Methods in active transport

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Cycling data from Copenhagen

- Data on active transport have been collected since 1972
- Early data were self-reported transport to work and later questions were gradually extended to include all transport, perceived intensity and duration

Population

- Cycling in hours per week was assessed in 6,510 women and 8,466 men, 20-93 yr.
- During 162,016 person-years, 3,787 died

- Cycling as transportation to work (y/n) was assessed in 6,171 men and 783 women with 2,291 deaths during 145,555 py follow-up

Cycling in hours per week

(note: it is not distance)

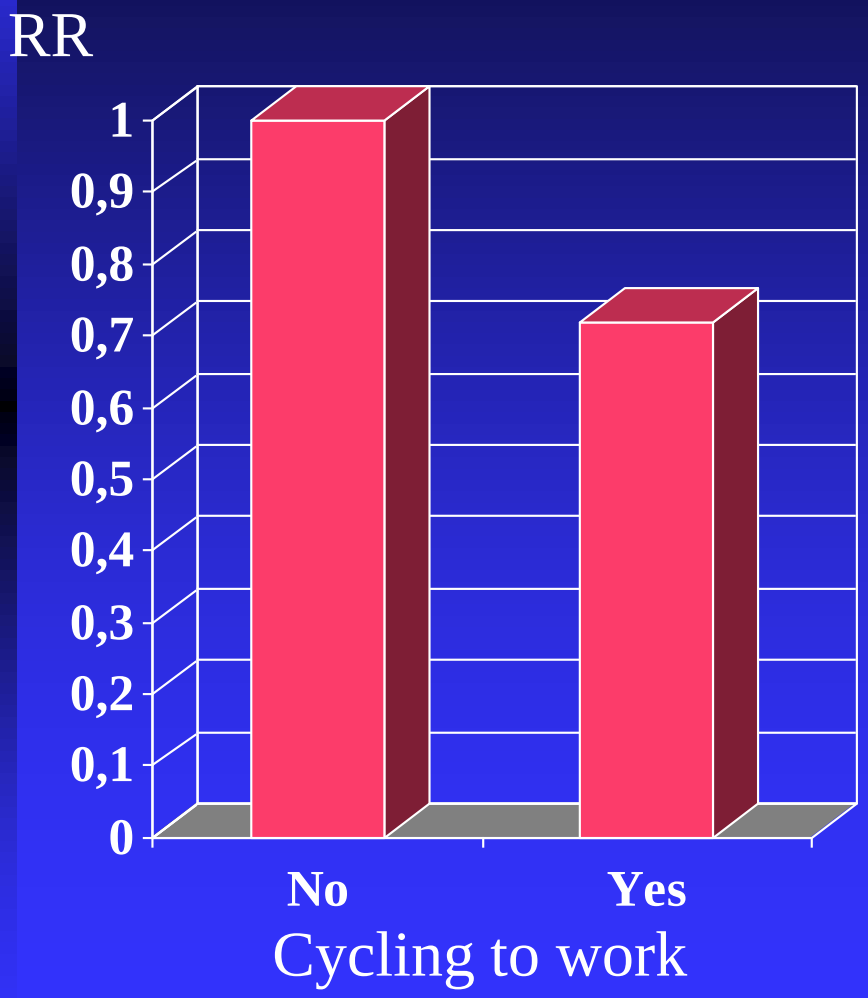
Hour/week	None	<3	3-7	>7
Women	60.2%	13.0%	14.4%	12.4%
Men	50.2%	19.2%	16.3%	14.4%
total	54.5%	16.5%	15.5%	13.5%

All age groups

Percentage of cyclists in age groups

Years	20-45	46-65	>65	total
Women	63.3%	41.0%	18.3%	39.8%
Men	60.2%	50.5%	43.8%	49.9%

Relative risk of cycling to work



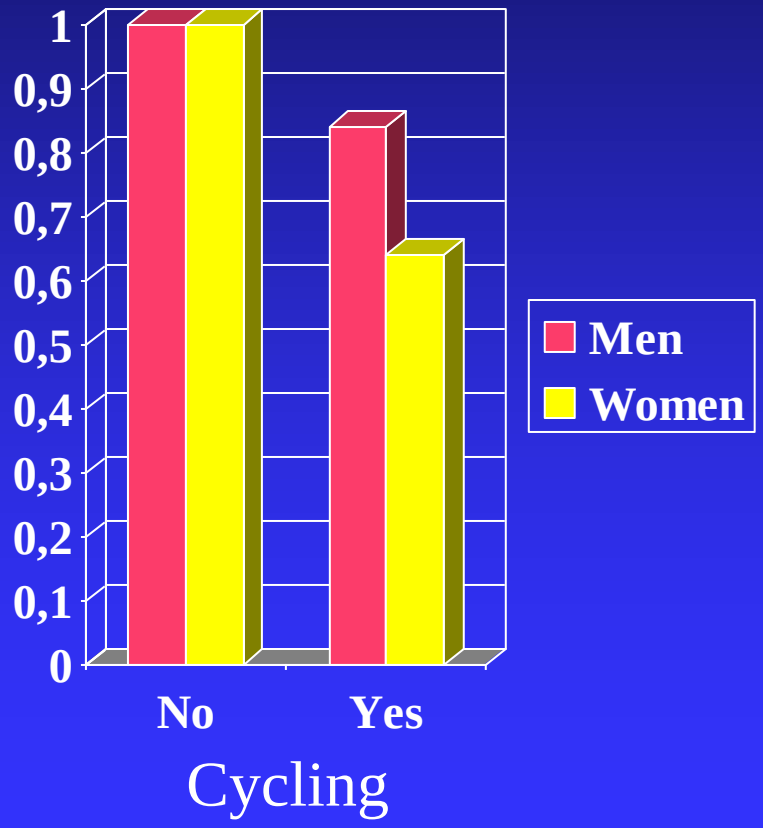
- 6,171 men and 783 women
- including 2,291 deaths
- RR 0.72 (95% CI: 0.57-0.91)

- adjusted for age, sex, educ. level,
- LTPA, BP, BMI, cholesterol and
- smoking

- (data from CCPPS)

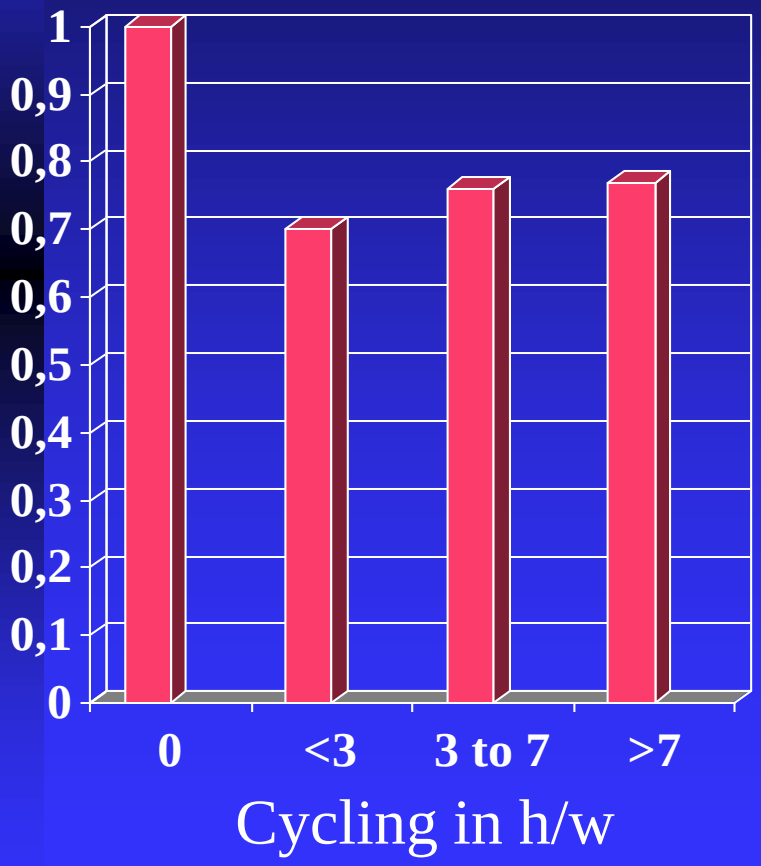
Relative risk of cycling – time is reduced to yes or no

RR of mortality



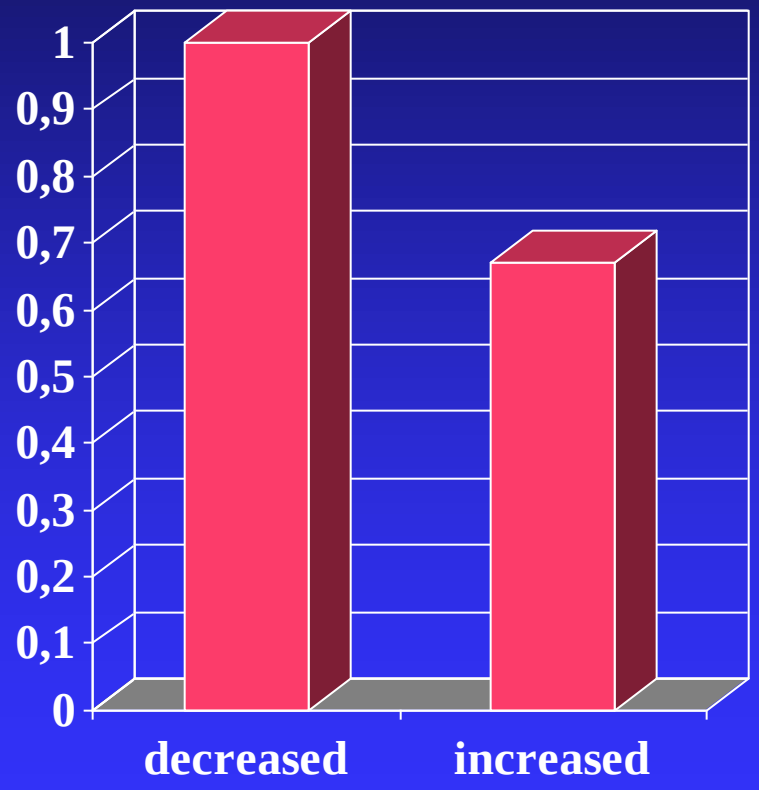
- **N=8,466 men, 2,389 deaths, p<0.001**
- **6,510 women, 1,398 deaths, p<0.01**
- **Both adjusted for LTPA**
- **(data from CCPPS)**

Association of cycling and mortality (adjusted for LTPA, age and sex)



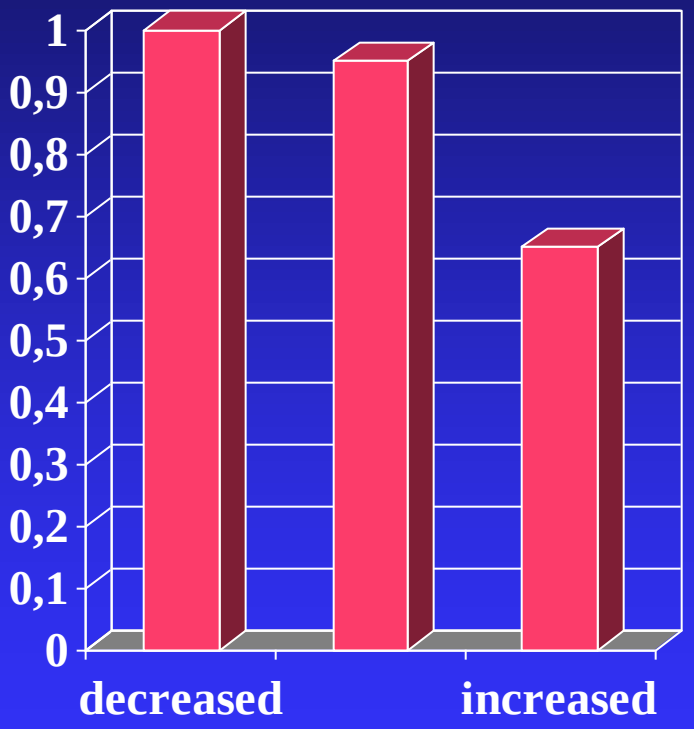
- **N=8,466 men**
- **and 6,510 women**
- **(data from Copenhagen Center for Prospective Population Studies)**

Changes in cycling over 5 years and subsequent mortality: Copenhagen City Heart Study



- Changes in cycling habits among 3291 men and women
- 618 deaths

Changes in cycling over 5 years and subsequent mortality: Copenhagen City Heart Study



- Changes in cycling habits among 3291 men and women
- 618 death

Intensity versus duration of walking, impact on mortality: the Copenhagen City Heart Study

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Background Current recommendations prescribe that every adult should accumulate 30 min or more of moderate-intensity physical activity in leisure time, preferably all days of the week. To further support these recommendations we examined the impact of walking intensity and walking duration on all-cause mortality.

Design Relative intensity and duration of walking were recorded in 7308 healthy women and men aged 20–93 at the third examination (1991–1994) of the Copenhagen City Heart Study. During an average of 12 years of follow-up 1391 deaths were recorded.

Results For both sexes we found a significant inverse association between walking intensity and risk of death, but only a weak inverse association to walking duration. For women walking with average intensity, the adjusted hazard ratio (HR) of death was 0.75 [95% confidence interval (CI) 0.61–0.92; $P<0.01$] and walking with fast intensity 0.48 (95% CI 0.35–0.66; $P<0.001$) compared to women walking with slow intensity. For men the relative risks were 0.54 (95% CI 0.45–0.67; $P<0.001$) and 0.43 (95% CI 0.32–0.59; $P<0.001$), respectively.

Conclusion Our findings indicate that the relative intensity and not the duration of walking is of most importance in relation to all-cause mortality. Thus our general recommendation to all adults would be that brisk walking is preferable to slow. *Eur J Cardiovasc Prev Rehabil* 14:72–78 © 2007 The European Society of Cardiology

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Intensity versus duration of cycling, impact on all-cause and coronary heart disease mortality: the Copenhagen City Heart Study

Peter Schnohr[1], Jacob L Marott[1], Jan S Jensen[1,2]
and Gorm B Jensen[1,3]

Conclusion: Our findings indicate that the relative intensity, and not the duration of cycling, is of more importance in relation to all-cause and coronary heart disease mortality. Thus our general recommendations to all adults would be that brisk cycling is preferable to slow.

Did they measure intensity?

No – they measured perceived intensity!!

How will an unfit person perceive speed compared to a fit?

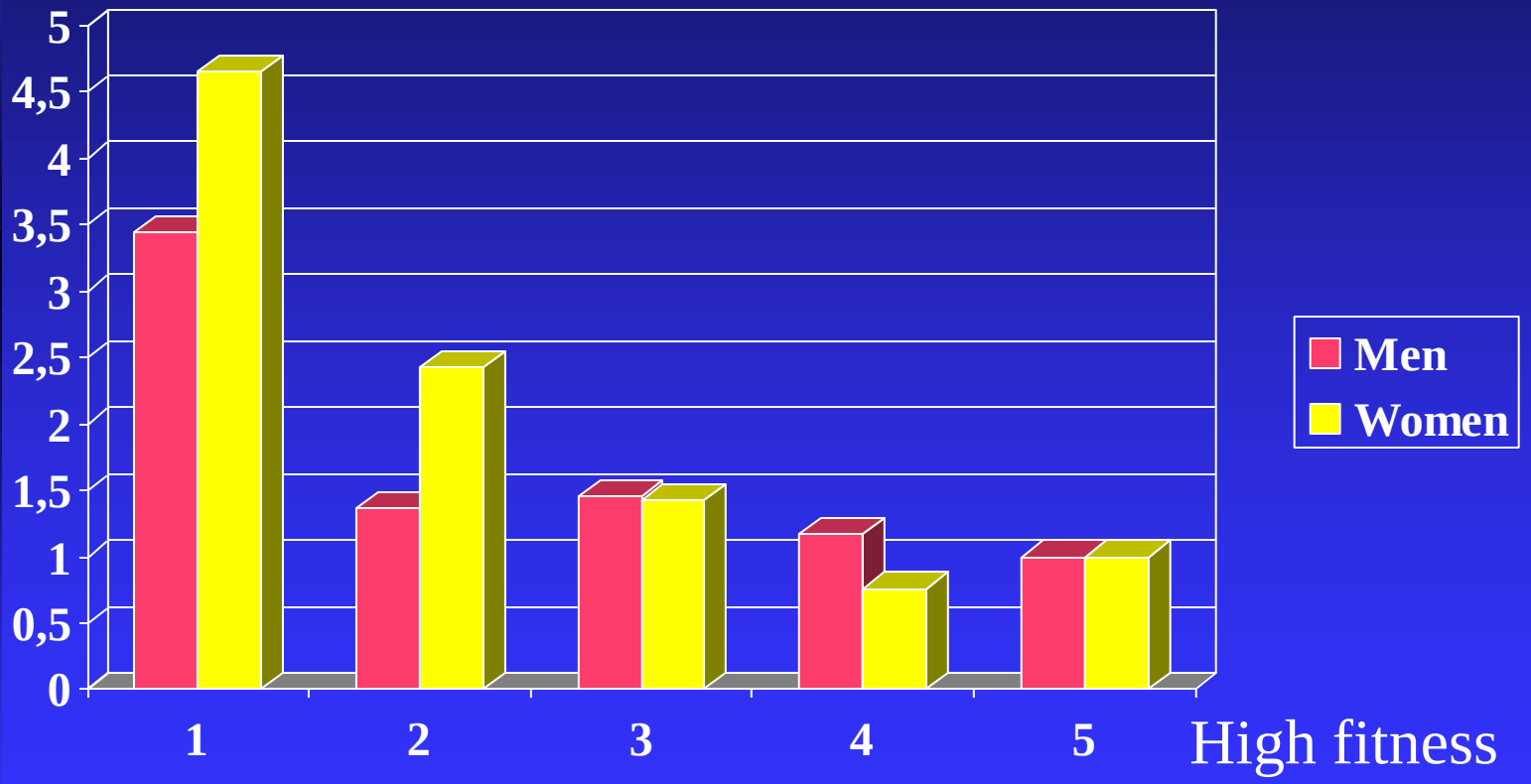
How is fitness related to outcome?

Duration - how long time will a given distance take for an unfit riding slowly

What information is needed to make an analysis that makes sense?

Cooper Clinic for Aerobic Research

(Blair et al. 1989, JAMA, 262: 2395-2401)



Risk for all-cause mortality in quintiles of fitness

Which data are available?

Recently, we worked on a paper mapping PA levels worldwide including active transport

I should collect data on prevalence of walking and cycling – which sounded pretty easy

It turned out that it was almost inpossible – why?

DATA ARE COLLECTED IN DIFFERENT WAYS

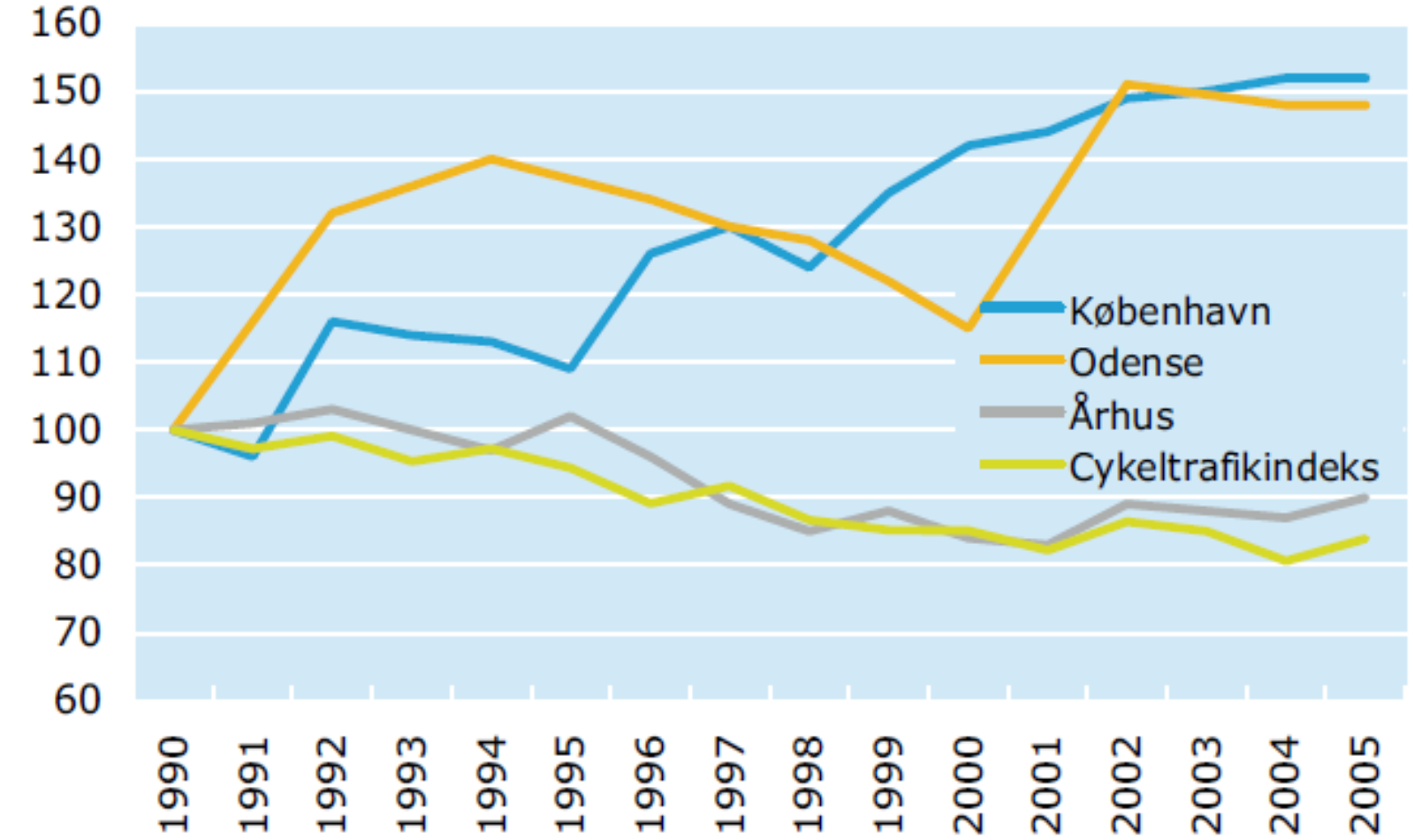
Traffic planners are interested in how much their roads are used, so they count trips or km travelled totally

Also, they don't care if it is by bike or moped

Physical activity researchers will know what determines behaviour or if commuting improves health in individuals

Development of cycle traffic in Denmark

Figur 3. Cykeltrafikkens udvikling i Danmark i perioden 1990-2005.



Kilde: Vejdirektoratet og tællinger fra Kbh., Odense og Århus

Objective measurements – mainly in smaller studies

Transport diary (not really objective)

Accelerometers

GPS (speed, distance, time)

GIS (environment)

Cycle computer (odometer)

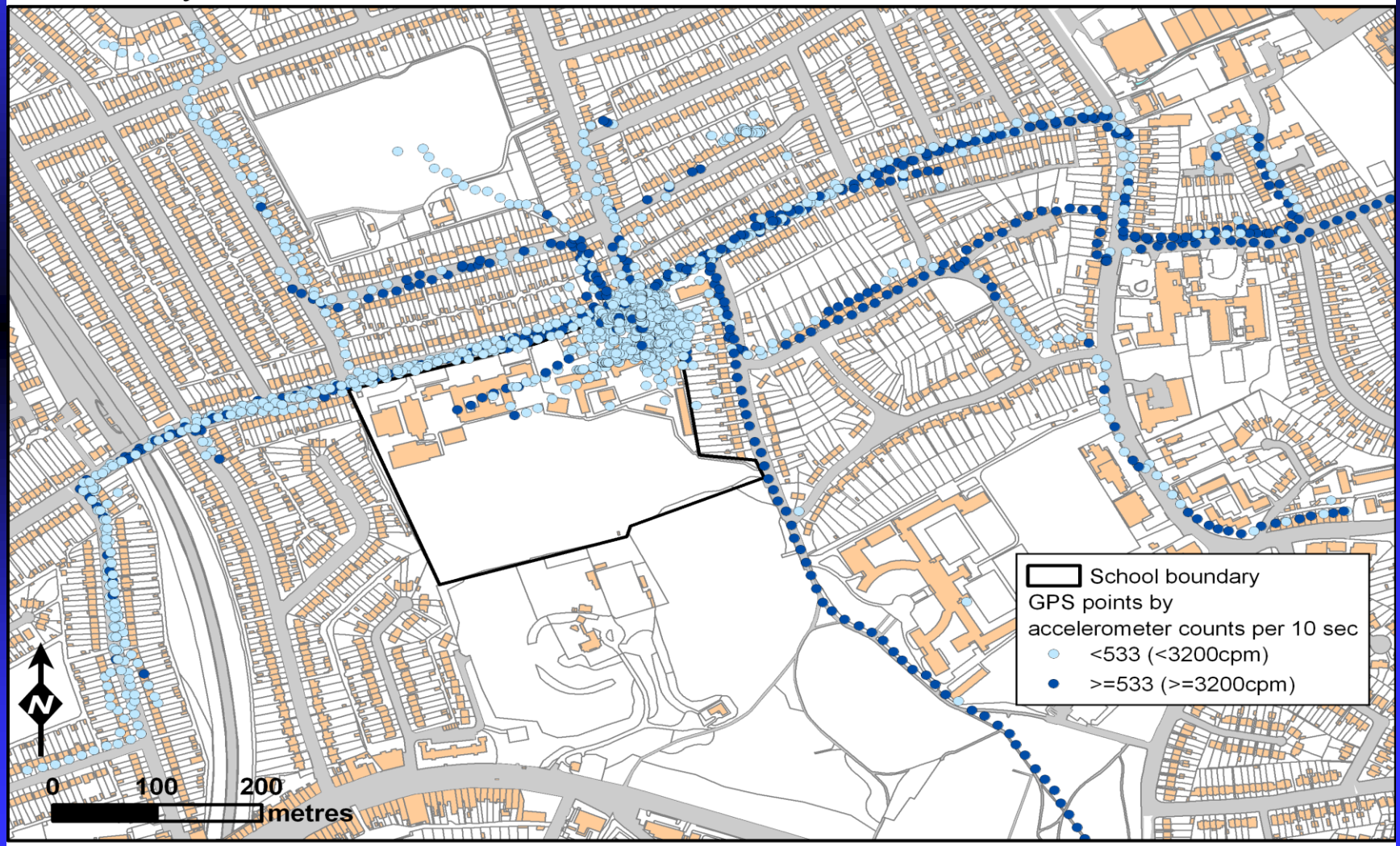
Heart rate monitoring (relative intensity)

Fitness test

Trip counter (walking)

Physical activity levels before school (Cooper et al., AJPM)

Figure 1. Map of GPS datapoints for all pupils who walk to one of the four schools in the study, 8am to 9am.



Thank You!