



# Health and Cycling

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# Cyclists live longer

- *3 hours cycling to work per week decreased risk of mortality by 39%*
- *Older people benefit more*
  - *Study of 30,000 people over 14 years*
    - *Anderson, Lars Bo “All-Cause Mortality Associated With Physical Activity During Leisure; Time, Work, Sports and Cycling to Work” Archives of Internal Medicine Vol 160 No. 11, June 12, 2000:  
<http://archinte.ama-assn.org/issues/v160n11/full/ioi90593.html>*



# Cholesterol and heart attacks

- *“Cycling 100 Trial” 1999*
  - *Replaced some car trips to work with bicycle commuting.*
  - ↑ *physical work capacity, aerobic fitness, HDL cholesterol*
  - ↓ *LDL cholesterol, risk of heart attacks and strokes*
    - *Department of Environmental Protection: [www.environ.wa.gov.au](http://www.environ.wa.gov.au); BikeWest: [www.transport.wa.gov.au/metro/bikewest](http://www.transport.wa.gov.au/metro/bikewest)*



# Overweight and obesity

- *Men who cycle to work less likely to be overweight and obese than those driving to work*
- *Men who take public transport to work are significantly less likely to be overweight and obese*
  - *Preventive Medicine.*



# Weight loss

- *Women who lost 10% of their body weight and kept it off over 2 years exercised 1 hour per day.*
  - *article:*  
<http://www.time.com/time/printout/0,8816,1827342,00.html>;  
*abstract:*  
<http://archinte.ama-assn.org/cgi/content/short/168/14/1550>
- *Fat loss > 10% because some fat replaced by muscle.*



# Fit and fat better than unfit and unfat

- *Lowest fifth for fitness had a death rate four times higher than top fifth for fitness.*
- *People who were fit, but were overweight or obese, had a lower mortality risk than those of normal weight but low fitness levels,*
  - Journal of the American Medical Association
- You can be fat AND healthy
  - Dick Telford, adjunct medical professor, Australian National University



# Cancer

- *Lack of physical activity explains:*
  - *1/4 colon cancers*
  - *12% of breast cancer risk*
    - *Jane Dixon and Sarah Hinde,  
National Centre for Epidemiology and Population Health*
- *1/2 hour cycling a day increases survival among men by 33%*
  - *British Journal of Cancer, 28 May 2008, from Kinect Australia Active Media Bulletin July 2008:  
<http://www.medicalnewstoday.com/articles/108930.php>*



# Diabetes, stroke, bone fractures

- *Lack of physical activity explains:*
  - *1/4 of diabetes deaths*
  - *15% of ischaemic stroke*
  - *10-16% of hip fractures*
  
- *Jane Dixon and Sarah Hinde*  
*National Centre for Epidemiology and Population Health*





# Mental Health

- “Patients of all ages with mild depression should be advised of the benefits of following a structured and supervised physical activity programme”
  - *Guidelines for treatment of depression (NICE, 2004)*  
1.4.1.4 *Physical activity*
- *Four avenues for Physical Activity*
  - *Prevent poor mental health*
  - *Treat mental disorders*
  - *Improve mental health*
  - *Improve quality of life of individuals with mental disorder*
    - *Guy Faulkner, PhD, Uni of Toronto*



# Social exclusion

- *Mental health service users are likely to be poor, unemployed, living in substandard housing, and socially isolated*
  - *Sainsbury Centre for Mental Health, 2002*
- *Cycling offers*
  - *affordable, independent mobility*
  - *access to services and social activities*



# Suicide and depression

- *2,101 Australian deaths from suicide registered in 2005*
  - *ABS 3309.0 - Suicides, Australia, 2005*
- *30 minutes running on a treadmill or riding a stationary bicycle, 3-5 times a week*
  - *depressive symptoms ↓ 47% over 12 weeks.*
  - *Lower-intensity physical activity or stretching and flexibility exercises, ↓ 29%-30%*
  - *more likely to lead to recovery than psychotropic medication*
    - *Duke University, University of Texas :*  
*[http://www.bendbulletin.com/apps/pbcs.dll/article?AID=/20071220/NEWS0107/712200310/1006&nav\\_category=](http://www.bendbulletin.com/apps/pbcs.dll/article?AID=/20071220/NEWS0107/712200310/1006&nav_category=)*



# Cycling and Mental Health





# Road trauma

- *>1,600 people died on Australia's roads in 2007.*
  - *Virtually all were killed by motor vehicles.*
- *Car at 50 km/h carries 50 × kinetic energy of a bicycle and rider at 25 km/h*
  - *can cause 50 × damage*



# Switch from driving to riding to change personal risk profile

↓ *risk of death or injury from  
cardiovascular disease etc.*

↑ *risk of death or injury  
(per km travelled)*

↓ *risk of causing death or injury to others*



# Switch from driving to riding to change personal risk profile

- *Ratio of benefit of cycling to risk involved is 20:1.*
  - British Medical Association “*Cycling Towards Health and Safety*” 1992, Oxford University Press: Oxford:  
<http://www.demon.co.uk/southern/bug/bikelife.html>
- *Physical risk associated with cycling (i.e. accidents) and costs of providing cycling facilities is far outweighed by the health and environmental benefits.*
  - Ian Roberts, et al. “*Pedalling Health – Health Benefits of a Modal Transport Shift.*” 1995: <http://sciweb.science.adelaide.edu.au/sundries/ph.nsf>



# Exhaust pollution associated with ...

- *asthma, bronchitis, alveolitis*
- *cardio-vascular disease*
- *physical activity-induced heart damage*
- *limited blood flow and increased blood clotting*
- *increased mucous production and airway hyper- responsiveness*
- *lung cancer & accelerated tumour growth*
- *premature death*
- *significant risk of ovarian cancer*
- *symptoms of anaemia e.g., tiredness, headaches, fatigue and shortness of breath.*





# Exhaust pollution associated with ...

- *low birth weight and small head circumference of neonate.*
- *intra-uterine growth retardation*
- *certain leukaemias*
- *Loss in productivity, absenteeism from work and school.*
- *increased sensitivity to bacterial products in airways*
- *more severe common viral asthma*
- *reduced male fertility*
- *adverse effects on lung development for age 10 – 18 years*
- *cardiovascular and respiratory diseases*

■ *Assoc. Prof. Ray Kearney,*

*Dept. of Infectious Diseases and Immunology, The University of Sydney*



# Health Impacts of Transport Emissions

- *In the year 2000, motor vehicle-related ambient air pollution accounted for:*
  - *900 - 4500 morbidity cases*
    - *cardio-vascular and respiratory diseases and bronchitis*
  - *900 and 2000 early deaths.”*
  
- *BTRE working paper 63: Health impacts of transport emissions in Australia: Economic costs, 2005.*



# Exposure to traffic-related air pollutants

- Motorist breathed 60% more carbon monoxide
  - despite cyclist breathing 2-3 times as much air as motorist
- Other pollutants significantly lower in cyclists.
- Physical exercise also assists in resisting the effects of air pollution.

Van Wijen, Verhoeff, Henk, Van Bruggen. *The exposure of cyclist, car drivers and pedestrians to traffic-related air pollutants.*

In “*Cycling: the way ahead for towns and cities.*”

[http://europe.eu.int/comm/environment/cycling/cycling\\_en.htm](http://europe.eu.int/comm/environment/cycling/cycling_en.htm)

Environmental Health 67 pp 187-193



# Global warming

## ■ Health impacts

- ↑ malnutrition and consequent disorders
- ↑ deaths, disease and injury
- ↑ diarrhoeal disease
- ↑ cardio-respiratory diseases

## ■ *Climate stability requires global emissions reduction from 5 tonnes CO<sub>2</sub>-e/person/year, to 2 tonnes*

- *Australian emissions 3 tonnes per person, from road transport alone*

## ■ *Cycling can replace car trips and reduce global warming*



# A Pedalling Prescription

- *10% of Australian adults cycle*
- *4<sup>th</sup> most popular form of physical activity*
  - *after walking (36.2%), aerobics/fitness (19%) and swimming (14%).*
- *More popular than tennis (7%), dancing (2.4%) or martial arts (1.8%).*
  - *Standing Committee on Recreation and Sport, Participation in Physical activity, Recreation and Sport Survey 2006 Annual Report*



# Low cost.

- *Most households already have a bicycle.*
- *Bicycle costs about the same as basic gym membership.*
- *A bicycle can take you 5-10 km for the cost of a bus fare.*
- *Cheaper than a car*
  - *Save around 10c/km, just on running costs*
  - *~\$20,000 cheaper to buy*
  - *>\$1,000 cheaper per year to register and insure.*



# Exercise while you travel

- *to work, to school, to the shops, to recreational activities*
  - *even to and from the gym!*
- *3x as fast as walking*
  - *for trips beyond walking distance.*
- *Faster than public transport*
  - *no walking or waiting times.*



# Faster than you think

- *People underestimate car travel time*
- *NRMA Travel Planner times ignore*
  - *Traffic congestion*
  - *Time required to find a park*
  - *Time required to walk from the car to your final destination*
  - *Time spent working, to pay for car costs*
- *NRMA and actual travel times (minutes), Canberra morning traffic*

	<i>NRMA</i>	<i>Car</i>	<i>Bicycle</i>
■ <i>Dickson-Civic (4 km)</i>	<i>5½</i>	<i>20</i>	<i>8-16</i>
■ <i>Gungahlin-Civic (14 km)</i>	<i>17½</i>	<i>25</i>	<i>20</i>
■ <i>Downer-Woden via GPO (13.5 km)</i>	<i>19</i>	<i>45</i>	<i>35</i>
■ <i>Downer-Mawson (16 km)</i>	<i>21</i>	<i>30</i>	<i>40</i>





# Lifescrpts Resources

**PHYSICAL ACTIVITY** **Your prescription for an active lifestyle**

Date: \_\_\_\_\_ Date of birth: \_\_\_\_\_

Patient's name: \_\_\_\_\_

**Your activity assessment**

**Low** – your activity level is not high enough to promote health

**Nearly there** – your activity level is not quite high enough to maximise health benefits

**Regular activity improves energy and vitality.**

For your **health and well-being**, I recommend:

Walking (briskly enough to notice a moderate increase in breathing or pulse) and/or:

<input type="checkbox"/> swimming	<input type="checkbox"/> strength training
<input type="checkbox"/> gentle exercise classes	<input type="checkbox"/> tennis
<input type="checkbox"/> dancing	<input type="checkbox"/> tai chi
<input type="checkbox"/> gardening	<input type="checkbox"/> other: _____

How much: 



# Pedal Power training and support

- *Confidence to ride independently anywhere, any time*
  - *Adult learn-to-ride*
  - *Bike maintenance courses*
  - *New Horizons for women*
- **Cycling insurance**
  - *personal and third party*
- *Canberra Cyclist* magazine, E-bulletin, Website
- **Ride to Work** program



# Pedal Power social rides and events

- *Social inclusion is a benefit to users of mental health services*
- *Weekend and midweek social rides, every week*
- *FITAbility - vision-impaired people riding tandems*
- *Monthly social nights*
- *Big Canberra Bike Ride*
  - Fitz's Challenge*
  - Gear Up Girl*



# Pedal Power Advocacy

## ■ Successes

- *Off-road cycle paths and on-road cycle lanes*
- *Bike racks on buses*
- *End of trip facilities for new buildings*
- *Development of standards for cycling facilities.*

## ■ Campaigns

- *Fill in the missing links in bike routes*
- *Route signage, so people can find their way*
- *Maintaining cycle paths*



# Peddle Pedals, not Drugs

- *Prescribe physical activity where appropriate*
- *Pedalling Prescription*
  - *appropriate, convenient and cost-effective physical activity*
- *Additional benefits*
  - *especially for public health*
- *More people cycling, more often, for a better community*