

Lessons Learned

Type of Incident: Back pain – recordable injury

Business Unit: Remediation Management

Location of Incident: Wellsville, New York

Date: May 1, 2008

Brief Account of Incident:

A bulldozer operator at RM's Wellsville, NY project experienced back pain when he was moving the dozer in reverse, while turned to look behind to be sure no people were behind the dozer. He felt a pop in his lower back but continued to work and did not report his discomfort until he took an afternoon break.

Medical evaluation indicated that IP, a 54 year old male, may have had back deterioration without pain prior to the injury. Investigators are aware of similarities of this case to a previous case in Montana, indicating that heavy equipment operators need increased awareness of risk factors for back pain.

Actual Outcome: IP was given prescription pain medicine and is being considered for back surgery.

What Went Well: Employer consulted a case management provider to determine care prior to transporting IP to clinic.

Similarities to an incident last year were identified and measures taken to for more effective corrective measures.

What Went Wrong:

IP's back has been affected by over 30 years of whole body vibration from operating heavy equipment. IP operated dozer in a twisted position to look behind while moving in reverse.

IP failed to report back pain for several hours.

Possible Immediate Causes:

1.6 Overexertion of physical capability.

IP had an undetected degenerative back condition

1.6 Improper position or posture for the task:

The IP backed the dozer while turned around to see behind

8.6 Workplace layout

Inadequate method to prevent people from entering the active dozer zone

Possible System Causes:

10.1 Previous injury or illness

IP had an undetected degenerative back condition.

15.1 No training provided:

Many operators are self-taught and have never received training regarding looking backward while moving.

22.2 Procedures not effective:

Procedures not effective – procedures result in the need for constant operator vigilance looking behind when reversing due to possible presence of personnel in the operating zone

Corrective actions:

- Communicate in toolbox talks with equipment operators the risk of backing equipment over rough terrain while turned.
- Ensure procedures are in place to prevent personnel from entering a dozer operating zone until the operator stops his equipment and signals entry.
- Reinforce the positive consequences of immediate reporting and negative consequences of delayed reporting.

Lessons Learned:

1. Some experienced operators were originally self-trained and may lack awareness of certain safe operating techniques.
2. Most back pain in the workplace results from either a sudden injury (e.g. from heavy manual lifting) or long term spinal disc degeneration (e.g. from vibrations).
3. Driving with a twisted posture (e.g. as may occur when driving backwards or looking from one side) is a risk factor for development of back and neck disorders. The operator's muscles may not have time to contract properly to protect against neck and back injuries if the equipment hits an unexpected bump or pothole.
4. A majority of people over age 45 show spinal pathology without back pain.
5. More effective measures are needed to encourage prompt reporting

Measures to protect the spine for heavy equipment operators

Operators

- Limit the speed of the equipment, especially over bumpy or irregular surfaces.
- Workers should avoid jumping off their equipment since this shocks the body after it has been stressed by sitting and equipment vibration. Heavy lifting should also be avoided for the same reason.
- Use specially designed cushions with vibration-reducing material.
- If possible, tilt seat a notch or two every 30 minutes. This alters the direction of vibration through the body and helps reduce vibratory effects.
- Get out of your vehicle every hour for a few minutes to give your body a break from vibration. Muscles protecting the spine need rest in order to effectively function.
- Driving backwards or looking from one side with a twisted posture is a risk factor for the development of back and neck disorders. When a vehicle hits an unexpected pothole or bump, the operator's muscles may not have time to contract properly to protect against neck and back injuries. 12% of back injuries to operators are due to shocks or jolts sustained while driving.
- Maintain a high level of fitness focusing on cardiovascular endurance, muscular strength, muscular endurance and flexibility.
- Overweight and smoking are additional risk factors for back deterioration over time.

Equipment

- Design and select seats that will adequately damp vibration at all frequencies, but importantly in the lower frequencies (1 to 8 Hz).
- Choose equipment with adjustable seats to better position the operator.
- Properly maintain the equipment to reduce wear and tear that could result in increased vibration. A good suspension system and correct tire pressure will help to reduce vibration.