

Submission
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INQUIRY INTO VULNERABLE ROAD USERS

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Vulnerable Road Users (Inquiry)

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b) short and long term trends in motorcycle and bicycle injuries and fatalities across a range of settings, including on-road and off-road uses;

This section only covers bicycles

Cyclists and pedestrians main road safety risk is similar: the risk of being hit by a motorist. This similarity is useful as it helps isolate cycling safety measures from broader road safety measures, like drink driving enforcement and lower residential speed. By comparing cyclist safety to pedestrian safety, we can isolate the effect of external factors & measure the effectiveness of cycling safety measures.

The table below compares the relative safety of pedestrians and cyclists in terms of injuries in NSW over the last 30 years.

[Injuries data](#) comes from the RTA. On page 22, there are yearly totals for injuries, showing cycling and pedestrian injuries.

Injury risk is calculated per individual, adjusting as the number of cyclist increases or decreases.

During the 1980's, cycling in Sydney increased by 250%

Webber R. Cycling in Europe. In: Shepherd R, editor. Ausbike 92. Proceedings of a national bicycle conferences, Melbourne, Australia. Melbourne: Bicycle Federation of Australia, March, 1992.

Between 1991 and 1993, the RTA measured a decrease in cycling by 44%. This is used as an indicator for the drop in cycling between the full year of 1990 and 1992.

Walker M. Law compliance among cyclists in New South Wales, April 1992. A third survey.: Road and Traffic Authority Network Efficiency Strategy Branch, July 1992.

Smith N, Milthorpe F. An observational survey of law compliance and helmet wearing by bicyclists in New South Wales - 1993.: Roads and Traffic Authority, 1993.

Between 1992 and 2001, cycling did not grow much in NSW (from census data). From 2002 to 2008, the RTA has measured an increase in cycling of about 57%

http://www.rta.nsw.gov.au/usingroads/downloads/cyclinginsydney_bicycleownershipanduse.pdf

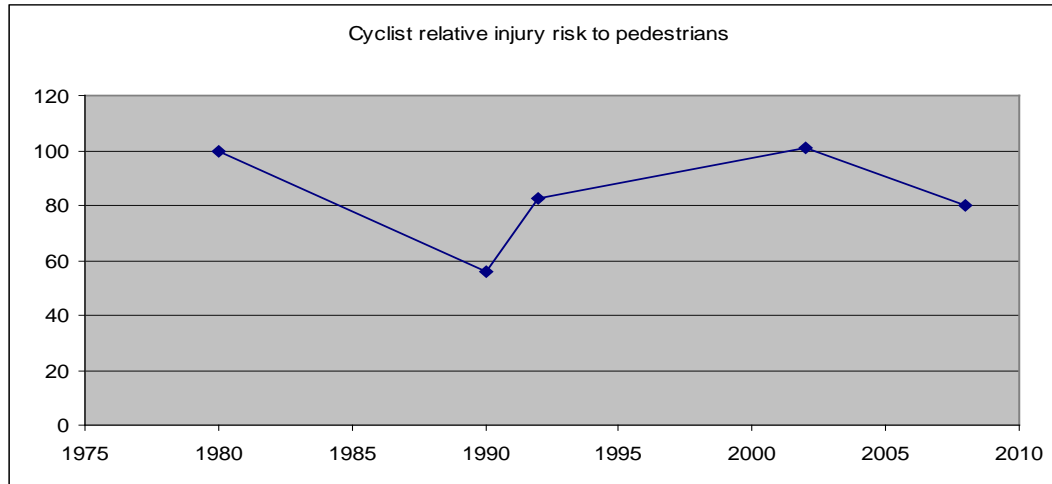
The change in numbers of pedestrians is estimated based on population growth from the Australian Bureau of Statistics.

Time Period	Change cycling injuries	Change number cyclists	Change injury per cyclist	Change pedestrian injuries	Change number pedestrians	Change injury per pedestrian	Difference cyclist vs pedestrian
1980-1990	40%	250%	-60%	-5%	13%	-16%	-44%
1990-1992	-30%	-44%	25%	-21%	2%	-23%	48%
1992-2002	-1%	0%	-1%	-16%	10%	-24%	23%
2002-2008	-16%	57%	-46%	-20%	7%	-25%	-21%

The table highlights four different periods in terms of cycling safety:

1. Until 1990, cycling was rising strongly and becoming much safer.
2. After 1990, there was a sharp drop in the number of cyclists (after the helmet law). The number of cyclists dropped by almost half while cycling became more dangerous.
3. Between 1992 and 2002, there was no growth in cycling. Cycling safety deteriorated compared to pedestrians.
4. Between 2002 and 2008, the number of cyclists increased significantly. This led to an improvement of cycling safety compared to pedestrians.

The following graph provides a visual representation of what occurred since 1980. It shows the injury risk per cyclist compared to the injury risk per pedestrian, with 1980 set as 100 as a basis.



The injury risk dropped dramatically during the 1980's. However, that improvement reversed sharply after 1990. How can this be?

One answer to that question came in research first published in 2003, called '[safety in numbers](#)'. Data from many different countries showed that cycling safety is closely correlated to the number of cyclists. The greater the number of cyclists, the safer cycling becomes. The fewer cyclists, the more dangerous cycling becomes. This research has been replicated by many other studies all over the world, confirming its validity.

The relationship between the number of cycling and the risk of injuries that was found from empirical data was this one:

$$\text{Relative injury risk} = (\text{number of cyclist})^{-0.6}$$

If cycling doubles, the relative risk become 0.66, a decrease in 34% in risk

If cycling halves, the relative risk becomes 1.52, an increase of 52% in risk.

According to the 'safety in numbers' formula,

If cycling increases by 250%, as it did in between 1980 and 1990, the risk of accident should reduce by 53%. Relative to pedestrians, cycling injuries decreased by 44%.

If cycling decreases by 44%, as it did between 1990 and 1992, the risk of accident should increase by 42%. Relative to pedestrians, cycling injuries increased by 48%.

If cycling increases by 57%, as it did between 2002 and 2008, the risk of accident should decrease by 24%. Relative to pedestrians, cycling injuries decreased by 21%.

The close match between the 'safety in numbers' rule and the actual cycling injury risk indicates that **'safety in numbers' is the primary factor affecting safety**. In other words, **the key to cycling safety is to increase the number of cyclists**.

What is odd when looking at those trends is that the measure that was supposed to make cycling safer, the helmet law, actually made it more dangerous.

c) underlying factors in motorcycle and bicycle injuries and fatalities;

1. Motorcyclists and cyclists

The key issue is lack of protection. Motorcyclists & cyclists are operating in an environment where other motorists are better protected. Better protected motorists tend not to be as carefully as they should as the risk to them is lower. So riders need to take extra precaution.

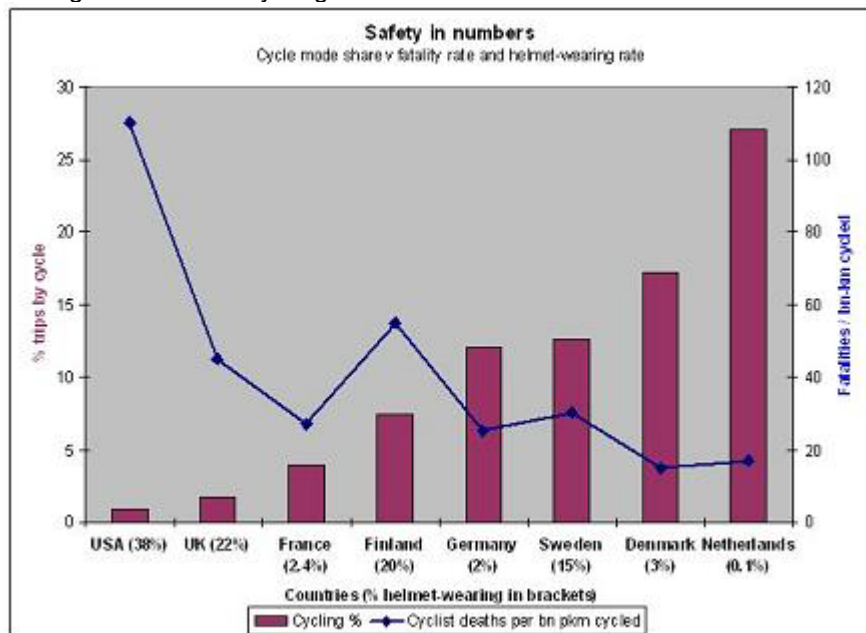
As riders are more exposed, they need greater awareness of the surrounding traffic. People need to be much more alert when riding a bicycle or a motorbike. Not every rider understands that.

2. Cyclists

Perhaps because of the over-repeated message that bicycle safety = helmets, many cyclists put on their helmet and assume they are safe. The helmet seems to give them a [false sense of safety](#), making them ride less carefully. This is called **risk compensation** in safety research: as people have more safety devices, they tend to [feel safer and be less careful](#). This tends to increase the risk of accidents. This is one of the factors that can explain the 50% increase in accidents after the helmet law (cf. d)).

A key factor for cycling safety is "[safety in numbers](#)" (cf. b). The more people cycle, the safer cycling becomes. This is one of the most solid pieces of research, confirmed by many studies in different countries. The key insights from the research are that **"the behavior of motorists controls the likelihood of collisions with people walking and bicycling. It appears that motorists adjust their behavior in the presence of people walking and bicycling. ... A motorist is less likely to collide with a person walking and bicycling if more people walk or bicycle."**

The graph below illustrates that the countries where cycling is the safest are the countries with the highest levels of cycling.



One of the key strategies to make cycling safer is to increase the number of cyclists.

The main source of danger for cyclists is motorists. Yet surprisingly little has been done in NSW to ensure that motorists are extra careful around cyclists. My riding experience in Sydney has confirmed the attitude of some motorists as having little respect for cyclists, and putting them at unnecessary risk. One of the key issues that need to be addressed to improve cyclist safety is to **change motorist attitudes towards cyclists**.

Cycling in Australia is now dominated by racers. Their aggressive riding style, focused on speed at the expense of safety, is not winning the hearts of motorists. This has **fueled animosity between motorists and cyclists**. As it is motorist behavior that primarily determines the likelihood of accidents, having motorists against cyclists increases the risk of accidents.



To improve the perceptions of motorists, **the image of cycling must change** by welcoming the gentle cyclists who cycle slowly, typically for short trips in normal clothes. These cyclists give a much friendlier image of cycling that can help turn around motorists perceptions. This was highlighted in a [recent article](#) in the Herald.

Helmets give motorists the impression that cyclists are protected. Like the 'risk-compensation' factor, this tends to make some motorists being less careful among helmeted cyclists. [A study in the UK](#) found that motorists overtaking cyclists passed closer to cyclists wearing helmets than to cyclist without helmets. Drivers were as much as twice as likely to get particularly close to the bicycle when he was wearing the helmet. The cyclist was struck twice by a motorist twice during the experiment; both times he was wearing a helmet.

d) current measures and future strategies to address motorcycle and bicycle safety, including education, training and assessment programs;

1. Increase minimum safety standard for commercial drivers

The poor standard of driving of some commercial drivers, particularly taxis and vans, affects all road users, but especially vulnerable road users. I have noticed that many taxi & van drivers drive carelessly, taking undue risks. As a motorcyclist and a cyclist, I have learnt to stay well away from those vehicles, as they can change lane or turn without warning. This seems less of an issue with truck drivers.

Why is a **low standard of driving tolerated from professional drivers** who spend much time on the road? They should be held to a higher safety standard than other road users.

It doesn't have to be that way. Many European countries don't have the problem of dangerous taxi drivers; they are highly skilled and have few accidents. Maybe we need a more stringent driving test for commercial drivers, ensuring that they have defensive riding skills (cf. 2).

Additionally, commercial drivers with two at-fault accidents within a year should have their license revoked. They would have to pass a stringent safety test to be allowed back on the roads. This would send the message that poor driving is not tolerated while ensuring that the worse drivers do not remain a danger for other road users.

We can do better in this area. **I would urge the authorities to improve the skills training and safety monitoring of commercial drivers.**

2. Motorcyclists training

Many people look at accident stats and conclude that "motorcycles are dangerous". This is a shallow observation. It is not motorcycles that are dangerous; it is the way people ride motorcycles that can be dangerous.

Motorbike riders are in an environment where motorists, protected by a collapsible steel cage, do not drive as carefully as they should. Motorbike riders are much more exposed and need to be extra cautious. **Riding a motorcycle safely requires a higher level of skill and awareness than driving a car.**

For motorcyclist, the key skill I have used successfully for 20 years is called **defensive riding**. It is essentially **an attitude of being constantly alert to any danger that might arise** from the traffic around you.

- **Don't assume that motorists have seen you.** Wear bright clothing & keep lights on.
- **Don't assume that drivers will do the right thing.** Be prepared to react when they don't. Even when you have right of way, be prepared to do an emergency stop if needed.
- Keep a safe distance from all other vehicles.
- **Be aware of the traffic around you.** Know where your escape routes are in case of an emergency. You must know what is behind you at all times.
- Position yourself on the road where you are most visible. Don't ride in a car blind spot.
- Practice doing emergency stops & fast swerving to avoid obstacles.
- Know where the greater dangers are coming from. (Taxis, P platers, ...)
- In traffic jams, watch the cars front wheel as an indications of change of direction.
- **Select a safe route:** light traffic, few intersections, no large speed differentials, ...

This requires acute awareness of the traffic around and being very alert, as well as anticipating possible scenarios.

As a motorcyclist, defensive riding has served me well. I have found it to be used by many experienced motorcycle riders. It is widely used and known to be effective.

For motorcycling, the teaching of defensive riding skills improves safety. 20 years ago, I did a training course in Sydney called [Stay Upright](#), which included some defensive riding skills.

The key for motorcycle riders, especially young riders, it to realize that you don't ride a motorbike like you drive a car. **The focus of motorcycle licensing should ensure that all riders have a minimum level of defensive riding skills, going far beyond knowing the road rules.**

3. Cyclists training

There is evidence that **trained cyclists have an accident risk several times lower than untrained cyclists.**

A UK study in 1976 reported that trained cyclists have been found to be 3-4 times safer than those who have not undergone training.

Hereford and Worcester County Council, Children and cycling: the effects of the NCSPS in the country of Hereford and Worcester, 1976.

In 1986, Mathieson cited studies in America that showed that trained and experienced cyclists are 4 times less likely to be involved in an injury accident than untrained adults, and 7 times less likely than children.

Mathieson, J.G., Gaps in current knowledge and effects on counter measures, Bikesafe 86 conference, Newcastle

[This recent Australian report](#) shows in figure 4 on page 4 that adult cyclists have several times less risk of accidents than child cyclist.

I have observed that many cyclists understand little about safety. Most haven't gone beyond the "safety=helmet" mantra. Very few use defensive riding skills, yet these techniques are just as applicable to riding a bicycle, especially in Sydney challenging roads. Few have rear view mirrors, although the danger often comes from behind.

My experience indicates that **appropriate training is a key to cycling safety.** I have observed that cyclists who ride with a good awareness of the traffic have few accidents. Many of the defensive riding skills are relevant to cyclists, yet seem poorly understood.

Despite the importance and effectiveness of safety skills training, there is a lack of awareness from cyclists. Most adults and children understand little about cycling safety, especially the importance of traffic awareness.

Considering that trained cyclists are 3 to 4 times less likely to have accidents and injury than untrained cyclists, it would make sense to spend time and resources to provide cycling riding skills training to all cyclists, especially children who have limited road skills. One initiative, from Bicycle NSW, is a [skills and road safety workshop](#).

The City of Sydney runs some [free cycling confidence courses](#) for adults. BikeNorth, a bicycle group, has a [similar initiative](#). Similar [commercial courses](#) also exist. Initiatives like this are an excellent way to train adult cyclists who may be a bit apprehensive riding on Sydney roads.

Existing programs have some riding safety skills and help build confidence in cycling. However, they do not teach people how to avoid accidents in a hostile environment. Considering Sydney motorist current attitudes and skill set, accident avoidance skills need more emphasis. Accident avoidance skills are defensive riding skills (cf. 2) adapted to cycling, adding things like car door

opening, lane positioning, and making eye contact. They are the necessary defensive riding protection in the current environment.

I would urge the government to **incorporate cycling safety training (including accident avoidance skills) in the school curriculum**, and to fund it adequately so that every child gets the chance to learn essential cycling safety skill. Besides encouraging cycling, it will make people more accepting of cycling. **Adult programs also deserve more support and funding.** They need to be available statewide, not just in limited areas.

As more protected cycleways are built and motorists attitudes improve, accident avoidance skills become less relevant. Until then, accident avoidance skills should be a major focus of cycling safety skills training programs.

These training courses tend to make people more comfortable and confident with cycling. Encouraging cycling is one of the key mechanisms to make cycling safer (cf. b)). So they **improve safety both directly and indirectly.**

The large difference in effectiveness between riding skills training and the current approach indicates that **these programs would be far more effective than the current approach (cf. 7) to improve cycling safety.**

4. Encourage learners to ride cruisers

Learner riders are more at risk. The vehicle style can influence the way people ride and their risk of accident. For example, let's compare a sports motorcycle with a "cruiser".

At low speeds, a sports motorcycle is painful. The far forward riding position is uncomfortable. The head is too low to monitor the traffic well. Stop and go traffic is a pain. Sports motorcycles are no fun at low speeds. At high speeds, the experience is very different; sports motorcycle can be very enjoyable. As sports motorcycles are painful at low speed but enjoyable at high speeds, they tend to encourage riders to go faster.

A "cruiser" is the opposite. It is comfortable and enjoyable at low speeds, while not as fun at high speeds. Cruisers tend to encourage riders to ride slower, in a more laid-back and less aggressive posture. The rider seated upright also has better visibility and a better position to monitor the traffic.

The contrast between a sports and a cruiser illustrates how the style of vehicle can encourage risk taking. I have seen a few young riders on sports motorbikes that did not have the necessary skills to ride it safely.

I would urge the authorities to put in place incentives for inexperienced riders to start with a cruiser style. It might be worth considering setting up a two-level license:

1. An entry-level license that allows riders to only ride cruisers
2. An advanced license requiring proof of mastery of defensive riding skills.

The same is true to a lesser degree for bicycles.

Racing bicycles, with their slouched forward position, are not comfortable at low speeds. The head is too low and forward. They cannot see well the traffic or be seen well. With the pedal clips that typically come with these bikes, stop and go traffic is a pain. The riding position encourages the rider to go faster and ride more aggressively.

Additionally, the forward position of the centre of gravity means that a “racer” cyclist is far more likely to go over the handlebars in an accident.

A sit-up cycle (like a ladies bike) is most enjoyable at low speeds. The head is high, to see the traffic well and to be seen. The body posture is not aggressive. The bicycle encourages riders to ride slowly and gently. Stop-go traffic is easy and convenient.

The picture below illustrates how the style of a bicycle can influence the style of riding.



While racing bikes have their place, it is not wise to give them to an inexperienced rider. A sit-up bike is more suitable to learn how to ride safely and watch for traffic. Many adults who have returned to cycling recently start with a racing bike that encourages a more risky type of riding.

It would be worthwhile considering incentives for inexperienced riders to start with a sit-up bicycle. This could perhaps be incorporated as part of the cyclist training courses.

5. Take advantage of existing infrastructure

Separated cyclepaths, protecting cyclists from faster motorised traffic, reduce significantly the risk of serious accident. Providing protected cyclepaths is an important factor in improving cycling safety and encouraging cycling.

The main impediment is the building cost. However, insufficient consideration has been given to reducing cost by taking advantage of existing infrastructure or topography, for example:

Build cyclepaths alongside railway tracks. Many railway tracks have enough space on the side. This would provide a protected track dedicated to cyclists, minimizing the risk of collision with motorists and pedestrians. In inner city areas these track would follow commuter routes, responding to a genuine transportation need.

Build cyclepaths along rivers, canals, or the coast. Such routes minimize the risk of collision with motorists. However, interaction with pedestrians must be taken into consideration.

Build cyclepaths along freeways, with a physical separation. Inner city areas would be most suitable as they would provide the most benefits. The M7 is a good example of the right idea in the wrong location, as it doesn't meet transportation demand. Physical separation is essential for safety. The current mechanism of having the left of a freeway reserved for cyclists is dangerous. It only takes a moment of inattention from a motorist to veer into the left and kill a cyclist.

Use existing bridges to remove crossings between cycling facilities and roads. Often bridges have enough spare room on the side to accommodate a cyclepath.

There are many other examples. The point is, instead of being discouraged by the cost building protected bicycle paths, it may be worth asking this question:
How can we take advantage of existing infrastructure?

6. Motorists attitudes towards cyclists

6.1 Legislation

Many motorists have little respect and behave aggressively towards cyclists. This contributes to the perception that cycling is dangerous, deterring cycling.

One way to encourage a change in attitude would be to change the traffic laws. We could follow the lead from European countries (cf. f)) and introduce the following changes:

1. Treat cyclist as first-class citizens on the road. Cyclist should have the same rights as motorists, and be treated with the same respect. We are far from that. Many motorists believe that cyclists are second-class citizens. You often hear on talk-back radio people voicing opinions that cyclists should not be on roads. This contributes to motorists negative attitudes towards cyclists. Cyclists need legal protection as vulnerable users.
2. Change the law to recognise cyclists as vulnerable road users and protect them accordingly. Cyclists should have priority over cars, just like pedestrians have priority over cars. Pedestrians are protected by traffic laws. Why wouldn't cyclist have the same protection?
3. Motorists must leave a one metre minimum safety margin when overtaking cyclists. A minimum distance also makes sense when motorist follow cyclists from behind. Such rules send motorists a message that cyclists require a safety buffer.
4. As motorists are the main source of danger for cyclist, their behavior must change for cycling safety to improve. In several countries in Europe, in case of an accident with a cyclist, the motorist is deemed to be at fault (unless the cyclist did something clearly wrong). **This is a key change that would force motorists to be much more careful around cyclists.** Drivers must feel responsible and must feel that they have something to lose if they hit a cyclist. Motorists must perceive that they will be in trouble if they hit a cyclist, just like when they hit a pedestrian. Maybe it could a premium insurance payment, maybe it could be losing points off the license. We need to come up with something that makes drivers feel more responsible around cyclists.

The changes to the traffic laws mentioned above can have an immediate impact on cycling safety at a minimum cost. This is key part to improve cycling safety.

6.2 Image of cycling

The helmet law has had several unexpected side-effects, the main one being to discourage cycling. The RTA measured a 44% drop in the number of children cycling 2 years after the helmet law. (cf. b)). Between 1991 and 1996, the number of cyclists dropped by 48% in Sydney. *Walker M. Bicycling in Sydney: law compliance and attitudes to road safety. Velo Australis; 1996; Fremantle, Western Australia.*

The cyclists that were discouraged by the helmet law were mainly the gentle cyclists who cycle slowly, typically for short trips in normal clothes. Cycling became dominated by aggressive racers. This had the **perverse effect of changing the image of cycling, and increasing animosity between motorists and cyclists** (cf. c)). The deteriorating relationship with motorists has contributed to make cycling more dangerous.



There was a [recent article](#) recently in the Herald contrasting the cycling culture in Sydney with Europe. In this article, bicycle experts warned that **"SYDNEY will never be a bicycle-friendly city until it develops a "second cycling culture" which encourages relaxed European-style riding without the compulsory use of helmets."**

The animosity between cyclists and motorists can be mitigated by allowing gentle cyclists back on the roads. Many of those cyclists don't want to wear a helmet. Many have given up cycling after the helmet law and have been pushed off the road.

Repealing the helmet law would send a message to gentle cyclists that they are welcome back on Sydney roads, which over time can change the perception of cycling and show a more friendly face of cycling to motorists. It would also invite more cyclists onto the roads, and increase safety due to the 'safety in numbers' factor.

7. Current bicycle safety strategy

7.1 Introduction

Most people associate bicycle safety with helmets. Most cyclists haven't gone beyond the "safety=helmet" mantra and believe that helmets makes them safe. It seems to be the government bicycle safety strategy.

The effectiveness of helmets is a controversial issue, as there is so much flawed or misleading research on this topic.

[One of the most famous research](#), the Thompson/Rivara study released in 1989, funded by a helmet manufacturer (an odd conflict of interest), claimed that helmets reduced the risk of head injury by 85% and brain injury by 88%. From a scientific point of view, this is an impossible claim, since [helmets cannot protect against the main cause of brain injury, rotational acceleration](#) (Page 151), and helmets can only address less than 30% of head injuries (cf. 7.2). How can the "researchers", linked to the helmet industry, not be aware of the inherent limitations of helmets?

How did they arrive at such a misleading claim? They compared a helmeted group who rode supervised in parks with an unhelmeted group who rode unsupervised on busy roads, and then attributed the difference in head injuries to helmets. [Despite being widely criticised](#) in the scientific community for being flawed, this misleading claim was used for financial benefit by the sponsoring helmet manufacturer in its own marketing.

The main challenge in helmet effectiveness is to isolate external factors. Most studies don't, attributing the impact of many external factors to helmets, resulting in a misleading

optimistic conclusion like this: "Head injuries were 20% lower. It must have been the helmet. That proves helmets work". This is the source of much confusion and false beliefs (cf. 7.3).

In general, the larger the sample group, the less likely external factors can distort results. If you compared two non-random groups of 50 cyclists, you may not be aware that one group is more experienced, or that one group rides on safer roads. How can you assess results? When you look at the whole population over time, the population is unlikely to change quickly enough to distort results. This is why 'whole population comparisons' (cf. 7.3) tend to be more reliable.

Despite being biased and flawed, the Thompson/Rivara study was very influential in the medical community. It is still widely quoted as if it was the truth. It was popular as it reinforced a belief in helmets. It became a model for further "research" that replicated its flaws and bias. Such research, based on small samples, tends to jump to a premeditated conclusion far too eagerly, with a disturbing lack of scientific discipline. Once something becomes accepted as the norm, the medical research field seems to take some time to correct its mistakes.

In 1999, the same researchers [released another "study"](#) that claimed *"helmet dramatically reduces the risk of head and facial injuries for bicyclists involved in a crash, even if it involves a motor vehicle"*. These misleading claims were [rebutted by an independent researcher](#).

The sheer volume of "research" based on this flawed model helped convince many people in the medical community that "helmet save lives". You often hear doctors reported in the media claiming that a bicycle helmet saved a cyclist. Yet they have no scientific basis for that claim, they don't know what would have happened without a helmet. Only recently did the medical community start to acknowledge its mistake, as shown in [this discussion](#) in Croackey.

Theses non-random case-studies based on small samples are fundamentally flawed. They are unscientific and should not be used as the basis for cycling safety policy.

7.2 What are helmets designed for?

The design of current bicycle helmets is [based on an obsolete, discredited theory of brain injury](#) that believed that brain injury was due to linear acceleration (i.e. hitting your head) (ref Page 153). More recent research has shown that the main cause of brain injury is rotational acceleration (i.e., head turning quickly) (ref page 151).

To understand what helmets are designed for, check [the Australian standard AS/NZ S2063](#). Helmets are tested with an impact at 19 km/h on its top. They are not tested at higher speeds or side impacts. Most real-world scenarios are not covered by the tests.

The Australian helmet standard was not designed to ensure that helmets protects against brain injury, as no bicycle helmet can protect against rotational acceleration. The Australian standard was [designed to suit the helmet manufacturers manufacturing processes](#), i.e. to help manufacturers to make cheap helmets (ref Page 155).

Most bicycle helmets are 'soft-shell', much weaker than motorcycle helmets. Bicycle helmets may provide some protection in low-speed accidents. [They can only absorb a small amount of energy](#), far too little to protect in an accident with a motor vehicle. In a high speed crash, bicycle helmets [tend to disintegrate on impact](#), absorbing very little energy.

In an accident, soft-shell helmets can [grab the road surface](#), rotate the head and produce rotational accelerations 4 to 6 times the tolerable maximum, causing serious brain injury. [Helmets increase the risk of the head hitting on an impact](#), because the surface area of the head is larger and the head heavier. Without a helmet, a near miss could occur with no head impact.

There many types of head injuries:

- Facial
- Dental
- Eye
- Ear
- Scalp ← Area where helmets can help.
- Brain

Helmets can reduce lacerations and minor scalp injuries. Most cyclist head injuries are facial injuries. **Helmet can protect against [less than 30% of minor head injuries](#)** (Page 6, figure 8).

The design limitations and the weak standard indicate that **helmets do not protect against death or serious injury**. Bicycle helmets should have never been marketed as being effective at preventing serious head injury.

Why do people still claim that “Helmet save lives”, as they are not even designed to do that?

7.3 How effective are helmets?

7.3.1 Government reports

Two issues are important to interpret the data:

1. The helmet law was introduced at the same time as road safety measures targeting speeding and drink driving that significantly improved safety.
To isolate impact of those measures, cycling safety is compared with pedestrian safety.
2. The helmet law caused a drop of cycling by 40%, [measured by the RTA](#) (table 2 on page 3).
Any difference in absolute numbers must be adjusted to calculate the risk per cyclist.

Most of the medical case-studies and most of the government-funded reports like [this one](#) claiming that helmets are effective fail to take into account the decline in cyclists and the general improvements in road safety. **They attribute all apparent safety improvements to helmets.** This is the same fundamental flaw than the Thompson/Rivara “study” mentioned earlier. **The claims cannot be relied upon because of their flawed methodology.**

Despite what the data was indicating, some government reports found a way to conclude that helmets improve safety. For example, [a 1997 report from the FORS](#) made 3 misleading claims:

1. Cycling casualties decreased after the helmet law. This ignored the decrease in the cycling. Per cyclists, cycling casualties INCREASED.
2. A 'strong correlation' between higher helmet wearing rates and lower casualties. The underlying data indicates the opposite.
3. Helmeted cyclists have a lower risk of injury. This suffers from the same flaws than the Thompson/Rivara non-random case-study.

In 2000, the ATSB [released a “meta-analysis”](#), that claims to [provide overwhelming evidence](#) that bicycle helmets reduce the risk of brain injury. This claim was [rebutted in 2003](#), highlighting a lack of understanding of brain injury in the meta-analysis. The ATSB ignored the rebuttal, yet [advised transport ministers](#) in 2006 that helmets substantially reduce the risk of brain injury.

Over the years, the RTA has published various materials claiming that helmets are effective. The lack of scientific discipline shown in these materials is disturbing.

Take for example [this RTA document](#) titled “The current state of bicycle riding” from 1994.

Its main reference is the flawed Thompson/Rivara “study” mentioned earlier, hailing it as the truth. Its main argument is that the percentage of head injuries for cyclists dropped after the helmet law.

- It fails to adjust for the 40% drop in cycling. Overall the risk of head injury per cyclist INCREASED.

- It fails to mention contributing external factors. As no comparable data is provided for pedestrians, it is impossible to tell whether the change can be attributed to helmets or not. [Independent research](#) indicates that child death or serious injury dropped by 21% for pedestrians compared to 33% for cyclists (Page 465, Table 3). This indicates that most of the apparent improvement cannot be attributed to helmets.

The claim “Increased helmet wearing has had a positive effect on the head injury rate” is misleading.

Another example of a misleading report from the RTA is the [Henderson report](#) released in 1995. The report is written in a very authoritative style. It pretends to be a scientific. That illusion breaks down quickly when one notices two unusual features for a scientific report:

1. It contains far too many strongly worded, unqualified assertions. Researchers with scientific integrity tend to be very careful with their assertions, making sure they are backed up by sufficient evidence and qualified by their context. You rarely see unsupported or unqualified assertions in a high quality scientific report.
2. Assertions are not annotated to refer to any supporting evidence, making it impossible to trace the data source.

What we have here is not a scientific report. It is unsubstantiated opinions presented as facts. Here are a few of them (From the Executive Summary, under “The effectiveness of head protection”). The refutations are based on information available at the time.

Assertion	Reality
“Helmet design and construction is based on known mechanism of head and brain injury”	False. Helmets are not designed to protect against the main cause of brain injury , rotational acceleration.
“At the very minimum helmets halves the risk of head injury”	False. The % of cyclist deaths and serious head injuries has barely changed after the helmet law , compared to pedestrians. (Table 3)
“Those who do not wear helmets are several times more likely to sustain injury to the brain tissue ...”	False. Same reason as above.
“in Victoria, the number of bicyclists with head injuries decreased by 48 per cent ...”	Misleading. Ignores <ul style="list-style-type: none"> • 34% decline in cycling (Table 1) • External safety improvement, like crackdown on drink driving & speeding.
“The vast majority of head impacts occurring ... are easily survivable if a Standards-approved helmet is worn”	Misleading. Helmets are only designed for impacts below 20 km/h. Cyclists deaths went UP after the helmet law , from 1993 to 1996, despite higher helmet wearing.
“No studies have come to conclusions contrary to the above”	False. The Hillman report , one of the most comprehensive and famous review of helmet research at the time, is completely ignored. It’s odd that the reference list contains obscure studies that agree with Henderson’s helmet ideology, while this report is ignored. This is a biased approach, selecting evidence matching preconceptions.

Most assertions from this section are false or misleading. Surprisingly, the author mentions motorcycle helmets, as if they were comparable.

There are far too many unsubstantiated dogmatic opinions in this report presented as facts in a misleading authoritative manner. You can find more issues about the report [here](#).

This report is not science. It is propaganda dressed up as science. It misleads people by presenting dogmatic opinions as facts.

Why did the RTA commission such a misleading report?

How can the government make appropriate decisions when being misled?

7.3.2 Effectiveness of helmets in real life in Australia

The Australian helmet standard (cf. 7.2), indicates that helmets provide minimal protection in serious accidents. What does the real-world data say?

If helmets saved lives, we would expect the % of serious head injuries as a proportion of all cycling injuries to drop as the helmet wearing rate increases. The % of cyclist deaths and serious head injuries (DSHI) has [barely changed after the helmet law](#) (Table 3). Two years after the helmet law, cyclists DSHI dropped by 6.4%, while pedestrians DSHI dropped by 7.3%.

A researcher who promoted helmet wearing and believed in the helmet law, [could not find any evidence](#) that it had reduced the risk of head injury.

Another way to assess whether “helmets save lives” is to compare the helmet wearing rate among cyclist casualties with the helmet wearing rate in general. If helmet saved lives, we would expect a lower helmet wearing rate among casualties, which would support the claim that “the cyclist died because he didn’t have a helmet”. The data actually indicates [no difference](#) (Page 168, Table 4). Cycling casualties had the same helmet wearing rate than all cyclists.

This suggests that **helmets are ineffective to protect deaths and serious head injuries. The claim that “helmets save lives” is highly misleading.**

What about minor head injuries? [Analysis of hospital data](#) indicates a maximum effectiveness of helmets of 30% of head injuries for children and 24% for adults, unadjusted for external factors (Page 468, Table 6). Fig 1 on Page 467 indicates a decline of head injuries for pedestrians of about 34% for children and 19% for adults. The difference with pedestrians is 5% for adults and minus 5% for children. Overall, there is no significant difference between pedestrians and cyclists, suggesting that helmets are not effective at mitigating minor head injuries.

It is difficult to make a definite conclusion from only one dataset. However, considering helmets numerous design flaws (cf. 7.2), helmet must protect against less than the 30% of head injuries that it can cover. From the data above, 20% seems an optimistic estimate.

There are two severities of cycling head injuries:

1. minor bruises & cuts that heal within a few weeks with no long-term consequences
2. more serious injuries that take longer to heal and may have long-term issues

How many of those minor injuries mitigated by helmets are of a long-term nature?

We cannot answer this question from the data. However, as most minor head injuries have no long-term consequences, less than half of those injuries have long-term issues.

Head injuries constitute about [25% of cycling injuries](#) from hospital admissions (ref page 42). This means that **less than 3% of minor cycling injuries might be mitigated by helmets** in a way that makes a difference in the long-term (20% x 50% x 25%).

7.3.3 Independent research on helmet law effectiveness

[There is a huge discrepancy](#) between the flawed non-random case-studies from the medical community or the biased government reports, and [results from real life](#). Real-world whole

population comparisons provide a more comprehensive data set that is harder to misrepresent. **Whole population comparisons have failed to show any safety improvements from the introduction of helmet laws.**

One key difference between the effectiveness of helmets and the impact of the helmet law is that the compulsion to wear helmets introduced factors like 'safety in numbers' and 'risk compensation' that increase the risk of accidents (cf. c)).

From injury analysis from RTA data (cf. b)), the risk of cycling injuries in NSW increased by 48% after the helmet law, relative to pedestrians.

Between 1988 and 1994, pedestrian deaths due to head injury fell by 38%, while cyclist deaths due to head injuries fell by only 30%. This is despite having about 30% fewer cyclists in 1994 (cf. b)). Relative to pedestrians, the risk of death for cyclists was $108/70 = 1.54$ what it was previously: the risk of death from head injury increased by 54%.

In this report, table 3 on page 465 reports death and serious injuries (DSI) for children in NSW. Before and after the helmet law (1990 and 1993), DSI decreased by 21% for child pedestrians and child 33% for cyclists. During that time, the number of child cyclists decreased by 44%. This indicates that the risk of DSI was $88/56 = 1.57$ what it was previously; the risk for NSW child cyclists increased by 57% relative to pedestrians.

The 3 separate datasets provide a consistent result:
the risk of death and serious injury increased by 50% after the helmet law.

As helmets are ineffective to prevent death and serious injuries, the increased risk of death and serious injuries must correlate closely with an increased risk of accidents. This means that **the introduction of the helmet law increased the risk of accidents by 50%**. This explains the apparent difference between the effectiveness of helmets and the safety deterioration from introducing a helmet law. While helmets may provide some protection, and voluntary helmet may be helpful, the safety outcome changes dramatically when one tries to IMPOSE helmets on a recalcitrant population.

A key mistake of the helmet law was to ASSUME that, because helmets provide some protection, the helmet law can only be good. Most justifications for the helmet law are centred on the touted helmet effectiveness from the misleading medical or government "studies", ignoring the opposite effect of 'safety in numbers' and 'risk compensation'.

7.4 Discouraging cycling

7.4.1 Introduction of helmet law

The RTA measured a **36% reduction** in cycling within a year of introducing the helmet law. *Walker M. Law compliance among cyclists in New South Wales, April 1992. A third survey.: Road and Traffic Authority Network Efficiency Strategy Branch, July 1992.*

This measurement was a side-effect of measuring the helmet wearing rate. Throughout the 1990's, **the authorities confused bicycle safety with helmet wearing**, and have passed on this mistaken belief to an unsuspecting public. This narrow-minded approach has caused further damage since.

7.4.2 The 1990's

In the mid 1990's, evidence emerged that the law had discouraged cycling and failed to improve safety. About 30% of cyclists still ignored the law. A rational approach would have been to end the failed experiment. The government did something really odd instead.

It staged a long media campaign to change people's perceptions that cycling is safe. Loaded slogans like "Where's your helmet? ... Don't you realise you will hit your head?" or "No Helmet No Brains" were used relentlessly.

There were powerful emotional testimonies from people claiming that "my helmet saved my life". It was exaggerated and unscientific, but it worked in convincing people that they suddenly needed a helmet when cycling. Various emotional and exaggerated "testimonies" made you believe it was impossible to ride a bicycle without landing on your head. Authorities, including the police and various people presented as "safety experts", appeared on TV to tell you what you NEED to wear a helmet when cycling, cycling is too dangerous without one.

These emotionally manipulative campaigns exaggerate the risk of cycling. The core underlying message is: "Cycling is dangerous. An accident is almost inevitable, with potentially horrible consequences. You must wear a helmet to protect yourself."

Although done with the best of intentions, these scare tactics campaign had negative side-effects. How many ads like this could somebody watch before believing that cycling is dangerous? How are these manipulative messages likely to be interpreted by non-cyclists?

This misleading and manipulative campaign was effective. Most people now believe that cycling is dangerous and that helmets save lives. While the campaign targetted a minority of unhelmeted cyclists, it misled most Australians.

Within a year after the helmet law, cycling had dropped by 36%. By 1996 a survey in Sydney across 25 sites reported 48% fewer cyclists (cf. 6.2). That indicates that **the drop in cycling continued as the helmet promotion campaigns were in place.**

The drop in cycling reduced safety further due to 'safety in numbers'. This might explain the drop in cycling safety throughout the 1990's (cf. b). Also, during the scare tactics campaigns, between 1993 and 1996, [cycling fatalities INCREASED](#), despite fewer cyclists and an increasing helmet wearing rate (so much for the claim that "a helmet saved my life"). **Far from improving safety, helmet promotion campaigns contributed to make cycling more dangerous.**

The impact of helmet promotion campaigns is highly controversial in the UK, with the key UK cycling body [expressing serious concern](#) that *[these images] will do huge damage to the perception of cycling as a safe, enjoyable, healthy activity; and such campaigns 'raise unfounded anxiety about the "dangers" of cycling, and are known to drive down cycle use'*.

These helmet promotion campaigns were deceitful by suggesting that cycling accidents are almost inevitable. This is rubbish; [cycling is a relatively safe activity](#), especially for trained cyclists (cf. c). Statistically, one can expect a severe head injury from cycling once every 8,000 years of average cycling.

Wardlaw M. British Medical Journal 2000;321(7276):1582 (23 December), doi:10.1136/bmj.321.7276.1582

The net result of helmet wearing campaigns are

1. Discourage cycling, and reduce cycling safety through 'safety in numbers'.
2. Creating a false sense of safety from wearing a helmet and increasing the risk of accidents through 'risk compensation'.

The 1990's have shown that helmet wearing campaigns are counterproductive.

How can misleading people be considered a "public service"?

How does that benefit society?

Road safety messages don't have to use scare tactics. There are positive ways to convey messages, without reducing cycling. Some effective safety messages use humour rather than fear, as shown in [this interview](#).

While the scare tactics campaigns induced a FEAR of cycling, another factor that discouraged cycling was enforcing the helmet law. This happened to me in 1992. As I was peacefully riding, an aggressive and unpleasant police officer scolded me to "get off the road" and threatened that "If I catch you again, you'll be in big trouble". He never caught me again. I sold my bicycle and rode my motorbike instead.

[The experience of the Northern Territory](#) provides valuable insights about the impact of enforcing the helmet law. Like in other parts of Australia, cycling to work was reduced by half after the helmet law. However, in 1994, the law was relaxed and enforcement reduced. Since then, cycling has recovered. Cycling to work in NT is now 3 times the national average.

7.4.3 Current period

Before the helmet law, cycling increased by 250% in the 1980s in Sydney. Cycling has struggled to recover since. We are currently [60% below the previous trend](#).

[Safety concerns is the top reason](#) mentioned when people are asked why they don't cycle. Yet cycling is not that dangerous, especially for a trained cyclist (cf. c).

Why do we have such a discrepancy between the actual risk and the perceived risk from cycling? Could it be the scare tactics campaigns of the 1990's still misleading people?

That seems to be part of the problem, considering the number of times people still regurgitate the old slogan "No Helmet No Brain" for example in [online article](#) comments, 15 years later! I remember seeing those slogans on RTA envelopes. I thought at the time "God, the RTA is really committed to ram this slogan into people heads, using these manipulative techniques" For many non-cyclists, these over-simplistic messages are all they know about cycling safety.

The damage from these misleading scare tactics campaigns from the 1990's continues today. Fortunately, the younger generation and recent migrants seem less affected by the fear of cycling than people subjected to the 1990's manipulative campaigns.

The helmet law still discourages cycling. It was found to be **a significant barrier to cycling** from [recent research done by the City of Sydney](#), particularly for women. The City of Sydney has reported that "Many of the women interviewed by council on their attitudes to cycling complained of 'helmet hair' ". A recent City of Sydney Council research has revealed that only 13% of cyclists are female. The Northern Territory, having low helmet law enforcement, has a [higher level of women cycling than any other states](#), twice the level of NSW.

In a [recent article](#) in the Herald, bicycle experts call for a repeal of the helmet law to encourage a different style of cycling in Sydney that would be more inviting to cyclists.

Some helmet believers hail the recent rise in cycling as "proof" that helmets don't discourage cycling, disregarding that 1.5% people cycle in Australia compared to 30% in Holland. Others quote the increased sales of bicycles, confusing the number of bicycle in garages with cycling. The current surge in cycling seems driven by health and environmental reasons. It does not mean an acceptance of helmets (cf. 7.5.2). We simply don't know how many more cyclists we would have without a helmet law.

Another way the helmet law reduces cycling is by preventing bike share schemes from succeeding. The Melbourne one is a failure, with [embarrassingly low usage levels](#).

The reason for the failure is [common sense](#): the potential customer does not carry a helmet "just

in case". Despite strong public support to exempt the bike scheme from the helmet law (71% of poll from 'The Age'), Victorian authorities keep regurgitating the usual lies ("Helmets saves lives"), unable to learn from the experience. Are they aware that riding those sturdy, sit-up bikes, at gentle speed, incurs negligible risk of accident?

They are safe: Montreal bikes share for example only had [5 accidents in 3.5 millions km](#) traveled. Bike share schemes have dramatically increased cycling in more than 100 cities worldwide. Melbourne is distinguishing itself by being the first in the world with a failed bike share scheme.

This is not only a wasted investment, but a wasted opportunity to increase the level of cycling & take advantage of its health, environmental, traffic congestion, and social benefits. Considering that this helmet ideology doesn't improve safety, it makes you wonder: **What for?**

7.5 Psychological hurdles

7.5.1 Popular beliefs

Popular justifications for the helmets & helmet law (Most people do not distinguish between the two) typically go like this:

"I had an accident. I went over the handlebars. I survived. It must have been the helmet. Thanks god for the helmet law."

People seem to disregard that

1. They may not have had an accident without the helmet law (The risk of accident increased by more than 50% after the helmet law (cf. 7.3.3)).

2. Most bicycle accidents result in minor injuries, whether a helmet is worn or not. To attribute the positive outcome to the helmet is the same error as the flawed medical studies (cf. 7.1).

Many cyclists who have had accidents believe the helmet saved them. They tend to become strong believers. Whether this is good for safety is questionable, as having a false feeling of safety detracts from more effective remedies like accident avoidance skills (cf. 3).

Most people have little interest in cycling safety and assume that

Helmet good => Helmet law good

It takes more information and mental effort to conceive that:

- **Helmets are good, i.e. voluntary helmets provide some benefits**
- **The helmet law is bad, i.e. its negative side-effects outweigh its benefits**

Many people have difficulty accepting that these two statements can be true at the same time.

We seem to have influential people who **passionately believe these two core beliefs:**

1. It's almost impossible to cycle without having an accident
2. Helmet save lives and protect against brain injury

Passionate helmets believers tend to see themselves as the saviors of the vulnerable and unaware cyclist (especially children where the emotional intensity rises much higher). They may have the best of intentions, but their conviction is so strong that they have completely closed themselves from the possibility that their beliefs may be mistaken.

These two core beliefs have no basis in reality (cf. 7.4.2). Yet when you show evidence, you get one of those reactions (when you're not the target of an angry personal attack):

1. I don't believe / I don't want to see

When presented with evidence that the helmet law coincided with a sharp drop in cycling, some people simply refuse to believe it. They are not even interested to look at the evidence. This common attitude can be seen for example in online cycling forums, in [this discussion](#), where many people used disingenuous and illogical arguments to deny the evidence.

2. You'd have to be an idiot not to wear a helmet

Helmet believers have emotionally manipulative horror stories that suggest that helmets saved lives; similar to the scare tactics helmet wearing campaigns (cf. 7.4). Here is an example [here](#). It

has the classic elements: the scary photo, the doctor statement, the strong suggestion that a helmet saved the day without scientific proof.
Are most cyclists around the world idiots somehow enjoying safer cycling than Australians?

7.5.2 A religious debate?

This ideology has an [odd religious flavor](#) that makes its followers blind to anything that doesn't agree with their faith. They seem stuck in their own prejudice, unable to look objectively at the bigger picture. This is what makes the 'helmet debate' such a pain. Passionate helmet believers use disingenuous arguments to deny evidence.

This has similarities with the debate on climate change, where oil & coal multinationals organised disinformation campaigns to artificially create disingenuous doubts. It's not that hard for a scientist to pick on small details, add some data that appears to contradict it (although it may not be relevant or valid), then confuse people by claiming that there is doubt.

This is what is happening in this debate. **It is a debate where people are hiding their beliefs behind disingenuous arguments.** This issue cannot be resolved as long as passionate beliefs are preventing an objective and rational perspective.

The helmet law creates animosity among cyclists. Some cyclists believe it gives them the right to impose their preference on others. The helmet law vindicates intolerance and hostility. Passionate and bigoted discussions about this are dreaded on online cycling forums. This is another negative side-effect of the helmet law. All this energy could be spend on something positive and useful, like promoting cycling or improving safety.

Discussions [like this one](#) highlight the religious nature of the debate, where people try to criticize, dismiss, ignore, mock, ridicule, or use rhetoric to reject input that threatens their belief. This rarely leads to an improved understanding. People just keep re-affirming again and again the same beliefs. Some people will react the same way to this submission, as they are **far more interested in defending their beliefs than in broadening their understanding.**

7.5.3 Government position

Government officials initially made the mistake of relying on studies that failed to separate external factors (cf. 7.1). Now they are using this as an excuse to dismiss evidence. When presented with data showing that helmets are ineffective, they claim that "there are too many external factors, we can't conclude anything". This is a disingenuous argument.

Some government officials still use misleading and emotionally manipulative arguments (like emotionally charged stories of people with head traumas, suggesting that a helmet would have prevented it, without having to provide any evidence) to justify their BELIEF in the helmet law.

Do we want bicycle safety to be driven by popular belief or science?

The government has been unable to prove that the helmet law has improved safety. It is now trying to reverse the onus of proof. Knowing it can throw disingenuous doubts; this will not resolve the issue. The government seems stuck in defensive mode, without a way forward.

Some people claim that helmets are needed on Sydney roads because of motorists attitude. Considering helmets lack of effectiveness (cf. 7.3), that is misguided or disingenuous. In the current environment, it would be more effective for people to learn how to avoid accidents (cf. 3) rather than being misled into believing that a helmet will save them.

One organization, [Cyclist Rights Action Group](#) has patiently shown the government that the helmet law has been counterproductive since the mid 1990's. The government has ignored them.

For how long does the government want to keep doing this?

How does this benefit public safety?

7.6 Civil rights

The helmet law was introduced in [odd circumstances](#) (cf. "Pedal Cyclists" section). Doctors lobbied hard to it, outside their field of expertise, and without any proof of efficacy. This is in contradiction with their own strict discipline, which requires lengthy & careful trials of new drugs to prove their effectiveness and make sure there are no negative side-effects.

In 1985, a [federal parliament committee was set up](#) to "review the benefits of bicycle helmet wearing ... and unless there are persuasive arguments to the contrary introduce compulsory wearing of helmets by cyclists on roads and other public places". **Its mandate was biased from the start**, with an assumption that compulsory wearing of helmets was needed.

The Victorian Government's submission to the committee said "The incidence of bicycle helmet use has not yet reached a sufficiently high level anywhere in the world for a scientific examination of helmet effectiveness in injury reduction to be undertaken."

The committee seems to have ignored the most comprehensive research available at the time. This was the largest ever cycling casualty study involving over 8 million cases of injury and death to cyclists over 15 years in the USA. It concluded as follows: "There is no evidence that hard shell helmets have reduced the head injury and fatality rates. **The most surprising finding is that the bicycle-related fatality rate is positively and significantly correlated with increased helmet use.**" To date, the results of this research have not been challenged.

Rodgers, G.B., Reducing bicycle accidents: a reevaluation of the impacts of the CPSC bicycle standard and helmet use, Journal of Products Liability, 11, pp. 307-317, 1988

There was no scientific evidence supporting the helmet law, it was [introduced based on faith](#) (page 160), using prophetic statements that were not assessed critically.

The helmet law is essential blind medical experiment, but without a set evaluation period. The results are not being assessed, and the end of the experiment is not even planned.

The helmet law was introduced in a sloppy and negligent manner that violates freedom of choice for no benefits to society.

How can the government violate civil rights based on mere BELIEFS?

Compare this with the government current plan to [censor the internet](#). Notice the similarities:

- unproven touted benefits,
- disregard for [lack of effectiveness](#),
- disregard for civil rights,
- driven by blind faith (Christian lobby), ...

That is an abuse of power and trust, a shame in a democracy. Policy is hijacked by zealots preventing an objective and scientific approach, resulting in a net loss to society. This is a government that does not respect its citizens and does not deserve the respect of its citizens.

Why have a law infringing on civil rights for no benefits to society?

Is the government aware that it has a moral responsibility to only restrict civil rights when it has a compelling reason to do so?

7.7 Political perspective

The helmet law was introduced under the mistaken belief that it can only improve safety. Evidence has shown that it hasn't. Considering the damages from discouraging cycling, it would seem obvious to repeal the law.

When talking to politicians, you tend to first get a prophetic assertion that the law can't possibly be repealed (as if it was a horrible thought), then you get fears like:

- I might get blamed if an unhelmeted cyclist gets killed
- Imagine the number of injuries we will get without a helmet law
- People might sue the government if serious cycling injuries occur

These fears are based on the premise that 'Helmet save lives', the lie that supports the helmet law (cf. 7.3). How can people possibly sue the government then?

How is their argument that they BELIEVE that a helmet would have helped stand in court?

Has our nanny-state mentality gone so far that people are giving up taking responsibility for their own actions? That would be a dangerous and wasteful path to follow.

It does not help that politicians are relying on misleading information from government organizations like the RTA and the FORS / ATSB (cf. 7.2).

How can they make appropriate decisions when provided misleading information?

Consider the real-world experience of [the Northern Territory](#): NT relaxed its helmet law in 1994 and reduced its enforcement. Since then, the helmet wearing rate is the lowest in Australia, cyclist hospitalizations per capita are the lowest in Australia, and cycling to work is 3 times higher than the national average.

New Zealand is in the same dire situation, except that NZ officials seem more open. Some argue that the law does no harm and the political cost of abolishing it would be too great. This is consistent with the Australian government current attempt to reverse the onus of proof (cf. 7.5.3). There have been suggestions that if the law fell quietly into oblivion the government wouldn't object. It seems that some people in the NZ government are aware of the failure of the helmet law, but they are not sure what to do about it.

Is the helmet law a hot potato?

Federal politicians claim that it a state issue. State politicians claim it is a federal issue.

Rather than looking for excuses to avoid the issue, how about looking for ways to move forward?

The rest of the world has found many different ways to have safe cycling ([at least safer than in Australia](#)) without a helmet law, and without people trying to blame the government. Surely, we can do that too. **It can't be that difficult with a bit of political will.**

So why not repeal the helmet law? For politicians, the easy path is to follow popular beliefs. It takes courage and leadership to [go against popular beliefs in order to fix the real problem](#).

I urge politicians to look into this issue in detail and to show leadership in leading us out of this dead-end. The longer we wait, the greater the costs.

Should we be unable to repeal the law quickly enough, another possibility is to stop enforcing it. This is what NT has done, with successful results. It undoes most of the damage. Still it is not ideal, as some people are uncomfortable ignoring a law, and it undermines respect for the law.

7.8 A different approach?

Knowing that helmets are ineffective against death and serious injury, why do the authorities keep claiming that "helmet saves lives"?

That is misleading, creating false expectations. Far worse, it is dangerous, because the false

sense of safety can cause some people to ride less carefully & increase the risk of accident (risk compensation, cf. c)).

How can people make appropriate decisions when provided misleading information?

The spreading of misleading information about helmets from many levels of government is disturbing. [This piece](#) is quite typical, stating that helmets reduce the risk of head injury by up to 85%. People are given misleading information and led to believe that helmets are effective in the majority of cases.

Why does the government keep misleading people with these helmet wearing campaigns, considering that they don't produce any positive results (cf. 7.4.2)?

I would urge the NSW government to stop misleading the public about bicycle helmets ("Helmets save lives"). Even with the best of intentions, spreading this misleading propaganda is counterproductive. It leads people to make incorrect safety assessments.

Why not tell people the truth? Cycling safety is difficult. There's no magic solution. We're working towards it with infrastructure, training, and legal structure (cf. f)).

Why tell people: "Put that lid on your head, you'll be safe", when the best that lid can do is mitigate less than 3% of minor cycling injuries?

How about the following message: "Take this free riding skills course and reduce your chances of accidents by half"?

Wouldn't it make more sense to focus on what actually works?

Besides being more effective, wouldn't telling the truth be more open, honest, ethical, and more likely to build trust between the government and its citizens?

Why waste police resources on cycling helmet issues while issues like driving while using a mobile phone are being neglected?

Why persist with this helmet law experiment when evidence shows it has failed?

7.9 Conclusion

Is it worth having 50% more accident to mitigate less than 3% of minor injuries?

That is the question for people who come up with this justification for the helmet law:

"When accidents have occurred, helmets have reduced injuries".

How can such a narrow-minded misleading statement influence government policy?

Why do we have a bicycle safety policy that increases accidents and injuries, while effective measures that can reduce accidents, like rider skills training, are not even put in place?

The simple truth is that helmets are not the magic solution to cycling safety. They are nowhere near being the solution; they are actually part of the problem (cf. c)), affecting motorists and cyclists behaviors in ways that are detrimental to safety.

Improving cycling safety is a difficult challenge that will require effort, hard work, and appropriate funding to make real progress.

The helmet law needs to be evaluated against other road safety measures. [Such evaluations](#) indicate that the helmet law doesn't make sense from a cost/benefit perspective.

Real progress CAN be made if we shift our focus towards [more effective measures](#) like (cf. f)):

- Lower speed limits in residential areas
- Legislation to protect cyclists
- Rider training

- Motorists training
- Road space reserved for bicycles
- Bicycle lanes separated from faster motorised traffic

While the authorities remain obsessed with ineffective helmets, far more effective safety measures are being neglected, to the detriment of cycling safety.

Taking a broader perspective, not just from a safety point of view, but from a society point of view, our obsession with helmets over the last 20 years has [caused considerable damage](#). The loss of health, environmental and [social benefits](#) from discouraging cycling are significant. The damage caused by the helmet law will not easy or cheap to fix.

Yet helmet zealots seem blind to this damage, constantly re-asserting that, since helmets provide minor protection, they are sacred religious artifacts. The helmet law is a [scared cow](#). **Why?**



This table summarises the benefits and side effects of the current bicycle safety strategy.

	Benefits	Side-effects
Safety	Mitigate less than 3% of minor cycling injuries.	50% more serious accidents 50% higher risk of death and serious injuries. More effective measures neglected due to wasted focus & resources Higher animosity with motorists Motorists being less careful among fewer helmeted cyclists
Other		Discourage cycling, reducing cycling by half 1. Loss of health benefits from cycling 2. Loss of environmental benefits from cycling 3. Loss of social benefits from cycling 4. Some people pushed into cars => more traffic jams & pollution 5. Some people pushed into more dangerous mode of transports like motorcycles => higher risk of injury Creates animosity among cyclists.

Passionate helmet believers are only able to see the left side of this table.

How can appropriate decisions be made with such a distorted vision?

8. Future strategies to address bicycle safety

Australia has one of the world worst cycling safety record (cf. f)). We are one of the few countries that persist with a disastrous helmet ideology. Our cycling safety strategy must be based on evidence; not faith, superstition & fear. **We need to fresh thinking in cycling safety.**

Research all over the world has shown that **cycling safety is closely correlated with the number of cyclists (cf. b))**. The more people cycle, the safer cycling becomes. The safer cycling becomes, the more people are encouraged to cycle.

Key measures to increase cycling include:

1. Change perception of cycling. Cycling is perceived as a dangerous and marginal activity. Motorists aggressive attitude needs to be tackled with legislative changes (cf. 6.1). Helmet wearing campaigns tend to [portray cycling as more dangerous than it really is](#) (cf. 7.4.2).
2. Repeal the helmet law (cf. 7.4.2).
3. Build cycling infrastructure that makes novice cyclists feel safe and protected (cf. 5).
4. Provide cycling safety skills training (cf. 3).
5. Discourage car use and car parking where space is scarce, like in inner-city areas. Congestion pricing has been discussed for years. It would help encourage cycling in inner cities, making cycling safer while reducing congestion (cf. f).

The recent [NSW Bike Plan](#) has stated a goal of having 5% of short-distance trips (< 10 kms) to be made by bicycle by 2016. There is a discrepancy between the aim to encourage cycling and the helmet law that discourages cycling. The section on safety mentions enforcing the helmet law as a “road safety initiative”, showing a lack of competence about bicycle safety.

The famous bicycle advocacy blog, Copenhagenise, highlights [the dilemma with helmets](#):

“Our society here - and elsewhere - has a simple and important choice:

What do we want for society as a whole?

A. More people in bike helmets?

B. More people on bikes?

You can't have both as common sense and the existing data will suggest.”

We face the same dilemma in NSW. **We can either have more cyclists, or we can have a helmet law. To pretend that you can have both is a delusion.** Yet it seems to be the path indicated in the NSW Bike Plan. Australia is quite unique in its claim it can have it both ways, despite evidence from all over the world. If we persist with this ideology, we will still be wondering why cycling is still a marginal and dangerous activity in 10 years time. We may have squandered the opportunity provided by the current popularity of cycling. **The obsession with helmets is standing in the way of encouraging cycling and making it safer.**

We could also learn from the successful revival of cycling in countries like Holland and Denmark since the 1970's (cf. f)). This was due to a range of policies designed to encourage cycling and make it safer. The most effective and relevant measures are:

1. **Changing the traffic laws** to provide the same level of protection to cyclists as pedestrians. This is particularly important for cyclists to PERCEIVE to be safe and feel they are protected by strong laws that will be enforced. Cyclists need to be treated as first-class citizens on the road, respected by all motorists (cf. 6.1).
2. **Provide adequate cycling training**, including accident avoidance skills, in school curriculum and as free courses for adults (cf. 3).

3. **Provide cycling infrastructure.** Reserve road space for cyclists. Build protected cycle lanes. Provide ample parking, especially near public transport, office and shopping areas. Design roads and intersections to make cyclists more visible and give them priority (cf. f).
4. **Repeal the helmet law.** This would increase the number of cyclists, increasing safety through 'safety in numbers'. It would also provide a more gentle and friendly image of cycling, reducing the animosity with motorists (cf. 6.2). If the helmet law can't be repealed quickly, not enforcing it would provide similar benefits (cf. 7.4.2).

Some of this is being done by the pioneering work of the City of Sydney. However, it only covers a limited area. The state government needs to introduce the necessary legislative changes that can encourage cycling and provide adequate funding for cycling training and infrastructure.

From a results-driven point of view, what the City of Sydney has achieved to conduct market research, promote cycling, build infrastructure, fight political battles, measure results, and run free training courses is remarkable given its limited budget. The City of Sydney cycling program seems like a good model to follow for the rest of the state.

How can we assess safety measures unless we have independent measuring & reporting of actual safety improvements?

Whatever strategy we choose going forward, it is essential that we **measure the actual safety benefits and assess cycling measures based on actual results.**

This result-driven discipline is lacking from the current ideology.

Why not redirect part of the hundred millions spent on school train & bus travel into providing cycling safety riding skills into the school curriculum? This has greater long-term benefits as it encourages cycling, a beneficial activity.

Infrastructure or skills training is a long-term investment with a residual value. Health costs and travel costs are an expense. Holland spends a mere [30 euros per person](#) per year on cycling infrastructure. Compare that to the health benefits of cycling. If the government perceives it can't afford cycling training and infrastructure, but it can afford [an ever increasing health bill](#), then it is not spending taxpayers money wisely. Much of our healthcare is spent on 'lifestyle' diseases.

“If you think education is expensive, try ignorance”

Derek Bok

In cycling safety, Australia has tried ignorance for far too long. Ignorance in government by letting its policy be driven by faith, superstition & fear. Ignorance in people kept in the dark as to how cycling can be a safe, beneficial & healthy activity; instead they are told to fear cycling and misled into believing that a helmet will save them (cf. 7.4.2).

What do we have to show for our efforts? We have made cycling more dangerous while reducing it by half. The reduction in cycling has incurred significant health care costs, environmental costs, congestion costs, and social costs. Ignorance is expensive.

Ignorance has not worked. Maybe it is time to try education: skills training, honesty, ...

e) the integration of motorcyclists and bicyclists in the planning and management of the road system in NSW

This part relates only to bicycle safety.

It seems that the RTA often does not take into account the needs of cyclists. Our road planning still gives priority to cars, although they are one of the least efficient modes of transport.

There is rarely reserved road space for cyclists. Especially in the more dangerous roads, cyclists are not protected from fast-moving motorised traffic. This is a serious oversight that contributes to make people feel unsafe riding a bicycle in Sydney.

Intersections are rarely designed with cyclists in mind. There is no space for cyclists to stop ahead of cars for example. Nothing is being done to make cyclists more visible and give them priority. In most cases, it looks like the design ignores the needs of cyclists.

It seems like cyclists are second citizens on the roads, although they make much more efficient use of the road space. That is a design oversight that contributes to encouraging unsustainable car traffic in our inner cities. It needs to be rectified to give more efficient road users, like cyclists and buses, priority over cars.

Some of the effective measures in terms of road design that encourages cycling and make it safer are described in section f), from the [successful measures introduced in Europe](#).

The more relevant measures to NSW would include:

- Road space reserved for bicycles: cycling lanes, green paint giving a clear message to cars.
- Bicycle lanes separated from faster motorized traffic, making inexperienced cyclists feel much safer on the roads.
- Traffic lights and intersections designed for cyclists. Cyclists have their own traffic lights that let them start ahead of cars so that there is no competition with cars when starting from a red light.

There is much to learn from countries like Holland and Denmark to incorporate the needs of cyclists into the design of roads.

f) motorcycle and bicycle safety issues and strategies in other jurisdictions;

This part relates only to bicycle safety.

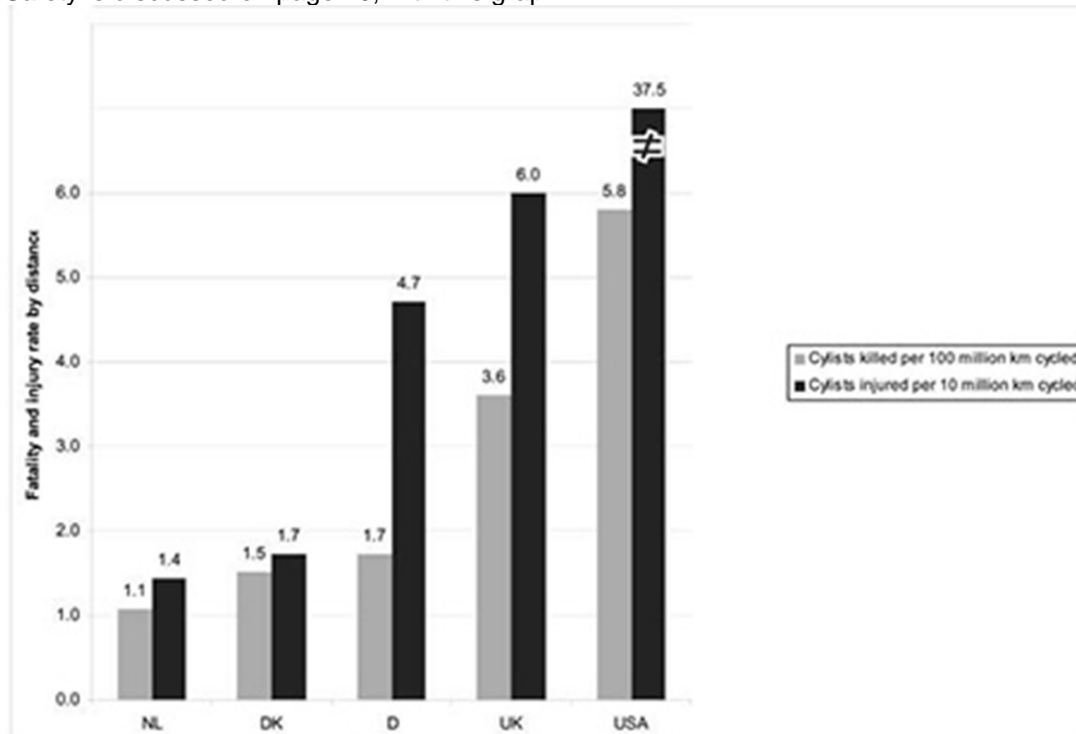
Several European countries have successfully revived cycling after 1970 through a coordinated set of measures designed to encourage cycling and make cycling safer. These successful measures have been documented in this [comprehensive research](#). This is from the abstract:

*“This article shows how the Netherlands, Denmark and Germany have **made bicycling a safe, convenient and practical** way to get around their cities. The analysis relies on national aggregate data as well as case studies of large and small cities in each country.*

*The key to achieving high levels of cycling appears to be the **provision of separate cycling facilities** along heavily travelled roads and at intersections, combined **with traffic calming of most residential neighbourhoods. Extensive cycling rights of way** in the Netherlands, Denmark and Germany are complemented by ample **bike parking, full integration with public transport, comprehensive traffic education and training of both cyclists and motorists**, and a wide range of promotional events intended to generate enthusiasm and wide public support for cycling. In addition to their many pro-bike policies and programmes, the Netherlands, Denmark and Germany make driving expensive as well as inconvenient in central cities through a host of taxes and restrictions on car ownership, use and parking.*

*Moreover, strict land-use policies foster compact, mixed-use developments that generate shorter and thus more bikeable trips. **It is the coordinated implementation of this multifaceted, mutually reinforcing set of policies that best explains the success of these three countries in promoting cycling.** For comparison, the article portrays the marginal status of cycling in the UK and the USA, where only about 1% of trips are by bike.”*

Safety is discussed on page 10, with this graph:



Sources: Danish Ministry of Transport (2007); Department for Transport (2007); German Federal Ministry of Transport (2007); Netherlands Ministry of Transport (2007); U.S. Department of Transportation (2007)

The difference between Holland and the US is shocking. In terms in deaths, cycling is 5 times more dangerous in the US. **In terms of injuries, cycling is 26 times more dangerous in the US!** Australian cycling safety record is similar to the US, with around [6 fatalities per 100 millions km cycled](#).

Cycling in Holland is about 27 times the level of cycling in the US (cf. figure 1 in report). According to the 'safety in numbers' rule, the risk of injury should be about 7 times higher in the US. That only partially explains that it is 26 times higher. The rest of the difference can be explained by the measures that Holland has put in place to make cycling safer. That is the difference that can be made by implementing the right measures.

On page 27, there is an interesting section on traffic laws

*"As suggested by the previous section, **traffic laws in the Netherlands, Denmark and Germany give special consideration to the especially vulnerable situation of cyclists vis-à-vis motor vehicles** (German Federal Ministry of Transport, 2006). Thus, **they generally require the motorist to make special efforts to anticipate potentially dangerous situations and pro-actively avoid hitting cyclists. Moreover, motorists are generally assumed to be legally responsible for most collisions with cyclists unless it can be proven that the cyclist deliberately caused the crash. Having the right of way by law does not excuse motorists from hitting cyclists, especially children and elderly cyclists.**"*

Note the difference with the attitude of motorists in Sydney, where many motorists have little respect for cyclists and do little to prevent accidents with cyclists. **This is the area where we could make the most progress**, without requiring a large financial investment.

Note that this research does not distinguish between making cycling safe and encouraging cycling, as they are two sides of the same coin.

Table 1 on Page 19 summarises the successful measures for safe and convenient cycling. Among the successful measures most relevant to NSW are:

1. Building cycle paths that protect cyclists from fast-moving motorized traffic
2. **Modify intersections to cater for cyclists, giving them visibility and priority**
3. Reserve some inner-cities streets for cyclist by reducing speed limits
4. Provide ample bicycle parking, especially around public transport, shops & offices
5. **Traffic education and training for both cyclists and motorists**
6. **Traffic laws that protects cyclists: motorists deemed to be at fault for crashes with cyclists**
7. Integration of bicycles with public transport
8. Measures to discourage car use and car parking

Please note that some of these measures only apply to high-density urban areas.