NC DEQ Safe Lifting Safety Toolbox Talk

1) **Back Injuries:**
    - 80% of Americans will experience back problems
    - 50% of American workers claim to have experienced back pain every year

2) **Contributing Factors:**
    - **Age**: back pain usually begins around 30 years old
    - **Lack of Exercise**: unused, weak muscles can lead to pain
    - **Excess Weight**: excess weight puts strain on the back
    - **Diseases**: such as arthritis
    - **Improper Lifting Technique**: using the back instead of legs
    - **Psychological Conditions**: stress, depression, anxiety
    - **Smoking**: decreases blood flow to the spine

3) **The NIOSH Lifting Equation:**
    - NIOSH is the research branch of OSHA.
    - NIOSH developed a formula for repetitive lifting. It states that the maximum weight any worker should try to lift once per day under ideal conditions is 51 pounds.
    - If you have a repetitive lifting task, contact the safety department for an evaluation.

4) **Limitations of the NIOSH Lifting Equation:**
    - It does not differentiate between male and female

- It assumes you are lifting in an ambient temperature between 66 to 79 degrees Fahrenheit
- It assumes you are lifting in a relative humidity between 35 to 65%

5) **Snook & Ciriello Study:**
   - A 1993 study defined separate maximum safe lifting limits for men and women.
   - Their maximum recommended limit is significantly lower than that of NIOSH
   - Handles are important and increase the load a worker can comfortably lift by 15%.

Maximum Weight for 90% of Work to Lift Once per Shift

Sex	Floor level to knuckle height	Knuckle height to shoulder height	Shoulder height to overhead
Male	24 lb.	22 lb.	20 lb.
Female	18 lb.	14 lb.	12 lb.

6) **Task Risk Factors-Work factors that increase the risk of a back injury:**
   - Weight of object
   - Frequency of lifting

- Quality of grip
- Bending or twisting
- Horizontal distance from body
- Vertical distance of lift
- Extreme temperature or humidity

7) **Do not bend over to lift an object, no matter how light it is!**
    - If a 185-pound person bends over to pick up a penny the force on the back is equivalent to lifting 80 pounds.
    - The pivot point of the back must now lift the weight of the object plus the weight of your upper body, which is now far away from the pivot point.

8) **Proper Lifting Techniques:**
    - Keep a wide support base
    - Squat down, bending at knees and hips only
    - Maintain good posture
    - Hold the load as close to your body as possible
    - Lift slowly by straightening hips and knees

9) **Ergonomic Rules for Lifting:**
    - Eliminate the task if possible
    - Minimize sizes and weights lifted
    - Provide good handholds
    - Keep the object as close to body as possible
    - Avoid twisting
    - Minimize lifting distances
    - Convert lifting and carrying motions to pushing or pulling motions when possible
    - Try to store materials at working height

- Use smooth movements

10) OSHA Comments on Back Belts:

- “Back belts are not recognized by OSHA as effective engineering controls to prevent back injury. While they may be accepted by individual workers because they feel as if they provide additional support, the effectiveness of back belts in the prevention of low back injuries has not been proven in the work environment.”

- “OSHA does not forbid the use of back belts and similar devices, nor does it endorse their use.”

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1) **Name 3 contributing factors to back injuries:**

2) **According to the NIOSH lifting equation no worker should ever try to lift more than _____ pounds by himself or herself.**

3) **Name 3 task risk factors-work factors that increase the risk of a back injury:**

4) **Why do we bend our legs rather than bending over to lift objects?**

5) **Name 3 Proper Lifting Techniques:**

6) **Why should we put handles on lifted objects when possible?**

7) **Does OSHA require back belts?**

NORTH CAROLINA
Department of Environmental Quality

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1) **Name 3 contributing factors to back injuries:**
    - **Age**: back pain usually begins around 30 years old
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2) **According to the NIOSH lifting equation no worker should ever try to lift more than _____ pounds by himself or herself.**

    51 pounds

3) **Name 3 task risk factors-work factors that increase the risk of a back injury:**
    - Weight of object
    - Frequency of lifting
    - Quality of grip
    - Bending or twisting
    - Horizontal distance from body
    - Vertical distance of lift
    - Extreme temperature or humidity

4) **Why do we bend our legs rather than bending over to lift objects?**

    When you bend over you are extending the weight of your upper body far away from the pivot point (lower back). Your back must lift the weight of your upper body in addition to the weight lifted, and that is not necessary. The weight of the upper body often exceeds the weight of what you may be lifting.

5) **Name 3 Proper Lifting Techniques:**

- Keep a wide support base
- Squat down, bending at knees and hips only
- Maintain good posture
- Hold the load as close to your body as possible
- Lift slowly by straightening hips and knees

6) **Why should we put handles on lifted objects when possible?**

The average worker is comfortable lifting 15% more weight when handles are provided

7) **Does OSHA require back belts?**

No. OSHA states that there is no proof that back belts prevent back injuries. OSHA remains neutral. OSHA neither endorses nor forbids the use of back belts.