



SAFETY UNLIMITED, INC.

Weekly Safety Meeting

Suspension Trauma – After the Fall

OSHA describes suspension trauma as “the development of symptoms such as light-headedness, poor concentration, palpitations, tremulousness, fatigue, nausea, dizziness, headache, sweating, weakness, and occasionally fainting during upright standing.”

Suspension trauma, also known as “harness hang syndrome” and “orthostatic intolerance,” occurs after a worker has fallen into a fall arrest harness and is suspended in a hanging position until rescue arrives.

When hanging in a fall harness, the leg straps support the body’s weight. During this time, the leg straps of the fall protection harness crush the femoral arteries on the inside of the legs, cutting off blood circulation.

After a fall, a worker may remain suspended in his or her harness before being rescued. Depending on how long the worker remains suspended, the sustained immobility can lead to unconsciousness and even death. This is because of “venous pooling,” a condition that occurs when a person’s legs are immobile and blood pools in the legs, reducing the amount of blood circulating in the body.

OSHA notes that the body reacts to venous pooling by speeding up the heart rate in an attempt to maintain sufficient blood flow to the brain.

If a person’s blood supply is significantly reduced, this won’t be effective, and the body will then “abruptly slow the heart rate and blood pressure will diminish in the arteries.” In severe cases of venous pooling, a person may faint or experience kidney failure, which can be fatal.

Suspension trauma symptoms can begin after a few minutes but typically take about 20 minutes to onset. However, experiments in harness design have found that loss of consciousness can occur within anywhere from seven to 30 minutes.

Trauma Straps:

Fortunately, there is a simple solution to protect against suspension trauma: personal protective equipment known as trauma straps. Trauma straps are a pair of straps, one with hooks in it and the other with loops for the hooks to attach to. They are coiled up in pouches and attached to the fall harness at the hips. When a worker falls and comes to rest, he would uncoil the straps, hook them together, and brace his weight against the straps. This allows the fallen worker to stand up in his fall harness, utilizing his leg muscles, taking weight off of his arteries, and restoring blood circulation until help arrives.

OSHA Recommends the Following General Practices/Considerations:

- Rescue suspended workers as quickly as possible.
- Be aware that suspended workers are at risk of orthostatic intolerance and suspension trauma.
- Be aware of signs and symptoms of orthostatic intolerance.
- Be aware that orthostatic intolerance is potentially life threatening. Suspended workers with head injuries or who are unconscious are particularly at risk.
- Be aware of factors that can increase the risk of suspension trauma.

Rescue:

If a worker falls and the force of the impact is great enough, the worker may pass out. In this case, the worker would not be able to deploy the trauma straps and will be left hanging in his harness, without leg support, until help arrives. Because of this, it is important to have a rescue plan in place.

Move Fast:

Speed is crucial after a worker experiences a fall. Suspension in a fall-arrest device can result in unconsciousness and death in less than 30 minutes.

According to OSHA, workers who wear fall-arrest devices or who may perform rescue activities should know:

- How to determine whether their personal protective equipment is properly worn and fitted;
- How suspension trauma may occur, as well as its signs and symptoms; and
- How to use appropriate rescue procedures and methods to diminish risk while suspended.

Remember:

Suspension trauma poses a serious risk to workers at heights. The physiological response to the known symptoms of suspension trauma confirms that this hazard can be lethal. However, there are simple steps that can be taken to mitigate the hazard of suspension trauma, including trauma straps on all fall gear, a fall protection plan for all work at heights that includes a rescue plan, and training on the hazards within the use of fall protection equipment.

With greater knowledge of what suspension trauma is and how it affects the body, we can better plan for the hazards and continue to improve the safety of our work.

A SINGLE FALL CAN END IT ALL!!

