

Ergonomic Solutions ¹

(Focusing on the shoulder, wrist/hand & low back)

WORKSHOP PROPOSAL

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¹ This material was produced under a Susan Harwood Grant SH-29599-SH6 from the Occupational Safety and Health Administration, U.S. Department of Labor. It does not necessarily reflect the views or policies of the U.S. Department of Labor, nor does mention of trade names, commercial products, or organizations imply endorsement by the U. S. Government. The U.S. Government does not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed.

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Workshop Overview

Workshop Length: Approximately 3 hours

Target Audience: CASA Latina participants—day laborers with varying experience in common day labor activities

Workshop Location: CASA Latina Worker Center

Learning Objectives:

1. The recognition among day laborers of the consequences and seriousness of musculoskeletal disorders (MSDs) focusing on the shoulder, wrist/hand and low back.
2. A review of the identification of risk factors/potential causes of MSDs, focusing on the shoulder, wrist/hand and low back.
3. The conditions under which these risk factors occur in excavation, demolition, hauling, and janitorial work.
4. The identification of home remedies that are myths.
5. The identification of preventive measures to reduce MSDs for day laborers in these industries including team work, better equipment and tools and ways to support each other in working safely.

Equipment & Materials Required:

Technology: -Computer, projector, speakers

Props: -Spine, hand and pinch dynamometers, jackhammer, wheelbarrow, 3 concrete blocks, sponge, squeegee, bucket, 2 buckets filled with gravel

Other: -PowerPoint presentation slides
-Pre and Post evaluation materials
-Job scenarios description handouts
-Information card handouts
-Butcher paper or flip chart paper
-Markers
-Tape

Workshop Plan

1. INTRODUCTION

1.1. Welcome, Objectives, and Agenda

Activity Duration: 10 minutes

Purpose: -Welcome participants
-Inform participants what to expect from the workshop
-Address basic needs

Materials: -PowerPoint presentation
-Computer
-Projector

Procedure:

Facilitators welcome participants to the workshop. Facilitators introduce themselves and their role as facilitators, emphasizing they are not experts but instead will help guide the participants' learning.

Facilitators review the learning objectives for the workshop (as stated in Workshop Overview).

Facilitators present the day's agenda.

Facilitators encourage participants to take stretch and bathroom breaks as they need. The 3-hour workshop will also include two 5-minute breaks.

1.2. Ice-breaker Activity: What is your favorite sport? Do you play at all?

Activity Duration: 10 minutes

Purpose: -Foster a supportive and relaxed learning environment
-Learn names
-Provide participants a chance to connect with the topic

Materials: -Whiteboard marker

Procedure:

Participants introduce themselves to the group, one by one. As participants introduce themselves, facilitators write their names on the whiteboard. The activity finishes when everyone has introduced themselves.

Facilitators ask participants to:

1. Say your name.
2. Say where you are from.
3. Tell the group what you like to do in your time off – and what is your favorite sport.

1.3. Participation Agreements

Activity Duration: 5 minutes

Purpose: -Agree on guidelines to foster an atmosphere in which all participants feel comfortable participating

Materials: -Flip chart
-Marker
-Tape

Procedure:

Facilitator informs participants that because the workshop relies on participation and communication, s/he would like to propose guidelines to facilitate everyone's ability to participate.

Facilitator and participants brainstorm a list of guidelines for effective and respectful communication and participation. Facilitator writes them on a flip chart. Agreement examples are:

- Put cell phone on vibrate
- Raise hands to speak
- Respect all opinions

Participants show a thumbs-up sign if they agree to these guidelines. Facilitators tape agreements in a visible place in the room.

1.4. Pre- Evaluation

Activity Duration: 15 minutes

Purpose: -Record participants' prior knowledge of the topic.

Materials: -Evaluation materials to be developed by external graphic designer that include examples of shoulder, wrist/hand and low back.

Procedure:

Facilitator explains that the purpose of the pre-evaluation is to gauge what participants know about the topic. Participants will take a similar evaluation at the end of the workshop in order to assess the effectiveness of the workshop. They will not receive a grade and the results do not impact their participation in Casa Latina in any way.

The pre-evaluation will use pictograms to illustrate different job situations (demolition, excavation, janitorial work situations etc.). Each question will have three different options for performing that job, highlighting both safe and unsafe approaches. Participants will be asked to choose the option that represents the safest way to do the job. The pictograms will focus on the shoulder, wrist/hand and low back.

Facilitator explains the format of the questionnaire and gives participants a chance to ask questions before beginning the test.

2. MSD REFRESHER

Activity Duration: 15 minutes

Purpose: -Provide simple definition of MSDs
-Describe the seriousness and prevalence of MSDs

Materials: -PowerPoint presentation
-Computer
-Projector

Procedure:

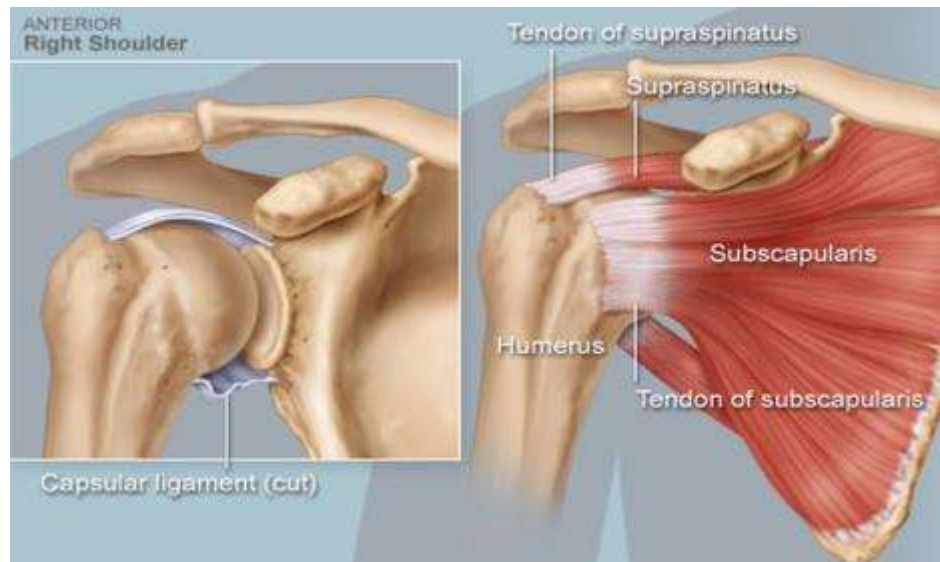
Facilitators ask the group, what they remember from the previous workshop about MSD. What is an MSD? What can cause an MSD? If no one answers, then the facilitators use a slide to define Musculoskeletal Disorders (MSDs) and explain that MSDs are occupational disorders affecting muscles, tendons, ligaments, joints, and/or nerves. Damage is cumulative (happen gradually as opposed to an accident) and chronic (effects last a long time).²

² COHP Hardhat Ergonomics 2 Hour PowerPoint Presentation, November 2000. Slides 3-4.

At this point the facilitators will explain that “overuse” is a commonly used term for MSDs. When the body is pushed beyond its limits (overuse), an injury can occur. The facilitators will use the example of the shoulder to illustrate what’s happening in the body when wear & tear occurs.

Facilitators will use a slide with the drawing of the anatomy of a shoulder from the appendix and talk briefly about the fact that shoulder joints are shallow and are more vulnerable – especially as we age.

The shoulder is not a single joint, but a complex arrangement of bones, ligaments, muscles, and tendons that is better called the shoulder girdle. The primary function of the shoulder girdle is to stabilize and give strength to the shoulder and allow a large range of motion to the arm.



<https://www.mcjr.com/news/> [Midwest center for joint replacement](#)

Facilitators ask the group who in the class has suffered an MSD since taking the last training. What type of movement were you doing when you suffered the MSD?

If no one in the group suffered an MSD, facilitators will play a recording of one or two testimonials from workers who had to quit their jobs because of MSDs. Facilitators emphasize that MSDs are not an inevitable part of the work and can be avoided. However, if the body’s limits are exceeded, an “overuse” injury can occur.

Using the points of the story, the facilitators will highlight the possible causes: awkward posture, repetition or high force/heavy loads that can lead to MSD or “overuse”.

2. Lopper/clippers gardening demonstration

Activity Duration: 10 minutes

Purpose: -Give participants an experiential learning opportunity
-Demonstrate the physical effects of different postures

Materials: -Loppers and hand clippers
-Hand and pinch dynamometers
-Handout that shows different postures and load scenarios
-Pictures of other risk scenarios (see Appendix A)

Procedure:

To demonstrate how posture can be within the worker's control, the facilitators will ask for three volunteers and give them either clippers or loppers. Facilitators instruct participants to hold the loppers with the elbows above shoulder height and the clippers with the wrist flexed as illustrated on the handout paper. Then ask the participants to use the tool as if they were working (10 seconds maximum). Then have them change positions – loppers between shoulder and waist height and clippers with a straight wrist.

Facilitators ask the group: "What did you notice? What was easier and harder? Where did you feel discomfort or pain on the difficult postures?"

To illustrate the strength loss with an awkward wrist position, the facilitators demonstrate using the hand and pinch dynamometers. Each participant will then squeeze it with a straight wrist first and then a flexed wrist. What is the strength difference between the two positions? Do the same with the pinch dynamometer.

Facilitators introduce and show pictures of other risk factors to watch out for their jobs:

- Hand/arm vibration
- Static postures - Holding the same position for more than 10 or so seconds without moving (circulation can become compromised and muscle fatigue sets in rapidly – potential for overuse)

3. Analyzing Jobs for Risks and Ideas for Solutions

Activity Duration: 30 minutes

Purpose:

- Identify potential MSD risks and ergonomic solutions from job scenarios
- Identify body locations where an overuse injury could occur
- Brainstorm possible ideas for solutions including teamwork and giving each other feedback without starting a fight.

Materials:

- Written job scenarios (see Appendix B)
- Pictures of situations at high risk for MSDs (see Appendix C)

Procedure:

In groups of 2-4 people, workers choose one of the job scenarios that they've experienced. The scenarios were chosen from the most common jobs dispatched at Casa Latina's Day Worker Center: Excavation, demolition, hauling and housekeeping, each group will follow the instructions of their given scenario to describe and/or "act out" the scene. The scenarios will focus on the shoulder, wrist/hand and the lower back. The participants will then answer the following questions:

- Where in her/his body will s/he feel pain at the end of the day?
- Why will s/he feel pain?
- What can s/he do to prevent injury?

After the groups have evaluated their scene and answered the questions, they will share their scenario and answers with the rest of the class. Facilitators will ask the rest of the participants if they have any additional ideas for solutions for each work scenario.

After all the groups have presented, the facilitators summarize the risks and solutions and use pictures to reinforce with a visual the solutions for common work situations

4. Team Work

Team work (there is no "I" in team)

Activity Duration: 30 minutes

- Purpose: -Give participants real world ideas on how to work as a team.
-Give participants techniques in how to deal with a frustrating situation involving a co-worker
- Materials: -none

Following the conversation about ways to prevent overused injuries, Facilitators will explain that one of the most effective ways to prevent most injuries is: Team work, and since most jobs dispatched through Casa Latina's day worker center are for 2 or more people, it's in the best interest of everyone to work as a team.

Team work is: the combined action of a group of people, working together to achieved the best results possible.

Team work doesn't necessarily mean that people must be good friends. But they have to be professionals, and help each other; this will make the job easier, faster, and most importantly safer.

To get more input onto why sometimes is hard for workers to work in a team; the Facilitators will break the group into smaller discussion groups and try to answer the following question:

1. What would you do if a co-worker doesn't want to work as part of a team?
2. What would you do if a co-worker is working in an unsafe manner?
3. How would you de-escalate a situation where people are angry and arguing?

Each question is written on a big flipchart paper and taped on the wall in different sections of the room. Each group is positioned in front of one of the flipchart papers. As a group, they will start brainstorming and writing their ideas below the question. After 10 minutes, each group will rotate to the next question on the wall, adding or approving the answers already written by the other groups. After each small group has answered the three questions, and before they begin their presentation, the facilitators will ask everyone about their experience working as a team. Was it easy or not? Why?

After reviewing all the answers, the facilitators, if needed, will add from the list of ideas below.

Suggestions for working as a team:

- Listen to co-worker's ideas
- Use open, honest and respectful communication
- Agree upon procedures for problem solving
- Believe that everyone belongs and has something to offer
- Be open to the fact that one is not always right, that everyone is different
- Use Casa Latina Support Emergency line to ask for support

Review the agreement/rules on how to participate at the worker center which talks about the work as a team.

Facilitators emphasize that each worker has something to add, and that working as a team doesn't mean that you need to become best friends. A professional relationship relies on respect and honest communication while working together.

5. Myths & facts

Activity Duration: 15 minutes

Purpose: -Have people understand that some home remedies are often not an effective intervention to heal an overuse injury.
-Have people understand that prevention is the best way to avoid injury.

Materials: -none

Procedure:

Facilitators will ask the group what home remedies they use to feel better after a hard day of work.

Facilitators will list all the ideas from participants on the board and separate them in three sections:

MYTHS – no scientific evidence and could cause harm if used as the only “cure.”

DON'T KNOW – no peer reviewed scientific evidence but it seems to work for some people. It's not a proven cure, so it is necessary to do something else to prevent an injury. However, it is important not to negate the other remedies if it helps them feel better. Suggest that there are additional medically proven treatments that they can use to reduce inflammation and muscle and/or joint soreness.

FACTS – scientific evidence.

In case participants do not have ideas facilitators can mention the home remedies listed below. Some home remedy ideas that might come up are (we heard them from last year MSD's training); drinking Coca-Cola to get energy, rubbing alcohol in the aching muscles, drinking water early in the morning to prevent muscle cramps, etc. Facilitators will do their best to sort out whether these remedies are myths or facts.

Some examples and answers are:

1. Showering after work, causes arthritis (*Osteoarthritis is the most common arthritis and is caused by wear and tear damage to the joint's cartilage due to use over a long period of time*). MYTH
2. Working in the rain causes arthritis (*No – same as previous answer - Working in the rain only makes you wet – and maybe cold*). MYTH
3. Smash avocado pit, mix it with alcohol and rub the paste into aching muscles (*No research backing up this idea*). DON'T KNOW
4. Eating lots of garlic helps with muscle elasticity. (*There are those in the naturopathic world who say that garlic can help maintain muscle elasticity. There isn't any peer reviewed research that we could find to prove or support this theory*). DON'T KNOW
5. When feeling tired, drink a coca cola (*Loaded with caffeine and sugar-will give and immediate energy boost followed within an hour by a decline*). PARTLY MYTH
6. Eating beef (protein) helps with muscle growth (*Lean beef and chicken, tuna, pork, etc. are high in protein which contributes to muscle health but not growth*). PARTLY MYTH
7. Drinking a ½ gallon of cold water early in the morning is good for blood circulation and helps preventing muscle cramp (*staying hydrated throughout the day can reduce the risk of cramping and especially in hot weather*) PARTLY MYTH

Facilitators will stress and add some specific FACTS, if not mentioned:

Ice – the goal is to avoid or control inflammation. A bag of ice (or frozen peas) over the sore area for 20 minutes or so reduces inflammation from overuse that can lead to chronic injury. Heat should *always* be avoided after work because even though it might feel better, it will increase the inflammation and prolong the injury. Replenishing fluids (water) is always a good idea during and after a hard day of work. Most of us have a tendency to not drink enough water.

Ibuprofen – proven to help against inflammation.

Stretching –helps muscles to prepare for and recover from a day of work. Injury prevention is key to staying healthy and strong. The following stretches focus on the shoulder, wrist/hand and lower back:

1. Shoulder stretch
2. Wrist/hand stretch
3. Lower back stretch
4. Hand stretch

Facilitators will demonstrate the stretches, and have the whole group practice the stretches together.

Activity Duration: 5 minutes

Purpose: -Teach participants four low-barrier stretches that can help reduce chance of workplace injuries with particular attention to the shoulder, wrist/hand and low back.

Materials: -Small booklet with illustrations of the stretches

Facilitators lead the group in doing several stretches that can help prepare the body for work and relax the muscles after work. Participants practice doing the stretches.

6. CLOSING

OSHA Information & Resources

Activity Duration: 5 minutes

Purpose: -Reinforce key information from the workshop
-Give participants something concrete to take from the workshop

Materials: -Whiteboard marker
-Copies of small paper handout with best practices and OSHA information (see Appendix D)

Procedure:

Facilitators explain what OSHA is: Occupational Safety and Health Administration and its mission: “to assure safe and healthful working conditions for working men and women and enforcing standards and by providing training, outreach, education and assistance”.

There is no specific law that relates to ergonomics hazards but it can be enforced under the General Duty Clause, OSH Act section 5.(a)(1) 1970. Which states that: every employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.

Information to file any complaint with OSHA:
206-757-6700; www.osha.gov/report_online

U.S. DOL/OSHA
300 Fifth Avenue, Suite 1280
Seattle WA 98104

The Whistleblower Protection Law is designed to protect workers from retaliation from their employers if they lodge a complaint (according to OSH Act Section 11C). More information here:
https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=OSHACT&p_id=3365

Each participant receives a small square of paper with crucial information to remember. Facilitator can suggest that participants keep the paper in their wallet, in case they need to refer to it while working.

7. EVALUATION

a. Post- Evaluation

Activity Duration: 10 minutes

Purpose: -Record participant knowledge of the topic after the workshops to compare to pre-workshop evaluations

Materials: - Evaluation materials to be developed by external graphic designer

Procedure:

Facilitator should remind participants of the purpose and format of the questionnaire and give participants a chance to ask questions before participants begin the test.

Just like the pre-evaluation, the post-evaluation will use pictograms to illustrate different job situations. Each question will have three different options for performing that job, highlighting both safe and unsafe approaches. Participants will be asked to choose the option that represents the safest way to do the job.

After individuals finish their post evaluation, the facilitators will go through each question with the group and confirm the right answers.

b. Impact Evaluation

Activity Duration: 5 minutes

Purpose: -Elicit feedback from participants to gauge their experiences from the workshop and learn areas for improvement or change in the future

Materials: -Butcher paper & marker
-Ball

Procedure:

Facilitators lead participants in a round-robin activity, in which each participant shares three brief reflections about the workshop:

- One thing they learned.
- One thing they liked about the workshop.
- One suggestion to change or improve it.

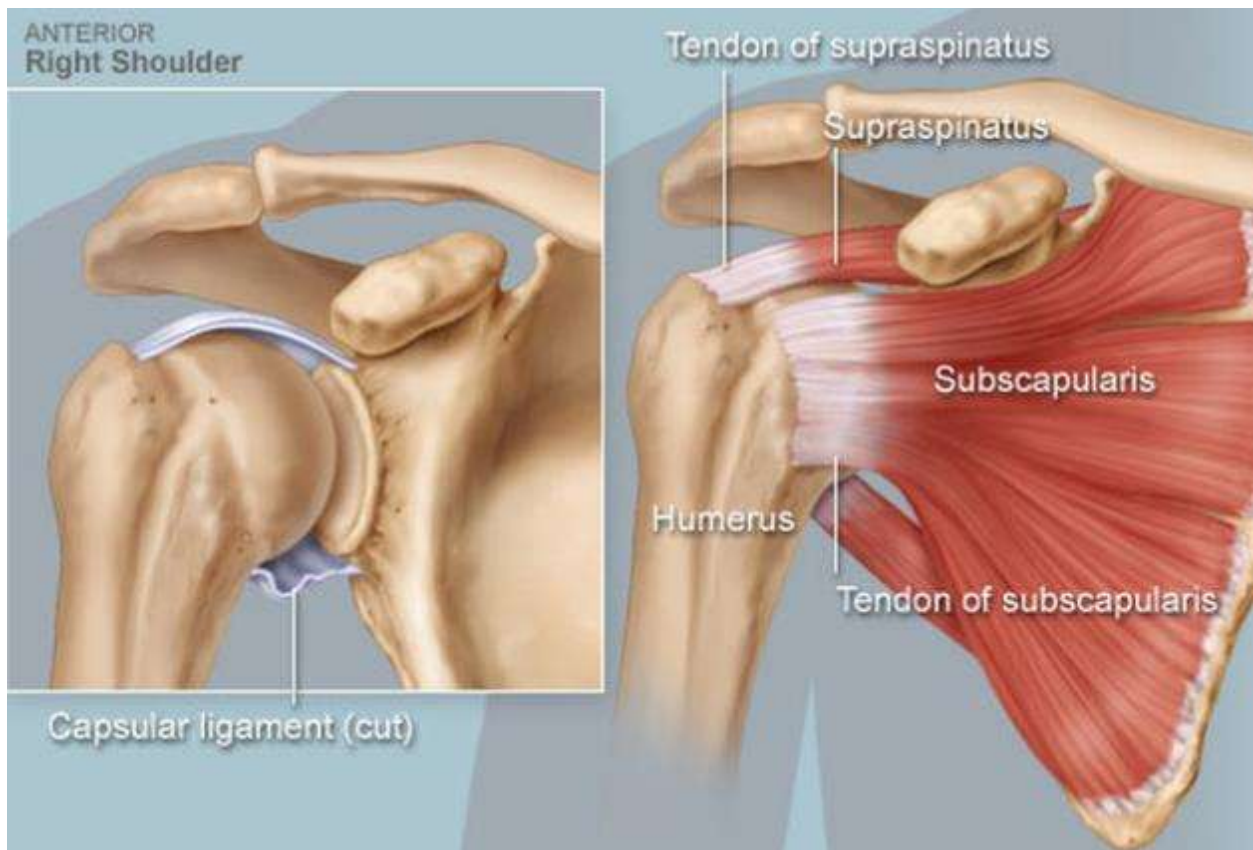
Facilitators record participant responses on butcher paper or other paper.

Facilitators thank participants for their participation and remind them to take the handouts with them.

APPENDICES

A. Shoulder anatomy and why it's important to protect it.

The shoulder has a wider and more varied range of motion than any other joint in the body. Our shoulder allows us to do everything from paint to play basketball. But this flexibility also makes the shoulder one of the most unstable joints in the body. The shoulder joint is not held in place with bones, but rather an elaborate system of muscles, tendons and ligaments. Those most at risk for shoulder problems are workers with “overhead” movements— painters, electricians, gardeners and construction workers. The older we get, the more vulnerable we all are.



[https://www.mcjr.com/news/ Midwest center for joint replacement](https://www.mcjr.com/news/Midwest-center-for-joint-replacement)

The shoulder is not a single joint, but a complex arrangement of bones, ligaments, muscles, and tendons that is better called the shoulder girdle. The primary function of the shoulder girdle is to give strength and range of motion to the arm.

The shoulder joint is “shallow”. This means that as a ball and socket joint, the socket does not provide stability like the strong hip joint does. The advantage is that the shoulder can move in many directions – unlike the hip. The disadvantage is that that physiological muscle loss can begin at around age 30, the shoulder joint becomes less stable, the muscles have to work harder to perform daily tasks and therefore become more vulnerable to “overuse” when working on tasks that push the less strong muscles past their limits. (Muscle loss will vary from person to person but can range from 3% - 5% per year in an inactive person after age 30).

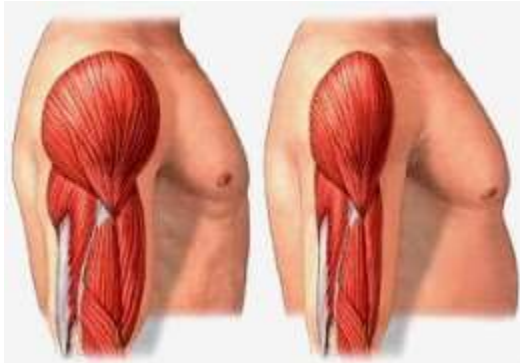


Photo: Sarcopenia.es/curso

As a comparison, the hip joint is quite stable and does not rely upon surrounding musculature as much as the shoulder. You can see the depth of the “socket” and how deep the ball is to provide stability.

B. Fredi’s Story – person affected by MSD

I have worked in landscape for the last 4 years. The gardens that I maintain required a lot of weeding, because of the terrain; it is easier for me to do it by hand, pinching and pulling are the two movements I do all day.

I take pride in my work & I like what I do. But lately after a full day of work, my right hand swells and hurts so much to the point that is hard to hold things even something like holding a pen; at nights my hand goes numb

I visited a doctor few months back, and he told me that it’s because when pinching or/and gripping with a force of 2lbs or more, for more than 2 hours per day causes inflammation and the tendons passing through carpal tunnel swell - putting pressure on the median nerve. Left untreated, this will develop into Carpal Tunnel Syndrome.

C. Job Scenarios: Risks and Solutions

Cleaning bathrooms/showers:

Materials:

- Sponges (large and small)
- Extension handle
- Stool or short ladder
- Squeegee

One person in the group will demonstrate the motions required to clean a mirror (high) using the sponge, squeegee and stool or ladder.

Pretending that the worker would have to do this task for 6 hours, the group will answer the following questions:

Q1: Where in his/her body will s/he feel pain at the end of the day?

- Shoulder and hands.

Q2: Why will s/he feel pain?

- Repetitive motions using the hands and arms.
- Pinching the sponge with a force of 4lbs or more, for 2 hours or longer may cause overuse of the tendons and nerves of the hands and fingers.
- Awkward reaches to clean the higher parts of the mirror.
- Repeated force required to wipe the mirror clean.

Q3: What can s/he do to prevent any injuries? **Emphasize using the best equipment

- Switch working hands.
- Use the right size sponge.
- Use a ladder or stool to reach the work.
- Take a break if possible.
- Add an extension – better equipment.
- Use a steamer.
- Work on a task that uses different motions.
- Stretch before, during and after work.

Hauling (1)

Materials:

- One wheelbarrow
- Three concrete bricks

One person in the group will load the wheelbarrow with the 3 cement bricks, push the wheelbarrow across the room and then unload the bricks on the other side. (See pic. Hau 1) Pretending that the worker would have to do this task for 6 hours, the group will answer the following questions:

1 Where will the worker feel pain at the end of the day?

- Lower back, shoulders, hands.

2 Why does s/he feel pain?

- Pinching/gripping to lift the blocks, force/weight of the blocks, awkward lifting positions to load and unload the wheelbarrow, lifting and lowering the weight of the filled wheelbarrow by the handles.

3. What can s/he do to prevent any injuries?

- Use good lifting technique, when lifting and lowering the bricks (keep the load close to the body, bend knees use both hands).
- Change tasks with co-worker (teamwork)
- Select the correct wheelbarrow, longer handles makes easier when lifting, two wheels make it easier when hauling heavy loads.
- Wear gloves that fit hands and the task.
- Stretch before, during and after work.

Hauling (2)

Materials:

- Two five gallon buckets

One person in the group will carry the two buckets across the room acting as if the buckets were full of gravel (See pic. Hau 2).

Pretending that the worker would have to do this task for 6 hours, the group will answer the following questions:

1 Where will the worker feel pain at the end of the day?

- Lower back, shoulders, hands.

2 Why s/he feel pain?

- The heavy weight of the buckets and gripping the bucket handles (contact stress), the heavy weight of the buckets.

3. What can s/he do to prevent any injuries?

- Use a wheelbarrow instead if possible (always try to avoid “carrying”).
- Be sure the weights of the buckets are equal – avoid imbalance.
- Use good lifting technique when lifting and lowering the buckets (bend at the knees not the waist, lower both buckets at the same time).
- Change tasks with co-worker (teamwork).
- Wear gloves that fit hands and can absorb some of the contact stress on the part of the hand where the handle is grasped.
- Stretch before, during and after work.

Demolition (1)

Materials:

- One jackhammer

(Without turning on the jack hammer) One person will pretend to use a jackhammer to break concrete. (see picture Demo 1).

Pretending that the worker would have to do this task for 6 hours, the group will answer the following questions:

1. Where in his/her body will he/she feel pain at the end of the day?

- Lower back, upper back, shoulders, hands.
- 2. Why will he/she feel pain?
 - Force/weight of the tool, vibration, static loading of the upper back, lifting/moving the tool – lower back
- 3. What can he/she do to prevent any injuries?
 - Use good lifting technique, when handling the heavy tool (keep it load close to the body, bend knees use both hands,
 - Make sure the tool is not too short – causing the worker to bend to operate it.
 - Use the right tip. A pointed tip is for breaking concrete, a flat tip is for breaking asphalt.
 - Use a jackhammer lift assist when available (photo attachment 1)
 - Use proper PPE: Respirator N-95, safety glasses Z87, hearing protection, anti-vibration gloves and foot guards (photo “foot guards”).
 - Use the right technique – see YouTube video “how to use a jackhammer correctly” www.youtube.com/watch?v=Cm3o8-G5lul
 - Change tasks with co-worker (teamwork).
 - Stretch before, during and after work.

Demolition (2)

Materials:

- One sledgehammer

(Cautiously) One person will swing a sledgehammer acting as if they are breaking concrete. (see picture Demo 2)

Pretending that the worker would have to do this task for 6 hours, the group will answer the following questions:

1. Where in his/her body will he/she feel pain at the end of the day?
 - Lower back, upper back, shoulders, hands.
2. Why will he/she feel pain?
 - Repeated swinging motion, force/weight of the tool, heavy impact, lifting/swinging the tool, hands with impact.
3. What can he/she do to prevent any injuries?
 - Use good technique. Let the tool do the work.
 - Make sure the tool handle is the right length - not too short or too long .
 - Use proper PPE: Respirator N-95, safety glasses Z87, hearing protection, anti-vibration gloves and steel toed boots.
 - Use the right technique – see YouTube video “how to use a sledgehammer correctly” www.youtube.com/watch?v=Dr syl5Dk1l
 - Change tasks with co-worker (teamwork).
 - Stretch before, during and after work.

Excavation (1)

Materials:

- One shovel

One person will demonstrate how to dig a trench using a shovel (picture Excavation 1) Pretending that the worker would have to do this task for 6 hours, the group will answer the following questions:

1. Where in his/her body will he/she feel pain at the end of the day?
 - Lower back, upper back and shoulders
2. Why will he/she feel pain?
 - Repeated shoveling motions, force/weight of the material being dug, awkward position to lift and lower the loaded shovel.
3. What can he/she do to prevent any injuries?
 - Use good technique. To generate maximum force, swing the pick straight down and not to the side. Let the tool do the work.
 - Make sure the tool handle is the right length - not too short or too long.
 - Use high friction gloves and be sure the pick handle is not slippery.
 - Stand inside the trench at the lowest possible point. Ideally, the "target" should be between knee and foot height. Standing outside, the trench will increase the need to bend down putting excessive strain on the lower back. (see photo Digging 1).
 - Change tasks with co-worker (teamwork).
 - Stretch before, during and after work.

Excavation (2)

Materials:

- One Pick

One person of the group will demonstrate how to do an excavation using a Pick (see pic. Excavation 2)

Pretending that the worker would have to do this task for 6 hours, the group will answer the following questions:

1. Where will s/he feel pain at the end of the day?
 - Lower back & Shoulders
2. Why will s/he feel pain?
3. What can s/he do to prevent any injuries?'

One of the biggest problems when digging is the selection of the right equipment

- Just like the sledgehammer, if the handle is too short, the worker will have to bend down to hit the ground.
- If the worker swing the pick from a side rather than straight down, not only will he take longer to do the job, but he will use so much more force than if he was swing

straight down, because when swing straight down the weight of the pick helps to hit the ground with more force.

- When digging a trench, the worker should stand on the lowest possible point. The idea is that the worker should bend the least possible. (see pic. Excavation 1)

Photos to accompany scenarios

1. Cleaning bathrooms/showers



Photos: from the Work Safe Victoria website worksafe.vic.gov.au (Work & Safety agency in Australia)

2. Hauling (1)



Photo Kate Stewart

3. Hauling (2)



Photo: Website from Western Washington University Training
western.wvu.edu/photo/students

4. Demolition (1)



Photo: Oregon OSHA

5. Demolition (2)



Photo: Oregon OSHA

6. Excavation (1& 2)



Photo: johnsrandomblog.org



Photo: Powerhouse museum.com/zagora

INFORMATION PAMPHLET: BEST PRACTICES OF ERGONOMICS

Some ideas: Information pamphlet to be designed.

- Lift with your legs, not your back.
- Bring the load close to your body.
- Stretch before and after work to help reduce injury and soreness. Show some specific stretches on the flyer.
- Call OSHA to report an unsafe work practice: 206-757-6700

Bureau of Labor Statistics, Department of Labor, BLS News Release, November 19, 2015
Shoulder and skeletal anatomy – www.cadnav.com

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