Patterns and correlates of active commuting in adult with type 2 diabetes: cross-sectional evidence from UK Biobank

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Outline

• Background
• Study design
• Results
• Conclusion
• Implications for future research/policy
What is the problem?
Sedentary time
What is the solution?
Active commuting

• Multiple co-benefits
  – Increased physical activity
  – Reduced sedentary time
  – Reduced air pollution
  – Reduced congestion
  – Behaviourally sustainable
Study aims

• To describe the active commuting patterns of adults with type 2 diabetes in the UK Biobank.

• Objective 1:
  – To explore how active commuting is associated with physical activity and sedentary time.

• Objective 2:
  – To identify the social, employment and environmental factors which predict participation in active commuting.
UK Biobank

Improving the prevention, diagnosis and treatment of a wider range of serious and life-threatening illnesses

Sample:
- 502,565 adults aged 37-73 years from 22 centres

Measures:
- Questionnaires
- Blood, urine and saliva
- Verbal interview

Subsample (20,000):
- Longitudinal aspect
- Physical activity
- MRI/DEXA scanning
Methods

• Sample:
  – All adults with self-reported type 2 diabetes who reported commuting behaviour and had complete covariate data (n=6,896)

• Measures:
  – What types of transport do you use to get to and from work?
    • Car or car plus public transport
    • Public transport and mixed
    • Walking or cycling exclusively
  – Self-report physical activity and sedentary time
  – Environmental factors (air pollution, traffic density, distance to a major road)
  – Covariates (demographics, employment details, social factors)

• Analysis
  – Multivariate linear regression
  – Step-wise models
Results

• Characteristics
  – 65% male
  – 81% white British ethnicity
  – 55.9 ± 6.6 years old
  – 30% University educated

• Commuting behaviour
  – 80% car
  – 14% public transport
  – 5% walking or cycling

• Health behaviour
  – 6 hours/day sedentary
  – 54% achieve PA guidelines
Objective 1: Physical activity

Males
- Active commuting
  - 72.9 (95% CI: 10.8-134.9) additional minutes MVPA/week
- Public transport
  - 29.6 (95% CI: -70.6, 11.4) additional minutes MVPA/week

Females
- Active commuting
  - 104.5 (95% CI: 41.7-167.2) additional minutes MVPA/week
- Public transport
  - 11.5 (95% CI: -35.3, 58.3) additional minutes MVPA/week
Objective 1: Sedentary time

Males
- Active commuting
  - -1.1 (95% CI: -1.6, -0.7) fewer hours sedentary time/day
- Public transport
  - -2.2 (95% CI: -2.5, -1.9) fewer hours sedentary time/day

Females
- Active commuting
  - -0.8 (95% CI: -1.2, -0.3) fewer hours sedentary time/day
- Public transport
  - -1.1 (95% CI: -1.5, -0.8) fewer hours sedentary time/day
Objective 2

• Determinants of commuting behaviour
  – Distance to work
  – Rural/urban
  – Deprivation
Discussion

• In UK Biobank, car use is the overwhelming choice for commuting
• Active commuting is strongly and consistently associated with:
  – Increased physical activity
  – Reduced sedentary time
• Evidence of a gender difference
• Distance to work is the strongest predictor of active commuting
• Some evidence of a social gradient
Future research

- Use of objective measures of physical activity
- Impact of active commuting on other health outcomes (e.g. blood glucose)
- Cost-effectiveness modelling of active commuting as an intervention in people with type 2 diabetes
- Psychological impact of different commuting modes
References


• Falconer C, Cooper AR, and Flint E. Patterns and correlates of active commuting behaviour in adults with type 2 diabetes: cross-sectional evidence from UK Biobank. *JECH.* In submission (2017)
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