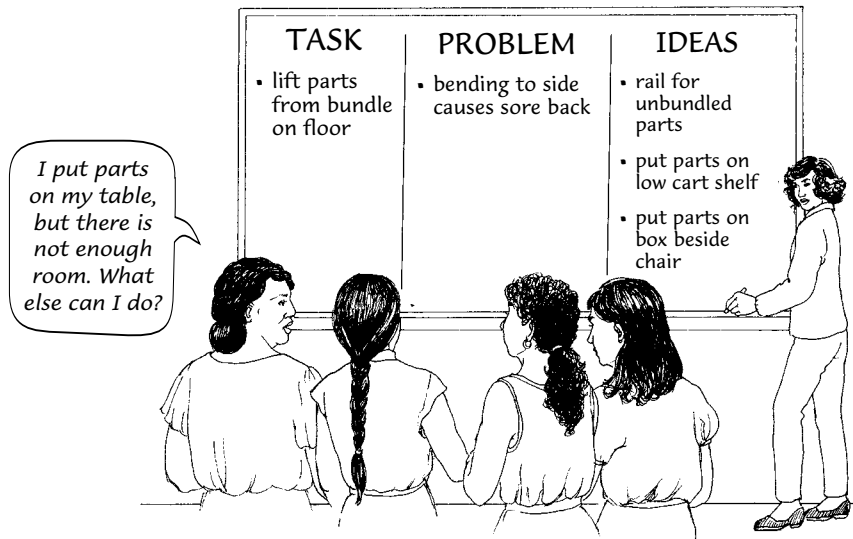
Workers can reduce some ergonomic dangers themselves. Kyoung's story on page xx tells how 3 garment workers made simple changes that reduced strain and pain caused by their jobs. The activities on pages xx and xx show how you can make chairs and carts that cause less strain.

ERGONOMIC TRAINING FOR ALL

Factories are safer when workers actively participate in training and decision-making about the work process.

A worker-led Health and Safety Committee, or a joint union-management committee, can demand ergonomic safety training for all employees. Workers can also organize to train each other based on their own experience. You can share ideas and skills for using tools and doing tasks without getting injured.



ACTIVITY**Finding solutions to ergonomic problems**

You can use the answers to a survey or body mapping activity to decide which ergonomic dangers to eliminate first. Choose a task that is causing problems and share ideas for reducing the danger by changing the equipment, furniture, tools, or the way the work is done. Answering the questions below can help you think about different ways to solve each problem.

Repetition: How can you reduce the number of times you repeat the same movement?

Uncomfortable positions: How can you reduce reaching, bending, or working in other uncomfortable positions?

Force: How can you do less lifting or lowering of heavy loads? How can you use less force to push, pull, and grasp?

Staying in one position: How can you work without sitting, standing, or holding part of your body in the same position all the time?

Pressure on the body: How can you keep hard edges or tool handles from pressing on your body?

Vibration: How can you reduce vibration from tools or equipment?

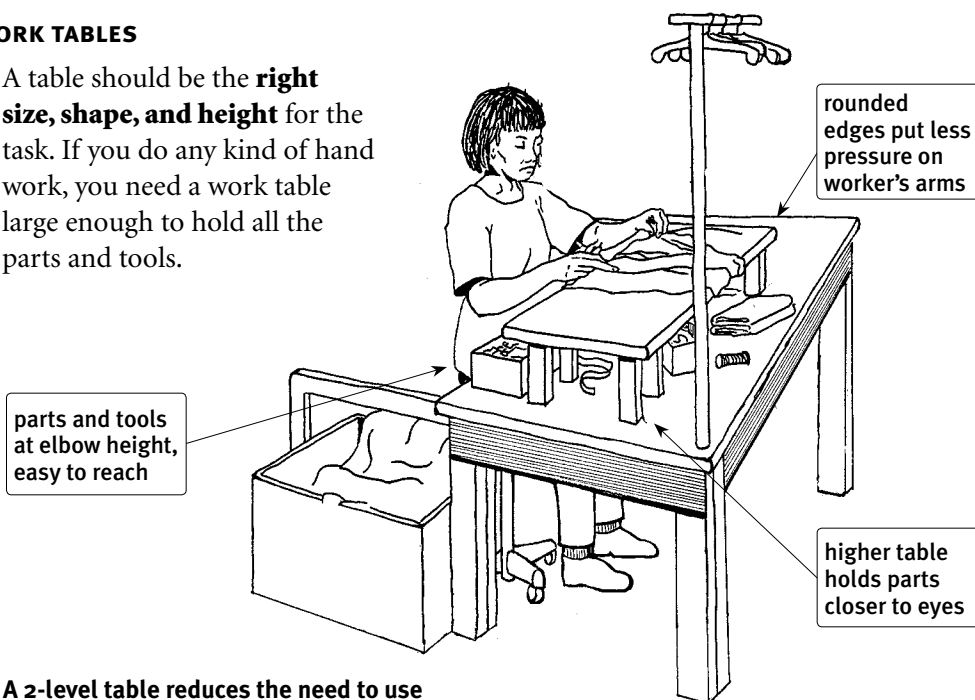
You may have to try several changes before you find a solution. Some ideas will not work in every situation. Other solutions may cause new problems. A change that helps one worker may not help other workers doing the same job.

Listen to everyone's ideas. Be ready to try different ideas and reconsider decisions about the best solution to each problem.

More comfortable work stations

WORK TABLES

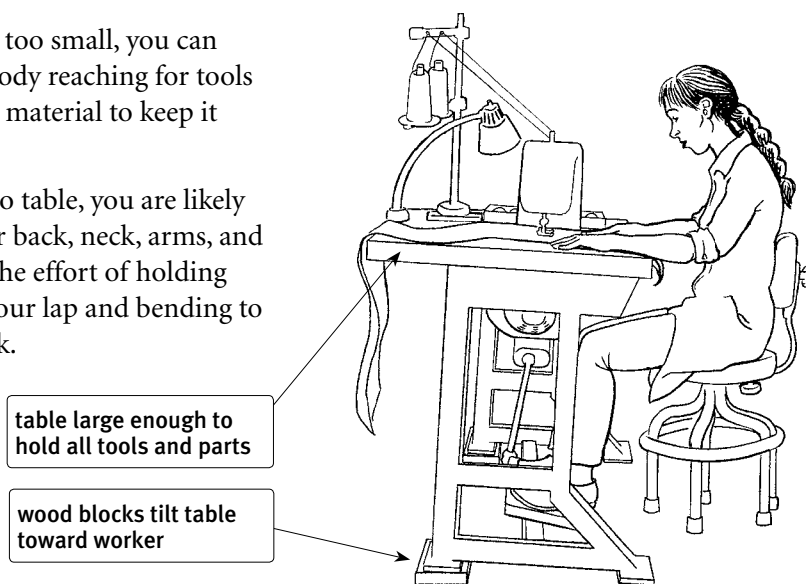
A table should be the **right size, shape, and height** for the task. If you do any kind of hand work, you need a work table large enough to hold all the parts and tools.



A 2-level table reduces the need to use your hands to hold the material you are working on.

If the table is too small, you can strain your body reaching for tools and grasping material to keep it from falling.

If you have no table, you are likely to strain your back, neck, arms, and hands from the effort of holding material in your lap and bending to see your work.



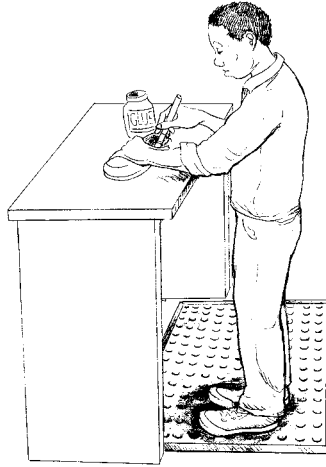
A tilted table makes it easier to see without bending forward.

BE COMFORTABLE SITTING OR STANDING

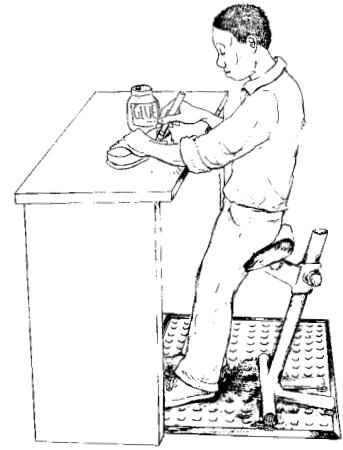
Workers who stand need **tables that can be raised and lowered** to the right height for each worker. **Soft-soled shoes** and **padded floor mats** reduce leg pain for workers who have to stand for long periods of time.



Sitting



**Standing on
padded floormat**



**Standing with a
sit-stand chair for support**

Standing is easier if you rest one foot on a brick or a block of wood and change positions during the day. You can make a **footrest** by taping stacked cardboard, paper, or a piece of wood to the floor. Make sure the footrest does not get in the way of a machine pedal.

footrest

padded mat

