

VMC Policy Position: Mandatory Protective Apparel

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Position Statement on Mandatory Motorcycle and Scooter Protective Apparel / Gear May 2016

Position Statement:

The mandating of a minimum level of motorcycle and scooter¹ protective apparel or “gear” is not supported by the Victorian Motorcycle Council. However the wearing of protective gear (gloves, jacket, pants, boots) on every ride is strongly encouraged but a rider has the right to make an educated choice about what protective apparel they wear, commensurate with the purpose, conditions and expected risks of the ride.

The position summarises as: “Promotion of gear through education, not mandation”.



¹ Referred here after in the general collective noun "motorcycles".

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What does gear do?

The primary purpose of motorcycle protective apparel is to attempt to mitigate rider injury in the event of a “drop”, slide, crash or collision.

In minor “low energy” crashes, it may potentially avoid rider injury altogether. In major or high energy crashes however, the energies and forces tend to be well above and beyond motorcycle protective gear’s capabilities to dissipate and mitigate and are of a sufficient level to cause deep or serious trauma to the human bodyⁱ.



Far from this being a reason not to wear protective gear, good gear² that holds together in such crashes will save a rider from deep skin abrasions and lacerations that result in infections, more complex treatments and extended hospital stays. That is why clarity about the protective properties of motorcycle protective apparel is critical. Discussion needs to be grounded in fact first and policy second.

Gear is not magical!

Many ascribe magic-like lifesaving protective properties to motorcycle gear. It’s often been equated to a seat belt or an air bag (some jackets and vests do now have a limited airbag type option). Riders who are observed riding without gear are sometimes described as having a “death wish”, however data shows that at an *impact* speed of as little as 59km/h - equivalent to falling off a four story building - the risk of serious injury, trauma or death is the same for both a rider wearing gear and one that is not.

Better gear with more complex and advanced features may lift that speed, but as it is not a crumple zone, side impact intrusion system, occupancy survival cell or mythical elven armour, there are limits. It is not often recognised that between the rider and the impacted object is little more than 1 - 3mm of leather or Kevlar lined textile and 5 - 12mm of rubber/carbon fibre/plastic composite armour (in selected locations).

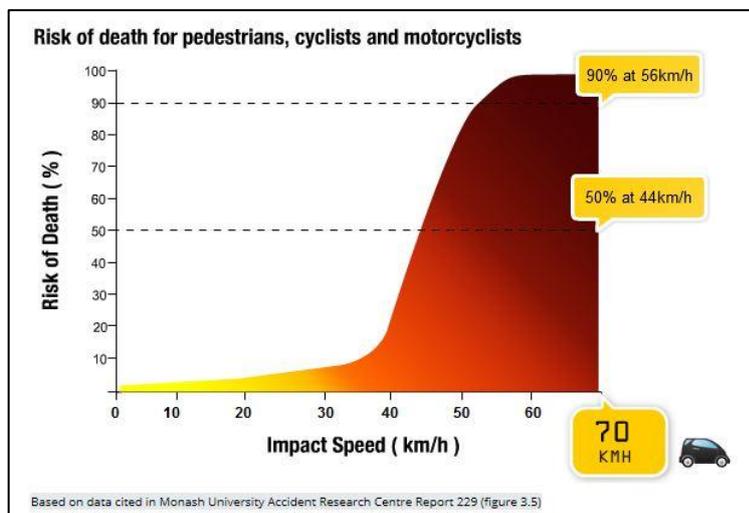


Figure 1³, shows that vulnerable road users have a near 100% risk of death at *impact* speeds above 59 km/h. Above 40km/h, a speed that is not uncommon for cyclists and typically exceeded by cycling groups, the risk rapidly rises but there is no parallel call for mandatory gear for cyclists.

² https://infrastructure.gov.au/roads/safety/publications/2009/good_gear_guide.aspx

³ <http://www.camerassavelives.vic.gov.au/home/road+trauma/speed+and+road+safety/>

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Motorcycle racers routinely survive crashes well in excess of this speed largely due to not hitting an object and instead sliding to a stop in purpose designed run off areas. It goes without saying that the injuries they would receive during such slides would be significant if it were not for their protective gear. That fact alone justifies the value of protective gear.



Is mandating gear the easiest way to improve motorcycle safety?

There are two separate issues regarding the intuitive notion that mandatory gear is the simplest way to improve motorcycle safety.

1. Do statistics show a link between gear wearing rates and injury?

Injury stats and studies suggest that riders who wear gear are less likely to end up in hospital and that a lack of appropriate gear features in a concerning proportion of injuries. These observations could simply reflect the risk profile of the individual riders involved, but viewed in isolation they inevitably lead to the conclusion that mandating gear would result in significant motorcycle safety benefits. This is far from certain.



The above observations may genuinely show a link between gear wearing and injury rates, but, we would need to drill down into the data to understand each injury and its crash logistics before a link could be confirmed. Gear's ability to reduce injury severity diminishes with speed, which naturally raises the question; "Would the same or a similar injury have occurred if the rider had been wearing gear?" If the answer was largely "yes" then the previously drawn conclusion would be wrong.

If the observations on the other hand reflect a correlation between "lack of gear" and a rider's risk profile, then this makes the data less clear and points to an involvement of rider attitudinal factors. The attitudinal factors aren't likely to be changed by forcing riders to wear gear and therefore there would be little change to overall injury stats. Education and inducement then may be more appropriate countermeasures with a better chance to engender behavioural change.

The 2011/12 Victorian Parliamentary Inquiry into Motorcycle Safety (PIMS)⁴ in section 11.5 of its report, found that substantial gear is already worn by the vast majority of riders. This further reduces the case for mandating gear and in conjunction with the above points, clearly questions the veracity of mandating gear to address rider injury concerns.

2. Is more gear the best way to reduce a rider's overall risk?

In OH&S principles, risk is the product of an event's likelihood multiplied by the resulting consequence should that event occur. Risk = Likelihood x Consequence. Can gear genuinely reduce a motorcyclist's overall risk?

⁴ <http://www.parliament.vic.gov.au/57th-parliament/rsc/inquiry/293>

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Motorcycle protective gear is passive protection that attempts to mitigate the consequence of an event. This approach is known as secondary safety. Primary safety on the other hand, attempts to fundamentally reduce the likelihood of an event by engineering or designing out the “problem”. Any reduction in the likelihood of a crash / collision will therefore fundamentally improve a rider’s overall safety, i.e. improve their primary safety.



There are excellent reasons for wearing gear and for improving its crash mitigating effectiveness but on balance, gear will not strongly influence a rider’s likelihood of being involved in a crash. The only exception is where gear is unsuited to the prevailing environmental conditions and fatigue, cold and dehydration crash risks⁵ are elevated. It therefore brings very little primary safety benefits to riding.

For a rider to intrinsically improve their primary safety then, they would need to ride smarter, more skilfully, taking fewer risks, better manage road hazards and utilise better and more robust road-craft. This typically comes with experience however it can be taught using similar training methods as used for all emergency services⁶ and military drivers.



From the overall road system point of view, primary safety requires motorcycle aware drivers sharing motorcycle friendly roads⁷ that are better engineered and maintained.

Together this combination of factors will improve primary safety and win primary motorcycle road safety improvements above and beyond any expectation from protective gear.

Mandating gear – easy to say, but reality says otherwise.

As the PIMS report and certain key experts referenced in it point out, making protective gear mandatory is highly problematic. It is not enough for the law to say, “Motorcycle gloves shall be worn”. Mandatory clothing requires alignment of quality and manufacturing standards, minimum design standards, conformity of materials and significant changes in rider attitudes. The regulations must be well worded so that they won’t date as technology advances and sophisticated enough to set appropriate minimum gear use requirements for an extensive range of motorcycles, ride purposes and environmental conditions.



⁵ <http://www.abc.net.au/catalyst/stories/4433001.htm>

⁶ <http://www.roadcraft.co.uk/motorcycle-roadcraft>

⁷ <https://www.vicroads.vic.gov.au/~media/files/technicaldocuments/guidelines/making-roads-motorcycle-friendly-december-2014.ashx>

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It will also require a transition period to manage existing stocks of gear and substantive enforcement after the commencement date from very well trained Police. Legally purchased gear that predates the regulation will remain in circulation for some years, leading to the possibility of many nuisance stops and checks of such gear, potentially resulting in nuisance infringements. These practical enforcement difficulties may see the police waiving checks of gear that "looks" appropriate making a mockery of the regulation and losing desired benefit from mandating gear of a minimum standard.

There's also the reality that mandating gear for a small pocket of Australia's already globally small motorcycle accessories market, will exacerbate the difficulties and lead to mismatched regulations between states. It should be clear then that what seems like a simple idea at first is in fact a highly complex and vexed road safety policy issue.

The PIMS well recognised these downsides and outlined a seven step process largely focused on market and consumer education, including an endorsement of a 5 star ANCAP type rating program for protective gear. The star rating would help riders make informed purchasing decisions. The PIMS further concluded that the taking of such steps would most likely remove the need for mandatory protective gear and its perceived benefits.



Too many riders aren't wearing gear... or so it seems.

In section 11.5, the PIMS report referenced Transport Accident Commission survey data showing that most riders wear protective gear. However it found that inner city commuters were the least likely to wear gear, which riders understand to be related to the inconvenience of gear for short trip purposes (particularly on hot days) and gear's unsuitability as office wear.

Since these urban riders are more visible and more frequently seen, it most likely skews anecdotal observations around the frequency of gear wearing. Anecdotal observations are not science and the greatest of care should be used if they are considered to form motorcycle safety transport policy.



Using the Motorcycle Safety Levy to encourage gear use.

The Motorcycle Safety Levy (MSL) is a controversial fee paid by riders to create a separate pool of funds specifically used on motorcycle safety projects and programs.

Given that the best protective gear is often the most expensive gear, there would appear to be a prima facie case to use MSL funds to subsidise or reimburse riders for the purchase of quality gear. This would most likely have a positive spin off both commercially and in rates of

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gear wearing. It would also more likely lead to riders purchasing multiple sets of gear suited to different riding conditions and purposes thus increasing the chances of gear being worn more often..



It would also have an added benefit of riders seeing a directly tangible benefit from paying the levy thus potentially opening the pathway to a better “conversation” between road safety agencies and riders.

If increasing the extent and rates of wearing gear is the primary goal of mandating motorcycle protective clothing, then arguably the use of the levy is perhaps the most positive and least confrontational way to achieve the goal without any of the complex road safety policy down sides.

End notes:

ⁱ de Rome L, *The injury reduction benefits of motorcycle protective clothing*, paper presented at National Transportation Safety Board Motorcycle Safety Forum, Washington DC, 12-13 September 2006, p. 2; de Rome & Stanford G, *Motorcycle Protective Clothing: Fashion or function?*, International Motorcycle Safety Conference: The Human Element, Motorcycle Safety Foundation, Long Beach, 28-30 March 2006, p.1

ⁱⁱ de Rome, L, Ivers R, Fitzharris M, Du W, Haworth N, Heri ier S, Richardson D, *Motorcycle protective clothing: Protection from injury or just the weather?*, *Accident Analysis and Prevention*, vol. 43 issue 6, 2011, p. 8.