

Centurion Quick-Fire Training

Rotational Injury

Mips

March 2021







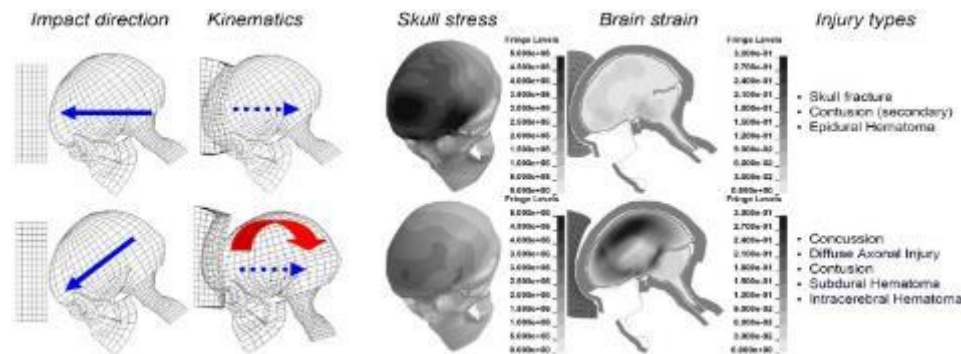
Is it a risk...where is the risk...what is it?

- The majority of traumatic head injuries sustained are caused by rotational forces
- The most common accident type on a construction site, resulting in a traumatic brain injury, is the fall of a person not a falling object
- It can occur on construction sites, road work areas, manufacturing, oil and gas...almost everywhere
- A rotational brain injury is the result of a rapid change of the rotational velocity of the head. This rapid change of the rotation of the head can be caused by a direct hit to the helmet or the skull or by an indirect hit to the shoulder leading to a rotational motion of the head.
- Rotational acceleration injuries result from non-linear forces that twist the brain within the skull



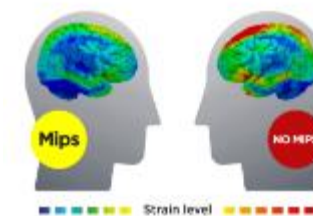
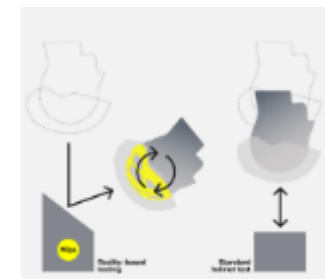
How is it caused...what happens?

- A perpendicular strike from a dropped object can cause a rotational brain injury 
- It is almost nine times more frequent to acquire a long-term injury from a fall than to get the same injury outcome from a falling object
- A fall from the same level or one level above can cause a rotational brain injury 
- Dynamic dropped object strikes are more frequent than static
- An oblique impact makes contact at an angle and of which the kinematics motion will include a rotational element



What about current safety helmets...what can we do?

- Safety helmets are fairly good at absorbing impacts
- The problem arises when you have an impact and experience rotational acceleration
- The helmet then slides across the head grabbing the skull and rotating it along with the directional force of the impact
- This can of course as we discussed earlier not only occur as a result of slips, trips and falls from the same level or one above but also from dropped objects striking you
- The majority of traumatic head injuries that people sustain are caused by rotational forces that are commonly generated as a result of the helmeted head of a person having a glancing oblique or perpendicular impact with a hard surface or another unrelenting object



What about current safety helmets...what can we do?

- Injury statistics show that when you fall and hit your head, it's most common to fall at an angle, compared to a linear fall
- Falling at an angle creates rotational motion and science has shown that our brains are very sensitive to rotational forces. In an angled impact, these forces may transfer to your head. The Mips Low Friction Layer can redirect rotational motions.
- The MIPS Low Friction Layer allows the head to move inside the helmet (10mm – 15mm relative motion in all directions) which can reduce the harmful rotational motion otherwise transferred to the brain.

