Title:
Fall Safety Harnesses Can Kill

Word Count:
503

Summary:
It is little known that a safety harness can kill. Just after five minutes of dangling in the air after a fall can cause someone to be unconsious. After fifteen minutes that same person will have died.

Keywords:
blood, heart, worker, safety, trauma, flow, occur, blood flow, minutes, posture, upright, legs, harnesses, harness, suspension trauma, upright posture, leg, person, 15 minutes, causes brain’s blood,

Article Body:
There are wide ranges of situations requiring a safety harnesses in work and play. What is little known however is that these harnesses can also kill.

Harnesses can become deadly whenever a worker is suspended for durations over five minutes in an upright posture. It is called suspension trauma. This can occur in many different situations in industry. A carpenter working alone is caught in mid-fall by his safety harness, only to die 15 minutes later from this suspension trauma. Another example is a worker being lowered into a shaft. After five minutes he will be unconscious and in 15 minutes later a dead body will be hauled out. Fall protection researchers have recognized this phenomenon for decades. Most users of fall protection equipment, rescue personnel, and safety and health professionals remain unaware of the hazard.

Suspension trauma death is caused by orthostatic incompetence; it can occur any time a person is required to stand quietly for prolonged periods and may be worsened by heat and dehydration. It is most commonly encountered in military parades where soldiers must stand at attention for prolonged periods. Supervisors can prevent it by training soldiers to keep their knees slightly bent and not locked.

How orthostatic incompetence occurs is that the legs are immobile with a worker in an upright posture. Gravity pulls blood into the lower legs, which have a very large storage capacity. Enough blood eventually accumulates so that return blood flow to the right chamber of the heart is reduced. The heart can only pump

the blood available, so the heart's output begins to fall. The heart speeds up to maintain sufficient blood flow to the brain, but if the blood supply to the heart is restricted enough, beating faster is ineffective, and the body abruptly slows the heart.

In most instances this solves the problem by causing the worker to faint. After fainting and slumping, blood can now be returned to the heart and the person typically recovers quickly. In a harness, however, the person can't fall into a horizontal posture, so the reduced heart rate causes the brain's blood supply to fall below the critical level.

Orthostatic incompetence doesn't occur often because it requires that the legs remain relaxed, straight, and below heart level. If the leg muscles are contracting in order to maintain balance and support the body, the muscles press against the leg veins allowing for normal blood flow. In suspension trauma, several unfortunate things occur that aggravate the problem. First, the worker is suspended in an upright posture with legs dangling. Second, the safety harness straps exert pressure on leg veins, compressing them and reducing blood flow back to the heart. Third, the harness keeps the worker in an upright position, regardless of loss of consciousness, which is what kills workers.

A planned rescue policy will need to be implemented for people requiring to wear fall arrest harnesses. The equipment used to save the life from a fall can also be the danger that can kill them.