

16 December 2016

Attention: Director
Standards and Policy
Consumer Product Safety Branch
Australian Competition and Consumer Commission
GPO Box 3131
CANBERRA ACT 2601

Lodged online via email: productsafety.regulation@accc.gov.au

Amy Gillett Foundation response to ACCC Review of Mandatory Safety Standards for Pedal Bicycles

Thank you for the opportunity to provide feedback on the Australian Competition and Consumer Commission (ACCC) Review of the mandatory safety standard for pedal bicycles, Consultation paper. The Amy Gillett Foundation has a direct interest in contributing to the conversation about bicycle standards, particularly regarding the safety of cyclists.

Of the five proposed options made by the ACCC, the AGF is supportive of Option 4: Allow compliance with the voluntary Australian or trusted international standards. Further, we have provided additional information on cyclist safety and crash outcomes related to bicycle standards and electric bikes in light of recent research and as requested throughout the report. Our detailed comments are provided in the following pages.

We look forward to the outcomes from this review. Please do not hesitate to contact me directly if you have any questions or require any additional information.

Yours sincerely



Phoebe Dunn
Chief Executive Officer

Amy Gillett Foundation

The Amy Gillett Foundation (AGF) is a national organisation with a mission to reduce the incidence of serious injury and death of bicycle riders in Australia. We draw on evidence and international best practice, and collaborate with governments, business and the community to create a safer environment for cyclists, while maintaining an efficient road network for all road users.

Cyclist safety and bicycle standards

The ACCC's Consultation paper mentions the Australian National Coroner Information System (NCIS) and cites the proportion of injuries and deaths attributed to bicycle design or failure are unknown. The contributing role of bicycle mechanical failure has been identified in two studies co-authored by Dr Marilyn Johnson, AGF Research and Policy and Manger and Senior Research Fellow at Monash University.

Bicycle mechanical failure research

Fatality crashes

While the NCIS database provides an important overview of fatality crashes, the reports compiled by the coroners contain extensive details that provide significantly more insight into the crash events. However, the coroners' reports are typically paper-based and are rarely reviewed due to the considerable time and resources required.

Given the richness of the data in the coroners' reports, Dr Johnson in collaboration with Dr Lyndal Bugeja from the Coroners Court of Victoria, reviewed the full coronial reports for 137 cyclist fatality crashes in Victoria from 1 January 2000 to 31 December 2014 (publication under review). Of all the fatal crashes, it was identified that 1 crash (0.7%) involved a mechanical failure of a bicycle as a factor in the crash.

However, what is important for the ACCC to note, the involvement of a mechanical failure of a bicycle or a physical feature or characteristic of the bicycle involved in a serious crash, particularly a fatal crash, is not routinely reported by police. In this study, the researchers identified features of the bicycles either as reported by the police or witnesses, or from photographs.

In relation to the features of the bicycles required by the current standards, the only feature reported in the coroners' reports were the presence/absence of reflectors, but there was no comment on the safety impact of the presence/absence of reflectors on the crash outcome. Table 1 is a summary of the reported reflectors.

Table 1. Reported presence of reflectors on bicycles involved in cyclist fatality crashes in Victoria, 2000-2014

	Reflectors present			Total
	Yes	No	Unknown	
Front	7 (5.1)	18 (13.1)	112 (81.8)	137 (100.0)

Rear	6 (4.4)	18 (13.1)	113 (82.5)	137 (100.0)
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Of the 18 crashes that reported a lack of reflectors, 16 bicycles had no front or rear reflectors. The cyclists involved in these 16 crashes were: all male (n=16, 100.0%); all ages with half (n=8, 50.0%) aged between 40-59 years. Most crashes involved a counterpart (n=13, 81.3%) and there was no pattern in relation to time of day. Most bicycle types were reported with the most crashes involving bicycles with no reflectors being BMX bikes (n=6, 37.5%).

Nonfatal crashes

The MACC study (Monash Alfred Cyclist Crash study)¹ was an in-depth crash investigation study involving 158 cyclists who had crashed and presented to either the Sandringham or Alfred hospital. Of those cyclists, 9 cyclists (6%) reported they crashed as a result of a bicycle malfunction; 5 broken/dropped chains, 2 tyre blow outs, 1 involved brake pads and 1 snapped forks.

The interviews conducted as part of the MACCS study are currently being continued as part of a major Australian Research Council Linkage Project, of which the AGF is a Partner Organisation. In that study, still underway, a further 186 cyclists involved in nonfatal crashes who presented to hospital have been interviewed using the MACCS study interview schedule. While the involvement of mechanical failure or bicycle malfunction have been recorded, these details are yet to be analysed.

Contrary to the position stated in the ACCC Consultation paper, given the findings from the available research data, it is clear that there is a link between mechanical failure or bicycle malfunction and injuries. As with most areas of cyclist safety, the bigger issue is the lack of comprehensive data, in particular:

- Underreporting of cyclist crashes
- Reliance on police reported data – police provide the most detailed and comprehensive data on cyclist crashes, however they are not called to all crash events
- Lack of data of bicycle characteristics in a crash event
- Lack of crash details in hospital data – more cyclist crashes are reported by hospitals in comparison to police, however hospital data contains little crash details

From the available data it is not possible to categorically state that there is no link between bicycle mechanical failure/malfunction and injury or death. What is evident is that there is insufficient data.

¹ Biegler P, Newstead S, Johnson M, Taylor J, Mitra B, Bullen S (2012). MACCS Monash Alfred Cyclist Crash Study. [Full report](#)

Electric bikes

Again, Dr Johnson, in collaboration with her colleague Professor Geoff Rose, has conducted much of the electric bike related research conducted in Australia to date. Their first research study, conducted in 2012, predates the adoption of the EU standard in 2012 that permitted power-assisted bikes from 200W to 250W and provides insights into the experiences of riders in Australia,² including older riders.³ Currently the law classifies electric bikes with a power output up to 200W as a bicycle and on this basis it seems intuitive to require e-bikes to meet the same minimum standard as pedal bicycles. With regard to the bicycles fitted with power assistance exceeding 200W excluding pedelecs, the AGF supports the ACCC proposal to exclude them from the revised mandatory standard based on the recognition that these are motor vehicles, not bicycles.

In 2015, Johnson and Rose published another study focused on safety issues related to electric bikes which provides insights into electric bikes in Australia since the adoption of the EU standard.⁴ As the e-bikes with power assistance of 250W, or pedelecs, are governed by the European standard (EN15194:2009), it appears that the safety requirements are addressed and do not need to be included in a revised bicycle standard. Below is an excerpt from the report that compares the crashes involving cyclists of e-bikes compared to pedal bicycles:

There is some disagreement in the literature about the severity of injury outcomes for e-bike riders compared to pedal cyclists. Research from China reports that e-bike rider injuries are more severe than pedal bike riders and that the injuries are increasing concurrently with e-bike sales (Feng et al. 2010, Du et al., Hu et al. 2014). In 2013, almost one in ten road traffic fatalities were e-bike riders (Zhang and Zhang 2013), however e-bike crashes were often found to be due to actions by the counterpart driver and not the e-bike rider. It is likely that speed is a factor in the different injury profiles. While China has a lower maximum power assisted speed (20 km/h) compared to Europe (25 km/h), there is little evidence of enforcement of this limit in China and actual speeds are likely to be higher (Rose 2012). Indeed, Yang and colleagues (2014) recorded the speed of 800 e-bike users with hand-held radar speed detectors and reported that 71% exceeded the 20km/h speed limit for e-bikes.

In contrast, a recent study in the Netherlands analysed hospital data for cyclists who had crashed on a pedal bike compared to an e-bike and found there was no significant difference in crash outcome. That is, e-bike riders and pedal bike riders had similar injury outcomes (Schepers et al. 2014).

In Australia, a survey of e-bike safety related incidents (Johnson and Rose 2014) found that half of the incidents could have occurred on any bike type (e.g. car dooring, intoxicated cyclist). The road/path surface was a factor in one in five crashes and while these too may be considered typical of any bike crash, comments from the e-bike riders suggested that they may have been travelling too fast for the conditions. Lack of riding experience may have

² Johnson M and Rose G (2014) Electric bikes in Australia: safety gains and some new concerns. [Abstract](#)

³ Johnson M and Rose G (2015) Extending life on the bike: electric bike use by older Australians. [Abstract](#)

⁴ Johnson M and Rose G (2015) Safety implications of e-bikes. [Full report](#)

been a factor or different riding skills may be required for safe e-bike riding. Of the crashes experienced, a quarter of people reported the e-bike itself was a contributing factor (e.g. rider error including unintentional throttle/hand grip power engagement, destabilising power surges, fall due to heavy bike or loss of balance or mechanical failure typically related to self-assembly).⁵

Johnson and Rose (2015) identified that mechanical failure related to self-assembly was involved in e-bike crashes. Self-assembly is a concern for all bicycle types and highlights that the current bicycle standards focus on the condition of the bicycle at the point of sale, and does not cover use of the bicycle or on-going maintenance and safety.

In addition, the AGF has made detailed responses to 2 of the 12 key questions raised by the ACCC. Responses related directly to the bicycle industry have been developed in consultation with Peter Bourke from Bicycle Industry Australia.

2) Safety hazards not addressed in this Consultation paper

Bicycle standards beyond the point of sale

The current bicycle standards have a clear focus on the bicycle at the point of sale. One significant gap in the bicycle standards is lack of any requirements in relation to safe use and ongoing maintenance of bicycles.

Safe vehicles is a key pillar of the [Safe System approach](#) to road safety in Australia – for cyclists, this means safe bicycles. However, to date, the safeguards and protections that are standard for motor vehicles (e.g. ANCAP ratings for vehicles, crash tests, ongoing vehicle servicing, qualified mechanics) are largely absent for bicycles.

Servicing

Regular maintenance of all bicycles is important to ensure they are fit-for-purpose, particularly given that most cyclists will ride part, if not all, of their trip on the road. Greater education is needed for consumers to raise awareness about the importance of bicycle servicing, similar to servicing of motor vehicles. A further gap is that there is no mandated requirement for a bike mechanic to have a formal qualification.

Bicycles and fatigue

The importance of standards beyond point of sale are also stressed by the recent recommendation by ACT Coroner Campbell in her findings from the inquest into the death of Richard Stanton that bicycle fatigue was a matter of public safety.

⁵ Ibid, p5-6

In the Australian Capital Territory, in January 2015, Richard Stanton aged 49, died as the result of a mechanical failure. [Findings from the inquest](#) from ACT Coroner Campbell, following an expert examination of the bicycle, determined that the bonded fork assembly of his bicycle unexpectedly and catastrophically failed. In the Coroner Campbell's report there is some disagreement as to whether the initiation of the crack was due to an inclusion in the manufacturing process (FIE Aust expert) or through fatigue of the alloy (bicycle manufacturer's expert; Trek Bicycles). However the experts did agree that:

- i. The failure of the fork was caused by a fatigue fracture occurring in the aluminium alloy steering tube inside the bonded fork assembly
- ii. The fatigue crack occurred in a location where it was not visible to persons following the manufacturer-prescribed owner pre-ride inspection and technician service inspection methods
- iii. The fork has a finite structural life and, upon reaching that finite structural life, can fail catastrophically without warning

Coroner Campbell has made direct recommendations, including to the ACCC, namely:

- iii. I recommend that Standards Australia and other relevant international standards bodies investigate fixing an upper "safe life" limit (safe life) for the bicycle front steering fork, depending on the manufacturing process and material construction of the part, after which the owner is encouraged to replace the part irrespective of whether damage is visible.

In addition to the tragedy of Mr Stanton's death, the AGF is aware of anecdotes from individuals who have had crashes due to bicycle fatigue, particularly the collapse of forks that have led to crashes that have resulted in nonfatal injuries or no injury outcomes.

The AGF agrees with the findings of Coroner Campbell and the need to create a standard that refers to the safe life of products. The AGF also recommends that the ACCC extends Coroner Campbell's Recommendation iii to a broader educational program that raises awareness of 'safe life' limits of bicycles and the potential risk of bicycle fatigue.

9) Second-hand and hire bicycles

Second hand bicycles

Ideally, there should be a minimum safety standard applied to second-hand bicycles, but in the absence of a mechanism to control such a requirement, it currently falls on the purchaser to determine the safety of the equipment.

However, there is no lesser requirement for a second-hand bicycle to be safe than a new bicycle. The AGF considers there to be a need for greater consumer education about the minimum standards for bicycles, including second-hand bicycles. Again, this returns to the need for the ACCC to take into account safety concerns beyond the point of sale.

Hire bicycles

The AGF agrees that there should be a minimum safety obligations for hire bicycle operators. Hire bicycles are a controlled environment with the fleet managed by a licensed operator and the adherence to the minimum standard could reasonably be incorporated into their business operation requirements.

Conclusions

The AGF congratulates the ACCC on carrying out this review and understand the motivations for doing so.

We support the view articulated in Section 2 of the consultation paper that safety principles should be at the heart of revised standards and that prescriptive requirements may have limited ability to ensure product safety. This is especially the case with rapid changes in technology.

A broad duty should be placed on wholesalers and retailers of bicycles to ensure adequate component strength and performance across a range of criteria – especially braking, steering and conspicuity. This broad duty should be applied with the safe harbour of relying on Australian or trusted international standards.

Effective communication of the risks of particular types of bicycle or features of bicycle should be encouraged on the part of bicycle sellers.

The proposal outlined in option 4 of the consultation paper is supported.