MSD Hazards & Solutions

FORCE

Lower Force + Good Posture + Less Repetition = Reduced MSD Risk

Lifting/Lowering Hazards
- Lifting from the floor
- Overhead Lifting
- Lifting out of a Bin
- Lifting while reaching
- Lifting heavy loads

Lifting/Lowering Solution
- Store materials off the floor
- Use lift/tilt devices
- Remove obstacles between worker and load
- Split heavier loads to reduce work

Pushing / Pulling / Carrying Hazards
- Difficult Pushing
- Difficult Pulling
- Carrying heavy loads
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FORCE

Pushing / Pulling / Carrying Solutions

- Use well-designed carts
- Use a powered pusher
- Use big wheels on carts/bins
- Use dollies/carts
- Use powered pallet jacks
- Use conveyors to move materials

Gripping Hazards

- Difficult Power Gripping
- Difficult Pinch Gripping

Gripping Solutions

- Use good power grips
- Use boxes with good handles
- Use tools/equipment with good hand grips
- Use tool balancers for heavier hand tools
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POSTURE

Lower Force + Good Posture + Less Repetition = Reduced MSD Risk

Back / Trunk Posture Hazards
Bending Forward  Bending Backward  Bending to one side  Twisting

Back / Trunk Posture Solutions

Arm / Shoulder Posture Hazards

Arm / Shoulder Posture Solutions

Use long handle extensions  Use lift tables with turn tables on them  Use adjustable height work platforms
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POSTURE

Hand / Wrist / Elbow Posture Hazards

- Bending the wrist down
- Bending the wrist up
- Bending the wrist down
- Bending the wrist up
- Working with the palm facing up
- Working with the palm facing down

Hand / Wrist / Elbow Posture Solutions

- Select tools that promote good wrist postures and power grips
- Choose tools that are right for the task/working height

Head / Neck Posture Hazards

- Neck bent forward
- Neck bent backward
- Neck bent to one side
- Neck turned to one side

Head / Neck Posture Solutions

- Raise task/equipment to reduce forward neck bending
- Place important visual displays directly in front of user
- Provide head sets to reduce side bending of neck
- Angled document holders/work surfaces improve neck postures
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REPETITION

Lower Force  +  Good Posture  +  Less Repetition  =  Reduced MSD Risk

Repetitive Hand Use Hazards

- Hand intensive manual sorting/packaging
- Repetitively working with hands above the shoulder
- Repetitive twisting and bending
- Repetitive bending and reaching

Repetitive Hand Use Solutions

- Use good job rotation schemes
- Switch hands from time to time
- Use well-designed tools
- Take a break
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REPETITION

Repetitive Awkward Posture Solutions

Raise bins/use spring loaded inserts
Use height adjustable tables/carts
Use height adjustable work platforms
Tilt work up to reduce reaching
Use well-designed document holders

Repetitive Material Handling Hazards

Repetitive lifting and carrying
Repetitive pushing/pulling

Repetitive Material Handling Solutions

Use well-designed hoist for repetitive handling
Use roller conveyors to reduce repetitive lifting/handling
Mechanize repetitive material handling where necessary
Use specially designed equipment to reduce repetitive handling/carrying

General Solutions for Different Repetitive Tasks

Use good job rotation schemes
**MSD Hazards & Solutions**

- **LOWER FORCE**
- **GOOD POSTURE**
- **LESS REPETITION**
- **REDUCED MSD RISK**

### Contact Stress Hazards

- Tool digging into fingers/palm/hand
- Sharp edges digging into wrist
- Seat pan digging into back of the knee
- Sharp edges digging into body

### Contact Stress Solutions

- Use tools with handles that extend past the palm
- Select equipment, tools with rounded edges or provide padding
- Provide good support for forearms
- Adjust chair so feet are flat on the floor and there is space between seat and back of legs

### Use Knee/Hand as Hammer Hazards

- Using Knee as Hammer
- Using Hand as Hammer

### Use Knee/Hand as Hammer Solutions

- Use a rubber mallet instead of hand for hammering
- Use knee pads/padded gloves
- Use a mechanical device to replace knee/hand hammering
**Vibration Hazards**

- Hand-Arm Vibration
- Whole Body Vibration

**Vibration Solutions**

- Use tools designed to reduce vibration
- Use anti-vibration gloves
- Use good anti-vibration seat suspensions
- Keep roads/travel surfaces smooth

**Hot / Cold Hazards**

- Hot and cold temperatures

**Hot / Cold Solutions**

- Drink water to keep hydrated
- Use local heat sources for whole body, hands, etc.
- Use hand warmers/gloves to keep hands warm
- Wear appropriate clothing
- Take breaks – to cool down or warm up