

Meeting health objectives through your local travel plans

Driven to extinction?

How transport policy can save the world

Transport, Health and Climate Change

Conference

SUSTRANS

Sept 12th, 2005



Professor Ken Fox

Exercise and Health Sciences

University of Bristol, UK

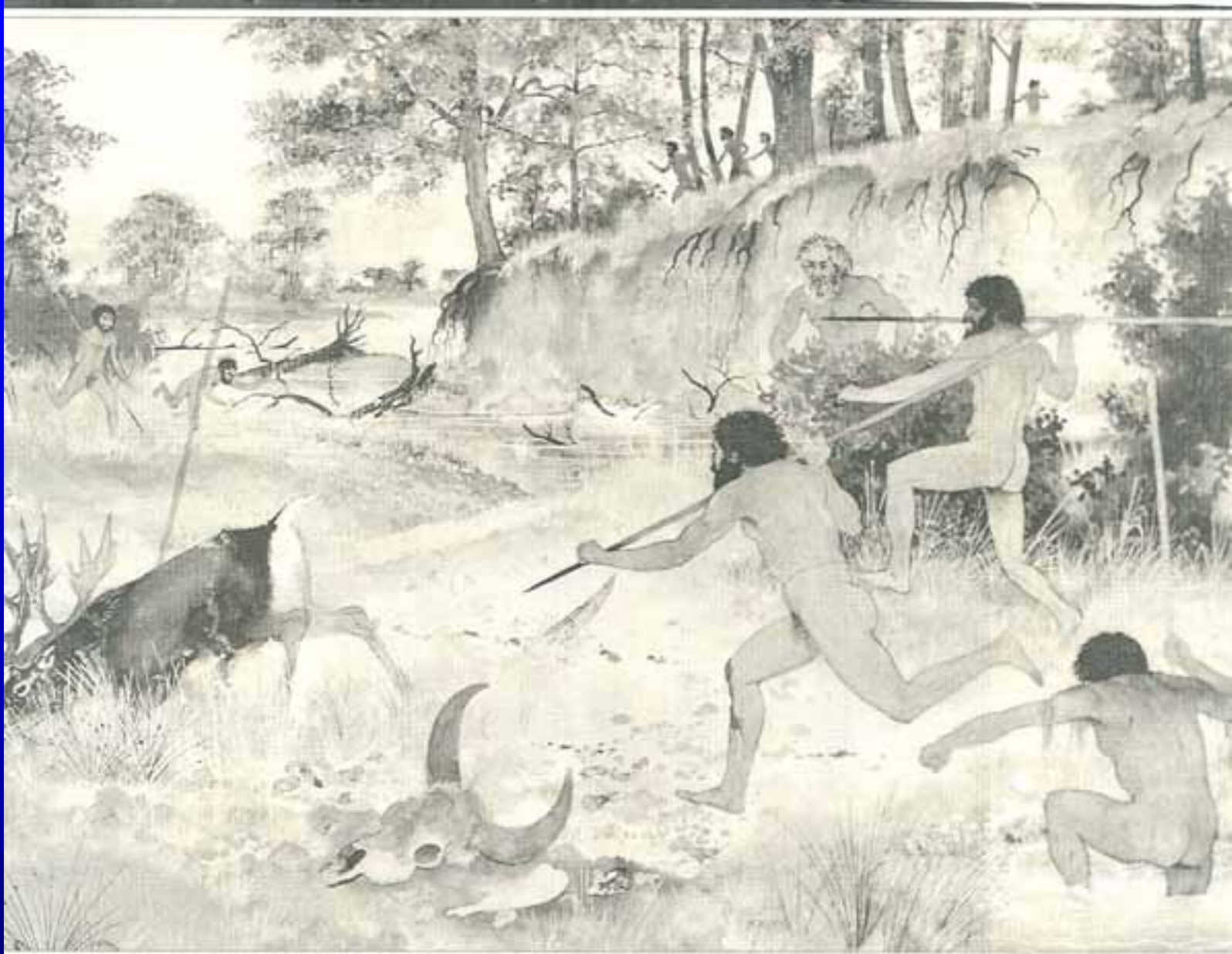
The health benefits of physical activity

Disease

Fitness

Mental well-being

Pollution



Hunters at Swanscombe in Kent 250,000 years ago - some 70,000 years before people disappeared from Britain Illustration: Natural History Museum









Lightweight and comfortable to use, this wooden battery-operated pepper mill takes the effort out of pepper grinding. No need to twist: simply press the button at the top for perfect results. It costs £29.95 from Jerry's Homestore. Call

0171-581 0909 for further details.



Who was
A girl called
crush on w
to the sam
to the milk
we had eve
Do you re
passionate

It was w
called
the e
home
had k
Who
hea
A gir



Biological and cultural mismatches to the technicised environment



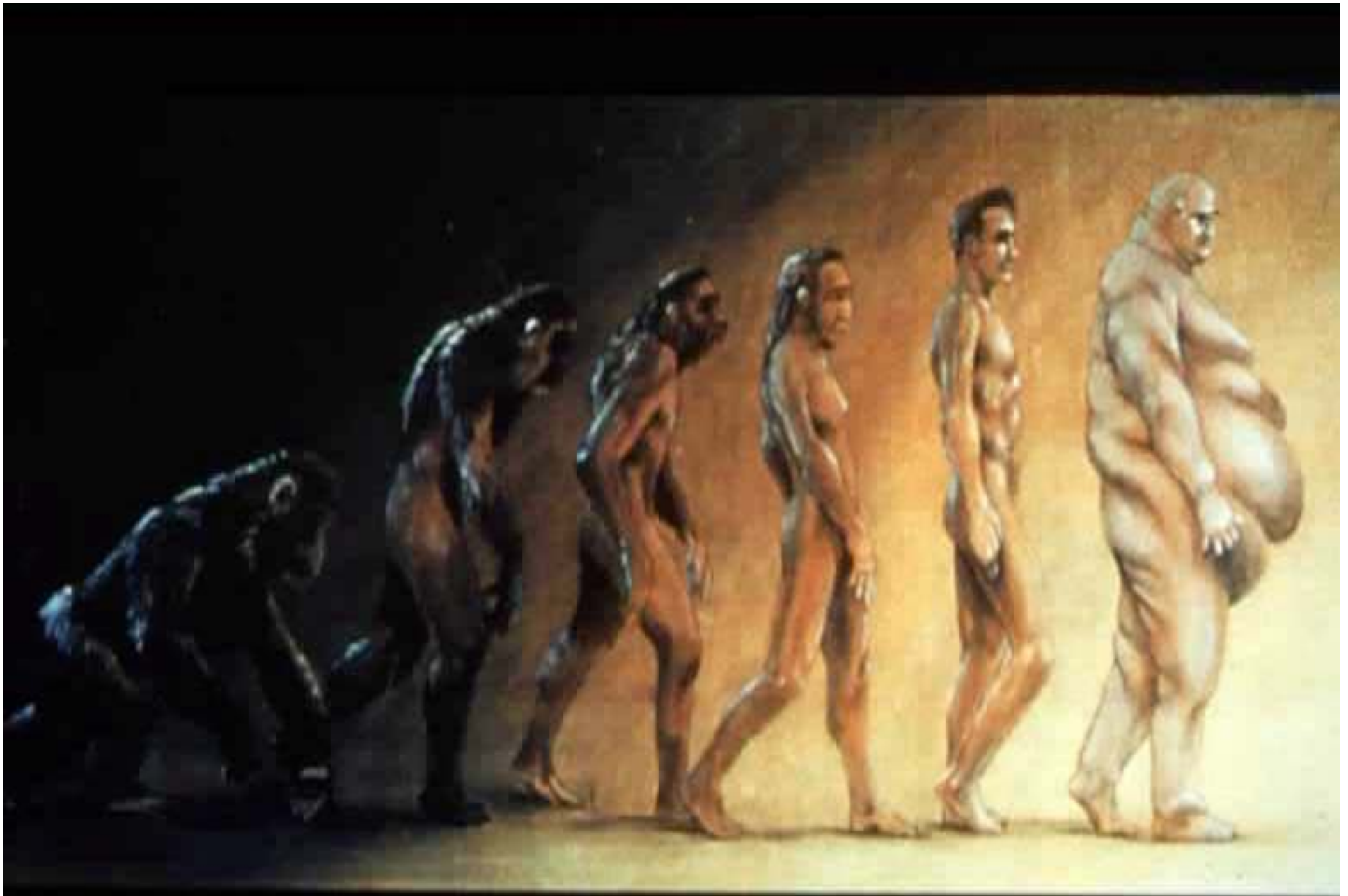
FOOD

- Strong signals to eat
- Weak signals to stop
- Increased availability
- Eating is rewarding
- No viable alternatives
- Eating well is high status



ACTIVITY

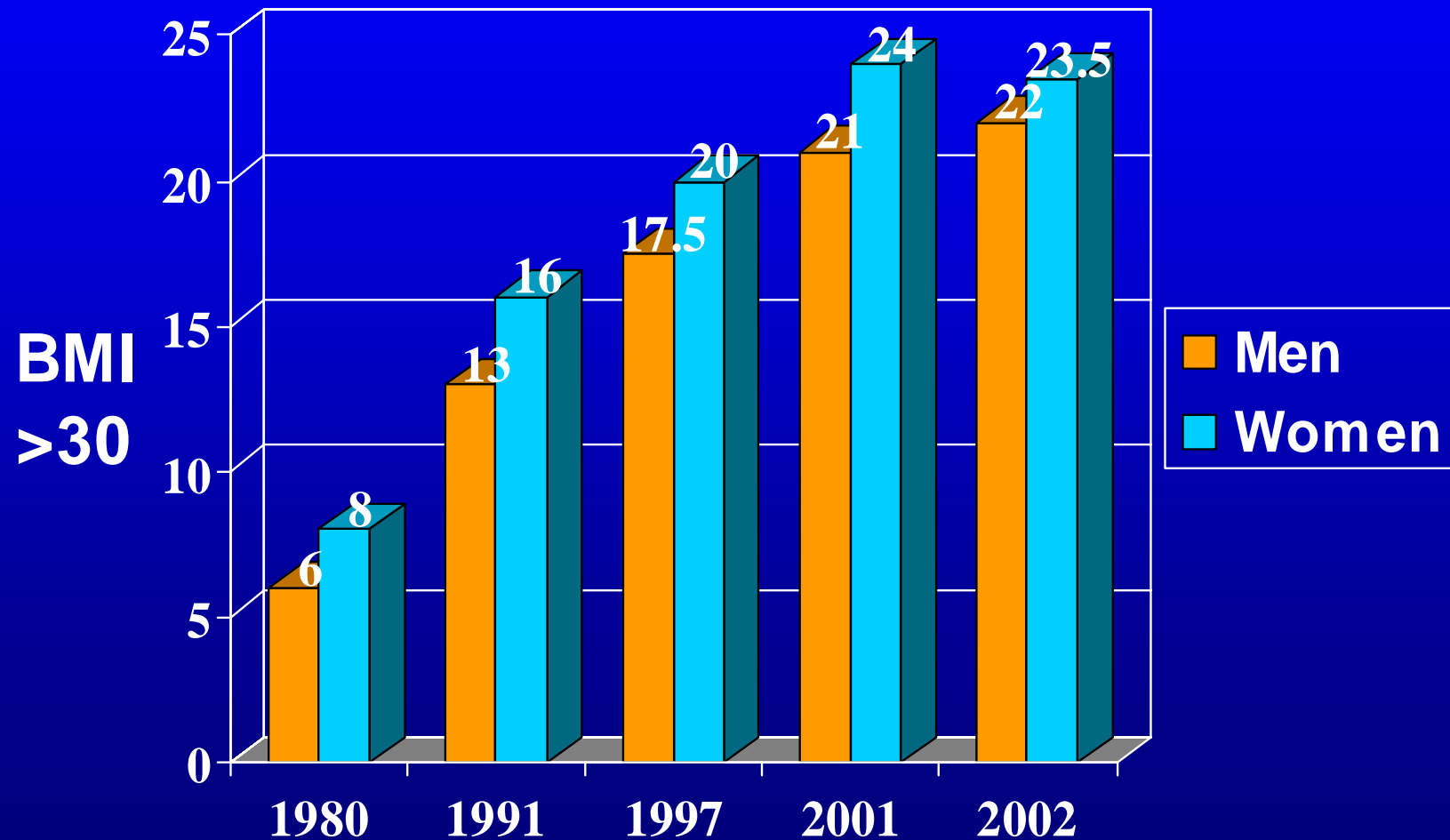
- Weak activity signal
- Strong signals to stop
- Reduced availability
- Inactivity is rewarding
- Inactivity is a viable alternative
- Inactivity is high status



Eight million years

20 years!

The Rising Epidemic of Obesity



World Health Organisation

(2002, 2004)

Consequences of low activity:

- 23% of ischaemic heart disease
- 16% of colon cancer
- 15% of diabetes mellitus
- 12% of stroke
- 11% of breast cancer

Chief Medical Officer's Report April, 2004

Dh.gov.uk/publications



At least five a week

Evidence on the impact of physical activity
and its relationship to health

A report from the Chief Medical Officer



Physical activity and health outcomes:

Overall picture from the CMO report

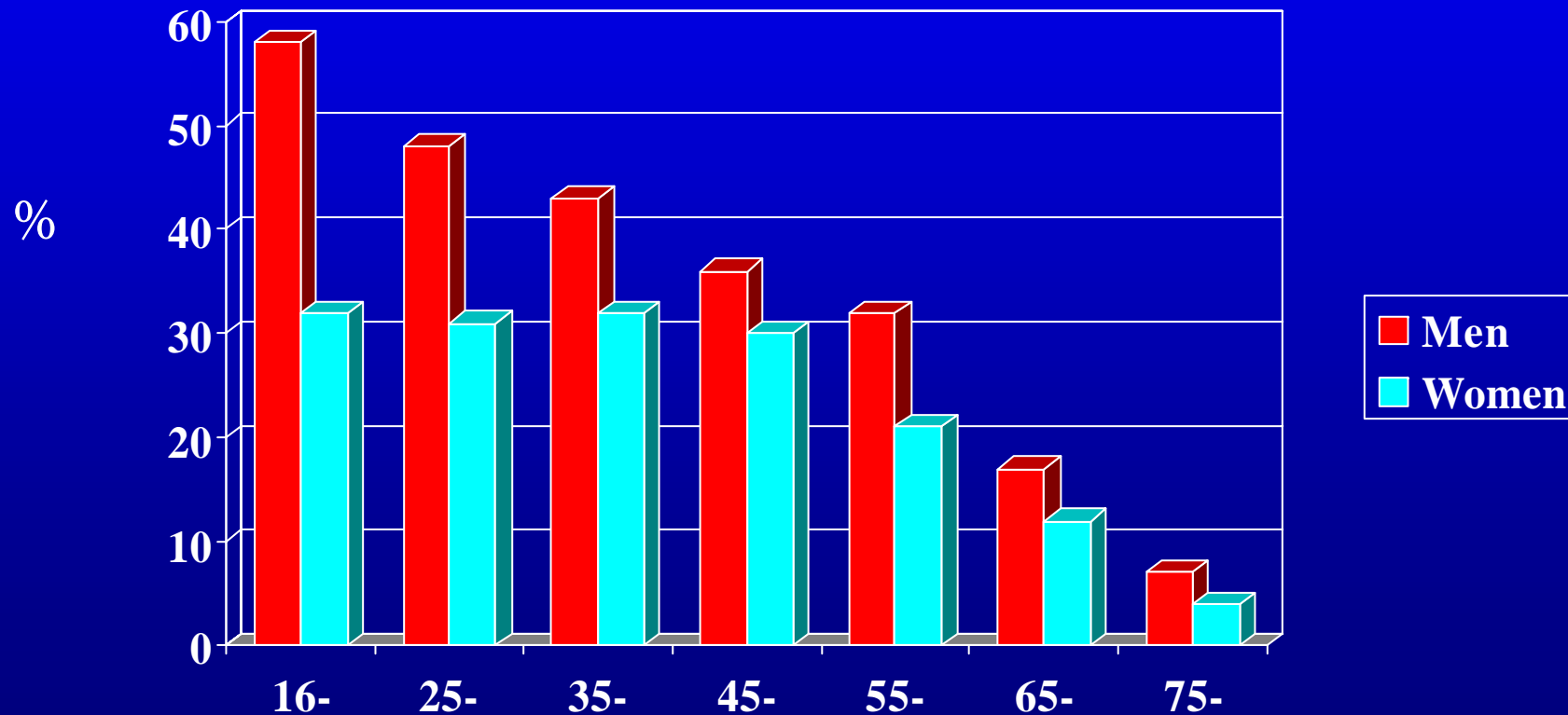
	PREVENTION		THERAPY	
	Evidence	Effect	Evidence	Effect
CHD	High	Strong	Medium	Moderate
Stroke	High	Moderate	Low	Weak
Obesity	Medium	Moderate	Medium	Moderate
Cancer (colon,breast)	Medium	Moderate	-	-
Diabetes	High	Strong	Medium	Weak
Musculo-skeletal	Medium	Moderate	Medium	Moderate
Mental health	Low	Weak	Medium	Moderate

Physical activity and mental health outcomes:

	PREVENTION		THERAPY	
	Evidence	Effect	Evidence	Effect
Clinical depression	Low	Weak	Medium	Moderate
Other mental illness	Not enough data	-	Low	Weak
Mental well-being	-	-	Medium	Moderate
Mental function	Low	Moderate	Low	Weak
Social well-being	-	-	Low	Weak

Population percentage reporting recommended levels of activity

1998 Health Survey for England



What do we need to do about it?

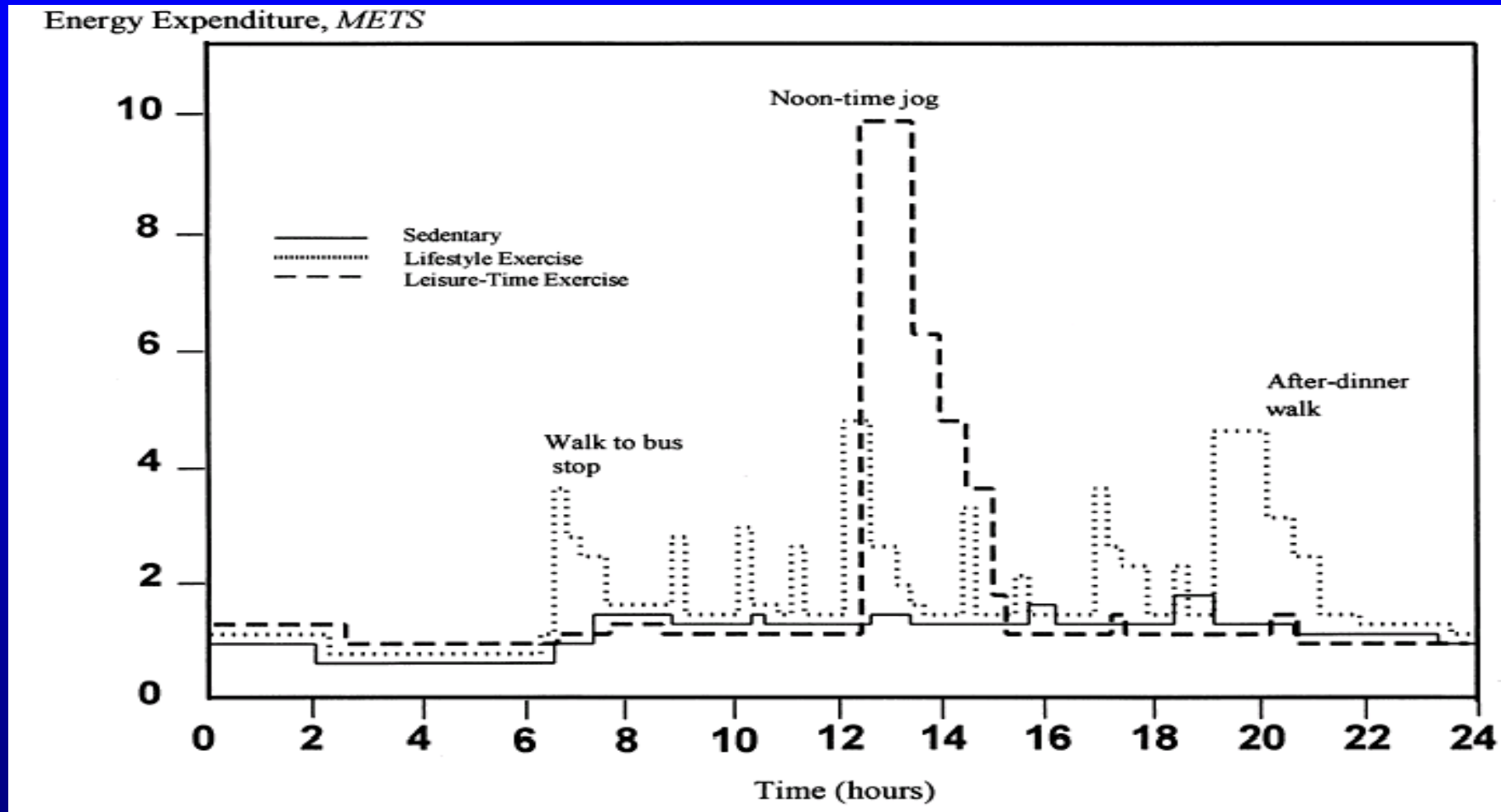
Recommendations for physical activity for public health

(DH, 2004)

- Achieve at least 30 minutes of moderate intensity physical activity on five or more days each week
- This generic recommendation can be modified for
 - prevention and treatment of different disease conditions
 - specific populations such as older people and children



Lifestyle versus structured patterns of activity



(Blair, Kohl, & Gordon, 1992)

The effect of short bouts of activity (accumulating 10-15 min bouts)

- 10 minute bouts of moderate physical activity increase aerobic fitness and reduce fat in overweight sedentary people
- Evidence for reduced blood pressure and improved lipids is weak but follows a similar pattern to longer bouts
- Total volume of activity (regardless of intensity and bout length) is associated with reduced risk of disease
- 10-15 minute bouts of walking positively influence mood and increase energy

Pedometers?:

How many steps a day are enough?

(Tudor-Locke & Bassett, 2004)

In healthy adults:

STEPS/DAY

< 5000	Sedentary	Inactive and no exercise
5000-7499	Low active	Exercise or lifestyle activity
7500-9999	Somewhat active	Exercise and LA
10000-12499	Active	Exercise ² and/or LA ²
> 12500	Highly active	Exercise ³ and/or LA ³

Start with a target of 3-4000 more steps per day

Physical activity in an old order Amish Community

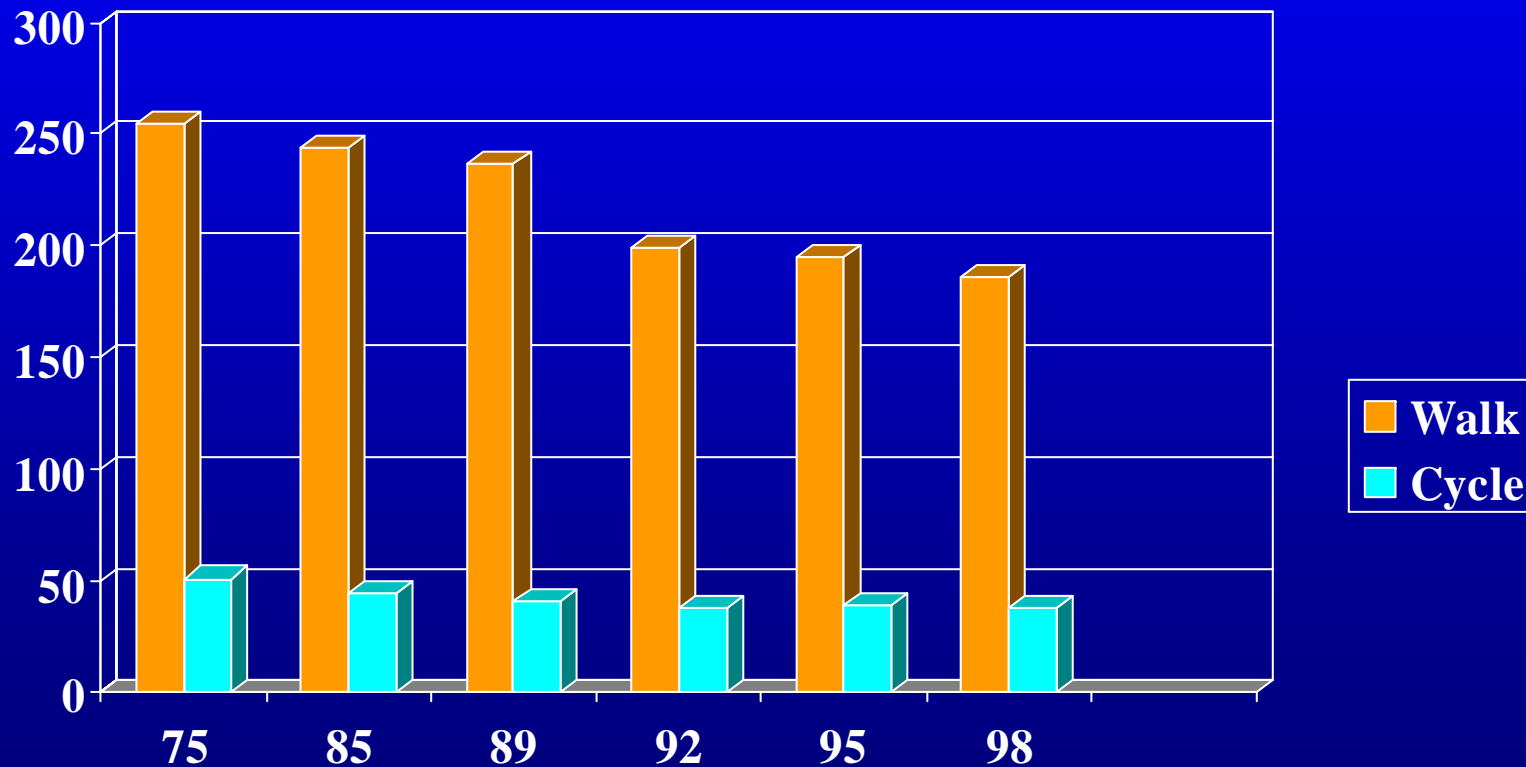
(Bassett et al., MSSE, 2004)



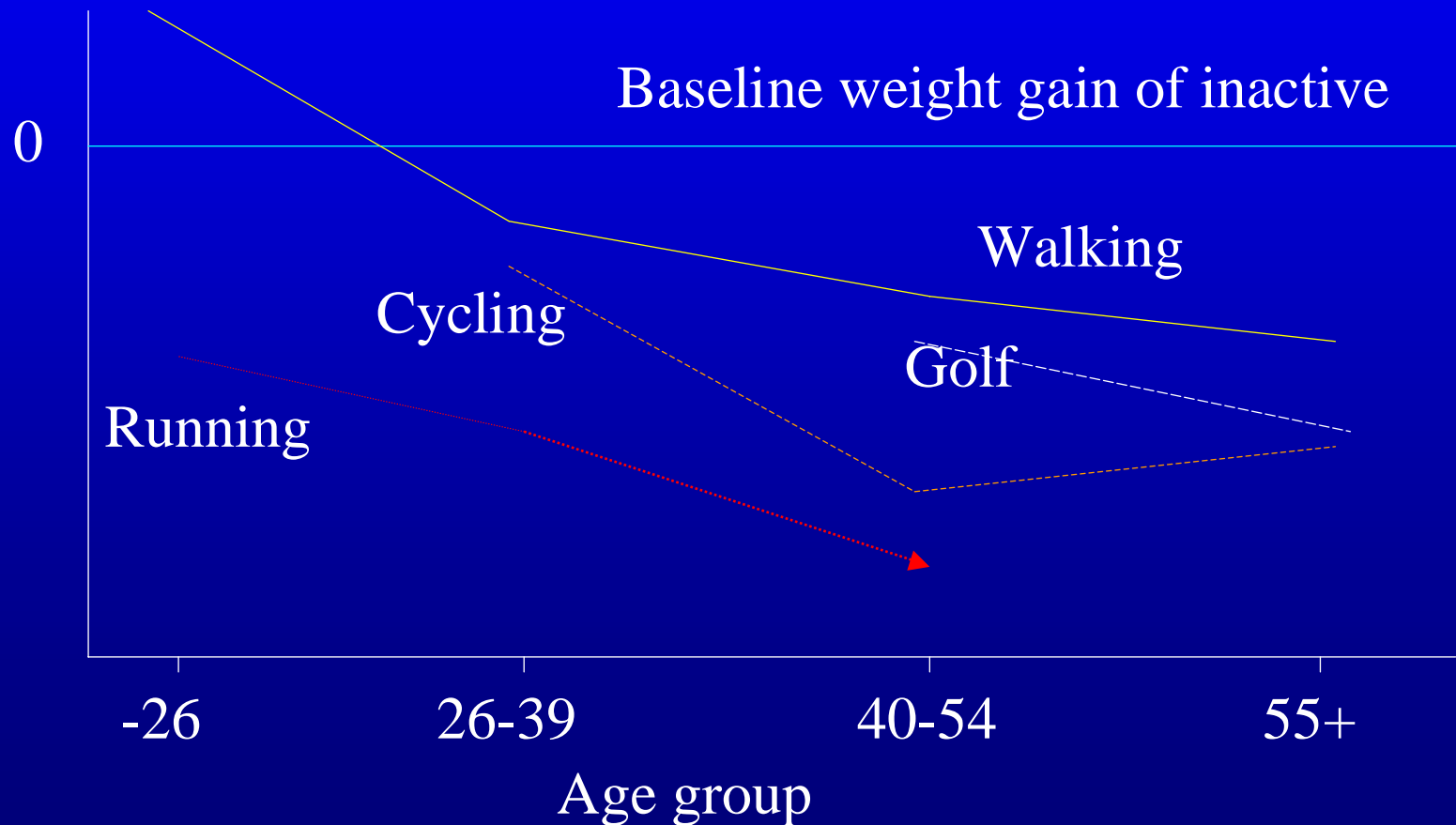
- No cars or electrical appliances
- Labour intensive farming
- Sample of 98 adults
- Men 18,425 s/d 25% o/w 0% obese
- Women 14,196 s/d 27% o/w 9% obese

Trends in miles walked and cycled per year in adults

(Dept of Transport, 2000)



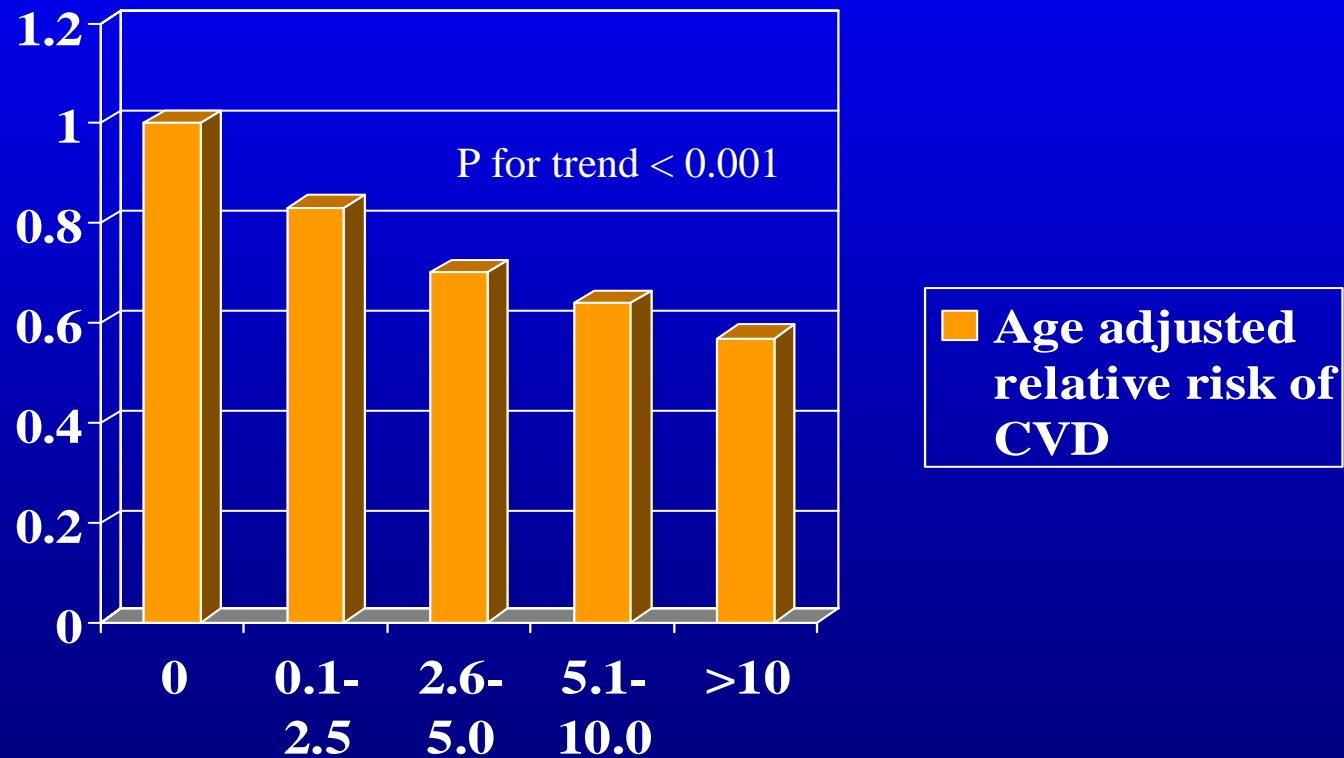
Attenuated weight gain with recreational physical activity: MEN



NHANES Study, USA

Walking volume and health benefit: Women

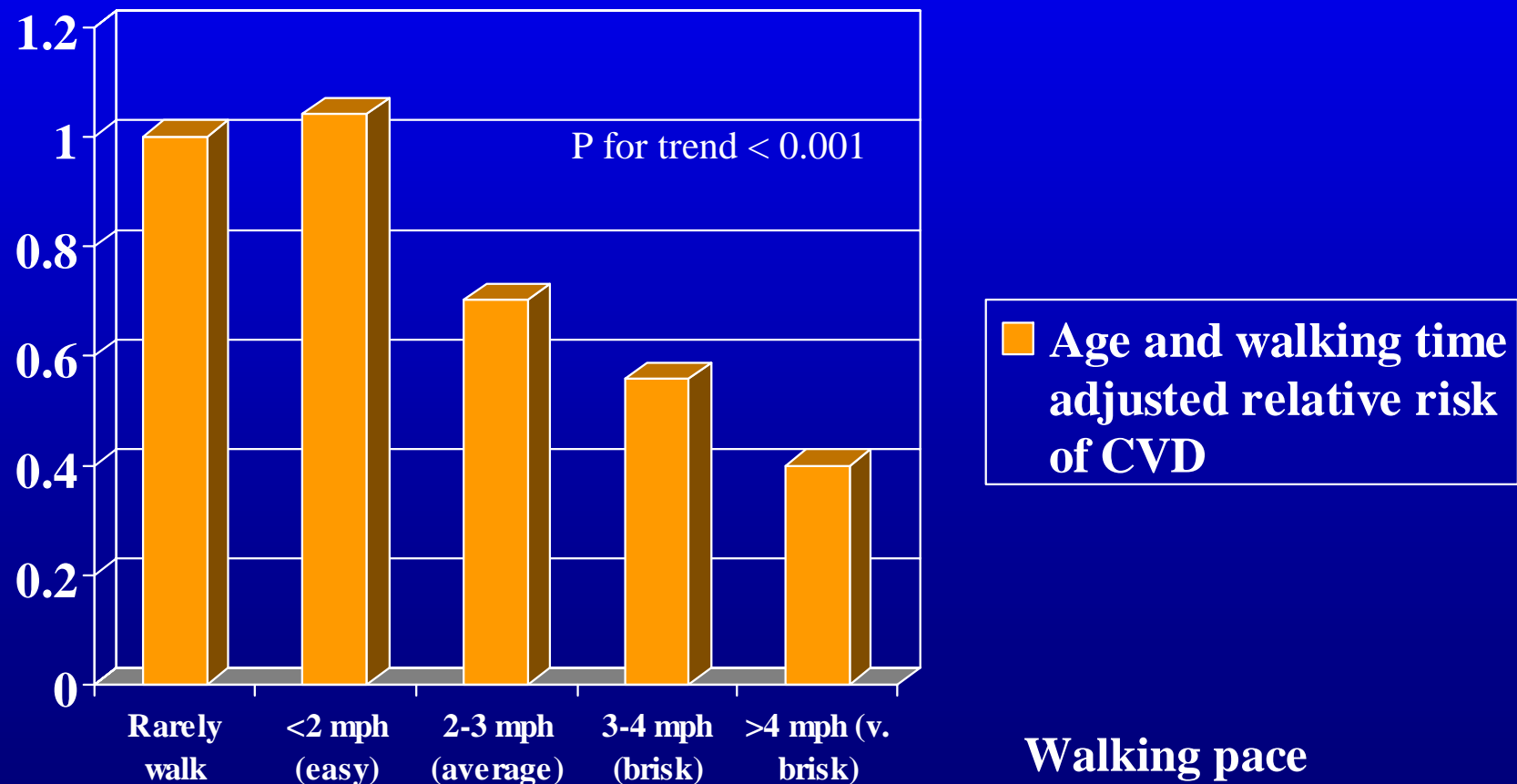
(Manson et al., 2002)



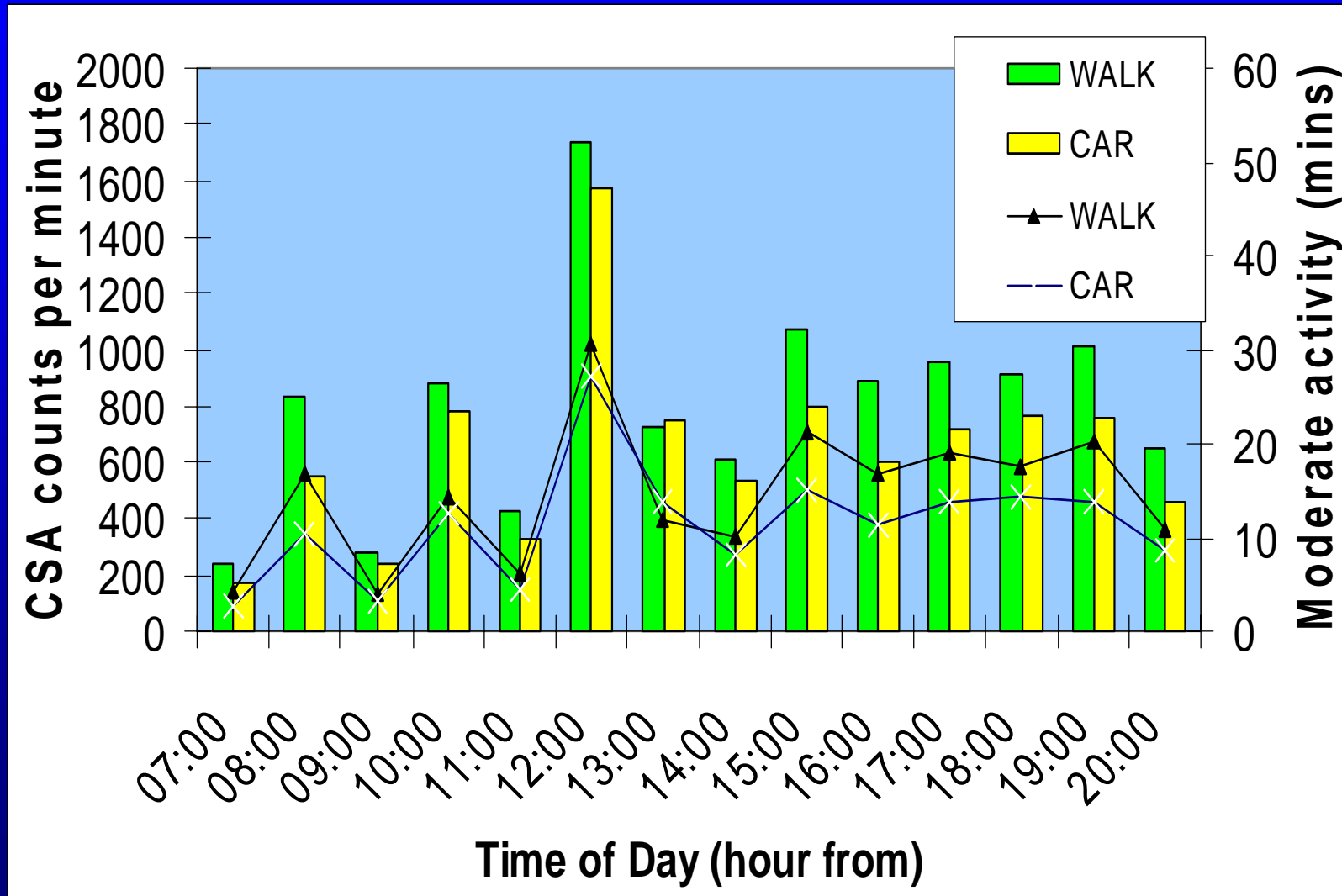
Energy expenditure from walking (MET-h week⁻¹)

Walking pace and health benefit: Women

(Manson et al., 2002)

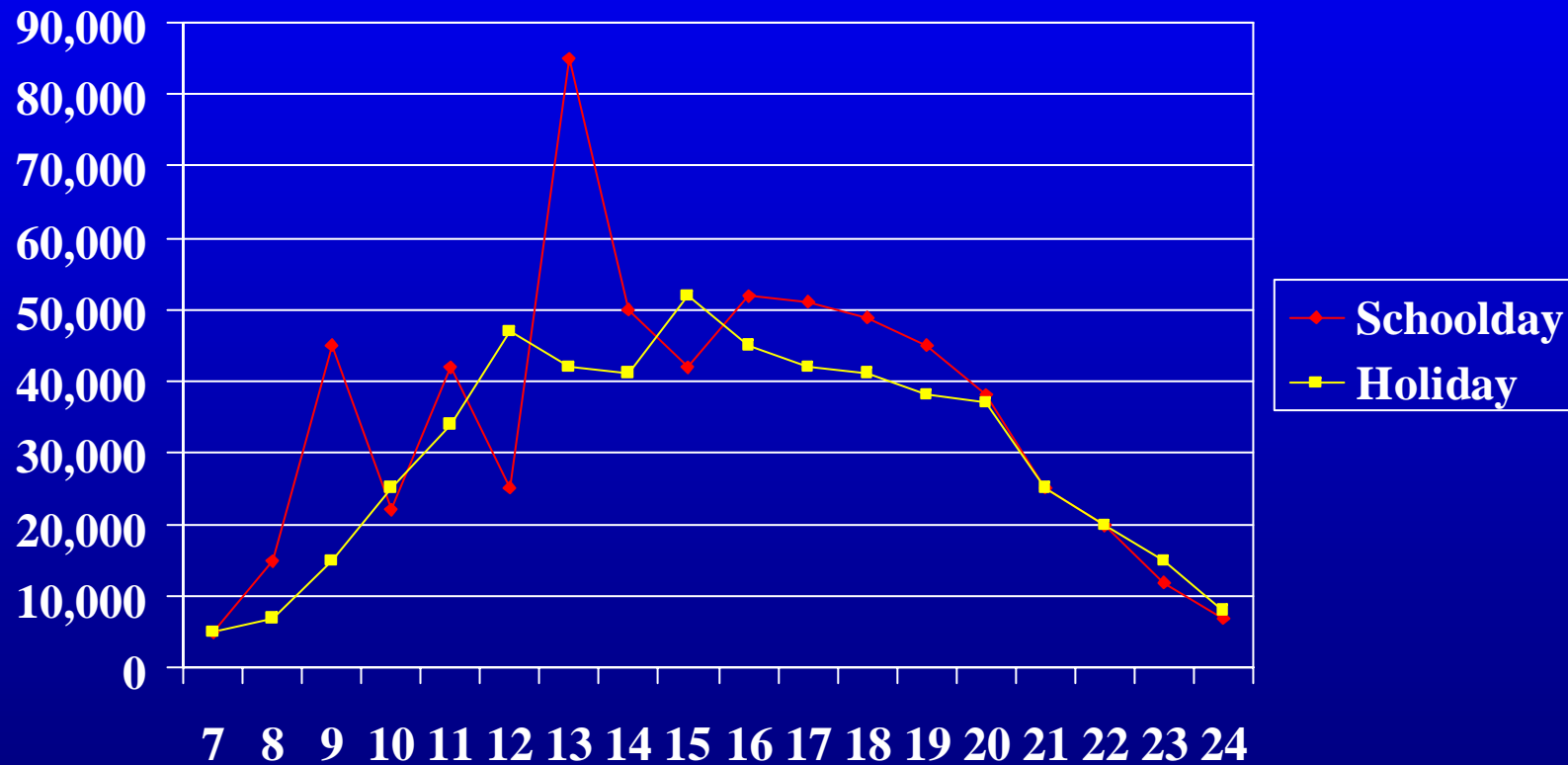


Are boys who walk to school more active the rest of the time?



Cooper et al., American Journal of Preventive Medicine, (2003)

Mean count for schooldays versus holidays for boys



Fox et al., Unpublished data

Potential of cycling to enhance health and welfare



Cycling as fitness and weight control

Cycling as transport

Cycling as medicine

Cycling as recreation

Cycling as achievement

Cycling as conservationist





Cycling and health benefit

- One epidemiological study indicated risk reduction of 40% subsequent disease in cyclists versus sedentary groups
- Commuter cycling improves aerobic fitness, strength (even as little as 3km x 3days/w)
- Commuter cycling has indicated small improvements in some health indicators



Physical inactivity and its effect on social and mental well-being

Reduced social interaction?

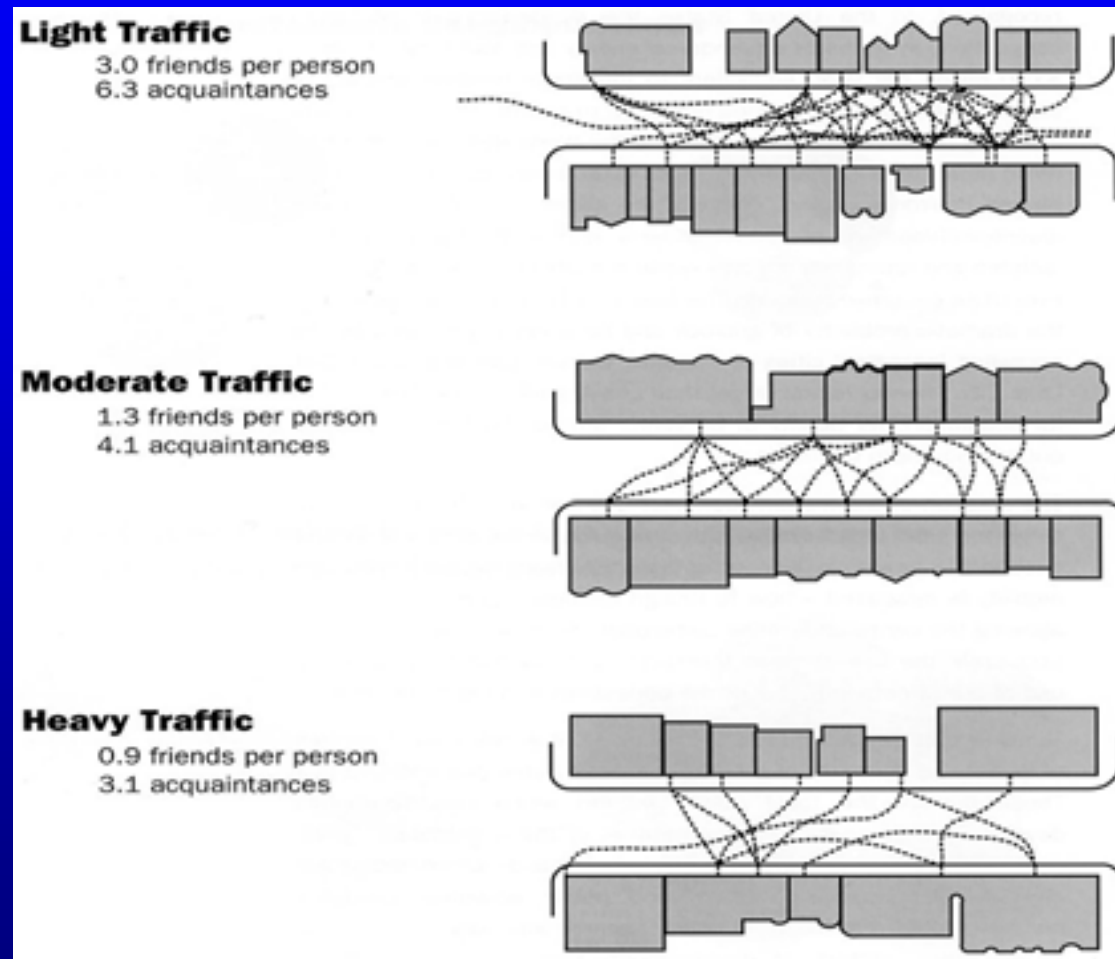
Loss of independence?

- Shopping malls v local shops
- Suburban estates v terrace housing
- Electronic v shared entertainment
- Street danger

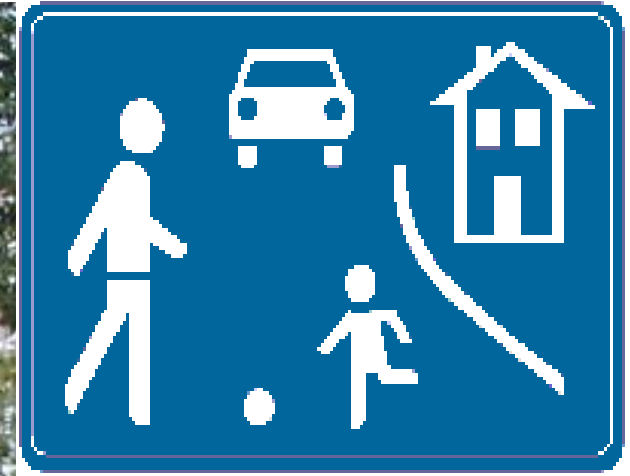
‘Cocooning’ of life?

Loss of community and social capital?

Traffic is associated with decreased social interaction in neighbourhoods



Source: Appleyard D, Lintell M. *Am Inst Plan J* 1972;38:84-101



Win back the streets

Home zone scheme –
less traffic, more play and social life?



Travel plan possibilities

- 42% of journeys in towns are 2 miles or less
- Walking and cycling have declined
- Cycling levels in the UK are among the lowest in Europe and similar to the USA
- 1 in 3 children would prefer to bike to school but only 2% achieve it.

Relative benefits of transport strategies

	Deaths and injuries	Air pollution	Noise pollution	Physical activity	Social impacts	Climate change
Improved fuel quality	-	+	-	-	-	-
Increased vehicle efficiency	-	+	-	-	-	+
Reduced travel demand	+	+	+	-	-	+
More public transport, walking and cycling	+	+	+	+	+	+

From Rutter, H. www.modalshift.org

Choosing Health (2004): Promotion of active transport

- National Cycle Network (Sustrans)
- Travelling to Schools programme
- Rights of way and local transport plans
- Sustainable travel towns
- Motivation through use of pedometers
- Regional Physical Activity Co-ordinators
- Guidance on what works for local authorities
- Links with other schemes such as “Walking the Way to Health (BHF)

Gorseland School, Ipswich





Bristol - Bath Railway Path

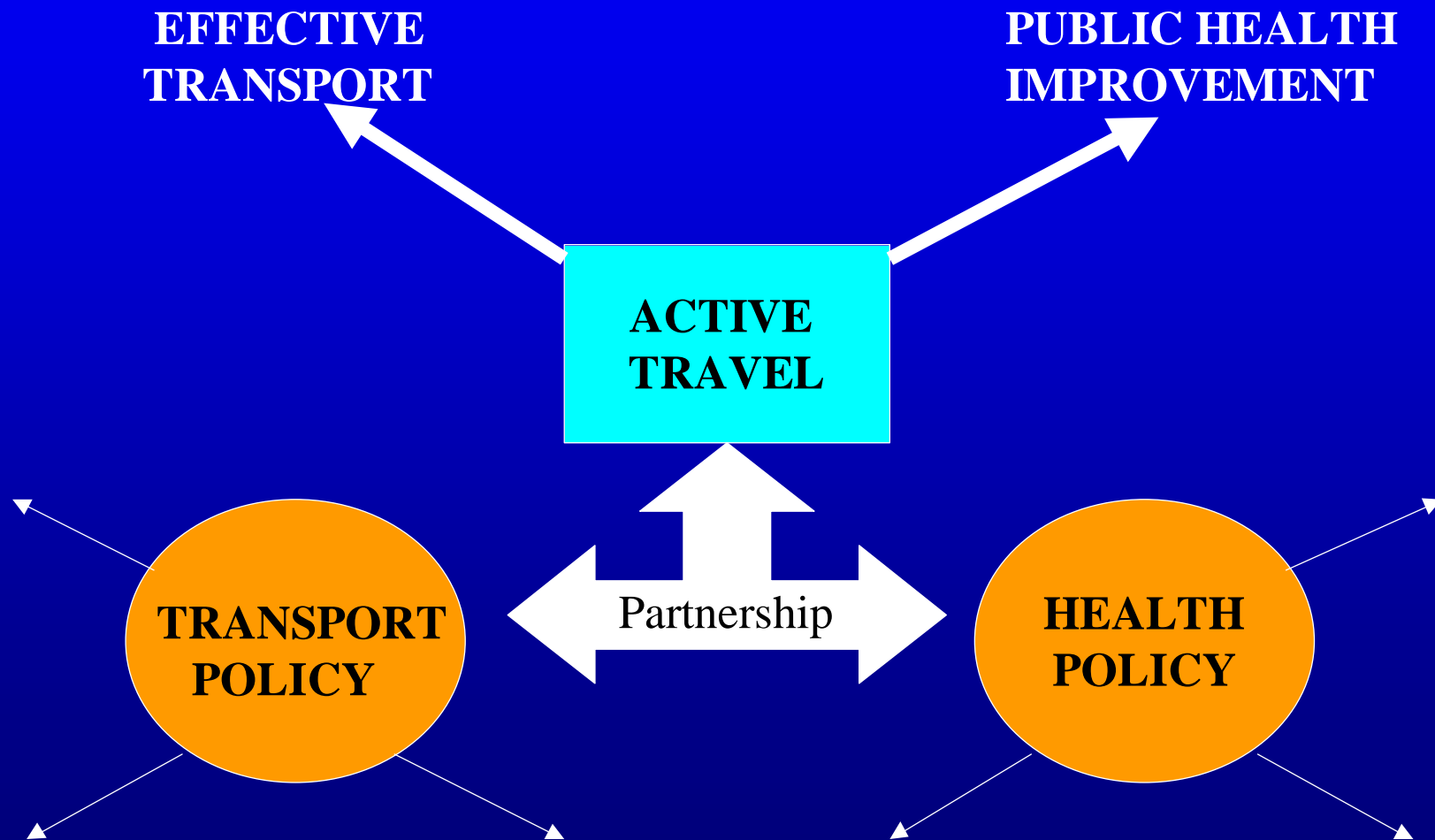


Promoting walking and cycling as an alternative to using cars: systematic review

(Ogilvie et al., BMJ, 2004)

- 32 studies with diverse designs
- 5-6% change in behaviour (mainly TravelSmart, Walk in to Work Out)
- Some positive changes in physical and mental health observed

Partnership



Bristol travel to work policy

Purpose to reduce problems of limited parking

- 65% of staff live within 4 miles
- 30% of these are single occupant car drivers

Bristol travel to work policy

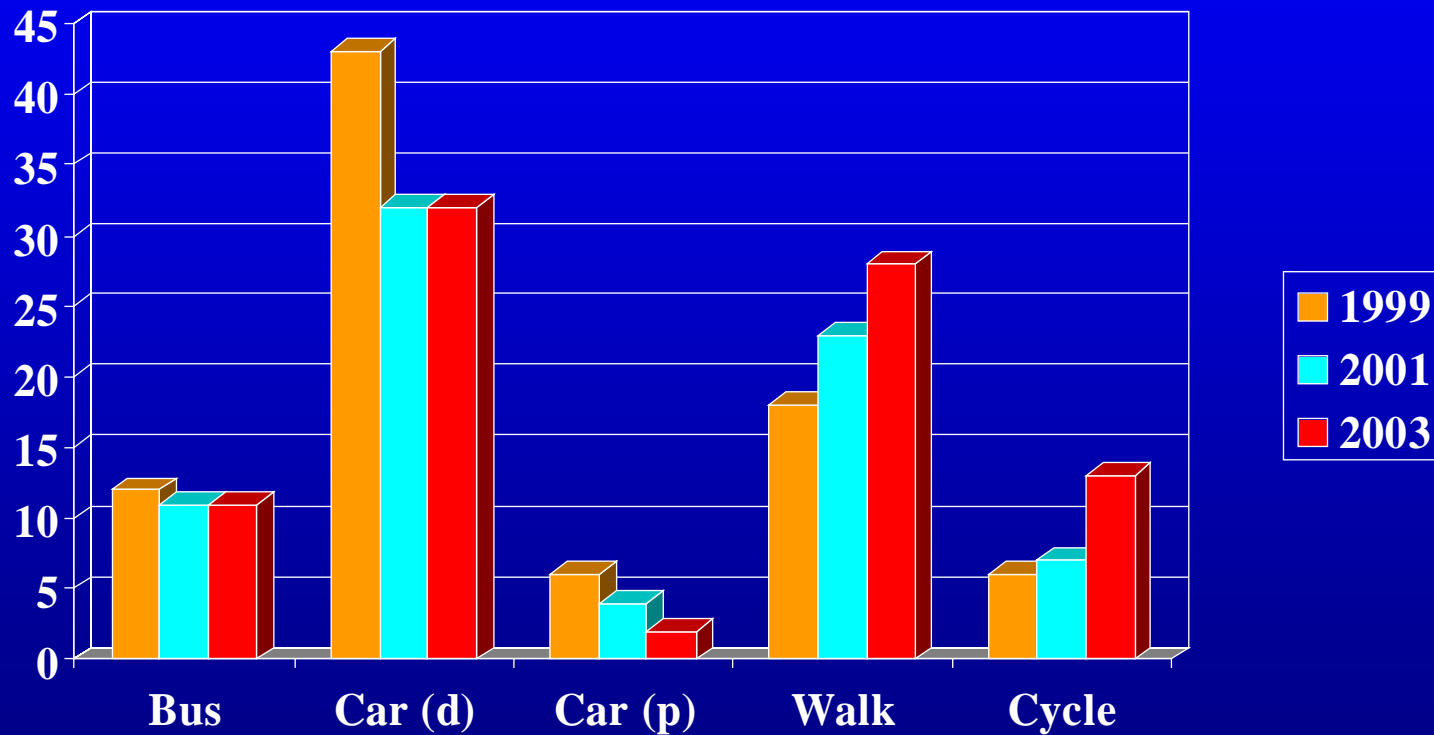
Inactive strategies

- Encourage motorcycle use
- Provide free shuttle buses
- Reward car sharing

Active strategies

- Encourage walking - provide routes, lighting, showers
- Encourage cycling - training, storage, showers, loads, purchase subsidy, support group, mileage allowance

Changes in travel to work: 1998, 2001, 2003 surveys



Active travel increased from 24% to 41%

Building partnerships

- Which kinds of schemes can improve health and transport at the same time?
- How can we bring transport design and planners to the same table as local health policy makers?
- Which factors interest and excite transport and health planners to invest time and effort in active travel projects?
- What kind of government mandates, directives or targets can facilitate transport and health partnerships on active travel?

Lets start today

- 15.00 hours
- Break out session on health and transport
- Dr Alison Giles, Physical Activity Programme Manager, Department of Health

Come on down!

Thanks for listening

Contact:
Professor Ken Fox
Department of Exercise
and Health Sciences
University of Bristol
www.bris.ac.uk/ehs
K.R.Fox@bristol.ac.uk

KEY REFERENCES

Dept of Health (2004) At least five a week. *dh.gov.uk/publications*

Tudor-Locke, C& Bassett, DR. (2004). How many steps/day are enough? *Sports Medicine, 34, 1-8.*

World Health Organisation (2004). Diet, physical activity and health. *www.who.int*