

## EVALUATION OF AN ALTERNATIVE TRANSPORT INITIATIVE IN PERTH, WESTERN AUSTRALIA 2000-2004

### Abstract

**Issue addressed:** Perth Western Australia, has the highest proportion of per capita car ownership in Australia. Despite the various health, environmental and traffic-related benefits, the uptake of alternative forms of transportation such as walking, cycling and public transport are low.

**Methods:** In response to a growing reliance on motorised transport, the Department for Planning and Infrastructure's (DPI's) Cycling Unit conducts an annual Bike to Work Breakfast to promote cycling as a viable form of transport to work. During this event a short cross sectional survey is distributed to assess the usual cycling behaviours of attendees. Topical issues relating to cycling are also investigated.

**Results:** Results from the 2004 survey indicated that the majority of respondents cycled at least 2-3 times per week (85%) to improve fitness (88%), for enjoyment (70%) and because it was a cost effective means of transport (45%). Most of the respondents (92%) supported the need for more cycle friendly infrastructure such as advanced stop lines at intersections and safety measures such as wearing cycle helmets (85%). These findings were consistent with results from similar surveys conducted between 2000 and 2003.

**Conclusions:** The DPI's Bike to Work Breakfast is a popular event within the cycling calendar that provides the opportunity to gain a snapshot of cycling behaviours and attitudes of cyclists. Prior consultation with the evaluators in the developed of the survey instrument has the potential to investigate barriers and enablers to cycling on a regular basis. Age and gender differences could also be explored.

**Keywords:** Cycling, alternative transport, program evaluation

**Authors:**

Dr Alexandra McManus, Ms Jenny Smith, Ms Jennifer McManus, Ms Emma MacDonald,

Ms Megan Williams

All authors are affiliated with the WA Centre for Health Promotion Research, Curtin

University of Technology

## **Introduction**

The substantial health benefits of regular, moderate physical activity to individuals has been well documented.<sup>1-8</sup> Research has shown that an active lifestyle is protective against chronic conditions such as cardiovascular diseases, diabetes mellitus and overweight and obesity.<sup>8-10</sup> Conversely, there is ample evidence to suggest that physical inactivity increases the risk of mortality from all causes and contributes to Australia's burden of disease.<sup>11-14</sup>

In Australia there are many health promotion initiatives encouraging the adoption and maintenance of active lifestyles through different forms of physical activity. It is now recognised that further opportunity exists in the promotion of physical activity as an alternative form of transport by reducing reliance on personal vehicle use. This approach aims to facilitate the health, environmental and economic benefits of shifting from a transport system dominated by low occupancy car use, to a more balanced system of public transport and non-motorised transport options.

Perth has the highest proportion of per capita car ownership in Australia.<sup>1</sup> Data indicates that each day around 240,000 vehicle trips in Perth are within walking or cycling distance of the destination (less than one kilometre), yet only 6% of these trips are made by bicycle.<sup>1</sup> In an effort to address such trends, the Perth Metropolitan Transport Strategy aims to increase the number of short trips made by cycles to 8% by 2010 and to 11.5% by 2029.<sup>15</sup> To achieve this aim, cycling has been widely promoted as a viable alternative to motorised transport in Perth. In addition to many health benefits offered by regular cycling, increases in active transport (such as cycling) will reduce private vehicle use, road congestion and environmental pollution. It will also reduce the demands made on public transport systems and inner city

parking. Most importantly, uptake of active transport also has the potential to reduce current trends of physical inactivity in our community.<sup>16</sup>

Research has identified that to successfully encourage the adoption of cycling as a viable form of transport, key determinants must be considered to achieve such change.<sup>17</sup> These determinants surround: the existence of a social milieu that accepts active transport as a normal and safe part of life; the development and sustainability of urban planning and the provision of facilities to support active transport; and the need for an intersectoral approach that encourages active transport. Furthermore, interventions that seek to increase cycling as a viable mode of transport should consider the demographic characteristics, attitudes, knowledge, skills, physical environment, and the policy environment associated with the target population.<sup>15-17</sup>

In 1987, Bikewest was created in Western Australia (WA) to promote cycling at a population level. Now named the Cycling Unit and run through the WA Department for Planning and Infrastructure, this Unit conducts an annual Bike Week incorporating community, family and school-based activities, competitions, celebratory events and workplace programs. One such workplace program held in Perth during Bike Week is the 'Bike to Work Breakfast'. Conducted since 1988, this annual event encourages those working in the Perth Central Business District (CBD) to cycle to work by providing a complimentary, healthy breakfast to participants. The objectives of the event are to raise awareness of the benefits of cycling and to encourage people to regularly cycle to and from their workplace.

The Sustainable Transport Coalition (2003) identifies cycling to work as a more acceptable and cost-effective method of physical activity compared to traditional workplace healthy

lifestyle programs. Furthermore, cycling contributes to improvements in employee morale, productivity and loyalty.<sup>1</sup> This supports research suggesting successful interventions are those that integrate physical activity into the daily routine of the target group.<sup>18</sup> For example, encouraging employees to use the stairs in their workplace instead of an elevator may achieve higher rates of participation and sustainability than programs offering incentives to visit the gym after work. This philosophy has been used in relation to the promotion of regular cycling to work in many places around the world.<sup>19</sup>

## **Methods**

### **Sample**

Bike to Work Breakfast participants present in the Perth CBD, on the morning of 12<sup>th</sup> of March 2004, were presented with a brief survey to complete by a team of trained volunteers. The number of completed surveys collected was 1657. The representativeness of these responses to all participants is unknown however it is estimated around 3000 cyclists attended the breakfast.

### **Instrumentation**

The data collection instrument consisted of 11 items relating to: the participants' experience of the Bike to Work Breakfast; how they heard about the breakfast; the main reasons for cycling; frequency (days per week) and intensity (kilometres per week) of cycling; bicycle helmet use, attitudes and behaviours; and the use of end of trip cycling facilities. The 2004 survey also investigated the use and availability of cyclist friendly facilities in and around the Perth CBD.

## **Analysis**

Statistical analysis of the data was completed using the Statistical Package for Social Sciences (SPSS) Version 10.<sup>20</sup> Simple univariate analyses including basic frequencies and chi squared tests were conducted due to the descriptive nature of the study design used.

## **Limitations**

It is estimated that between 2500 and 3000 participants have attending the Bike to Work Breakfast's each year since its' inception, however, exact numbers of attendees is not necessary as the purpose of the survey is to gain an understanding of topical issues around cycling. A further limitation of this study is that the evaluator had no input into the development of any of the survey instruments.

## **Results**

A total of 1657 questionnaires were completed by participants in 2004. The majority of respondents were male (72%, n=1187). Nineteen percent of respondents who provided information about their age were under 30 years old (n=313), 28% (n=459) were aged 31-40-years (n=459) and 41% (n=853) were 41 years or over.

### **Awareness of the Bike to Work Breakfast**

Sixty three percent of respondents (n=1030) had previously attended a Bike to Work Breakfast. Most participants found out about the 2004 Bike to Work Breakfast from signage on a bike path (30%, n=503), from a friend (22%, n=360), or received an invitation in the mail (13%, n=211). Other information sources included a flier (10%, n=171); a radio advertisement (6%, n=104); and advertisements in the newspaper (5%, n=90). Ten percent

chose other, including bike clubs and cycling groups, and via the WA Department for Planning and Infrastructure, website.

### **Reasons for cycling**

A large proportion of respondents (88%, n=1460) cited improved fitness as one of the main reasons they chose to cycle. Seventy percent (n=1172) reported cycling for enjoyment, 46% (n=759) cycled as a means of transport and 45% (n=742) cycled because it is more cost efficient than driving. Forty four percent (n=737) of respondents reported cycling to reduce stress and tension, 39% (n=649) cycled out of concern for the environment and 36% (n=603) reported cycling to avoid traffic congestion.

### **Frequency (days/week) and distance (km/week) cycled**

Almost half (43%, n=713) of respondents reported cycling on a daily basis whilst a further 42% (n=704) cycled at least two to three times per week. Eight percent (n=127) cycled once a week and 6% (n=88) reported cycling less than once a week. Thirty one percent (n=509) of respondents reported cycling 51-100 kilometres in any given week, 21% (n=344) cycled between 101-150 kilometres weekly and 18% (n=298) of respondents cycled over 150 kilometres in any given week.

### **Predictors of frequency and distance of cycling**

The impact of age on frequency of cycling and number of kilometres cycled was explored. Overall, 87% (n=1407) of respondents said they cycled at least 2-3 times per week including 44% (n=707) who cycled daily. Seventy percent (n=1145) of respondents reported cycling more than 51 kilometres in any given week and 38% (n=640) cycled more than 101

kilometres each week. Participants aged over 30 years were more likely to cycle over 50 kilometres per week than those aged under 30 years.

### **Helmet use and cycle friendly improvements**

Eighty five percent of respondents (n=1403) reported they would wear a bicycle helmet even if not compulsory. Thirteen percent (n=211) stated they would not wear a helmet if it was voluntary and 2% (n=42) did not respond. Seventy two percent of respondents answering this question cycled more than 51 km per week. Attitudes towards bicycle helmet use were similar between genders, with 88% of males (n=1033) and 84% of females (n=359) reporting they would continue to wear their helmet even if not compulsory.

Between 92% and 96% of respondents across all age groups supported the use of advance stop lines at key intersections. Other cycle friendly improvements respondents would like to see within the Perth CBD include more designated cycle lanes and cycle paths (5%, n=82), improvements in the structure of cycle paths and facilities (3%, n=44), and safer cycle infrastructure (lighting on cycle paths, appropriate traffic signals and road crossings, underpasses for cyclists at major intersections, sloping kerbs on roads, regular path maintenance, and driver awareness training) (2%, n=29).

### **Bike to Work Breakfast Trends: 2000-2004**

Data from the 2000 to 2004 Bike to Work Breakfasts were compared to assess recent trends in cycling behaviours of participants within the Perth CBD. The representativeness of these trends to cyclists who regularly bike to work is unknown, therefore results should be interpreted with caution and should not be generalised to the Western Australian cycling population.



Over the past five years, the number of surveys completed by participants attending the Bike to Work Breakfast has increased from 446 in 2000 to 1657 in 2004. Fitness (>80%) and enjoyment (>70%) remained the two main reasons for cycling over the five-year period. Other commonly reported reasons included the cost benefits of cycling compared to driving, cycling as an alternative form of transport, and cycling to reduce stress and tension. Environmental concerns were also cited as a main reason for cycling, however trends indicate the proportion of respondents who stated they cycled due to environmental concerns has decreased over time (see Table 1).

### **INSERT TABLE 1**

Trends in respondents' reported frequency (how often) and distance (number of kilometres) of cycling over the past five years were also explored. The number of kilometres cycled in any given week and the number of times respondents cycled in any given week remained relatively stable between 2000-2004. Reported levels of bicycle helmet wearing, even if not compulsory, remained over 75% for the five year period with the highest proportion recorded in 2004 (85%).

### **Discussion**

Providing facilities and infrastructure for cycling is less costly than providing facilities and infrastructure for other forms of vehicular transport.<sup>21</sup> Therefore, investing in cycling is not only beneficial in improving population health, but is also provides an opportunity to reduce the costs in urban transportation, planning and design. However, do programs such as the Bike to Work Breakfast and the implementation of cycling infrastructure actually increase the

proportion of people who cycle? A review of the literature provided limited evidence to this effect. As noted by Pucher et al (1999), although separate bike lanes, paths and better parking facilities may make cycling more attractive, they could find no statistical studies that measured the actual impact these facilities had on increasing cycling levels.<sup>22</sup> This lack of evidence, along with limited data on the demand for cycling as an alternative to motorised transport, creates difficulties in justifying the cost-effectiveness of investing in cycling infrastructure.<sup>23</sup>

The Department for Planning and Infrastructure's Bike to Work Breakfast is an example of an initiative that provides information on the determinants and domains influencing the behaviours and future intentions surrounding active transport in Perth, Western Australia. Findings from this event over the past five years demonstrate the potential for a brief motivational intervention targeting a diverse target group to promote and enhance the adoption of desirable health behaviours. Such an event also provides valuable information on the enablers and barriers within the local metropolitan area that may contribute to active lifestyles.

Based upon the data from the 2000 to 2004 Bike to Work Breakfast, two recommendations are outlined to enhance the efficacy of future health promotion cycling strategies in Western Australia:

**Recommendation 1: New cycling facilities and initiatives should be based upon the needs of the Western Australian cycling population.** It is recommended that an audit be conducted to assess the current cycling infrastructure, particularly within the Perth CBD, and its relevance to the needs of regular cyclists. Common themes in participant responses

relating to the creation of a cycling friendly environment should be used to guide future action that will encourage and support cycling as a safe, alternative mode of transport for Perth commuters.

Each year respondents have overwhelmingly supported the provision of additional facilities within the Perth CBD. Future surveys should consider asking participants if they would be willing to use central facilities if available. Data have not been collected about specific workplaces. While it may be difficult for individual employers to provide shower and locker facilities within their existing premises, it may be feasible to lobby employers to provide specific cycle parking spaces. Local government could also be lobbied to encourage employers to provide cyclist facilities in any new development within the Perth CBD.

**Recommendation Two: New message strategies should reflect the issues raised in this report.** Findings from this evaluation may be useful in developing future messages to increase the number of people who are regular cyclists. These findings provide practitioners with an indication of the characteristics of people who cycle in Perth, factors that motivate them to cycle and differences in cycling behaviour by age and gender. Although further research is required to confirm these findings, it would appear that as the reasons for cycling differs between sub groups, specific campaign messages would be required to reach this diverse population.

## **Conclusion**

Research indicates that effective public health strategies promoting active lifestyles are those that integrate physical activity into peoples' daily routines.<sup>18</sup> The annual Bike to Work

Breakfast is an initiative that utilises this approach by promoting cycling as a viable mode of transportation to and from work.

Findings from the survey of participants at the Bike to Work Breakfast provides an insight into the demographic characteristics of those people who attended the breakfast, the frequency and intensity of cycling, and also identifies the main reasons why people cycle. However, further research is required to understand the barriers and enablers for cycling, and to assist in developing strategies and interventions that will encourage more people to cycle. These strategies should also encourage cycling as an alternate form of transport to and from the workplace.

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**Table 1. Reasons for cycling: Bike to Work Breakfasts 2000 to 2004 (% of participants)**

Reason for cycling	Number of participants (%)				
	2000	2001	2002	2003	2004
Fitness	392 (90)	789 (87)	614 (86)	1165 (84)	1460 (88)
Enjoyment	330 (74)	650 (72)	515 (72)	892 (65)	1172 (71)
Environment	241 (54)	481 (53)	302 (42)	458 (33)	649 (39)
Cost Effective	211 (47)	427 (47)	313 (44)	521 (38)	742 (45)
Means of transport	-	-	337 (47)	646 (47)	759 (46)
Reduce stress & tension	198 (44)	405 (45)	334 (47)	425 (31)	737 (44)
Total participants (%) <sup>(a)</sup>	446 (100)	902 (100)	715 (100)	1384 (100)	1657 (100)

(a) Total number does not equal 100% as participants were able to give multiple responses