

## Cycling and health: an opportunity for positive change?

Adrian E Bauman and Chris Rissel

*Cycling is an affordable, convenient and achievable form of physical activity for all Australians*

Cycling, the fourth most popular physical recreation in Australia, is increasingly being used as a means of transport. As a form of regular physical activity, it confers substantial health benefits that are accessible to people of all ages.<sup>1</sup> The epidemiological evidence is growing that cycling has health-enhancing effects, independent of other leisure-time physical activity. In a large Danish cohort followed up for 15 years, a 39% reduction in all-cause mortality was observed in those who cycled to work, and this was independent of participation in sport and other physical activity.<sup>2</sup> Other large population studies have shown the effects of commuting by bicycle on reducing mortality and cardiovascular risk among Finnish women,<sup>3</sup> and similar risk reductions for Chinese adults in Shanghai.<sup>4</sup> Ecological observations have noted lower rates of obesity in regions with high rates of cycling.<sup>5</sup>

The article by Sikic and colleagues in this issue of the Journal (page 353) describes cycling-related injuries in Victoria, and shows a 5-year increase in emergency department presentations, hospital admissions and major trauma among cyclists.<sup>6</sup> This increase is of concern, and the authors reasonably call for preventive approaches. For many years, cycling advocates have called for a greater investment in cycling infrastructure, and studies overseas have demonstrated the potential for this investment to reduce injury outcomes. For example, cycling injuries are between eight and 30 times more common in the United States compared with the Netherlands or Germany.<sup>7</sup> Similarly, rates of cycling-related deaths are much lower in Western Europe and declined by 60% between 1975 and 2000, compared with a much smaller decline in the US.<sup>5,8</sup>

Importantly, as Sikic et al acknowledge, their analyses do not adjust for the population denominator.<sup>6</sup> More people are cycling now than 5 years ago — there are about a million new bicycles sold in Australia each year, and more people are cycling to work, with the greatest increases occurring in Victoria where the study by Sikic et al was conducted.<sup>1</sup> Although there is a positive correlation between numbers of cyclists and injuries, the association is not simply linear. Known as the “safety in numbers” phenomenon, when more people cycle, collectively it becomes safer, and the injury rate per kilometre cycled decreases.<sup>9</sup>

Sikic et al suggest that people who ride bicycles should be registered,<sup>6</sup> but requiring registration for all cyclists would not provide an accurate measure of cycling “exposure”, such as time spent cycling and distance travelled. It would cost more to administer than it would recoup, and it would likely act as a significant deterrent to casual or occasional cycling. In particular, cyclist registration would make it more difficult to encourage populations to shift to trial spontaneous recreational cycling. Research to calculate cycling times and distances as a population denominator for risk assessment should be a priority.

In the Victorian data reported,<sup>6</sup> most cycling injuries occurred on streets or highways where bicycles share the road with cars.

Even though the absolute risk is still low, these injuries are mostly preventable. Making cycling safer requires better infrastructure and facilities for cycling, especially the provision of separated bicycle paths and cycle lanes.<sup>1,7</sup> At the same time, driver attitudes and behaviour must be addressed. Strategies include enforcing lower driving speeds, traffic calming, parking restrictions, and community support for a safer road environment. Further, integrating cycling into public transport schedules and systems, including simple measures such as bicycle parking at train stations, would make cycling easier and give cyclists more options for safe commuting. In London, after the introduction of a “congestion tax” restricting car use into the city centre, combined with new bicycle lanes, cycling education and better public transport, many more cycling trips were made, and yet the overall number of cyclists injured actually declined between 2001 and 2004.<sup>10</sup>

It is generally understood what needs to be done to increase cycling participation levels. Better urban design, such as higher density development, mixing residential and commercial land use, and shorter trip distances, will facilitate more cycling.<sup>1</sup> Other strategies to encourage cycling include behaviour change programs such as TravelSmart, Ride to Work, and Ride to School initiatives, public bicycle events to encourage infrequent and novice riders to cycle in a supportive social environment, and bicycle education programs for both children and adults.<sup>1</sup>

A dominant car culture and concerns about safety are the main reasons people give for not cycling in Australia.<sup>11</sup> Mass media marketing campaigns are needed to help legitimise the value of cycling as transport, and advise drivers about relevant cycling road rules.

Despite the perceived risks of cycling, the absolute magnitude of the risk is low, and the benefit-to-risk ratio is overwhelmingly positive; for chronic disease prevention, obesity reduction and mental health, the benefits are substantial.<sup>12</sup> Cycling provides an affordable, convenient and achievable form of physical activity for all Australians, including children and youth, through to older adults with chronic conditions. As a physical activity, it also meets transport and traffic management needs, and is eco-friendly.

Much more needs to be done in Australia to provide an environment that encourages people to cycle safely. This means giving greater funding and community priority to allocating road space for cycling. It also means physicians recommending that suitable patients consider cycling, and supporting efforts to improve the urban environment for cycling.<sup>12</sup>

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