Ride to Work and Beyond! 2005
Ride to Work Day 2005 first-time riders

Physical activity survey, November 2005

March 2006

Title:

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Source:

Project funded by the Australian Greenhouse Office, Mobility Management Program, and the Victorian Department of Infrastructure (TravelSmart)

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Glossary

First-timers: those who identified themselves in their Ride to Work Day 2005 registration as never having ridden to work before.

Non riders: respondents who indicated in this November 2005 survey that they had not ridden to work since Ride to Work Day, 5 October 2005.

Riders: respondents who indicated in this November 2005 survey that they had ridden to work since Ride to Work Day, 5 October 2005.

1. Executive Summary

This survey was carried out as part of the Ride to Work and Beyond! a program undertaken by Bicycle Victoria and TravelSmart Victoria in conjunction with the Institute of Transport Studies at Monash University. The project commenced in 2003 and is funded by the Australian Greenhouse Office and TravelSmart Victoria

Ride to Work Day is an annual Bicycle Victoria event which actively promotes riding to and from work.

All first-time riders who provided email addresses in the October 2005 Ride to Work Day registration were surveyed in November 2005 to measure their level of physical activity and determine the impact of the event on their travel behaviour.

In total 1,286 surveys were emailed and received and 417 (32% response rate) valid responses were received and matched to registrants data from Ride to Work Day 2005.

The results of the survey indicates high levels of take up for commuter cycling with 193 first-time riders (46% of respondents) having ridden since the Ride to Work Day event, indeed 107 (26% of all respondents) rode in the survey week seven weeks after the Ride to Work Day event.

A greater percentage of male (52%) than female (42%) first-time riders had ridden since the event.

Of those who commenced riding on Ride to Work Day 2005, 40% indicated that time spent on other physical activities had increased and 58% reported that it had remained the same; 2% reported that it had decreased. This result is highly encouraging as it indicates that commuter cycling is not a substitute for other activities but increases the individual's level of overall physical activity.

The Active Australia survey questions did not show a difference in activity levels between continuing riders and non-riders. It only showed that the survey population was more active than the 'general' Australian population in 2000.

One of the major concerns of using the Active Australia survey questions was the underreporting of commuter cycling in the survey responses. This could indicate that the survey in its current form cannot be used to measure the health and fitness benefits of commuter cycling.

Other health measurements could build on the findings of this preliminary survey. Possibilities include:

- Physical health checks of first-time riders before and after the event (eg cholesterol checks) to measure changes in fitness and health linked to behaviour change

- - Physical activity survey (or appropriately modified survey format) conducted upon registration and then following the event to monitor changes in activity levels.

Further studies will further enhance the findings of this preliminary survey.

2. Background

2.1. Ride to Work Day

- Annual Bicycle Victoria event in its 12th year in 2005.
- Actively promotes riding to and from work
- Regular riders participate as workplace coordinators
- Hundreds of workplace breakfasts throughout the state
- Community breakfasts at Federation Square in Melbourne and in regional centres
- Extensive media coverage including print (major and local), radio and television
- Attracts thousands of participants, many riding to work for the first time
- Valuable role to play in stimulating travel behaviour change

2.2. Ride to Work and Beyond!

- Three-year Ride to Work and Beyond! project is being undertaken by Bicycle Victoria and TravelSmart Victoria in conjunction with the Institute of Transport Studies at Monash University
- Project commenced in 2003, is funded by the Australian Greenhouse Office and TravelSmart Victoria
- Designed to maximise the behaviour change impacts of the Ride to Work Day event

Through Ride to Work and Beyond!, Bicycle Victoria has developed a more sophisticated understanding of the ways in which Ride to Work Day can motivate and support people to ride to work or ride more frequently. The event is now informed by a clear sense of:

- Why people want to ride to work (health and fitness benefits). This report quantifies those health and fitness benefits for first-time riders.
- Why they participate in Ride to Work Day (social reasons)
- Perceived barriers (concerns about riding on the road, inadequate facilities in the workplace, 'just getting organised')

Ride to Work Day is an effective behaviour change event on a number of levels. It works as:

- A thought-provoker for those who are yet to commence riding to work
- An opportunity to prepare for and trial the experience for those who have been giving riding some thought
- A deadline to get ready for those who have already begun preparing
- A reminder or prompt for seasonal or lapsed riders (maintenance)

- Behaviour reinforcement (maintenance) and an opportunity to support new and returning riders for regular riders

3. The survey

The survey was sent via email to 1300 **first-time** participants who provided email addresses when registering for Ride to Work Day 5 October 2005. First-time participants identified themselves in their Ride to Work Day 2005 registration as never having ridden to work before. The respondents were mostly (99.5%) from Victoria.

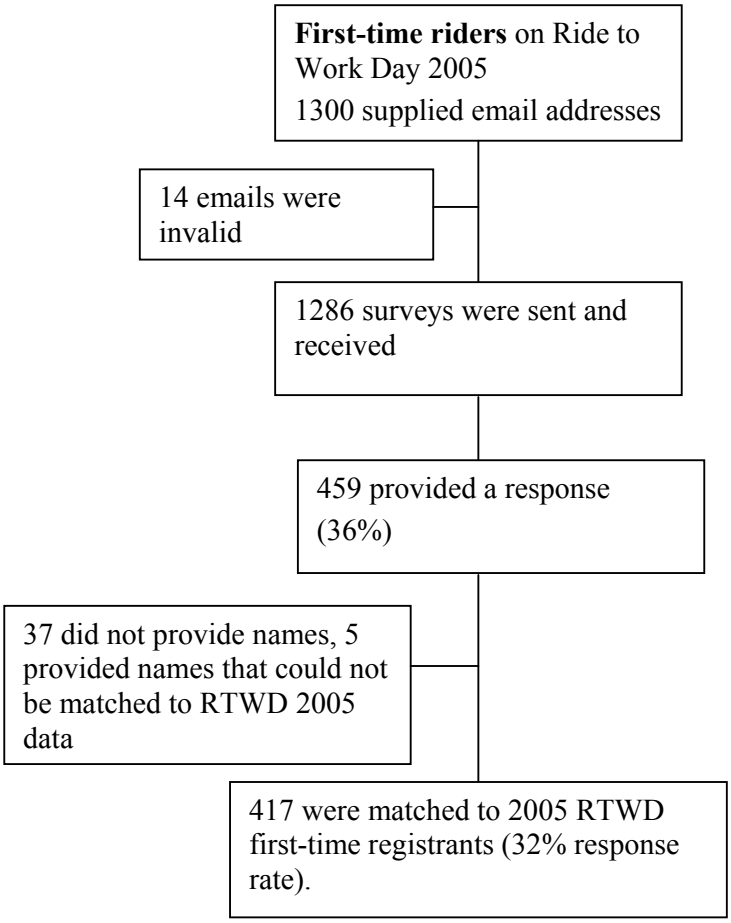
The survey was completed on line through the 'Survey Monkey' tool. The survey was implemented on Sunday 27 November 2005 with replies requested by Wednesday 30 November 2005. As an incentive to complete the survey respondents were put in the draw to win a gift voucher to the value of $145 to buy a Crumpler bag.

The survey was introduced as a '*follow-up survey. Your answers will help us to develop and improve the Ride to Work Day event in future years.'*.

Respondents were asked to report on their commuting and fitness activities in the preceding seven day period: Monday 21 November – Sunday 27 November 2005.

4. Survey results and comments

4.1. Response rate



4.2. Matched survey responses

Surveys sent and received	1,286
Matched survey responses	417 (32% response rate)

Only the results of the matched survey results are provided in this report.

4.3. Gender

Males	46%
Females	54%

4.4. Age range

Age range	Number	%
18 – 20	2	1%
21 - 30	116	31%
31 - 40	111	30%
41 - 50	86	23%
51 - 60	55	15%
61 +	5	1%
Total	375	100%

4.5. Ridden to work since Ride to Work Day 2005

Ridden to work since Ride to Work Day 2005

Yes	193	46%
No	224	54%

This is a very encouraging result and indicates that first-time participants continue the behaviour of riding to work soon after the event.

Males

Ridden	98	52%
Not ridden	90	48%

Females

Ridden	93	42%
Not ridden	130	58%

4.6. Rode in survey week

Those who rode in survey week:107 (26% of all respondents rode in survey week seven weeks after the event)

4.7. Activity level of commuter cycling

Of those who have ridden since Ride to Work Day 2005, they classified ride to work as:

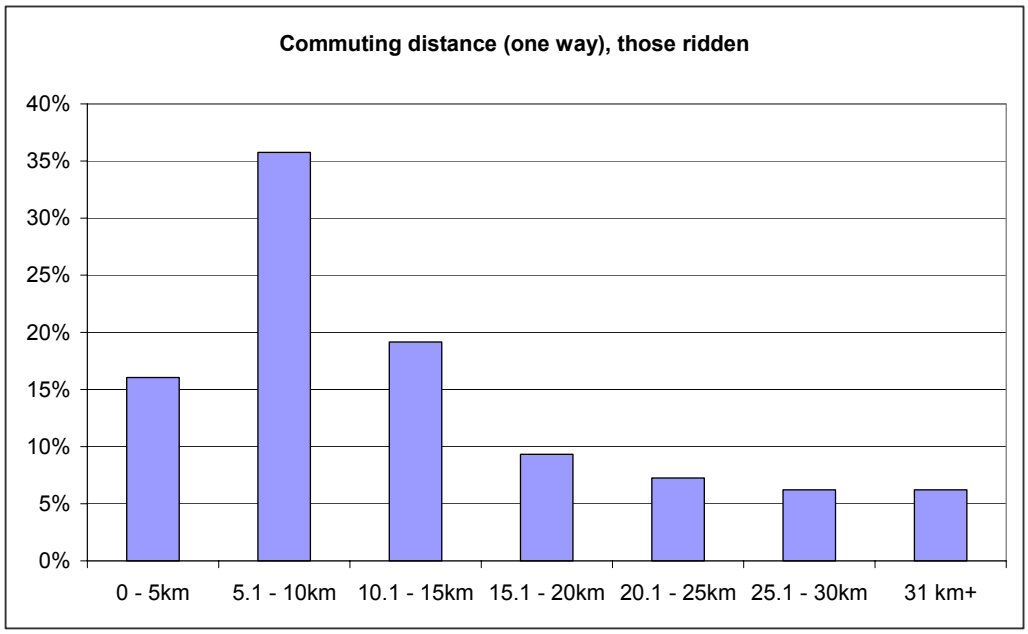
Moderate	146	69%
Vigorous	65	31%

Where the definitions used were:

Moderate: 15km/hr or less, level terrain, or with very few hills

Vigorous: 16km/hr or more, or cycling on steep uphill terrain

4.8. Riding commuting distance

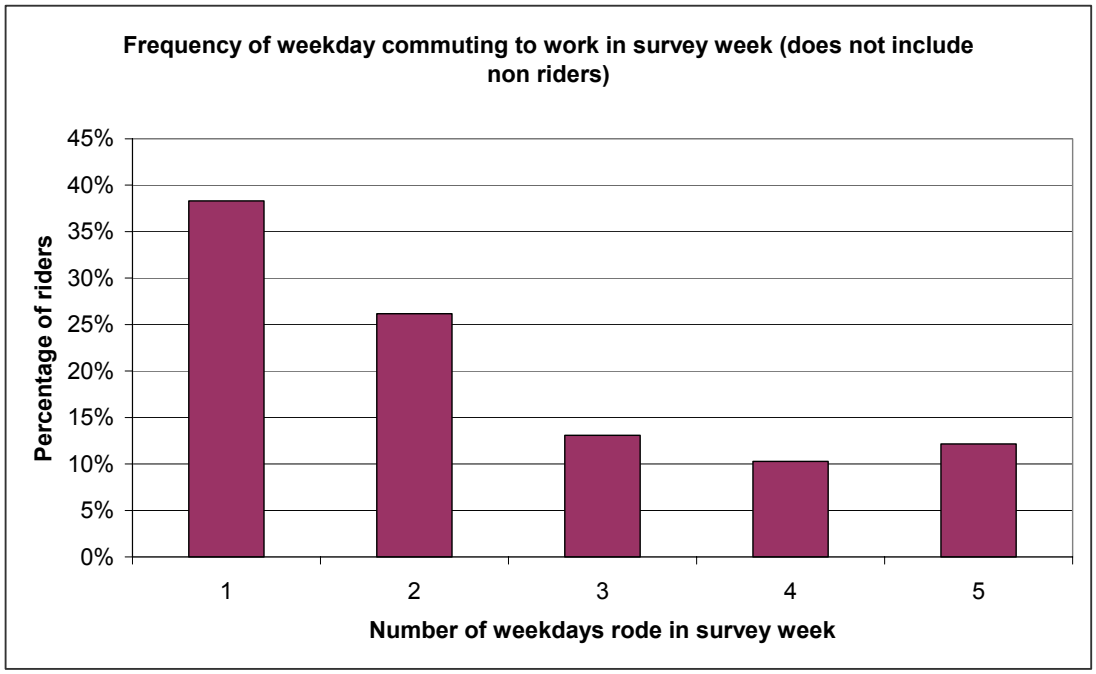


The average distance ridden (one way) for those who indicated that they had ridden since the event was 12.9 km.

Average for those ridden (one way) excluding those greater than 31km: 11.1 km.

Note that the average distance for those who have not ridden since Ride to Work Day 2005 was 14.3 (all) and 11.9 (<30 km).

Frequency of commuting by bicycle



Survey week average number of trips to work (weekdays) = 2.3

Note that this survey collected data for seven days (Monday to Sunday). The majority of respondents indicated that they 'did not work today' on Saturday (88%) and Sunday (89%).

While the numbers who did commute on Saturday and Sunday were small and not statistically significant, there appeared to be an increase in the proportion of commuter cycling for the population compared to weekday riding. This could be studied further with larger samples.

4.9. Travel modes in survey week

Based on all weekday trips

Car (alone)	32%
Bicycle	26%
Bus/Tram/Train	19%
Car (with others)	9%
No trips[1]	8%
Walk	4%
Motorbike	1%

Note that only those who indicated that they had ridden to work since the event answered this question. This only considers weekday commuting behaviour.

4.10. Weather and riding correlation

Comparing cycling trips for survey population against Melbourne weather reports[2] for that week:

	Date	Cycling trips	Minimum temperature (°C)	Maximum temperature (°C)	Rainfall (mm)	9am Temperature (°C)
Monday	21/11/2005	40	11.6	21.7	0	15.5
Tuesday	22/11/2005	62	15.2	20.9	0	17.2
Wednesday	23/11/2005	51	11.6	26.1	0	15.1
Thursday	24/11/2005	57	13.2	27.9	0	18.1
Friday	25/11/2005	38	17.7	30.5	2	21.6

There is no apparent weather correlation; the day of the week seems to have a greater impact on the number of cycling trips.

[1] No trips = did not work + work from home + worked elsewhere

[2] Source: http://www.bom.gov.au/climate/dwo/200511/html/IDCJDW3050.200511.shtml, accessed 19th December 2005, observations are from Melbourne Regional Office {station 086071}.

4.11. Changes in physical activity

Respondents were asked:

'Since commencing cycling to work on Ride to Work Day 5 October 2005, has the time you spend on other physical activities changed?'

Time spent on other physical activities has	Number	%
'Increased'	77	40%
'Remained-the-same'	112	58%
'Decreased'	4	2%
Total	193	100%

This question was only asked of those who had indicated that they had ridden to work since the Ride to Work Day event.

This result is highly encouraging as it indicates that commuter cycling is not a substitute for other activities but increases the individuals level of physical activity. Consider that the respondents are now:

Increased = commuter cycling + normal activities + additional activities

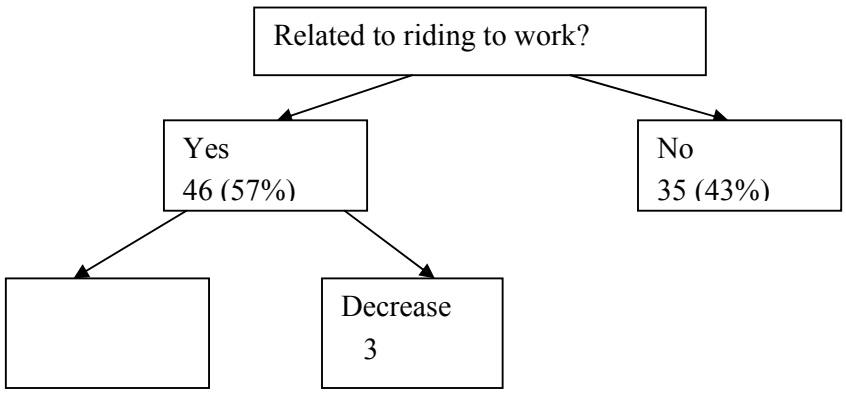
Remained the same = commuter cycling + normal activities

Decreased = commuter cycling – (some) normal activities

Following on from this question:

Is this increase or decrease in OTHER physical activity related to the fact you have commenced riding to work?

Note this question was only asked of those who had 'increased' or 'decreased' their activity levels, not the 'Remained-the-same' respondents.



Those who answered 'yes' and reported an increase were asked to `briefly explain why'. The response was open ended and the answers were ranked and coded as follows:

Fitness: their commuting cycling has made them conscious of their fitness/ increased their fitness which has lead them to undertake other physical activities	15
More energy: their commuter cycling has given them more energy to undertake other physical activities	8
Motivation: their success with commuter cycling has motivated them to undertake other physical activities	7
Feel better: commuter cycling has made them feel better and therefore undertake other physical activities	3
Convenience: commuter cycling has shown how to undertake physical activity within the workday and lead them to undertake other physical activities	2
Recreation: undertaking commuter cycling has increased their levels of recreational cycling	2
No clear reason provided	2
Health: increased in other physical activities in a desire for a healthier lifestyle	1
Greater time: commuter cycling has freed up time to increase other activities	1
Easier than thought: as commuter cycling is easier than thought, this has made other activities easier	1

Other issues mentioned included: fun, easier than thought, feeling more conscious of how I feel.

There were only three respondents who answered 'yes' and 'activity decrease' which is too small a sample size to draw any conclusions.

4.12. Physical activity questions

All respondents were asked to complete a standard physical activity questionnaire from The Active Australia Survey to report their physical activity in the survey week, Monday 21st November – Sunday 27th November 2005. Note that the standard questions were slightly modified. The standard survey uses self-reporting to measure participation in *leisure-time* physical activity (including walking, vigorous gardening or yard work and other vigorous or moderate physical activity). The modified question used asked respondents to include '*ANY physical activities*' and '*INCLUDE*

TRAVEL TO WORK activities where relevant'[3]. The categories in the survey were identical to the Active Australia survey which gives '*cycling*' as an example of vigorous activity but does not give cycling as an example of moderate activity (examples used are gentle swimming, social tennis, golf).

4.13. Physical activity calculations

As per reporting measures supplied for The Active Australia Survey questions[4] the measure of physical activity was measured as:

Sedentary: Sufficient time = 0

	Sessions < 5	Sessions >= 5
1<Sufficient time<149	Insufficiently active	Insufficiently active
Sufficient time >=150	Insufficiently active	Sufficiently active for health

There are some problems with this measure in that it assumes each session is undertaken on a different day. Further, the length of time spent on each session is unknown. Therefore the activity may not equate to 30 minutes per day over 5 days. However, it is the best approximation to the guidelines available using the current survey questions.[5]

The total time calculated by adding the time spent walking and in moderate activity with twice the time spent in vigorous activity (not gardening or yard work). The time spent in vigorous activity is doubled because vigorous activity is more intense and so confers greater health benefits than moderate activity (Armstrong et al. 2000)[6]

The calculation of sufficient time is:

Where sufficient time = walk time + moderate time + (2 X vigorous time)[7]

Note that in the calculations 'vigorous' activity is counted as twice that of 'moderate' activity.

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[3]The Active Australia Survey, The Active Australia Survey asks about walking briskly including 'to get from place to place', the other categories are 'moderate leisure activities', 'vigorous leisure activities' and 'vigorous household or garden chores'. As such the focus is on leisure activities and while it appears to exclude work based activities it is not quite clear how commuting activities are included/excluded.

[4] The Active Australia Survey, Chapter 4. Analysis and reporting of survey data, page 10-18.

[5] Ibid, page 16.

[6] Ibid, page 15.

[7] Ibid, page 15.

Also total times of all activities greater than 1680 (28 hours) were reported as 1680 minutes.[8] In this survey this occurred in 19 cases out of 415 or 5%. This figure did not affect any of the results.

4.14. Physical activity results

Results	Sedentary	Insufficient	Sufficient	Total %
All responses	0%	14%	86%	100%
All not riding since RTWD	0%	16%	84%	100%
Riding since RTWD	1%	11%	88%	100%
Male	0%	13%	87%	100%
Female	0%	14%	85%	100%
Riding males	0%	10%	90%	100%
Riding females	1%	13%	86%	100%
Not riding males	0%	16%	84%	100%
Not riding females	0%	16%	84%	100%
Compared to Figure 3.10[9]				
Male	54%		46%	100%
Female	55%		45%	100%

These results indicate that the respondents to the survey generally were active. The activity difference between male non riders and riders is not significant, nor is this difference for females. This would seem to indicate that from this survey first-time participants in Ride to Work Day are already more active than the Australian population surveyed by the 2000 Physical activity survey.

[8] Ibid, page 15.

[9] Proportion of adults undertaking insufficient or no physical activity, 2000, page 147, Chapter 3 Determinants of health, Australia's Health 2004. There is also Figure 3.10 Proportion of adults undertaking insufficient or no physical activity, 2000 which provides male/female data split into age groups. This survey data split into age groups and gender produces sample sizes which are too small for analysis.

5. Comments on physical activity results

5.1. Underreporting of riding

Of major concern in reporting the physical activity survey results is that when a simple cross check was done comparing reported riding and reported physical activity there was significant underreporting (26% vigorous, 27% moderate). These were significant (in the order of hours) underreporting per respondent. This indicates that the survey methodology was flawed and the results may indicate an underreporting of activity by the riders.

Raw data across the survey was compared to see if there was a tendency to underreport of riding activity in the survey.

Riding intensity and time period measured by:

the type of ride the person selected (ie vigorous or moderate) X by the time taken (one way) X by the number of trips in the sample week.

Vigorous activity time (for those who cycled vigorously) and Moderate activity time (for those who cycled moderately) were compared separately.

There were several cases of underreporting. This is where the riding amount of time calculated was greater than the activity level reported. This was in both those who rode vigorously (26% under reported) and moderate (27% under reported). The extent of under reported time was high (ie hours rather than minutes).

Reasons for underreporting could be:

- respondents did not understand question, thinking that riding information already provided did not need to be included in this section. This results in underreporting of physical activity.
- Respondents could not accurately report on this information even though they understood that they had to include riding behaviour already mentioned.
- Respondents did not include activities that related to commuting and only included leisure activities.
- This issue could be linked by the standard wording of the Physical activity survey which only gives cycling as an example of vigorous activity.

These results indicate that these questions should be reconsidered in future surveys.

6. Recommendations

There are links between take-up of commuter cycling as part of Ride to Work Day and health and fitness benefits. This was the first survey carried out by Bicycle Victoria to measure the links. The survey used questions from the Active Australia Survey and was implemented seven weeks after Ride to Work Day 2005.

Whilst the survey provided useful evidence of travel behaviour change and an increase in overall physical activity, there were limitations in using the Active Australia survey questions.

One of the major concerns of using the Active Australia survey questions was the underreporting of commuter cycling in the survey responses. This could indicate that the survey in its current form is not the best tool with which to measure the health and fitness benefits of commuter cycling.

Other health measurements could build on the findings of this preliminary survey. Possibilities include:

- Physical health checks of first-time riders before and after the event (eg cholesterol checks) to measure changes in fitness and health linked to behaviour change

- - Physical activity survey (or appropriately modified survey format) conducted upon registration and then following the event to monitor changes in activity levels.

Further studies will further enhance the findings of this preliminary survey.

7. Appendices

This lists the Appendices only. Please contact Bicycle Victoria for details on any required Appendices.

7.1. Related reports

Australia's Health 2004, Australian Institute of Health and Welfare (AIHW), 22 June 2004

The Active Australia Survey, Australian Institute of Health and Welfare (AIHW), 24 April 2003

Ride to Work and Beyond!, Report of follow-up survey of Ride to Work Day 2004 registered participants, 7-11 March 2005, 2005

Ride to Work Day 2005 Ride to Work Day 5 October 2005, Post-event Report, December 2005

7.2. Survey

Ride to Work Day 2005 physical activity follow-up survey with first-time participants