

By the Numbers – Head Protection

PPE HEAD PROTECTION

DID YOU KNOW?

Injuries to the head are life-changing. Head injuries can result in long-term damage and death, with injuries often including memory loss, fractured bones, and spine damage – some of which cannot be cured.

In 2012, more than 65,000 cases involving days away from work occurred due to head injuries in the workplace (according to the 2015 edition of the National Safety Council chartbook “Injury Facts”). That same year, 1,020 workers died from head injuries sustained on the job.

Traumatic brain injuries (TBI) are the primary type of head injuries. TBI is a significant cause of death and disability in the United States, [contributing to about 30% of all injury death.](#) Despite the security given to workers from the safety helmet standard, there are still incidents of traumatic brain injury, especially in construction, where there were [2,200 fatalities between 2003 and 2010.](#)

However, according to a survey about worksite accidents and injuries conducted by the Bureau of Labor Statistics (BLS), 84% of all workers who suffered head injuries were not wearing head protection.

A mild head injury, such as a concussion, can [cost a company over \\$100k,](#) whereas [moderate injuries are estimated to cost \\$941,000 and severe injuries up to \\$3 million](#) – and that’s not including the cost of emotional and physical issues.

Work-related injuries are public health issues on a global scale,

and they lead to exorbitant medical and social costs as well as to a loss of healthy life and productivity. Work-related fall was the second leading cause of death among work-related injuries after motor vehicle crashes. By the mechanism of injury, the fatal work-related fall injuries accounted for 14% in the US among all case-fatality after work-related injuries. The economic cost from nonfatal work-related fall injuries in the US was nearly 16 billion USD per year, and over 25% of fall injuries resulted in 31 or more workdays being lost.

Based on CDC data, between 2006 and 2014, rates of TBI emergency department (ED) visits increased:

- 80% as a result of falls
- 60% as a result of intentional self-harm
- 58% as a result of being struck by or against an object
- 24% as a result of motor vehicle crashes
- 18% as a result of assault

Among 1651 patients who suffered from work-related fall injuries, 1298 (78.6%) patients were enrolled for this study. Cases who had unavailable information regarding the height of fall ($n = 305$, 22.7%) and safety helmet ($n = 48$, 2.9%) were excluded.

KEEP IN MIND

The purpose of head protection in any employer's PPE program is to help control the uncontrollable – which is to mitigate and/or eliminate hazards and exposure to injury while on the job.

Common Hazards to Guard your Head Against

Being at risk for a head injury is dependent on your work environment and its associated hazards, as not all working environments require head protection. However, when it is

required, a worker must wear protection even when

there are no apparent signs of danger. Industries like construction, power, oil and gas, mining, forestry, and others enforce such standards as the risk of head injury to workers is continuously present.

Employers must ensure their workers wear head protection if they are at risk of these common hazards:

1. Being struck by falling objects
2. Bumping their heads on fixed objects
3. Coming into contact with electrical hazards

These common hazards encompass most ways in which a potential injury could occur, and they can have different meanings depending on the work environment. Understanding the potential hazards at your workplace is imperative in assessing the type of PPE needed to keep injuries at bay.

Traumatic brain injury (TBI) is a common cause of case-fatality, cognitive impairment, and post-injury functional disability. Furthermore, even mild TBI can have long-term consequences. Severe TBI is a catastrophic event that can potentially result in a devastating socioeconomic life since the sequelae affects multiple aspects of daily life; however, there was no evidence showing that therapeutic interventions after suffering severe TBI can effectively improve the functional outcome. Therefore, efforts directed towards awareness of hazard and injury prevention are emphasized to reduce the public health burden of TBI. Work-related TBI is caused mainly by falls, motor vehicle crashes, and assaults in manufacturing and construction industries, and it is avoidable by developing preventive measures. However, interventions with the goal of preventing TBI resulting from fall injuries are not available in the current workplace environment.

Safety helmets are useful protective equipment, which reduce the risk of TBI and death resulting from sports activities as well as

motorcycle and bicycle accidents. However, the preventive effect of safety helmets on health outcomes resulting from work-related fall injuries has not been verified mainly because safety helmets have been primarily used to prevent workers from experiencing head injuries caused by falling or flying objects.

Safety precautions that focus on reducing the risk of TBI resulting from fall injuries are limited in the current workplace environment. In addition, research studies that focus on the effect of safety helmets on reducing the risk of TBI resulting from work-related fall injuries are rare.

Head Protection in The Workplace

There are many ways in which a worker can sustain a head injury within the workplace some of which can have devastating consequences. While some slip and fall accidents are often quite easy to avoid by keeping the work area free of water or chemical spills, accidents caused by defective equipment, those incurred when operating heavy machinery, or from falling object can be hard to detect.

Head injuries can be fatal and may affect an individual's ability to work for the rest of their natural life. However, when important, yet often ignored, safety measures are regularly observed, such as wearing a hard hat for **head protection**, may avert millions of the nonfatal workplace injuries that workers experience each year.

Under Occupational Safety and Health Administration's (OSHA) **head protection** regulation, employers are required to provide hard hats for employees who work near exposed electrical conductors that may contact the head to decrease the risk of electrical shock. Workers must also wear **head protection** gear when working in places where they can easily bump their head, such as when working near exposed pipes, around conveyor belts or other machinery that may cause objects to dislodge and fall including working at heights.

Hard Hat Standards have been established by Canadian Standards Association (CSA) and the American National Standards Institute (ANSI).

Hard Hats must protect the wearer's head against impact and against small flying or falling objects. It must be able

to with stand an electrical contact equal to 20,000 volts phase-to-ground.

The wearer and the employer need to know the use and care of employee hard hats.

- Inspect the shell, suspension, and liner every day before you use it. Look for cracks, dents, cuts, or gouges. Replace damaged or worn hats and liners
- If a hard hat is struck by an object, do not keep using
- Don't store your hard hat in direct sunlight—it will age quicker and can become
- Clean the shell, suspension, and liner regularly with mild soap and
- Never alter your hard hat by painting it, making holes in it,
- Don't carry things inside your hard
- Don't wear a baseball cap under your hard
- Use a hard hat with a chinstrap when working at heights or in windy
- Check the service life of your hard hat by contacting the manufacturer or reading the manufacturer's

instructions.

- Putting retroreflective stickers or tape on a hard hat can help workers be seen by moving vehicles and equipment in conditions where visibility is However, the stickers or tape must be compatible with the surface material, not adversely affect the material, and not interfere with the ability to

inspect the hard hat for defects. Place them at least 13 mm (1/2 in) above the edge of the brim.

- Hard hats must safely absorb the shock of a falling
- It must prevent an object from penetrating
- It must fit a worker's head
- It must be water
- It must burn slowly when in contact with fire.

There are ways that a business can stay in Occupational Safety and Health Administration compliance. One simple way is to ensure that each worker is wearing the proper Personal Protective Equipment (PPE) at all times. Employers should also ensure that their workers stay up to date with OSHA education and training and make sure that such educational material is readily and regularly available to everyone within the organization.

Every worker must, therefore, ensure that they are wearing the right PPE at all times, especially **head protection** where there is a potential for objects falling from above or accidental head contact with electrical hazards so as to minimize injuries to themselves and those around them.