

## Ride your bike: healthy policy for Australians

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One of the great health promotion challenges of the 21st Century is how to increase the levels of physical activity for whole populations. Physical inactivity is the second (after tobacco smoking) most significant behavioural cause of ill-health in society.<sup>1</sup>

Physical inactivity is a major modifiable risk factor for cardiovascular disease (CVD) and independently affects other CVD risk factors such as non-insulin dependent diabetes mellitus (NIDDM), total blood-cholesterol level, obesity and hypertension.<sup>2,3</sup> Maximum cardiovascular protection occurs when people move from a sedentary lifestyle or low state of cardio-respiratory fitness to a moderately active or moderate fitness level.<sup>2,4</sup> Almost 50% of Australians are not physically active at a level that is beneficial to health.<sup>5</sup> Perhaps not surprisingly, given this low level of physical activity, 56% of Australian adults were considered overweight or obese in 1995,<sup>1</sup> second in the world only to the levels of overweight or obesity reported in the United States.

Nationally, the annual direct health care cost attributable to physical inactivity is estimated at \$377 million a year.<sup>6</sup> Further, 122 deaths a year from CVD, NIDDM and colon cancer could be avoided for every 1% increase in the proportion of the population who achieve adequate physical activity.<sup>6</sup>

How, then, can the levels of physical activity in the community be increased? Incorporating incidental physical activity, which results from regular lifestyle behaviours, has been found to be more cost effective than physical activity achieved through structured exercise programs.<sup>7,8</sup> Structured group or individual exercise programs clearly have a role for some people, but the growing personal fitness industry has not slowed the increase of population physical inactivity.

Therefore, the concept of 'active transport' is an important one. The term 'active transport' relates to physical activity undertaken as a means of transport.<sup>9</sup> This includes travel by foot, bicycle and other non-motorised vehicles.<sup>10</sup> Among the three main active transport modes (i.e. public transport, walking and cycling), cycling is the least used in Australia, although all three have the potential for substantial increases.

There is considerable capacity to increase the population frequency of cycling. In many European cities more than 25% of all trips are taken by bicycle.<sup>11</sup> Only 1% of Sydney's population cycles each day, despite the total number of bicycles owned by Sydney residents being nearly two million<sup>12</sup> and the proportion of households with a bicycle having risen from 32% in 1991 to

39% in 1998.<sup>13</sup> More than half (55%) of the car trips in Sydney are less than five kilometres and 33% are less than three kilometres,<sup>14</sup> distances considered easily amenable to cycling.

As Greig points out,<sup>15</sup> while the Dutch have a strong recent history of cycling, the early 1970s saw cycling in Amsterdam shrink to about 4-5% of all trips. It is interesting to note that in Amsterdam in the 1970s there was talk of people riding bicycles as being a nuisance to cars and this generated two years of reputedly fierce debate about whether or not a city with narrow streets, cobble stone surfaces, freezing winter temperatures and sudden downpours could accommodate a rise in people riding bicycles on its roads. The alternate vision was a city for cars, wider roads and fast flowing freeways. In the end, supported by good science, common sense and the damage to national monuments brought on by 'acid-rain' and greenhouse problems, the argument was won in favour of more sustainable transport.<sup>15</sup>

Increasingly, health promotion and public health professionals are recognising what cycling advocates have known for years: that political will is required to plan and build an environment that supports and encourages cycling as well as walking and public transport.<sup>16,17</sup> There is strong evidence for why cycling should be encouraged:

- Cycling improves cardiovascular fitness, uses all the major muscle groups, strengthens bones and helps prevent osteoporosis, improves circulation, reduces cholesterol levels, relieves the effects of rheumatoid arthritis and, like all physical activity, helps people cope better with stress.<sup>18</sup>
- In a cohort study involving 30,000 people in Denmark followed over 14 years, bicycling to work decreased the risk of mortality 40% after taking into account leisure time physical activity.<sup>19</sup>
- In a cohort study involving 21,000 people in Finland followed over 12 years, people who spent more than 30 minutes a day cycling to and from work had close to a 40% lower risk of developing diabetes.<sup>20</sup>
- In a case-control study in Germany with 1,246 pre-menopausal women, frequent cycling was associated with a 34% reduction in breast cancer.<sup>21</sup>
- People riding a bike are exposed to 2-3 times less air pollution (volatile organic compounds) compared with people driving cars on the same road.<sup>22</sup>

A common barrier frequently mentioned by people who would like to cycle but do not is concern about safety. In the UK, about 140 people are killed each year while riding a bike (almost always involving cars) while around 20,000 others die prematurely from lack of any exercise.<sup>15</sup> In Australia in 2000, 32 people were killed while riding a bicycle.<sup>23</sup> After weighing up the benefits of physical activity from cycling and the risk of injury, the British Medical Association concluded that the benefits clearly outweighed the risks.<sup>24</sup> Every form of human movement

involves some degree of health risk, but inactivity is the greater problem.

Unfortunately, much of the cyclist injury prevention research and debate focuses on helmet wearing. While the evidence is strong that wearing helmets reduces injury if there is a crash, it does not address the primary cause of most crashes – cars and road conditions. The focus on bicycle helmets obscures the real issue for cyclists of safer conditions (through better cycleways and marked lanes), and education about and enforcement of road rules<sup>25</sup> where drivers endanger cyclists.

Making cycling a normal and common behaviour rather than one needing special protection is better for cyclists. Indeed, the more cyclists there are, the safer it is for cyclists because other road users get used to encountering cyclists. International research in 14 European countries and 68 Californian cities has found that it is less likely for a given person walking or cycling to be struck by a motorist when there is a greater level of walking or cycling.<sup>26</sup> Liveable communities where walking and cycling are encouraged are generally better for everyone!

An analogy with walking serves to highlight the mixed message that compulsory bicycle helmets communicates. Walking is encouraged by all health departments as a great way to achieve physical activity for most people. Imagine if it was mandatory to wear special equipment to go for a walk, such as fluorescent vests. “But we don’t need them,” you say. “Ah, but pedestrians are hit by cars all the time, therefore it’s safer to be more visible,” say the injury protectors. So some people are likely to be put off walking and cars escape without restrictions such as lower speeds and traffic-calming measures, despite being the primary cause of injuries.

There has been very little Australian or international research evaluating the effectiveness of infrastructure and environmental changes upon increasing population levels of cycling and physical activity.<sup>27,28</sup> The best example that building and promoting adequate cycleway facilities increases regular cycling comes from Western Australia where the Travelsmart program, which included mass media publicity and an individualised marketing program to interested people, reported a 53% increase in bike trips at the 12-month follow-up.<sup>29,30</sup> Skills in the use of bicycles and in planning travel behaviour were also found to increase cycling.<sup>29,31,32</sup>

None the less, there are positive things happening that improve conditions for cycling. For example, Brisbane City Council has set a target of 8% of all trips to be made by bicycle by 2016 and has built an extensive bicycle network to support this.<sup>33</sup> The NSW Government has announced plans to build a NSW Coastline Cycleway through the State, many local governments are implementing bicycle plans (of varying quality) and disused rail lines are being converted to cycleways and proving a huge boon for tourism. Even in Sydney, with only a variety of local

initiatives, there has been a 61% increase in the number of people cycling on their journey to work to a destination in inner Sydney.<sup>34</sup>

Despite there being few Australian evaluations of how to increase cycling, the lessons learned from European countries that have substantially increased levels of cycling are very clear.<sup>11,35</sup> They are, in practice, consistent with the (unfunded) national cycling strategy for Australia<sup>36</sup> as well as state bicycle policies,<sup>37</sup> although the European models go much further with legislative support that favours pedestrians and cyclists. The recommendations of the NSW Childhood Obesity Summit, Transport Section,<sup>38</sup> also follow similar lines.

The main areas of policy that can be influenced to encourage cycling include:

- Mixed land-use policies that encourage homes and workplaces to be closer together.
- Lower motor vehicle speeds.
- Area-wide traffic-calming measures.
- Increased technical skills regarding the construction of cycling infrastructure by local civil engineers and town planners.
- Dedicated bicycle lanes (off-road and on-road) that are clearly signposted and marked.
- Connecting bicycle lanes with good intersection treatments, including ‘bicycle streets’ where bikes have right of way.
- Seamless connections between cycle ways and public transport.
- End-of-trip facilities (secure bicycle storage, showers and change rooms).
- Extensive driver education.
- Traffic regulations and enforcement that heavily favours pedestrians and cyclists.
- Restrictions on motor vehicle use, including limited parking.

There are already signs that many in the community would like to cycle more and are beginning to do so despite a sometimes hostile road environment. Commitment, advocacy and political will are all needed. Health promotion professionals will need to work with other sectors, such as colleagues in transport, planning and local government, to support and encourage policies and infrastructure projects that create more supportive environments for cycling. This will lead to increased population levels of physical activity and better health, as well as contribute to more liveable cities.

## References

1. Mathers C, Vost T, Stevenson C. *The burden of Disease and Injury in Australia*. Canberra (ACT): Australian Institute of Health and Welfare; 1999. AIHW Catalogue. No.: PHE 17.
2. US Department of Health and Human Services. *Physical Activity and Health – A Report of the Surgeon General*. Atlanta: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion; 1999 Nov 17. Available from: <http://www.cdc.gov/nccdphp/sgr/sgr.htm> [cited 2003 October 15].

3. Bauman A, Owen N. Physical activity of adults Australians: epidemiological evidence and potential strategies for health gain. *J Sci Med Sport* 1999;2:30-41.
4. Blair SN, Kampert JB, Kohl HW, Barlow CE, Macera CA, Paffenberger RS, et al. Influences of cardiorespiratory fitness and other precursors on cardiovascular disease and all-cause mortality in men and women. *J Am Med Assoc* 1996;276(3):205-10.
5. Australian Institute of Health and Welfare. *Australia's Health 2000: The Seventh Biennial Health Report of the Australian Institute of Health and Welfare*. Canberra (ACT): AIHW; 2000.
6. Stephenson J, Bauman A, Armstrong T, Smith B, Bellew B. *The Cost of Illness Attributable to Physical Inactivity in Australia – A Preliminary Study*. Canberra (ACT): The Commonwealth Department of Health and Aged Care; 2000.
7. Sevick MA, Dunn AL, Morrow MS, Marcus BH, Chen GJ, Blair SN. Cost-effectiveness of lifestyle and structured exercise interventions in sedentary adults – results of project ACTIVE. *Am J Prev Med* 2000;19(1):1-8.
8. Hillsdon M, Thorogood M, Anstiss T, Morris J. RCTs of physical activity promotion in free living populations: a review. *J Epidemiol Community Health* 1995;49:448-53.
9. Davis A. *Active Transport: A Guide to the Development of Local Initiatives to Promote Walking and Cycling*. London (UK): Health Education Authority; 1999.
10. Mason C. Healthy people, places and transport. *Health Promot J Aust* 2000;10(3):190-6.
11. Transport Information Knowledge Centre. *ADONIS Project. Analysis and Development of New Insight into Substitution of Short Car Trips by Cycling and Walking*. Rome (ITA): European Communities; 1998.
12. *Action for Bikes: BikePlan 2010*. Sydney (NSW): Roads and Traffic Authority; 1999.
13. *Cycling in Sydney – Bicycle Ownership and Use*. Sydney (NSW): Transport Data Centre, Roads and Traffic Authority; 2003.
14. *Integrated Transport Strategy for the Greater Metropolitan Region*. Sydney (NSW): NSW Department of Transport; 1995.
15. Greig R. Go Dutch: Get on your bike. *Sydney Morning Herald* 2003 April 22:11.
16. Jackson RJ. The impact of the built environment on health: an emerging field. *Am J Public Health* 2003;93(9):1382-4.
17. Larkin M. Can cities be designed to fight obesity? *Lancet* 2003;362:1046-7.
18. Roberts I, Owen H, Lumb P, MacDougall C. *Peddalling Health: Health Benefits of a Modal Transport Shift*. Adelaide (SA): University of Adelaide; 1996.
19. Anderson LB, Schnohr P, Schroll M, Hein HO. All-cause mortality associated with physical activity during leisure time, work, sports and cycling to work. *Arch Intern Med* 2000;160:1621-8.
20. Hu G, Qiao Q, Silventoinen K, Eriksson JG, Jousilahti P, Lindström J, et al. Occupational commuting and leisure-time physical activity in relation to risk for Type 2 diabetes in middle-aged Finnish men and women. *Diabetologia* 2003;46(3):322-9.
21. Steindorf K, Schmidt M, Kropp S, Chang-Claude J. Case-control study of physical activity and breast cancer risk among premenopausal women in Germany. *Am J Epidemiol* 2003;157(2):121-30.
22. Taylor D, Fergusson M. The comparative pollution exposure of road users – a summary. *World Transp Policy Pract* 1998;4(2):22-6.
23. Bellew B, Dobinson K, Frith J, Henderson M, McKerral J, Mason C, et al. *Healthy Transport, Healthy People. Sustainable Transport in Sustainable Cities*. Sydney (NSW): Warren Centre, Sydney University; 2002 June.
24. British Medical Association. *Cycling Towards Health and Safety*. Oxford (UK): Oxford University Press; 1994.
25. Rissel C, Campbell F, Ashley B, Jackson L. Driver knowledge of road rules and attitudes towards cyclists. *Aust J Primary Health* 2002;8(2):66-9.
26. Jacobsen PL. Safety in numbers: more walkers and bicyclists, safer walking and bicycling. *Injury Prev* 2003;9:205-9.
27. Sallis JF, Bauman A, Pratt M. Environmental and policy interventions to promote physical activity. *Am J Prev Med* 1998;15:379-97.
28. Giles-Corti B, Donovan RJ. Relative influences of individual, social environmental and physical environmental correlates of walking. *Am J Public Health* 2003;93(9):1583-9.
29. Transport WA. *TravelSmart 2010: A 10-year Plan*. Perth (WA): Travel Demand Management; 1999.
30. Greig R. Cycling promotion in Western Australia. *Health Promo J Aust* 2001;12(3):250-3.
31. Rose G, Ampt E. Travel blending: An Australian travel awareness initiative. *Transportation Res* 2001;6:95-110.
32. Marshall G. Promoting cycling for health and fitness. *Health Promot J Aust* 2001;12(3):258-60.
33. *Brisbane Bicycle Experience Guide*. Brisbane (QLD): Brisbane City Council; 2002.
34. Telfer B, Rissel C. *Cycling to Work in Sydney: Analysis of Journey-to-work Census Data from 1996 and 2001*. Camperdown (NSW): Central Sydney Area Health Service, Health Promotion Unit; 2003 September.
35. Pucher J, Dijkstra L. Promoting safe walking and cycling to improve public health: lessons from the Netherlands and Germany. *Am J Public Health* 2003;93(9):1509-16.
36. Austroads. *Australian Cycling 1999-2004 The National Strategy*. Sydney (NSW): Department of Transport and Regional Services; 1999.
37. Roads and Traffic Authority. *Action for Bikes – BikePlan 2010 New South Wales*. Sydney (NSW): RTA; 1999.
38. Hansard (NSW LC)10-12 September 2002 (*Childhood Obesity – NSW Summit*). Available from <http://www.health.nsw.gov.au/obesity/adult/summit/hansard/hansard1209.pdf> [cited 2003 October 14].

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