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Contributed articles

Cycling safety in Australia

by Tony Arnold
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The humble bicycle is making a comeback around the world; with governments recognising the many benefits that encouraging transport cycling has for individuals and society. Many of these benefits are well-recognised such as improved health, air quality and congestion. Many are less well-recognised such as providing socially-equitable access to transport and improving road safety for vulnerable road users.

In an effort to saturate cities with bicycles and mainstream transport cycling, hundreds of major cities across the globe have launched bike-share schemes including New York, London, Paris, Barcelona, Montreal, Mexico City, Stockholm, Milan, Helsinki, Lyon and Australia's Melbourne and Brisbane.

This worldwide trend has little to do with spandex-clad bodies engaging in sports cycling and more to do with ordinary people just getting from A to B. Governments are looking to mainstream cycling and are using imagery that is very different to the hardened, helmeted, sweaty bodies of past cycling promotion efforts. Today's bicyclists are everyday people in everyday clothes making everyday trips.



Today's bicyclists are everyday people in everyday clothes making everyday trips

The Australian National Cycling Strategy

The primary goal of the National Cycling Strategy 2011-2016 is to double cycling participation over the life of the strategy. This goal recognises the significant benefits that are realised by both individuals and society by increasing participation in active travel.

The economic benefit of cycling has been calculated

in Australia at \$1.43 per kilometre cycled per person [1] which equates to a \$14.30 benefit for every two-way commute of 20 minutes each way.

The goal of doubling cycling participation has the potential to improve the safety of riders through an effect known as "Smeed's Law" or "safety in numbers." This effect states

that the safety of the cycling environment correlates to the number of people riding bikes.

This relationship may be due to a number of possible factors such as:

- The increasing number of riders making bicycles more visible and resulting in an increased driver awareness of bicycles on the road.
- Existing riders feeling an increased social pressure from the growing number of cycling peers to behave in a more predictable and law-abiding fashion.
- More infrastructure being built to accommodate the increasing number of riders.
- New riders that are attracted by safer infrastructure will tend to be more risk-averse and more likely to ride conservatively.

Even if we ignore the “safety in numbers” effect, the public health benefits of cycling outweigh the safety risks. This is why governments have been increasingly keen to promote cycling and, more widely, active travel.

Cycling fatalities in 2013

The number of cycling fatalities in 2013 was the highest in 15 years at 50 fatalities with the outlook for 2014 being even worse with 30 deaths in the first six months. Men were over-represented in comparison to women even after accounting for their higher participation rates. Riders over 30 years of age were also disproportionately over-represented. This result is largely due to the fact that young riders, particularly very young riders, are less exposed to motor vehicle traffic as they tend to ride more on footpaths or on fully-separated facilities.

Cycling participation

Last year, 8.5 million Australians rode a bicycle, with 3.8 million people riding in a given week. [2] Younger people tended to ride more than older people with 44% of children between the ages of 2 and 9 year having ridden in the past week. Men tended to ride more than women by a factor of around 2 to 1. Participation in recreational cycling was significantly higher than participation in transport cycling (to work, shops, university, school etc).

While the level of cycling for transport is very low in Australia (as in the US and UK) at around 1% of trips, there is enormous potential to increase this number. The high participation rates in nations such as the Netherlands, Denmark and Germany have shown that it is possible to have up to one third of trips made by bicycle.

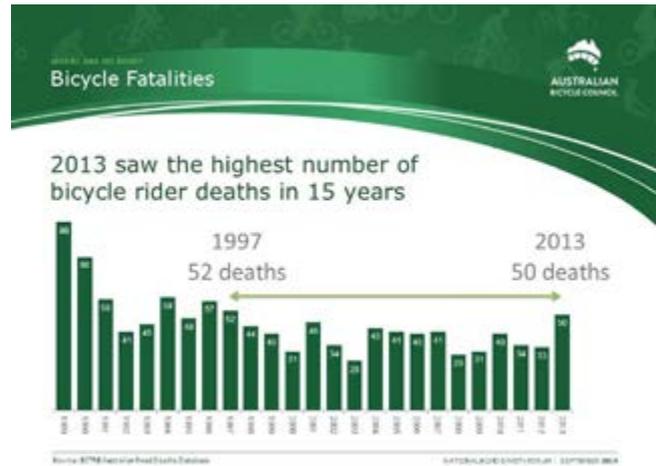


Figure 1. Bicycle rider deaths

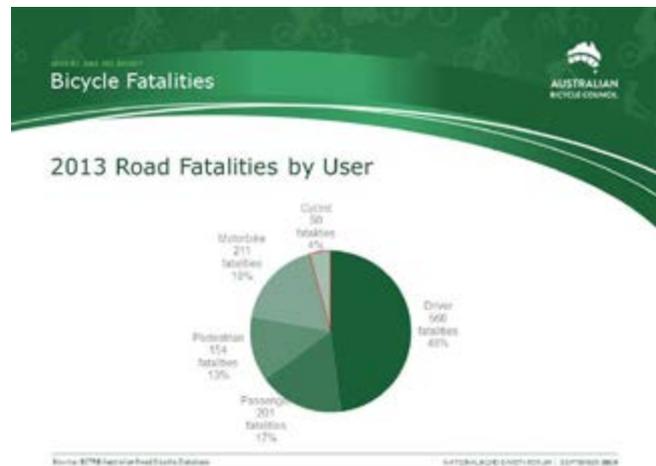


Figure 2. Road fatalities by user

Barriers to increasing cycling participation

A 2011 study [3] found that concerns about safety top the list of barriers to cycling for transport with the top four reasons from a list of twenty given for not riding for transport being:

- Unsafe road conditions
- Speed/volume of traffic.
- Don't feel safe riding.
- Lack of bicycle lanes/trails.

While a recent study [4] found that walking accounted for ten times as many serious head injuries as cycling, walking is seen as very safe while cycling is perceived as a risky activity. There are several potential reasons for this, including:

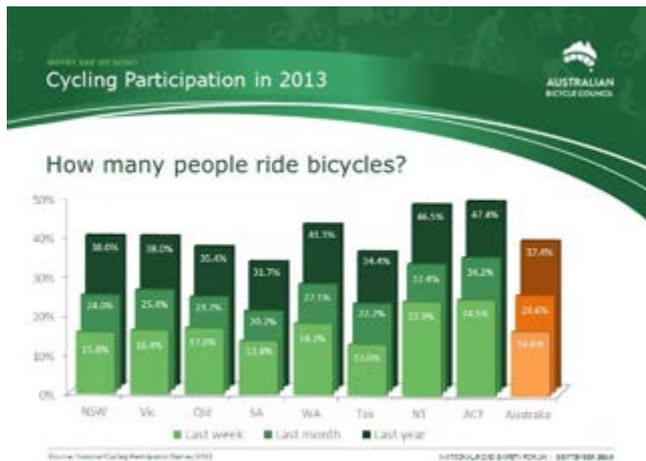


Figure 3. Bicycle usage

- Pedestrians have almost ubiquitous access to infrastructure that is separate from motor vehicles while bicycle users are in close physical proximity to motor vehicles for a large proportion of their journeys.
- Government communications strategies that target bicycle users focus heavily on safety issues and equipment.
- The prominence of bicycle accidents in the media.
- The mainstream participation in walking and driving results in an acceptance of these activities and the risks they entail. In contrast, riding a bicycle, particularly for transport, is less common.

The perception that riding a bicycle is dangerous slows growth in cycling participation. Failing to reduce the barriers to cycling participation will further consign Australia to low population activity levels which contribute to Australia’s expanding waistlines and increased health care costs. It is therefore critical that interventions to improve the objective safety of cycling in Australia are carefully designed to also improve the subjective safety and reverse the perception that cycling is dangerous.

Improving cycling safety using the Safe Systems Approach

Safe roads and infrastructure

More than 75% of the cycling fatalities that occurred in 2013 involved a second vehicle. The dangers that motor vehicles present to vulnerable road users not only present a risk to those who currently ride bicycles; they present a strong deterrent to those contemplating transport cycling.

Building a network of bicycle facilities that provide separation from motor vehicle traffic will improve actual safety by minimising the risks faced by bicycle users.

By building these facilities, we will also see a significant improvement in the perceived safety of cycling and therefore an increase in cycling participation.

Safe speeds

Low speed limits are an essential part of the Safe Systems approach which aims to create an environment that is tolerant to human error and designed to minimise forces on the human body. Australia has been moving towards lower speed limits with initiatives such as 40 km/h limits in school zones and the lowering of the standard residential speed limit from 60 to 50 km/h. More recently, several cities in Australia have moved towards 40 km/h as a standard speed for CBD areas, although there are still challenges to overcome in getting this accepted by all parts of the community.

Bicycle users typically travel at around 20 to 30 km/h and can mix well with motor vehicle traffic travelling at around 30 km/h on low-volume streets. The current standard speed limit of 50 km/h in many areas is too high to allow for the comfortable and safe sharing of roads between bicycles and motor vehicles. In many parts of Europe, they have taken the sensible move to create 30 km/h speed zones in residential areas and high pedestrian activity areas.

By lowering speed limits, shared traffic environments will be objectively safer for bicycle users and will, importantly, feel much safer. Again, it is the feeling of improved safety that will contribute to an uptake in cycling.

Safe vehicles

It is important that bicycle users are riding safe bicycles. This can be achieved through community engagement activities that focus on encouraging cycling while also offering services such as free bike check-ups. If a bicycle is missing a bell, it is cheap and easy for government programs to supply and fit a bell to ensure compliance with the law while also encouraging the rider to keep riding.

Safe people

There is a perception in Australia that bicycle users are rule-breakers who act irresponsibly and are partly to blame for any accidents they are involved in just by being on the roads. This perception can be seen in the sporadic calls by members of the public for the registration of bicycles so that they can be identified. The perception is that bicycle users present a significant danger to others and that they need to be “held accountable”.

The common misconception that bicycle users are disproportionately responsible for accidents was refuted in a recent study that looked at the Police records of accidents that resulted in the hospitalisation of bicycle users. The study found that “in 79% of cases the driver of the (motor) vehicle was deemed to be at fault for the crash”.

The actual danger presented to other road users by bicycles is insignificant next to the very real threat that motor vehicles present both to other motor vehicle occupants and, even more so, vulnerable road users. Basic physics dictates that the speed, mass and rigidity of a motor vehicle presents a potentially-lethal danger to vulnerable road users. Risk factors such as speeding, fatigue and the growing problem of distracted driving further compromise the safety of vulnerable road users.

In order to keep pedestrians and bicycle users safe on our streets, it is important that the behaviour of drivers is regulated and that the legitimacy of cycling as a mode of transport is maintained. The regulation of driver behaviour can be done through policing but can be even more effectively achieved through the appropriate design of roads and the built environment.

The legitimacy of cycling can be achieved through the normalisation and mainstreaming of bicycle transport. Increasing cycling participation has a big role to play in the normalisation of cycling. When every person is good friends with a person who rides regularly, there will be a reduction in the “cars vs bicycles” narrative that plays out regularly in the media.

Efforts to improve the behaviour of bicycle users should focus on improving their skill levels from a young age. It is in these early years where good habits are formed and

where confidence and competence can best be established. Bicycle education not only improves actual safety by building skills, it also builds confidence that can help overcome the barriers to cycling and lead to a lifetime of healthy activity.

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About the Australian Bicycle Council (ABC)

The role of Australian Bicycle Council is to coordinate and oversee the implementation of the National Cycling Strategy. The ABC reports annually on the implementation of the Australian National Cycling Strategy to the Transport and Infrastructure Council, through Austroads and the Transport and Infrastructure Senior Officials' Committee (TISOC).

Key influences on cycling for transport

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Introduction

Over recent years, the health, transport and environment sectors have been increasingly focused on the promotion of transport cycling. From a health perspective, transport cycling is recognised as a beneficial form of physical activity as it can be easily integrated into daily living, is done at an intensity that confers health benefits, and is associated with reductions in mortality and morbidity [1]. From a safety perspective, the risk of a serious cycling injury decreases as cycling increases [2] as having more cyclists on roads increases motor vehicle drivers' awareness of cyclists and in turn makes cycling safer.

Whereas cycling for recreation is the fourth most commonly reported physical activity among Australian

adults [3], transport cycling is an underutilised travel mode. Approximately 1.3% of journeys to work in Australia are made by bicycle [4]. This low prevalence is mirrored in the UK and the US, but not in some European countries like the Netherlands and Denmark, where over 18% and 26%, respectively, of all journeys are made by bicycle [5].

In the past decade, concerted efforts have been made by Australian state and local governments to increase cycling rates [6]. Notably, Melbourne, Sydney and Brisbane have implemented policies, increased bicycle commuting infrastructure, and offered information and promotion programs to encourage commuter cycling [6,7]. Governments have also developed comprehensive long-term plans for guiding future cycling strategies, using lessons learned from around the world in developing