



Musculoskeletal Injury (MSI) Prevention

Presented by

Todd J. Hickey BScK, CEP, MCSEP
Ergonomics Consultant
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What We'll Cover Today

- WorkSafe NB's Strategy on Musculoskeletal Injuries (MSI)
- How Do You Prevent MSI in Your Workplace?
- Regulation 91-191(52)
 - Manual Handling
- ISO Standard on Manual Handling & Lifting



Musculoskeletal Injury (MSI) (also called MSD, RSI, STI or CTD)



First, let's define Musculoskeletal Injury (MSI):

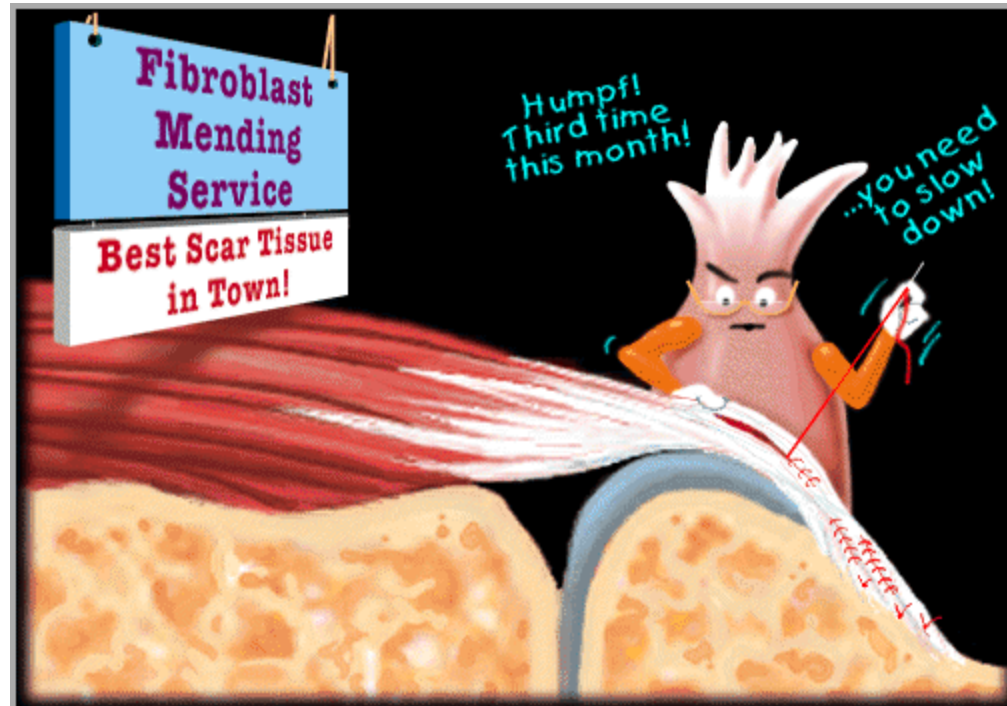
An injury or disorder of the muscles, tendons, ligaments, joints, nerves, blood vessels or related soft tissue.

Includes sprain, strain and inflammation that may be caused or aggravated by work.



MSI Signs and Symptoms

- **Tenderness**
- **Weakness**
- **Tingling**
- **Abnormal fatigue**
- **Numbness**
- **Pain**
- **Swelling**
- **Disturbed sleep**



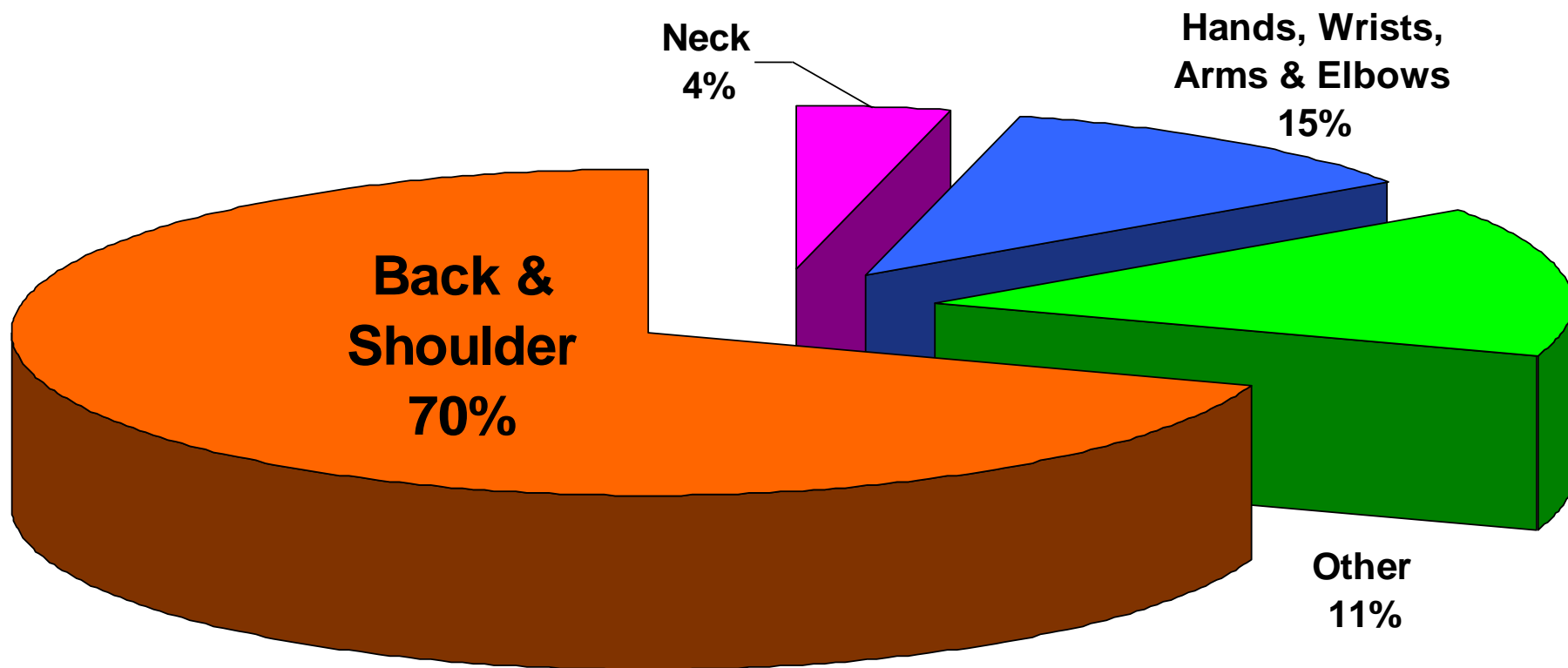


How Did We Get Here? MSI in NB

- MSIs represent 36% of all “Lost-Time” claims
- Back & shoulder injuries represent 70% of all “Lost-Time” MSI claims



MSI Claims By Body Part





How Do We Identify MSI Hazards?

- Most MSI's occur through Manual Material Handling (MMH)
- What is MMH?
- Any task which requires a person to lift, hold, carry, push, pull or lower any object or materials.



How Does MMH Result In Injuries?

- 1) Gradual wear and tear caused by frequent or prolonged periods of manual handling activities
- 2) Sudden damage caused by intense or strenuous manual handling or awkward lifting

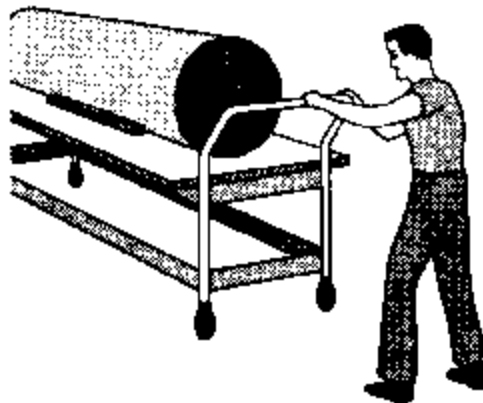
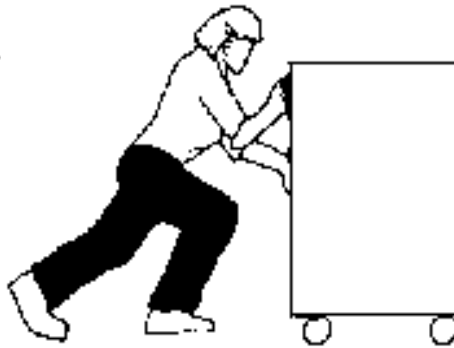
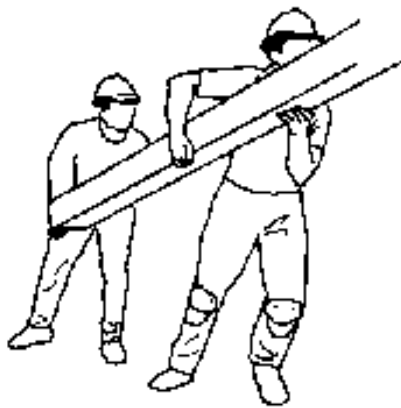


Primary MMH Risk Factors

- 1) Forceful Exertions
- 2) Awkward Postures

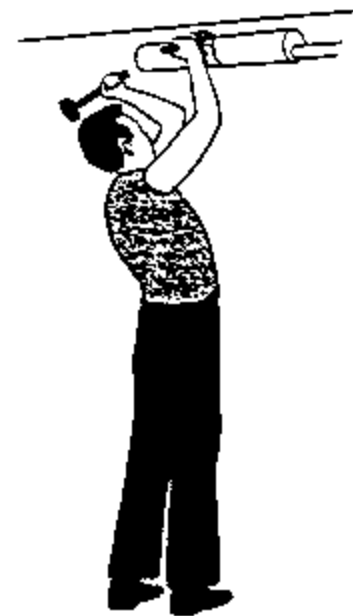
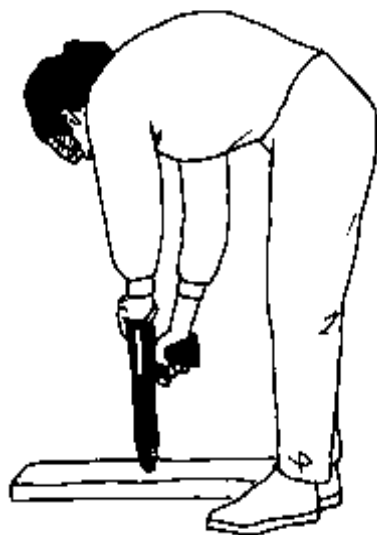


Forceful Exertions





Awkward Postures





Back

3 Natural Curves (“S” shape)

- 1) Cervical
- 2) Thoracic
- 3) Lumbar

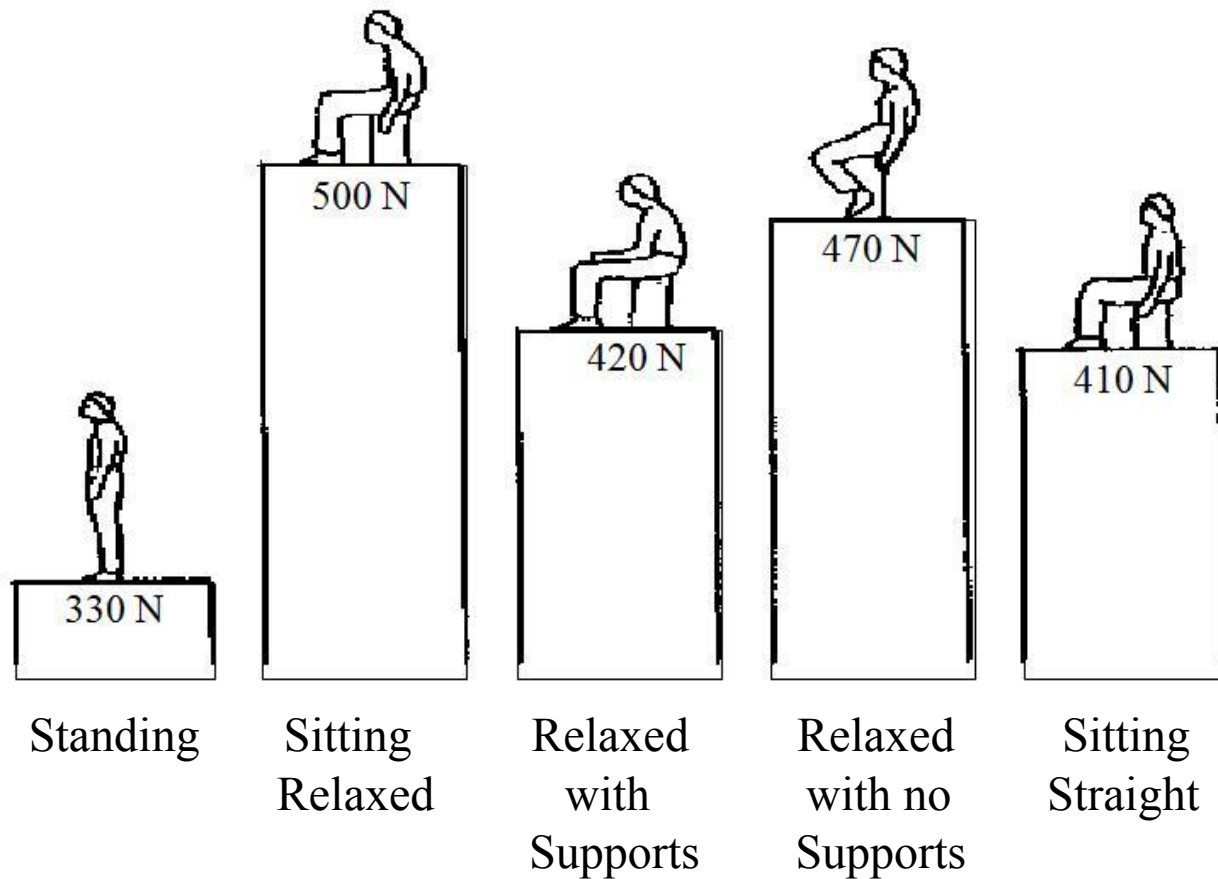
Function:

- Protect spinal cord
- Absorb shock
- Support our body



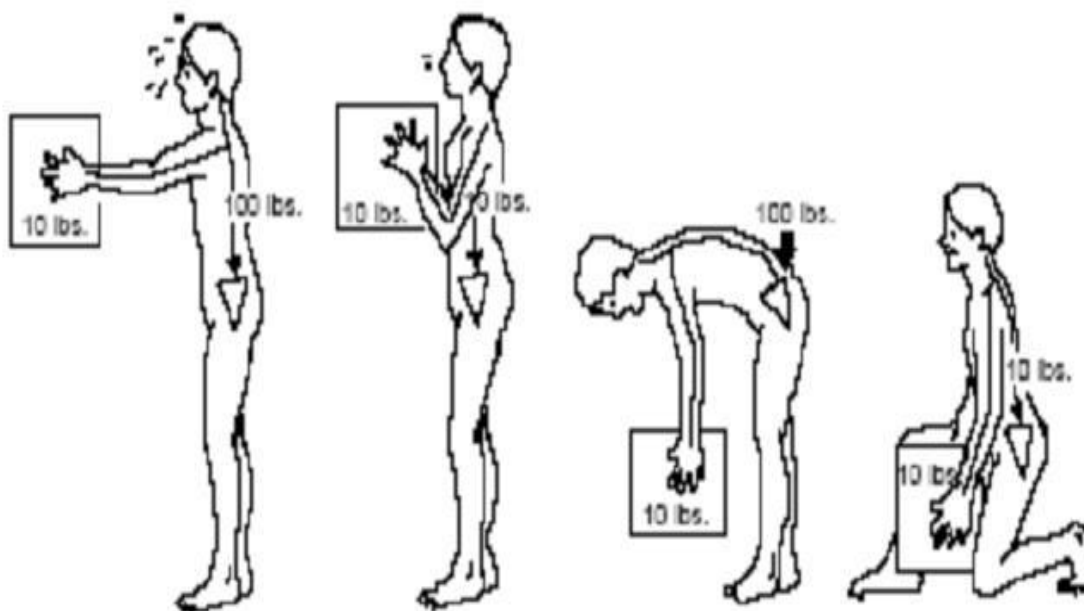


Back – Disc Pressure





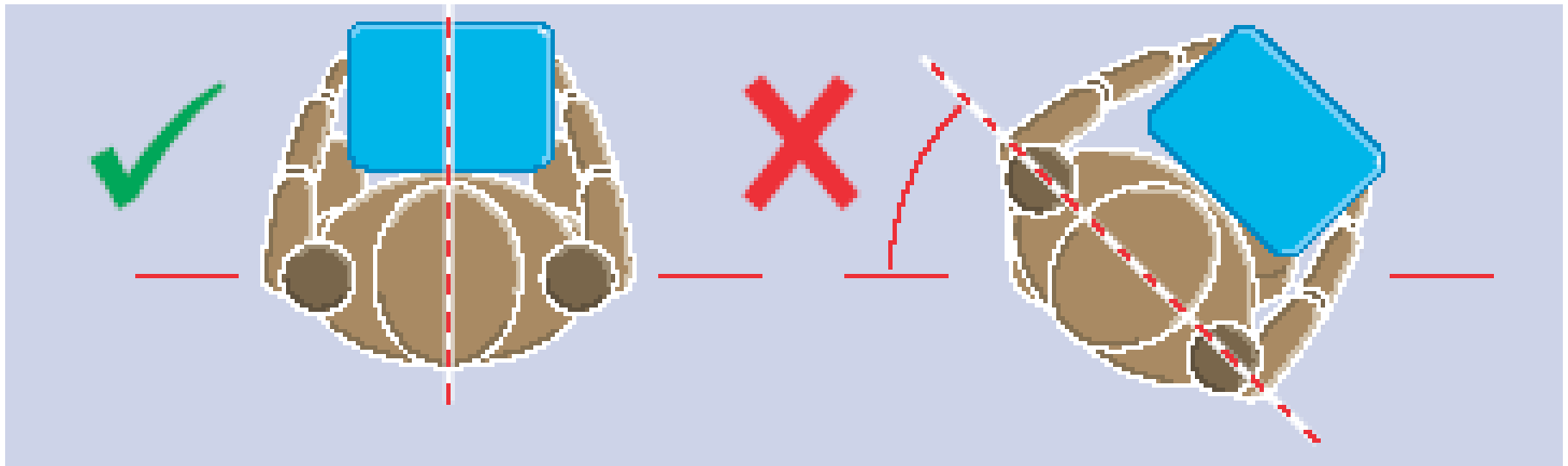
Forces & Postures and Effect on Spine



Keep The Weight Close To The Body
(Adapted from: The Saunders Group Inc.,
4250 Norex Drive, Chaska, MN 56318)

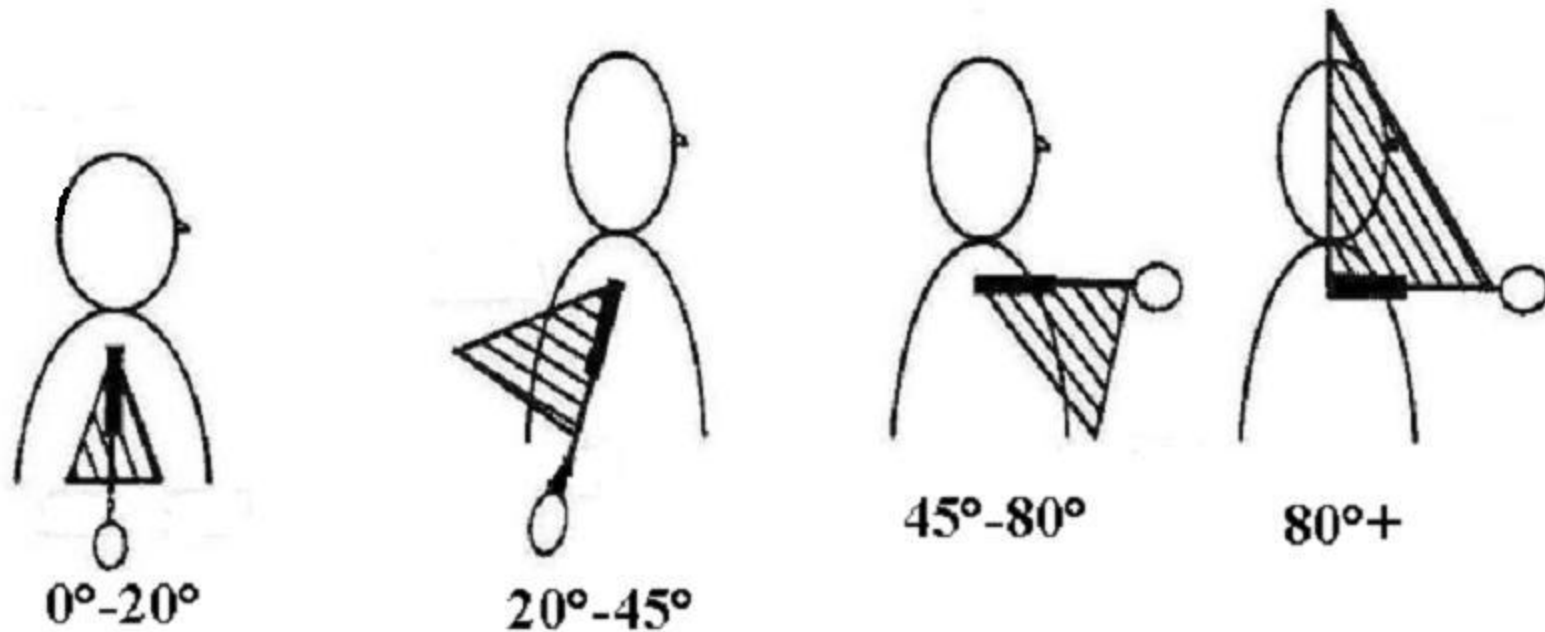


Twisting





Shoulder Posture



Neutral → → → → → → → Awkward

Remember:

NEUTRAL
POSTURE

= **STRONG**

AWKWARD
POSTURE

= WEAK



Secondary MMH Risk Factors

- Individual Characteristics
 - Previous injury, age, physical condition
- Work organization
 - Work schedule, job rotation, piece work
- Environmental Conditions
 - Temperature, humidity



Are You At Risk?

- Do you handle heavy objects?
- Do you handle objects frequently?
- Do you handle objects while in awkward positions?



Minimize MMH Injuries

- 1) Equipment
- 2) Training
- 3) Procedures



Body Mechanics

- Point the toe where you want to go
- Keep the load close to your body
- Avoid jerking motions
- Apply force on the center of gravity
- Use both hands
- Push rather than pull

BODY MECHANICS CAN'T FIX EVERYTHING!



Lifting Controls

- Use mechanical assistance
- Reduce the loads and distances
- Rotate lifting tasks among workers
- Store items where they are easily accessible
- Slide objects instead of lifting them
- Employ two-person lift

IF YOU MUST LIFT THINGS, LIFT CORRECTLY!



Is There Any Regulation Associated With MMH?

In New Brunswick:

Regulation 91-191(52)
and it's Interpretation

Handling and Storage of Materials

Object or material, adequate & appropriate equipment and
proper instructions

General Regulation 91-191

Section 52



Regulation 91-191(52)

Where the health or safety of an employee handling an object or material may be endangered, an employer shall ensure that:

- (a) adequate and appropriate equipment is provided to the employee and is used by the employee for lifting and moving the object or material, and

- (b) the employee is instructed as to the appropriate method of lifting and moving objects and material



Recommended, Not Regulated, Limits

ISO 11228

ISO is an international standard, but it is not all encompassing

There are some professions and tasks that fall outside of it's realm (i.e. firefighters)

ISO limits are based on ideal conditions



ISO Standard is Based on “Ideal Conditions”

- Standing symmetrically and upright
- Horizontal distance to object less than 25cm
- Height of grip less than 25cm above knuckle height
- Firm grip on the object (neutral wrist posture)
- Favorable environmental conditions



ISO 11228-1

Lifting: Heavy

Up To 10,000kg / 8hr Shift



Under Ideal Conditions:

Male MAX = 25kg per lift

Female MAX = 15kg per lift

Cumulative MAX = 10,000kg per 8 hr shift

NOT 10,000kg per lift!



ISO 11228-1

Lifting: Frequent

Up To 10,000kg / 8hr Shift



Under Ideal Conditions:

MAX = 25kg, 1/min

Carry 1m → 15kg, 8/min = MAX

Carry 4m → 15kg, 4/min = MAX



ISO 11228-2 Pushing & Pulling



Male MAX = 27kg, 1/min
Female MAX = 17kg, 1/min



Questions to Remember

- 1) Is adequate and appropriate equipment provided?
- 2) Is adequate and appropriate equipment used?
- 3) Is the employee instructed as to the appropriate method of lifting and moving objects and material?
- 4) Has a “Safe Code of Practice for Manual Handling” been adopted?
- 5) Is the “Safe Code of Practice for Manual Handling” followed?



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