Preventing Suspension Trauma
Associated General Contractors - New York State
29th Annual Construction Industry Conference

Van A. Howell, CSP, CET
vhowell@ucsd.edu
(208) 890-1860
Preventing Suspension Trauma

• Development of a fall protection plan:
  • Site specific
  • Designate responsibilities
  • Describe methods used for fall arrest and/or fall restraint
  • Address working over water
  • Describe training program
  • Describe fall protection enforcement and disciplinary policy
  • ANSI/ASSE Z359 documents provide a “system approach” to implementation of a fall protection program
Preventing Suspension Trauma

• Development of a fall protection rescue plan:
  • Describe responsibilities for employees, site management and rescuers.
  • Rescue plan should be part of an activity hazard analysis (AHA)/Job Safety Analysis (JSA):
    • Self-rescue
    • Assisted self-rescue
    • Mechanically assisted rescue
    • Aerial work platform assisted rescue
    • Mobile crane supported platform assisted rescue
    • Crane used as an anchorage point for rescue
  • Describe assembly, maintenance, inspection and disassembly procedures.
  • Describe rescue enforcement and disciplinary policy.
  • ANSI/ASSE Z359 documents provide a “system approach” to implementation of a fall protection rescue program.
What is Suspension Trauma?

- Suspension trauma is trauma caused when a worker is forced to stay upright without the ability to move or to use his/her legs.
- Can be fatal in 10 minutes, typically 15-40 minutes.

Excess pressure here can cut blood flow to the legs.
Steps to Reduce the Potential for Suspension Trauma

- To slow the progression of suspension trauma standup:
  - Suspension trauma relief straps
  - Ladders
  - Structural steel
  - Aerial lifts
- In order to stand, the leg muscles must contract to provide support and maintain balance
- Standing helps prevent blood from pooling in the legs
Be Prepared

• Trained employees and trained rescuers
• First aid/CPR trained personnel
• Provide suspension trauma relief straps
• Provide self-rescue equipment
• Provide equipment for assisted rescue
• Call 9-1-1 immediately – ensure EMS knows that you may have a suspension trauma victim
• Don’t depend on 9-1-1 only, every minute counts
Suspension Trauma Relief Straps

• Deployed by the fall victim to create a loop that he/she can place their feet and press against to simulate standing up

• This allows the leg muscles to contract and can relieve pressure from the leg straps to help improve circulation
Rescue

- Plan for and practice rescuing suspended fall victims
- Practice both self-rescue and assisted rescue
- Rescue quickly to prevent the suspended fall victim from becoming unconscious
- Treat rescued fall victim for potential suspension trauma
- No apparent injuries place in the “W” position
- Inform EMS that the fall victim must be treated for possible suspension trauma

The “W” Position

Ked Boards should be used for spinal precautions if needed
Recommendations

• Ensure the correct type and size of harness is selected for the task
• Examine all phases of work requiring fall protection. If possible, consider engineering measures to prevent falls
• Ensure workers, responders, rescuers and management are properly trained in fall protection measures, rescue procedures and how to treat and recognize suspension trauma
Before the Fall

• Workers should not work alone in a harness
• Confined spaces attendant must monitor suspended worker continuously
• Rescue plan and training should ensure rescue in 5-minutes
• Select harnesses for the specific application (one type of harness is not designed for all applications)
• If possible, lanyards should be tied off to an anchorage point at waist height or higher
After a Fall

- Train fall victims to continually move their legs by pushing against a foothold
- Train worker to get their legs as high as possible
- Move suspended worker to a horizontal or sitting position during rescue

NOTE: All workers should be trained that suspension in an upright condition for longer than 5-minutes can be fatal.
Harness Rescues

• If possible, do not allow fall victims to be suspended in a vertical position
• Rescuers and first aid responders must be trained that workers suspended vertically could result in a fatality
• Post rescue death is possible if fall victims are moved to a horizontal position too rapidly
• Ensure rescuers and first aid providers are aware of the first aid measure to prevent suspension trauma
References

• Illinois Region VII EMS, Emergency Medical Services, is an alliance of six EMS Systems, which consist of 15 hospitals, 115 fire departments & ambulance services, and nearly 5000 EMS providers. The Region VII EMS website is a collaboration of information, programs, and events for our region. Region VII has prepared an excellent PowerPoint presentation on the recognition, prevention and treatment of Suspension Trauma for EMS responders.

• The U.S. Department of Labor, Occupational Safety and Health Administration has published a Safety and Health Information Bulletin on Suspension Trauma.

• Robertson, David. Orthostatic Intolerance. Vanderbilt University, Nashville, Tennessee.
