S E 2 2 G U I D E

Shipyard Ergonomics

Facilitator's Guide

"22 ways to reduce many of your injuries and most of your injury related costs"

Port of San Diego Ship Repair Association
and
OSHA

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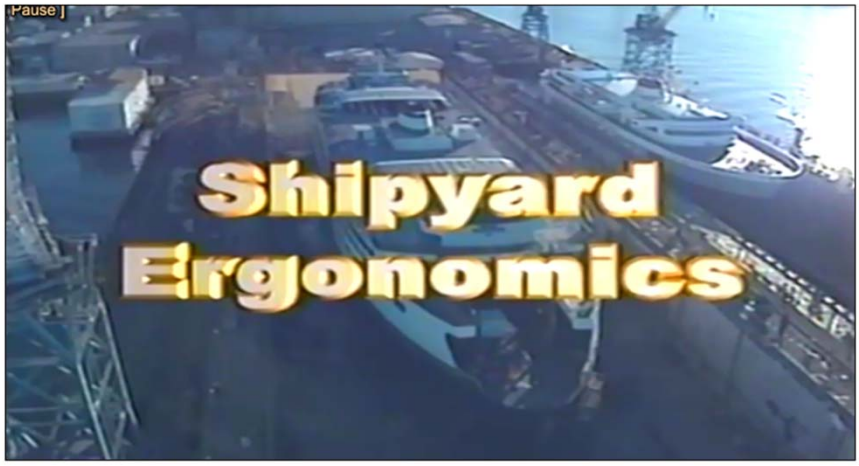
Purpose and Objectives



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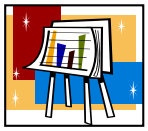
1

EXERCISE

VIDEO*



FLIPCHART

TARGET ANSWER KEY POINT

QUIZ

Use the symbols above as a guide to support you in facilitating your class .

*You may contact the Port of San Diego Ship Repair Association for a copy of the videos.

INTRODUCTION – Identify yourself and provide a brief bio (written or verbal). Provide class logistics (emergency alarm, muster area, breaks, restrooms, and cell phone-electronic device use).

Read course Purpose and Objectives (opposite page) and ask if there are any questions.

Handout Pre/Post Test and explain by completing this test they will have a good understanding of the material being covered.

Have them circle “Pre” at the top of the test. Have them write the date in the appropriate space. Explain that they <u>will not</u> need to write their names on the pre-test. Allow 5-10 minutes to complete the pre-test and collect the tests.

Topics

2

Review topics.

Ask if there are any questions.

Review OSHA origin and purpose.

Ask a participant to read the “need for OSHA statistics”.

Thank the participant.

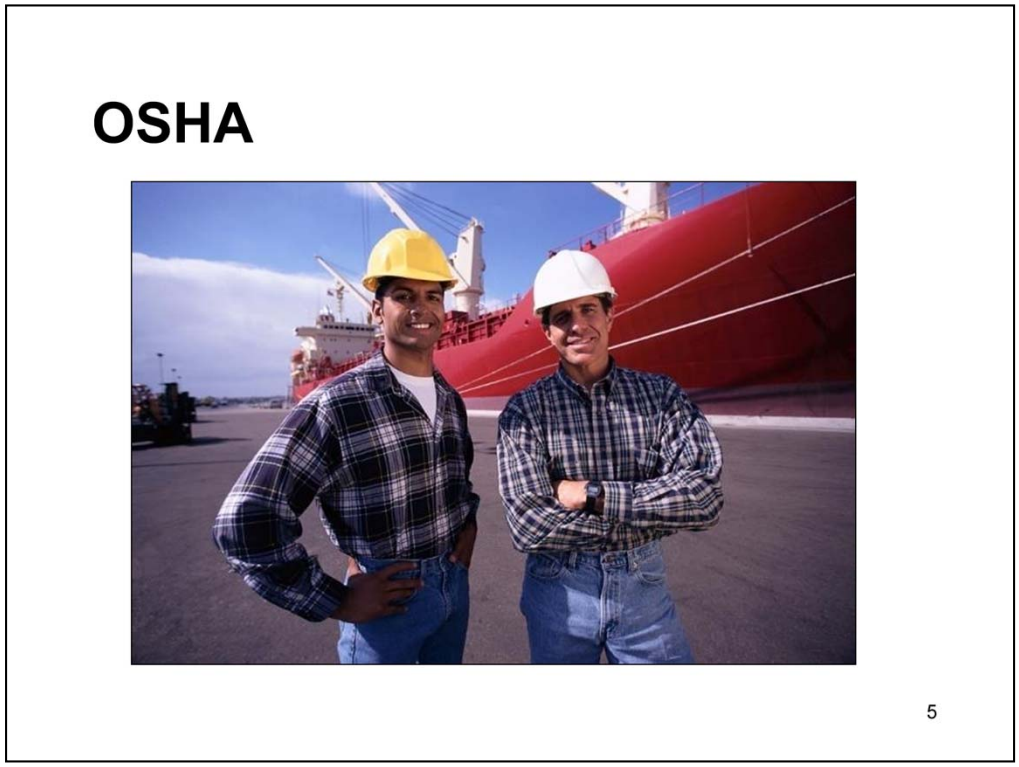
Employee's Responsibilities and Rights

Ask if a participant would read the "Responsibilities" section.

Thank the participant.

Ask if a participant would read the "Rights" section.

Thank the participant.



Employer's Responsibility

Ask if a participant would read the EMPLOYER'S "responsibilities" section.

Thank the participant.

More Employer's Responsibility

Explain that there are additional responsibilities that the employer must follow.

Ask for a volunteer to read page 6.

Thank the volunteer.

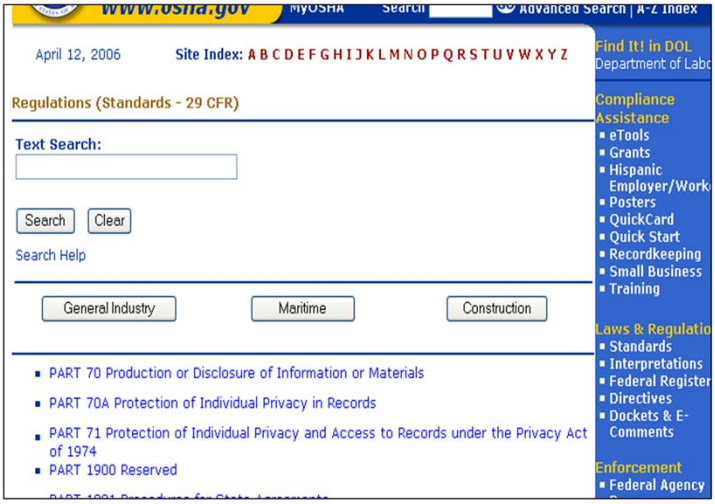
Ask if there are any questions.

No Retribution

Explain that you suggest that before reporting a hazard to OSHA you follow the "chain of command" and allow your organization or the host yard to rectify the situation. Also point out that when you report a hazard to OSHA you are not "telling on an organization", **you are reporting a hazard**!

Read the slide and ask if there are questions.

OSHA



8

Resolve With Your Company –

Have the participants read the page to themselves.

Point out that when reporting a hazard, whether on-line or on the telephone, the information can be confidential.

Ask if there are questions.

OSHA Exercise

Stump the Class!

- With a partner, write two questions from this section (pages 3 to 8) that you believe the rest of the class will be challenged in answering correctly. (Questions must be reasonable! If your instructor can't answer, it doesn't count!)

9

Read the instructions on the slide.

Explain that the purpose of the exercise is to know the material that was just covered well enough to ask pertinent questions.

Reinforce that the questions must come from the material found in pages 3-8.

Reinforce that the questions must be reasonable.

Allow 5 minutes to complete.

Ask for volunteers to "stump the class". To be time appropriate, ask each team for one question only. Allow 4 questions before you call an end to the exercise.

Acknowledge all participants.

Shipyard Work

10

Ask the class to read this slide to themselves.

Review highlights:

- Shipyard work environment is very complex
- Shipyards work on a variety of vessels
- Shipyards perform different types of work
- Shipyard work typically involves:
    - fabrication and forming
    - painting and coating operations
    - electrical work
    - sheet metal work
    - work on propulsion systems
    - welding
- Most shipyard employees work outdoors which can increase the risk of **Work-Related Musculoskeletal Disorders (WMSD).**

Ask if any questions.

WMSD

11

Ask a participant to read the slide.

Explain that WMSD's are frustrating injuries, because they get worse over time and there is no "magical cure."

Thank the participant.

More On WMSD

12

More on WMSD

Make summary statement:

WMSDs happen over time

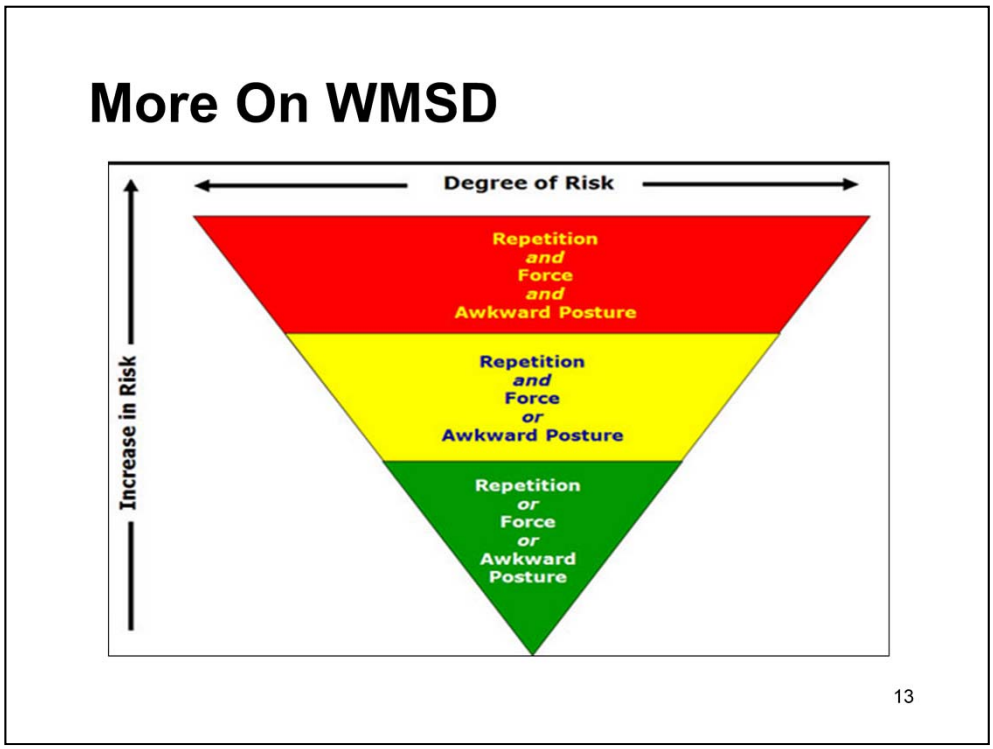
WMSDs happen when the work environment is awkward or same position.

WMSDs may be impacted by activities outside the workplace (sports with repetitive motion)

WMSDs may be related to genetic causes, gender, age, and other factors.

WMSDs may be influenced by job dissatisfaction, monotony, or limitations.

The presence of risk factors on a job does not necessarily mean that the employees will develop WMSDs.



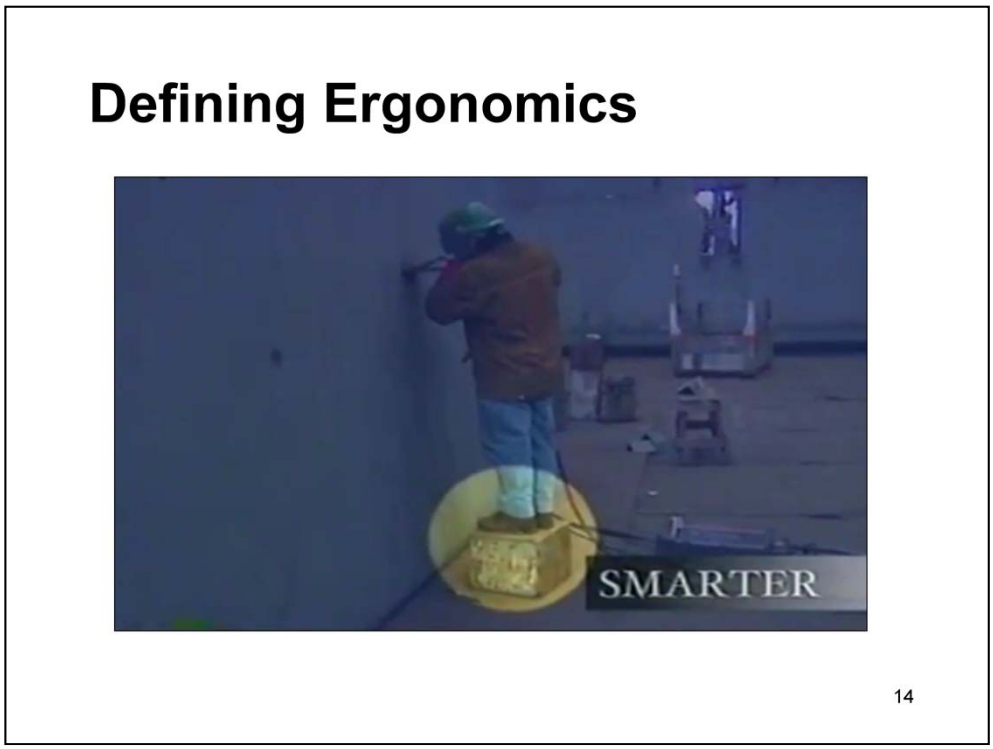
More on WMSD

Ask, “What does the inverted triangle on the slide tell us?”

Targeted response: That the more risk factors the greater the likelihood of developing a disorder.

Have a different participant read each of the rows from left to right (Disorders-Occupational risk factors-Symptoms).

Ask if there are any questions.



What is Ergonomics?

Have a participant read this page.

Ask if there are questions.

Emphasize that we have all heard to work smarter not harder and that this is one way to actually do that!

Defining Ergonomics

15

Explain that there will be a short video. (You may contact the Port of San Diego Ship Repair Association for a copy of the videos.)

Ask the participants to answer the questions as they watch the video.

After the video have participants pair up and share their answers.

After 2-3 minutes, ask the questions found in the training manual of the class.

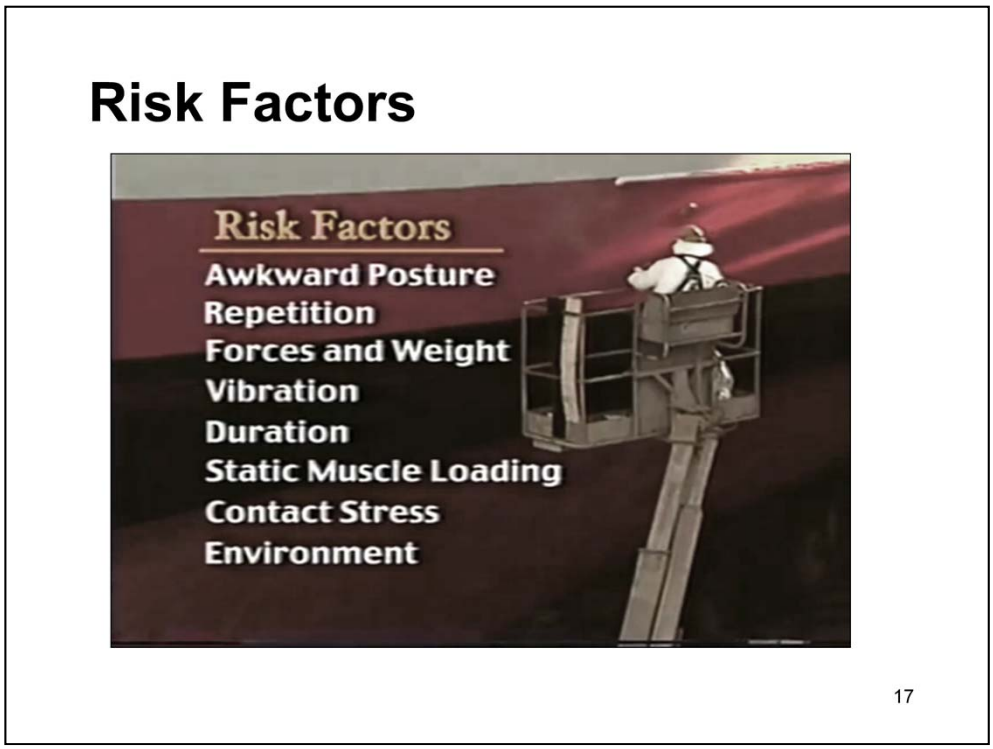
Acknowledge all answers.

Defining Ergonomics

16

Have participants take the quiz. Allow up to 3 minute. Review answers together.

T	**F**	WMSD stands for Work-Related Muscle Defect
T	**F**	Tendonitis is an example of a WMSD
T	**F**	Most WMSD affect the hands, wrists, elbows, neck, and shoulders.
T	**F**	Ergonomics is fitting the person to the work



The Seven Risk Factors

Review slide.

Explain that you will be going into more detail regarding each risk factor.

Awkward Position

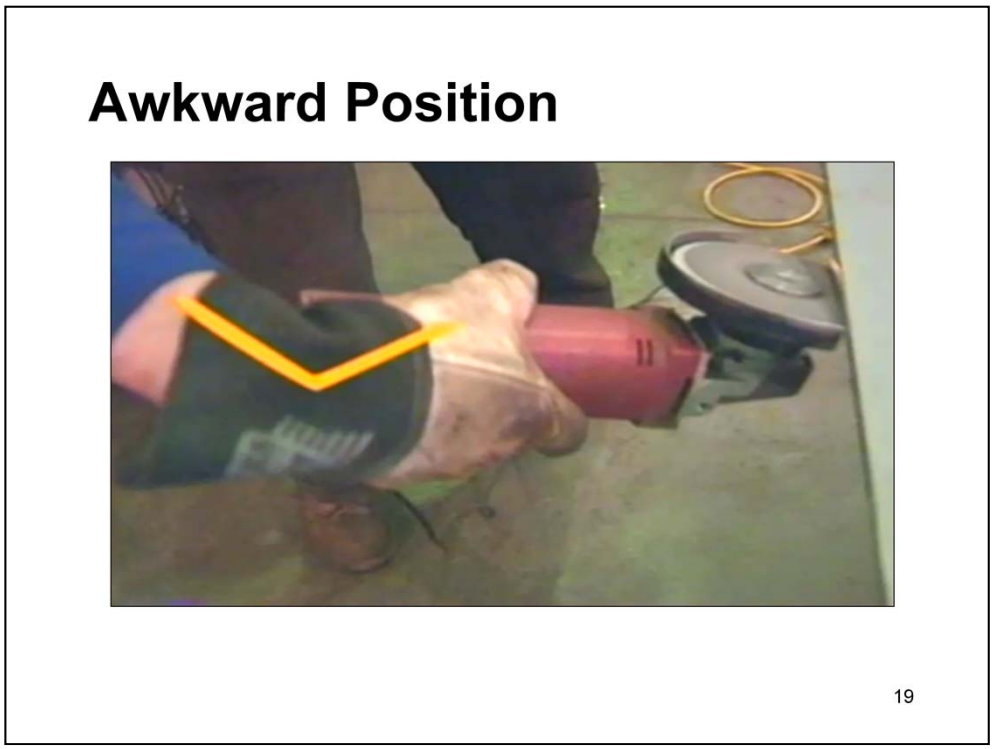
Ask participant to read first paragraph.

Thank participant.

Make summary statement:

Other causes of WMSD include:

- Improper layout of work area
- Unnatural standing position for required work/tasks
- Standing for long periods
- Lifting/IMPROPER lifting



Awkward Position

Read the slide.

Ask class if any questions, comments or examples from their work.

Neutral Position

Read the slide.

Discuss neutral position and Power Zone.

Ask if anyone has heard of this reference and what do you think it means?

Target Response: The area that you put less stress on the body while performing work

Awkward Positions

21

Explain that there will be a short video. (You may contact the Port of San Diego Ship Repair Association for a copy of the videos.)

Ask the participants to answer the questions as they watch the video.

After the video have participants pair up and share their answers.

After 2-3 minutes, ask the questions found in the training manual of the class.

Acknowledge all answers.

Proper Lifting

22

Review the proper lifting chart in the trainees manual.

Ask if there are questions.

Proper Lifting Exercise

23

Ask for a volunteer to demonstrate safe lifting

Explain that the volunteer is to use the safe lifting techniques previously discussed and lift an empty box from the front of the room and walk around the room and place the box back where they found it.

Explain that the rest of the class is to observe the volunteer and rate the volunteer on each of the safe lifting techniques using the rating scale in the training manual.

After the demonstration ask the class to provide feedback to the volunteer.

Ask if there are questions.

Thanks the “brave volunteer” for leading this activity and discussion.

Other Awkward Positions

24

Ask a participant to read each of the “Body Parts At Risk.”

Ask a participant to read each “Best Practice.”

Add “Counter Stretching”, to the “Best Practices.”

Ask if there are questions.

The Work You Do Exercise

25

Ask the class to think about the work they do and list any work related to this risk factor.

Allow 3-5 minutes to complete.

Flipchart the work tasks if time permits.

Implementation

26

State to the class:

Now we're going to show you ship-work examples of working smarter, not harder, by thinking outside the box!

Rigging Attachments

Before

After

27

Ask a participant to read the “before” and “after”.

Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Working at a Bulldozer

Before

After

28

Ask a participant to read the “before” and “after”.

Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Manual Grinding

Before

After

29

Ask a participant to read the “before” and “after”.

Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Installing MLP Trays

Before

After

30

Ask a participant to read the “before” and “after”.

Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Hand Grab

Before

After

31

Ask a participant to read the “before” and “after”.

Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Working on the Overhead

Before

After

32

Ask a participant to read the “before” and “after”.

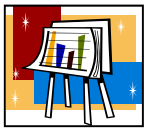
Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Your Turn! (Exercise)

33

Ask participants to turn back to page 25 and make a list of ideas to improve and reduce risk of awkward positions and posture for tasks you do in your job.



If time permits, list examples on a flip chart for class to see as applicable.

Awkward Positioning

34

Have participants complete the quiz on their own. Allow 1-2 minutes.
Review the answers together.

T	**F**	The “neutral zone” and the “power zone” are the same thing.
T	**F**	When lifting you should always keep your head down.
T	**F**	Awkward positioning only applies to the back.
T	**F**	A best ergonomic practice is to stay in the same position.

Repetition–Forces/Weight–Vibration

35

Explain that there will be a short video. (You may contact the Port of San Diego Ship Repair Association for a copy of the videos.)

Ask the participants to answer the questions as they watch the video.

After the video have participants pair up and share their answers.

After 2-3 minutes, ask the questions found in the training manual of the class.

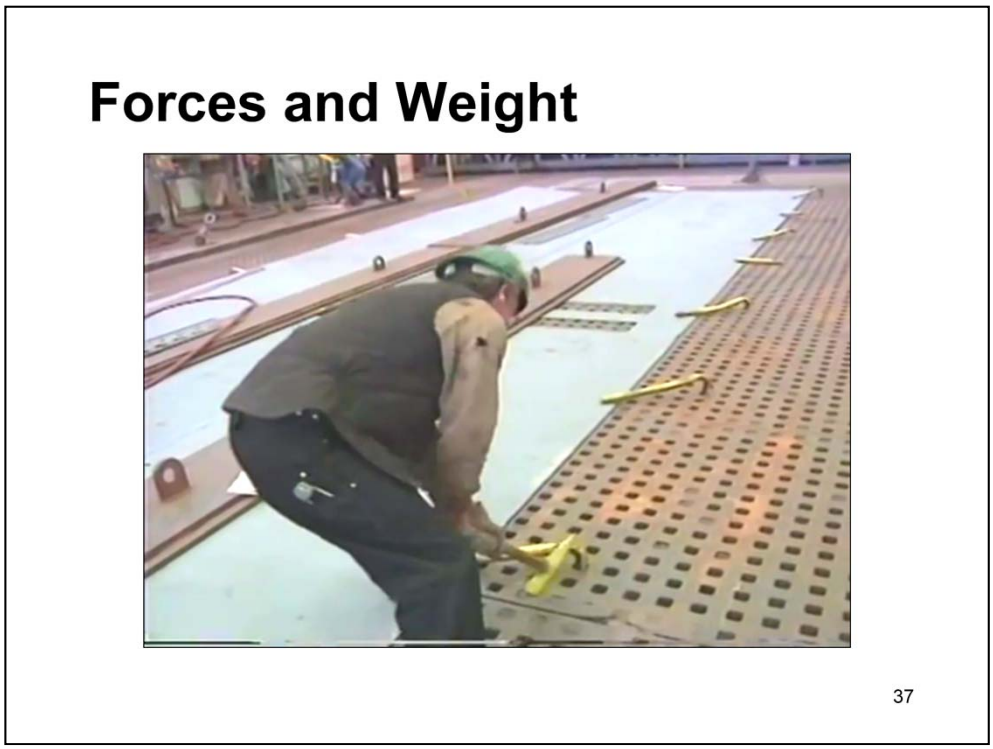
Acknowledge all answers.

Repetition

Have a participant read the first 3 paragraphs of the slide.

Read the Risk Factor table from left to right.

Ask participants to provide an example of each risk category.



Forces and Weight

Make the following summary statement:

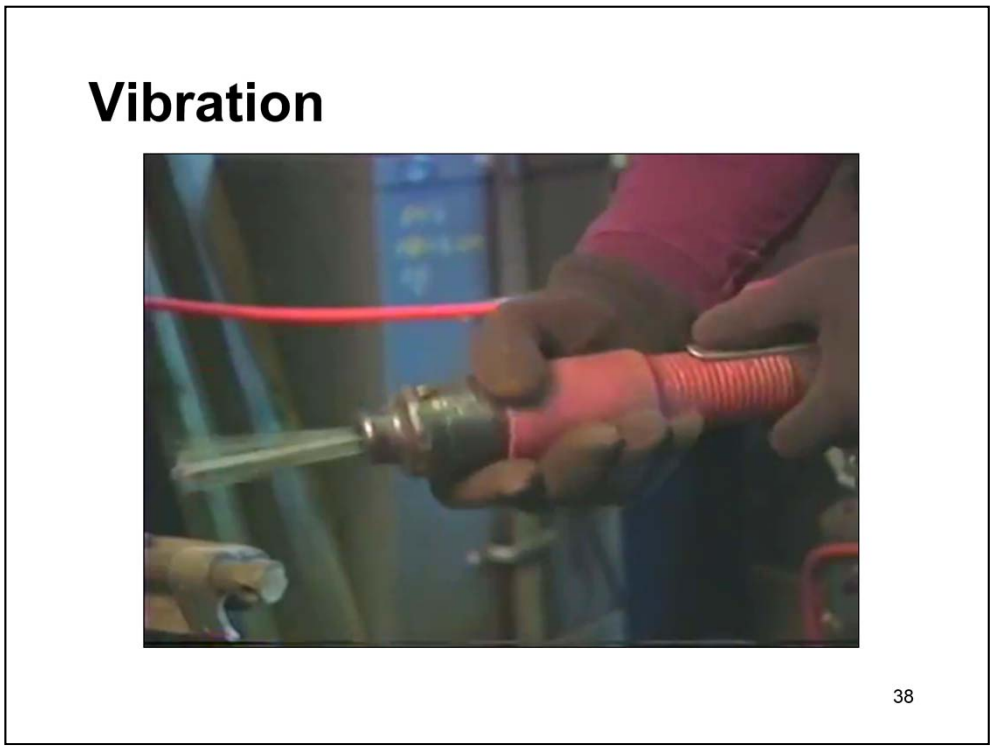
This page explains how forces and weight can overload muscles and you get stronger. That's a good thing. Strength increases when muscles repair themselves. However, muscles can get over used. Muscles need time to repair!

Everybody's different so the point is unique to each individual. Wherever that point is for you, the consequences are the same for everybody… **muscles and joints bear the brunt of the abuse and potential for injury.**

Read the slide–

Common forceful exertions include, grasping, sliding equipment/materials, moving, assembling, holding, resisting.

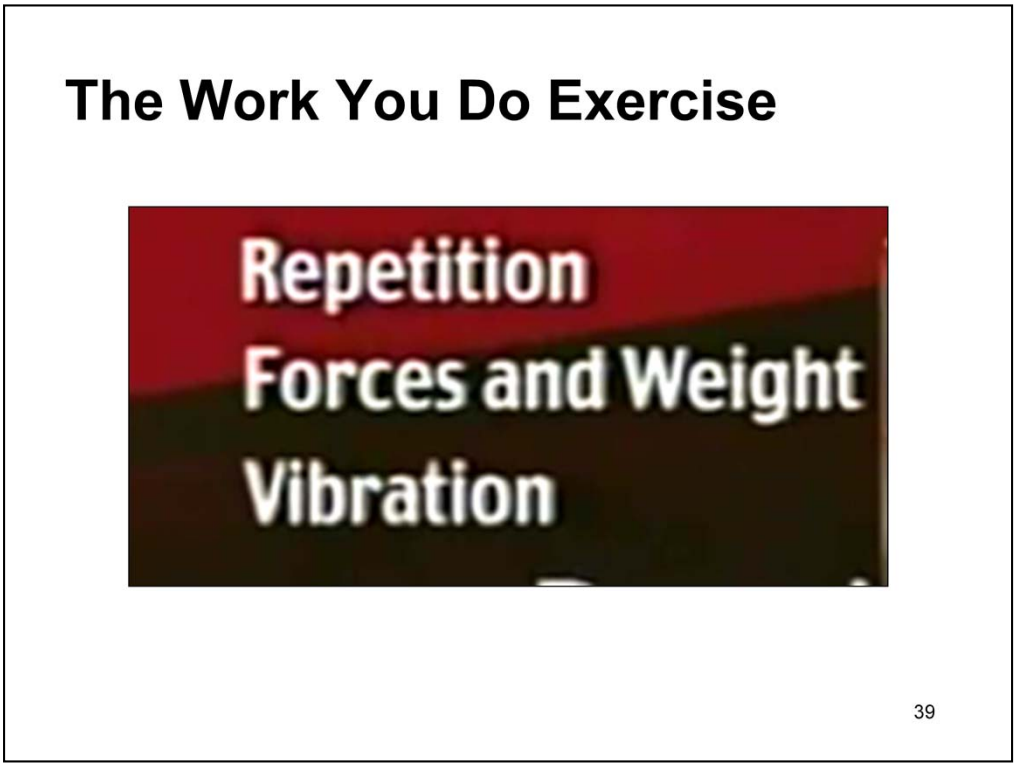
To reduce the risk; avoid the lift if you can, reduce the weight, plan your work, organize your work, make simple changes ***or get help***.



Hand-Arm Vibration Syndrome (HAVS)

Ask a participant to read the slide.

Emphasize to hold tools loosely but firmly.



Ask the class to think about the work they do and list any work related to this risk factor.

Allow 3-5 minutes to complete.

Flipchart the work tasks if time permits.

Implementation

40

State to the class:

Now we're going to show you ship-work examples of working smarter, not harder, by thinking outside the box!

Testing Water-Tight Bulk Heads

Before

After

41

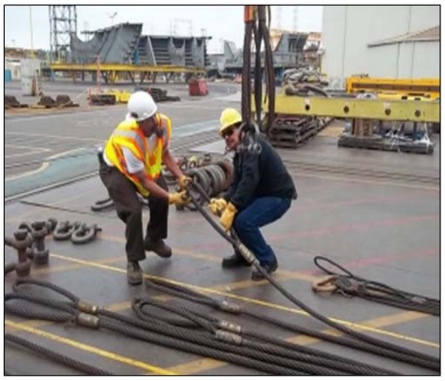
Ask a participant to read the “before” and “after”.

Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Rigging Slings

Before



After

42

Ask a participant to read the “before” and “after”.

Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Cylinder Lifts

Before

After

43

Ask a participant to read the “before” and “after”.

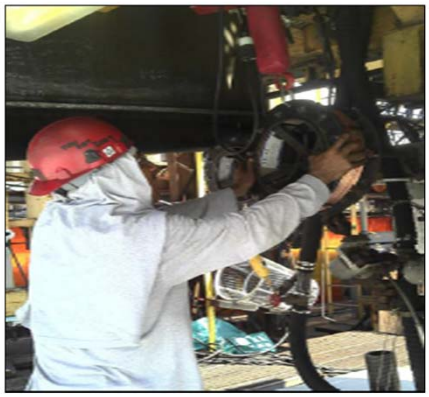
Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Welding Wire Spools

Before

After



44

Ask a participant to read the “before” and “after”.

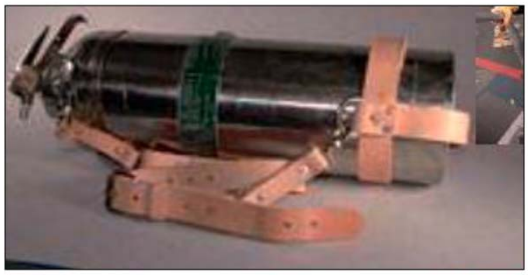
Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Carrying Fire Bottles

Before

After



45

Ask a participant to read the “before” and “after”.

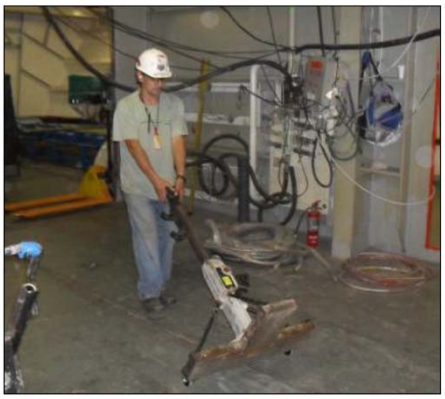
Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Moving Cable Jacks

Before

After



46

Ask a participant to read the “before” and “after”.

Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Turning Reels

Before

After

47

Ask a participant to read the “before” and “after”.

Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Overhead Grinding

Before

After

48

Ask a participant to read the “before” and “after”.

Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Walk-Behind Grinder

Before

After

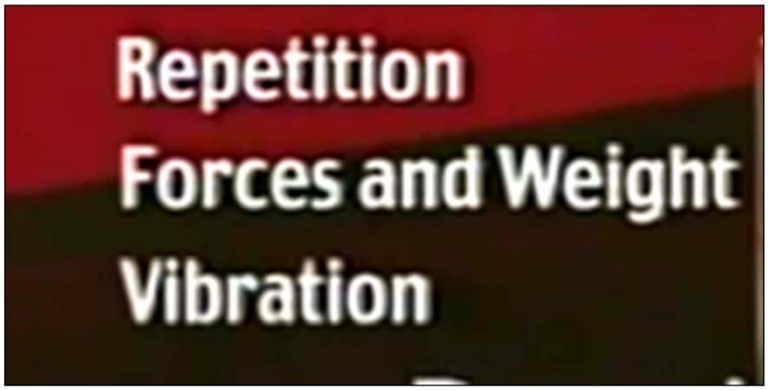
49

Ask a participant to read the “before” and “after”.

Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Your Turn! (Exercise)



50

Ask participants to turn back to page 39 and make a list of ideas to improve and reduce risk of awkward positions and posture for tasks you do in your job.

If time permits, list examples on a flip chart for class to see as applicable.

Repetition, Forces/Weight, Vibration

51

For each statement below circle T for True or F for False.

Have participants complete the quiz on their own. Allow 1-2 minutes.

Review the answers together.

T	**F**	Repetitive Motion Syndrome is one of the most common injuries in the United States.
T	**F**	HVAS stands for Hand Arm Vocational Syndrome.
T	**F**	Common forceful exertions include sliding equipment and materials.
T	**F**	We should grasp our tools lightly but firmly.

Duration – Static Muscle Loading – Contact Stress

52

Explain that there will be a short video. (You may contact the Port of San Diego Ship Repair Association for a copy of the videos.)

Ask the participants to answer the questions as they watch the video.

After the video have participants pair up and share their answers.

After 2-3 minutes, ask the questions found in the training manual of the class.

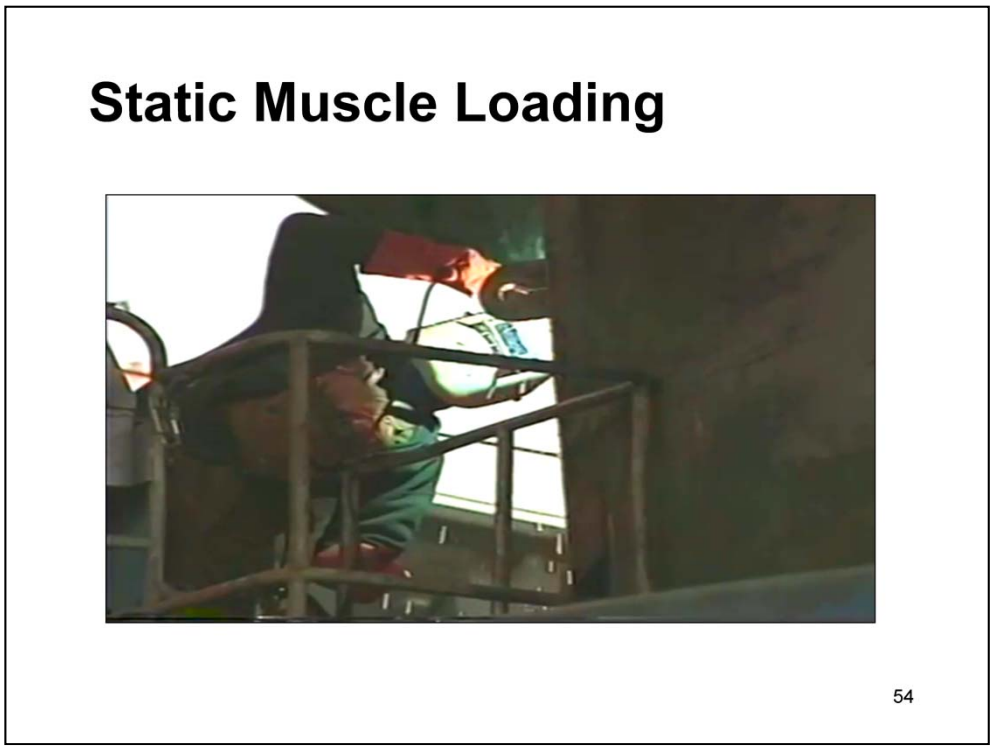
Acknowledge all answers.

Duration

Have a participant read the first paragraph.

Read the solutions and explain that you have one to add, Switching Hands.

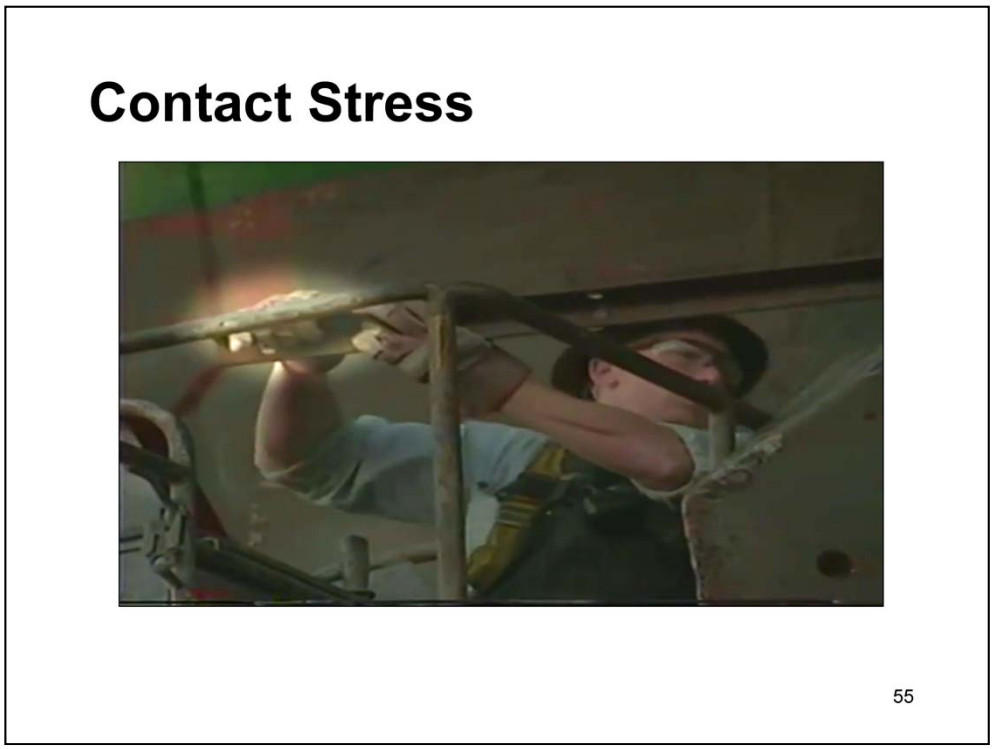
Ask participants if they have any questions.



Static Muscle Loading

Have a participant read the page.

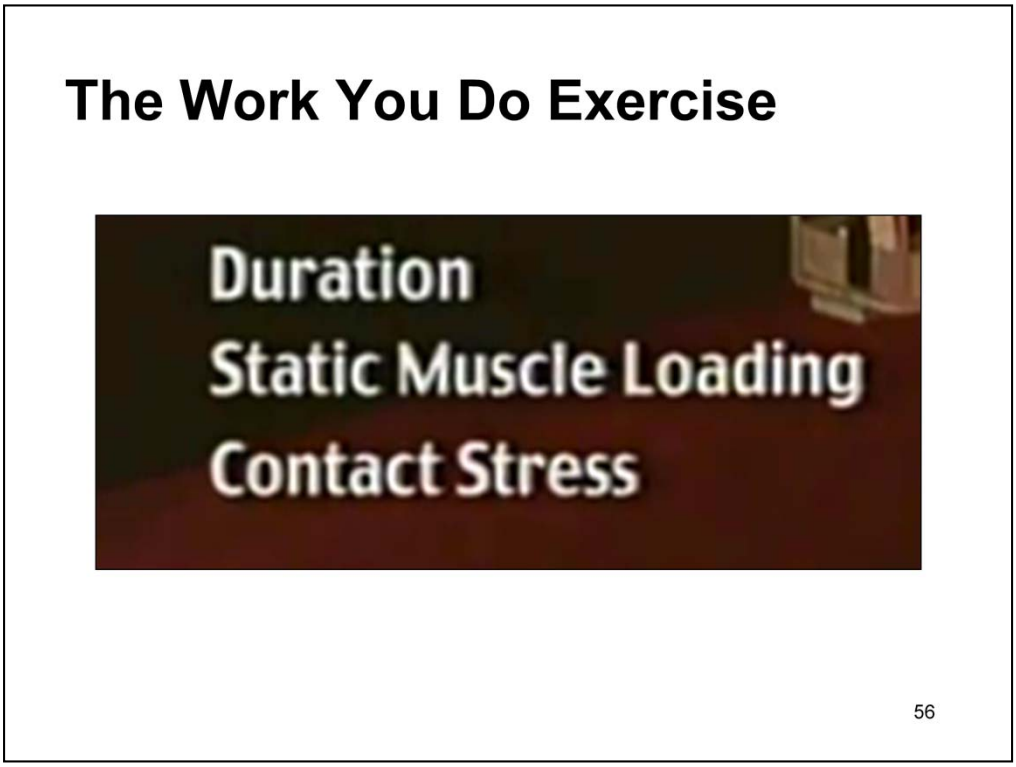
Ask participants if they have any questions.



Contact Stress

Ask participant to read the page.

Ask if there are any questions.



Ask the class to think about the work they do and list any work related to this risk factor.

Allow 3-5 minutes to complete.

Flipchart the work tasks if time permits.

Implementation

57

State to the class:

Now we're going to show you ship-work examples of working smarter, not harder, by thinking outside the box!

The Wrapping Process

Before

After

58

Ask a participant to read the “before” and “after”.

Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Moving Cable Jacks

Before

After

59

Ask a participant to read the “before” and “after”.

Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Welders Recovering Flux

Before

After

60

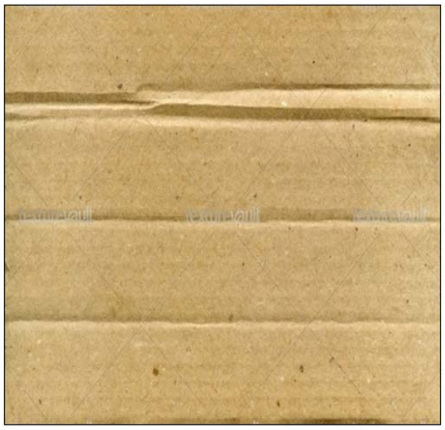
Ask a participant to read the “before” and “after”.

Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Workers Sitting On Steel Plates

Before



After

61

Ask a participant to read the “before” and “after”.

Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Workers Moving Heavy Materials

Before

After

62

Ask a participant to read the “before” and “after”.

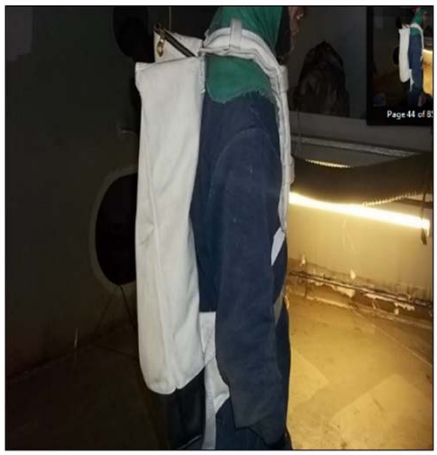
Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

You Write The Text Below!

Before

After



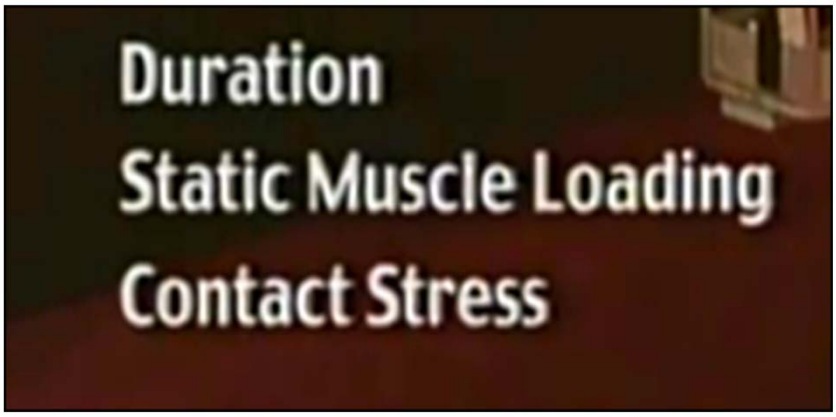
63

Ask a participant to read the “before” and “after”.

Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Your Turn! (Exercise)



64

Ask participants to turn back to page 56 and make a list of ideas to improve and reduce risk of awkward positions and posture for tasks you do in your job.

If time permits, list examples on a flip chart for class to see as applicable.

Duration, Static Muscle Loading, Contact Stress

65

For each statement below circle T for True or F for False.

Have participants complete the quiz on their own. Allow 1-2 minutes.

Review the answers together.

T	**F**	One way to avoid an injury due to “duration” is doing the task the exact same way without any variance.
T	**F**	Static postures (or "static loading") refer to physical exertion in which the same posture or position is held throughout the exertion.
T	**F**	One solution to “static muscle loading” is to relax the muscle.
T	**F**	The significance of a “contact stress” injury factor increases as the force increases and the size of the affected area also increases.

Environment

66

Explain that there will be a short video. (You may contact the Port of San Diego Ship Repair Association for a copy of the videos.)

Ask the participants to answer the questions as they watch the video.

After the video have participants pair up and share their answers.

After 2-3 minutes, ask the questions found in the training manual of the class.

Acknowledge all answers.

Environment – Hard Surfaces

67

Environment

Read or ask participant to read.

Ask “how can poor lighting contribute to other hazards?”

Target response: “You will likely change your position into an awkward position or a tool could slip or you may trip….”

Hard Surfaces

Read hard surfaces.

Solutions:

Read Solutions.

Environment – Noise Levels and Temperature

68

Environment

Noise Levels

Ask a participant to read Noise Levels.

Temperature

Ask a participant to read Temperature.

Acknowledge participants.

Environment – Improper Lighting

69

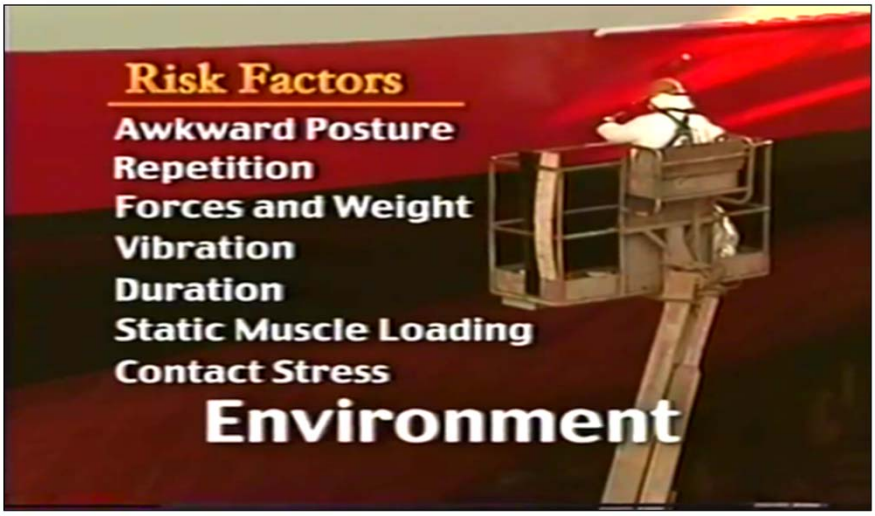
Environment

Improper Lighting

Read improper lighting.

Ask if there are questions.

The Work You Do Exercise



70

Ask the class to think about the work they do and list any work related to this risk factor.

Allow 3-5 minutes to complete.

Flipchart the work tasks if time permits.

Implementation

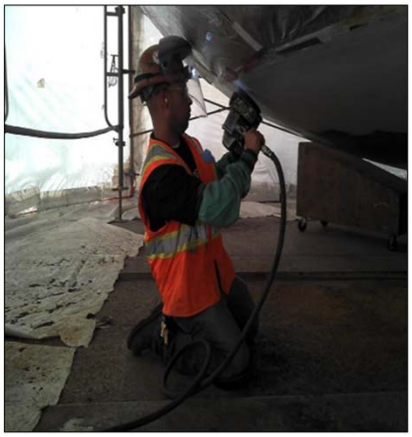
71

State to the class:

As we have done before, we're going to show you ship-work examples of working smarter, not harder, by thinking outside the box!

Building a Mast Stem

Before



After

72

Ask a participant to read the “before” and “after”.

Be prepared to provide examples and discuss as necessary.

Ask class if there are any questions.

Early Symptoms of WMSD

Ask a different participant to read each “Stage”.

Ask if there are questions.

Early Symptoms Continued

77

What You Should Do!

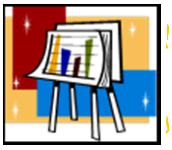
Read page this page and ask if there are questions.

Conclusion

Ask a participant to read this page.

Thank them.

If time permits, ask the class to give you an example of working Smarter Not Harder.



Flipchart all responses.

Questions?

79

Ask if there are any questions.

Thank the class for they’re participation.