

## What the MIPS is MIPS?

As a cyclist you may have noticed a trend in cycling helmets with the addition of a small yellow and black medallion that just reads “MIPS.” So, what the MIPS is MIPS, and should you consider a MIPS equipped helmet when you shop for a new helmet?

First of all, you should ask yourself – do I need a new helmet? The bicycle helmet manufacturers have always said that helmets should be replaced every 2 to 5 years, or if the helmet has absorbed an impact. However, relatively recent research by Mechanical Engineers Kroeker, Bonin, DeMarco, Good and Siegmund (2016) found that the EPS foam samples from 63 new and used helmets (2 to 20 years in age) had not deteriorated in any significant way in terms of impact absorption. Most certainly if the helmet has suffered an impact the helmet should be replaced.

So, MIPS what exactly is it? **Multi-directional Impact Protection Systems** form a low friction layer of protection that physically separates the outer shell of the helmet from what you’re wearing on the inside of the helmet. The system allows the outside of the helmet to rotate in all directions 10-15 mm in relation to your head. It doesn’t seem like much, but it is enough movement to substantially reduce the rotational motion that would otherwise be transferred to your head and brain. Injuries like Diffuse Axonal Injury (DAI) and Subdural Hematoma (SDH) have been linked to rotational motion. Even Mild Traumatic Brain Injury (concussion) is also believed to be caused in part by rotational motion.

When MIPS cycling helmets first arrived on the market (2007) they were prohibitively expensive – early adopters always pay the price for Research and Development. However, since that time more than 7 million units have been sold and in 2019 there were 729 models available for purchase by over 120 manufacturers. As a result, prices have come down to price points that rival traditional helmets.

In my experience, having worked in Bicycle Retail industry, the most often cited excuse for not spending the extra for a MIPS equipped helmet was *“oh I don’t race - I just like to go out for a bike ride.”* Ironically, these people are the most in need of a MIPS helmet, as their skill level is most often the lowest and consequently, they are more likely to crash. They also tend to ride a great deal on bicycle paths where the rate of collision is 2.6 times that of roadways (1993 Forester *Effective Cycling*). My reply was always – you only have one brain, and there aren’t any readily available replacement parts.

You may have a helmet that fits you perfectly and the pads are still in good condition, so maybe you don’t absolutely need a new helmet. It will protect your head from bumps, bruises, scrapes and fractures – but only a MIPS equipped helmet protects your brain. A new helmet also offers other benefits that your old helmet may not. They include:

- better fit and comfort
- better ventilation
- lighter weight
- crash reporting
- built-in taillights

Do you need a MIPS equipped helmet – what is your brain telling you?