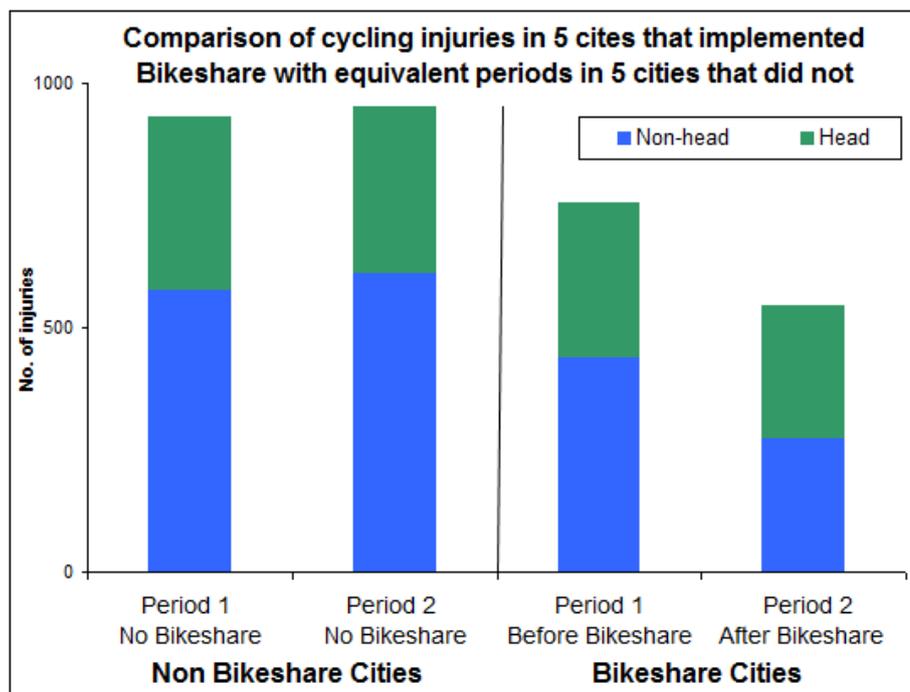


Head injuries fall by 14% in Bikeshare cities - Helmet-law campaigners call it "increased risk"!!!

Researchers compared five cities that implemented Public Bicycle Share (**PBS** - Boston, Miami Beach, Minneapolis, Washington D.C. and Montreal, Quebec) with five cities without PBS (Los Angeles, Milwaukee, New York City, Seattle and Vancouver, British Columbia).



The great news was that, compared to the 24 months before implementation, trauma centre data in the 12 months post-implementation show that *despite increased cycling thanks to PBS, numbers of head injuries in PBS cities fell by 14%* (from 319 to 273 per year) with moderate or severe head injuries falling by 27%. There was an even larger reduction in non-head injuries, from 437.5 to 272 per year.

There was no similar improvement in the five non-PBS cities. Head injuries decreased by

4%, while those classed as moderate or severe increased by 6% (from 180.5 per year to 192). Non-head injuries also increased by 6% (see table).

Numbers of injuries per year in the 24 months before (Pre) and 12 months after (Post) Bikeshare programs were implemented (from the [article by Angie Schmitt](#)).

	All Head injuries		Moderate/Severe Head Injuries		Non-head injuries	
	Pre	Post	Pre	Post	Pre	Post
Five Cities that implemented Bikeshare	319	273	162	119	437.5	272
Five other cities	356	342	180.5	192	575.5	611

Reduced injuries should have delighted researchers

These results should have delighted all those who care about the safety of cyclists. Yet an article on the University of Washington's website discussed a paper by staff at the University of Washington and Washington State University, claiming that the above data show the "*risk of head injury among cyclists increased 14 percent*". First author of the paper was Janessa Graves, with helmet-law promoter Frederick P. Rivara listed as "senior" (last) author and former editor of Injury Prevention Barry Pless as second author.

University of British Columbia public health professor Kay Ann Teschke publicly challenged the claims in the [Washington Post](#).

The claimed 14% increase in head injury risk also directly contradicts a published evaluation of Bikeshare in one of the cities (Montreal) which saw a 50% reduction in the number of collisions per 100 person-days of cycling (from pre-implementation to the second season of implementation) although the total number of collisions and near misses did not decrease.¹ People exposed to the public bicycle share program were more than twice as likely to cycle (odds ratio = 2.86) after the second season of implementation.²

Ignoring safety in numbers or risk compensation

Helmet-law promoters often ignore vitally important issues such as changes in cycle use, risk compensation and safety in numbers. Accounting for changes in bicycle use, [helmet laws have been considered a total failure](#). If anything, [the risk of head injury per cyclist was higher than would have been expected without the law](#).

Graves and Rivara's Bikeshare study is yet another example of helmet-law promoters ignoring the obvious fact that if PBS programs encourage more people to cycle (e.g. odds ratio of 2.86 noted above for Montreal), but the total number of head injuries declines, cycling must be a whole lot safer than it used to be!

Ignored health and environmental benefits of Bikeshare

The benefits of Bikeshare programs in encouraging healthy, environmentally friendly and safe transport are also important. Compared to car users, the estimated annual change for Barcelona's 181,982 Bikeshare users was 10.5 to 12.5 avoided deaths from increased physical activity offset by 0.03 deaths from road traffic incidents and 0.13 deaths from air pollution ([BMJ Aug 2011](#)). In its first 12 months (to March 2012), 7.4 million trips were made on London's Bikeshare scheme. [An evaluation in the BMJ](#) estimated net health benefits (after subtracting losses from injuries sustained during those trips) of 72 additional years of healthy life for men (who accounted for 71% of cycling time) and 15 for women.

After New York launched its Citi-Bike scheme in May 2013, cycling in the Citi-Bike area spiked by 25% with more than 5 million Citi-Bike rides to November 2013. Yet in November 2013, year to date, the number of cyclist fatalities in NYC was lower than any year since record-keeping began in 1983.³

Most public bike schemes average at least three to four trips per bike per day. Notable exceptions are Brisbane (0.1 to 0.3 trips per bike per day) and Melbourne (0.5 to 0.9 trips per bike per day). The lack of patronage for the two Australian schemes has been attributed in part to Australia's helmet laws.⁴ Israel, Mexico City and most recently, Dallas, repealed helmet laws to ensure the success of public bike schemes. Arguing that helmets should be a priority for public bike schemes would almost certainly be counter-productive, discouraging use of such schemes and therefore reducing the benefits to be gained from increased cycling and increased safety in numbers.

Conclusions

Given evidence of increased cycling (odds ratio of 2.86 in Montreal in the second year of its public bike scheme) and the 14% reduction in all head injuries (27% reduction in moderate/severe head injuries) noted above, claims by Frederick P. Rivara, Barry Press and other associates of the Harborview Injury Prevention and Research Center of a 14% increase in head injuries are nothing short of bizarre.

Other research by Frederick P. Rivara and colleagues has been [found to be misleading](#), as have other claims by helmet-law promoters who [failed to properly account for changes in cycle use and changes in injury rates](#). Future research into the efficacy of helmets and helmet laws should provide estimates of the true risk of injury by comparing numbers of injuries with the amount of cycling.

Postscript

The University of Washington removed the original article from its website and added [a new version](#) stating that the headline and story had been corrected to convey that “the study's measure was the proportion of head injuries among all bicycle-related injuries in the cities studied.”

Despite this, the article and its title [‘Bike-shares linked with greater risk of head injury’](#) still give the impression that head injuries increased, rather than the reality of fewer head injuries but more cyclists and therefore substantially reduced risk.

Since New Zealand introduced its helmet law, [the risk of injury from crashes not involving motor vehicles has increased dramatically](#), quadrupling in 15-19 year olds (from 11.6 to 45.9 injuries per million hours) and more than doubling for children (from 39.5 to 85.4 per million hours) and adults (from 15.9 to 32.3 per million hours). Over the same period, there was a 27% fall (from 8.2 to 6.0 per million hours) in the risk of serious injuries from collisions with motor vehicles. Pedestrians enjoyed much greater improvements in safety, with a 42% reduction in the risk of serious injury from collisions with motor vehicles from 3.5 to 2.0 per million hours.

It is possible that helmet laws frighten cyclists away from transport cycling (a relatively low risk activity on quiet streets) towards more dangerous sports cycling and mountain biking, with a much greater risk per hour of activity of falling off the bike. Even though bike-only crashes can be more controllable and result in proportionately fewer head injuries per crash, the overall risk of head injury per hour of activity increases because of the greater risk of a serious crash.

In contrast, a renewed focus on transport cycling from implementing Bikeshare schemes might reverse this trend, with more people seeing transport cycling as a safe, normal activity that improves fitness and allows participants to stay healthy.

[James Woodcock and Anna Goodman commented on Graves and Rivara's PBS study](#): “One of the surprising findings in the study is that the percentage of head injuries rises fastest among children. This is precisely the opposite of what one would expect if bikesharing schemes were to blame, since children are less likely to use bikesharing schemes - the bikes are adult-sized, and riders typically need a credit card. So blaming a rise in head injuries among children on a lack of helmets among bike hire users doesn't seem consistent.”

Children who crash tend to have proportionately more head injuries than adults, so if Bikeshare schemes increase the overall popularity and safety of cycling, leading to more children cycling, we might expect some increase in the proportion of crashes involving head injury. The good news is that the observed decline in injuries, despite increased cycling, not only means safer cycling but that many more people will have reduced risk of heart attacks and strokes, a much more significant cause of brain damage than cycling without a helmet.

Cited Research

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