

CAN'T CHANGE PHYSICS, BUT...

In the late 1600s, Sir Isaac Newton laid out a simple equation that changed physics forever.

Force = Mass x Acceleration

When designing a helmet, we cannot change acceleration, but we can change the mass. **Composite Fusion** allows us to make smaller, lighter, and stronger helmets.



KALI

PROTECTIVES

WHAT IS IT?

Composite Fusion is our proprietary **in-molding technology that merges the shell and EPS foam liner together**. It is the innovative helmet safety technology upon which Kali Protectives was founded in 2006.

Today, it is a family of in-molding technologies that allow us to make helmets with better impact energy management and increased dynamic range.

WHY IS IT BETTER?

Composite Fusion eliminates the air gap between the shell and EPS foam liner. **The fused shell and liner are stronger and work together to absorb g-forces more efficiently.** *STRONGER WITH A PURPOSE.*



CONES = CRUMPLE ZONES

By incorporating multi-density EPS foam with geometric cone shapes into the liner, we create crumple zones.

This multi-density construction allows us to fine tune the EPS foam, putting the harder foam on the outside (*light grey cones*) to quickly dissipate high-g force impacts, while putting softer foam (*dark grey cones*) next to your head to cushion any blow.

In an impact, the cones compress redirecting the energy laterally away from your head, reducing the chance of injury.

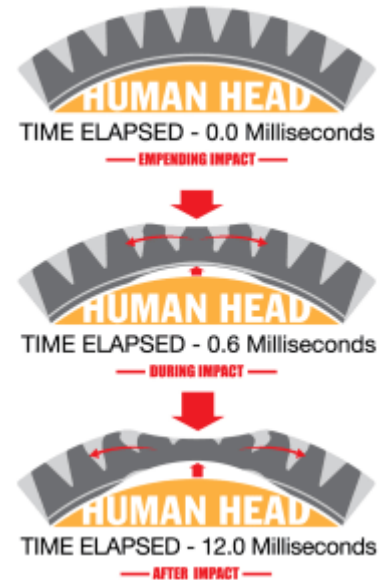
Benefits:

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- Better impact energy management, less force transferred to the head.
- Smaller helmet shell thickness, lower mass, less torque on the neck.
- 15-25% softer foam next to your head.

MEET THE [CONEHEAD] FAMILY

Introduced in 2011, Composite Fusion Plus was the first variation of Composite Fusion and uses cylindrical cone-shaped. Composite Fusion now consists of three unique variations that incorporate cone-shaped foam. Each shape was developed in an effort to create a better performing, better energy absorbing, helmet shell.

Composite Fusion Plus incorporates layers of multi-density cone-shaped foam into the helmet liner. The addition of the cones reduces impact g-forces by as much as 25%.



Composite Fusion 3 incorporates layers of multi-density, triangular shaped cones, further increasing impact management efficiency. Because of this, we can reduce the thickness of the helmet shell and liner, making the helmet smaller (lower volume).

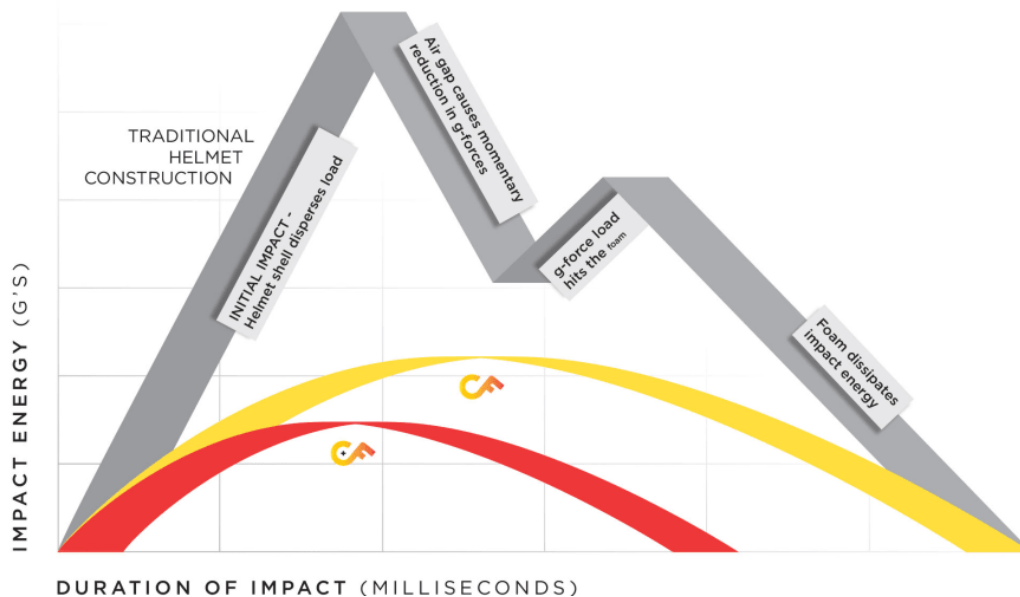


Composite Fusion Squared combines multi-density foam and dual direction geometric cone shapes. These opposing cones address both the ground-to-helmet impact as well as the helmet-to-head impact.



IMPACT TESTING

Traditional vs. Composite Fusion



HELMETS ARE TOO HARD

At Kali Protectives, we believe all helmets (including our own) are overbuilt. They are designed to meet regulations written to protect a rider from a worst-case scenario crash, such as a skull fracture. In the case of CPSC, that means a helmet must transfer less than 300g's to the head. That doesn't take into account for mild traumatic brain injuries (mTBI), such as concussions.

However, studies show we can experience a concussion at much lower g-forces (less than 100g), or even lower if rotational torque forces are involved. In fact, 80% of bicycle crashes occur at or below 100g's.

So, why aren't helmets softer? That's due to the testing regulations and materials. Although EPS foam can be made to be very soft, in order to pass these regulations, the helmet foam density and shell rigidity have to be increased (made harder) to withstand those really big hits. The trade-off is that the helmet is then too hard to address the small hits.



LOW DENSITY LAYER SOFTER FOR SAFETY

SOFTER FOR SAFETY

At Kali Protectives, we design our helmets to use the softest EPS foam possible and still pass the testing standards. But even then, our helmets are still too hard and do nothing to address rotational impact forces.

Our **Low Density Layer (LDL)** padding system addresses both low-g and rotational impact forces by placing soft gel pads throughout the interior of the helmet. These specially designed viscoelastic gel pads are softer than EPS and can compress and shear in all directions. As a result, they **reduce rotational impact forces by 25% and low-g linear impact forces by 30%.**

By combining our Composite Fusion in-molded shells with our soft LDL gel padding, our helmets are designed to address a wider range of impacts.



LDL - LOW DENSITY LAYER
Rotational and low-g impact protection



MAYA 2.0



ALPINE

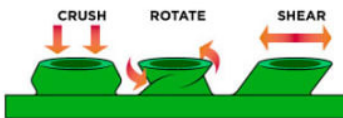


LDL - LOW DENSITY LAYER
Rotational and low-g impact protection

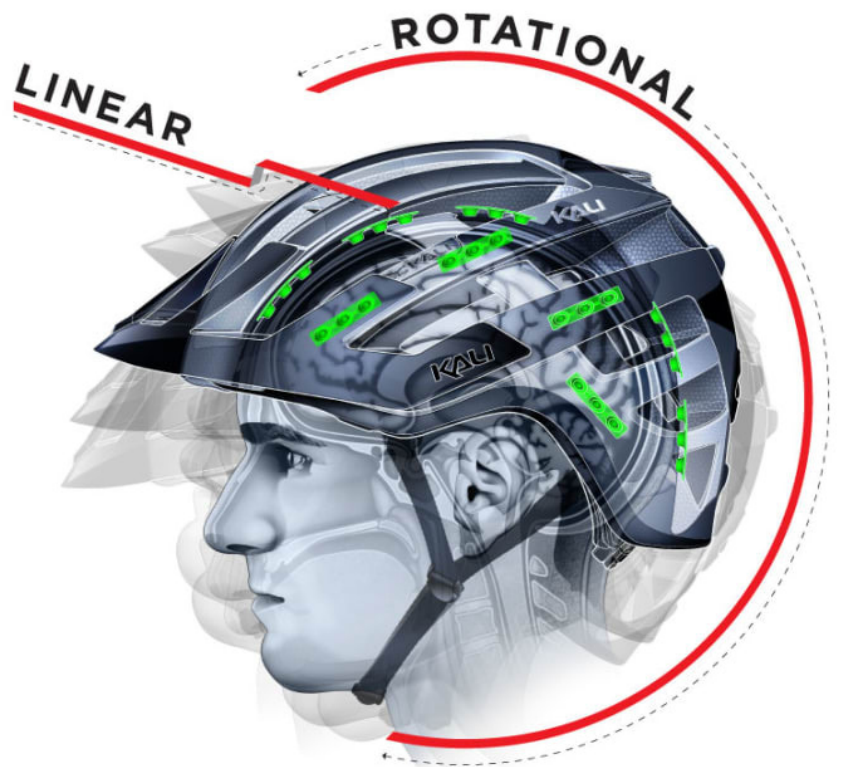
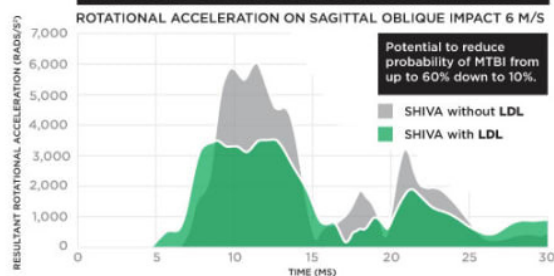
HOW IT WORKS

The soft LDL gel pads compress and shear in all directions to reduce rotational and low-g linear impact forces transferred to the brain.

25% less ROTATIONAL impact forces
30% less LOW-G LINEAR impact forces



IMPROVED HELMET PERFORMANCE WITH LDL



LDL EQUIPPED HELMETS

Full Face

- Shiva 2.0 Carbon
- Shiva 2.0
- Alpine

Mountain

- Interceptor
- Maya 2.0
- Alchemy

Road

- Tava
- Therapy