



# Unlocking the value of cycling and walking

Sonja Kahlmeier | Nick Cavill | Francesca Racioppi

# The Economics of Climate Change

The Stern Review



NICHOLAS STERN

CAMBRIDGE

# HEAT approach

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- Effective public health:
  - action outside as well as within the health sector
  - identify levers
  - working upstream
  - efficient use of public resources
- Recognises importance of economic analysis in transport: benefit-cost ratio is king
- Evidence-based
- Conservative
- Transparent
- Adaptable
- ‘Do once and share’

# Collaborative project

## Core group

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**THE PEP**  
Transport, Health and Environment  
Pan-European Programme



 Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra



# Development of HEAT

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- Use economic levers to influence transport appraisal
- Find best format for transport planners
- International advisory group including transport; health; economics; practice
- Review the evidence
- Generate a tool based on the evidence
- Test with range of experts and refine
- Disseminate; evaluate; develop further

# Key steps

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1. Literature reviews (economics; health)



Contents lists available at ScienceDirect

## Transport Policy

journal homepage: [www.elsevier.com/locate/tranpol](http://www.elsevier.com/locate/tranpol)



### Economic analyses of transport infrastructure and policies including health effects related to cycling and walking: A systematic review<sup>☆</sup>

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#### ABSTRACT

We reviewed published and unpublished studies that presented the findings of an economic valuation of an aspect of transport infrastructure or policy, and included data on walking and/or cycling and health effects in the valuation. We included 16 papers, of which three were classified as 'high; six as 'moderate' and seven as 'low' quality. There is a wide variation in the approaches taken for including the health effects of physical activity in economic analyses of transport projects. This is not helped by a lack of transparency of methods in many studies. A more standardised approach is called for, including a clearer description of the applied methods and assumptions taken.

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# Key steps

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1. Literature reviews (economics; health)
2. Issues and draft tool

# Issues

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- Which health benefits: mortality, morbidity or both?
- Physical activity and health relationship: linear or non-linear? Threshold?
- Unique effects of cycling /walking vs. other forms or physical activity?  
Activity substitution?
- Costs applied
- Time periods

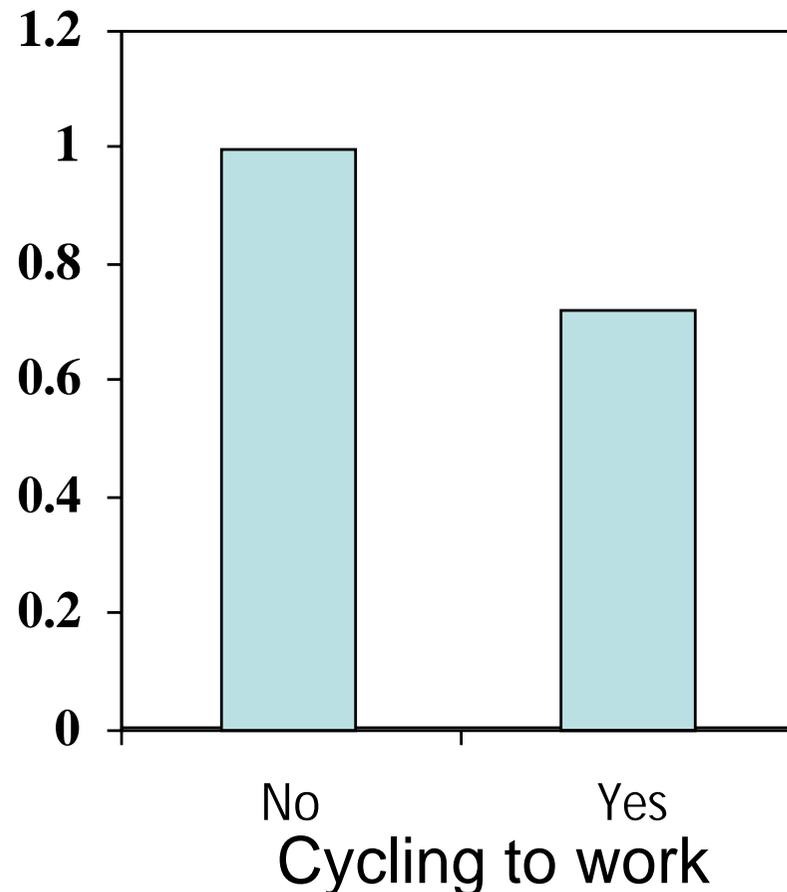
# Key steps

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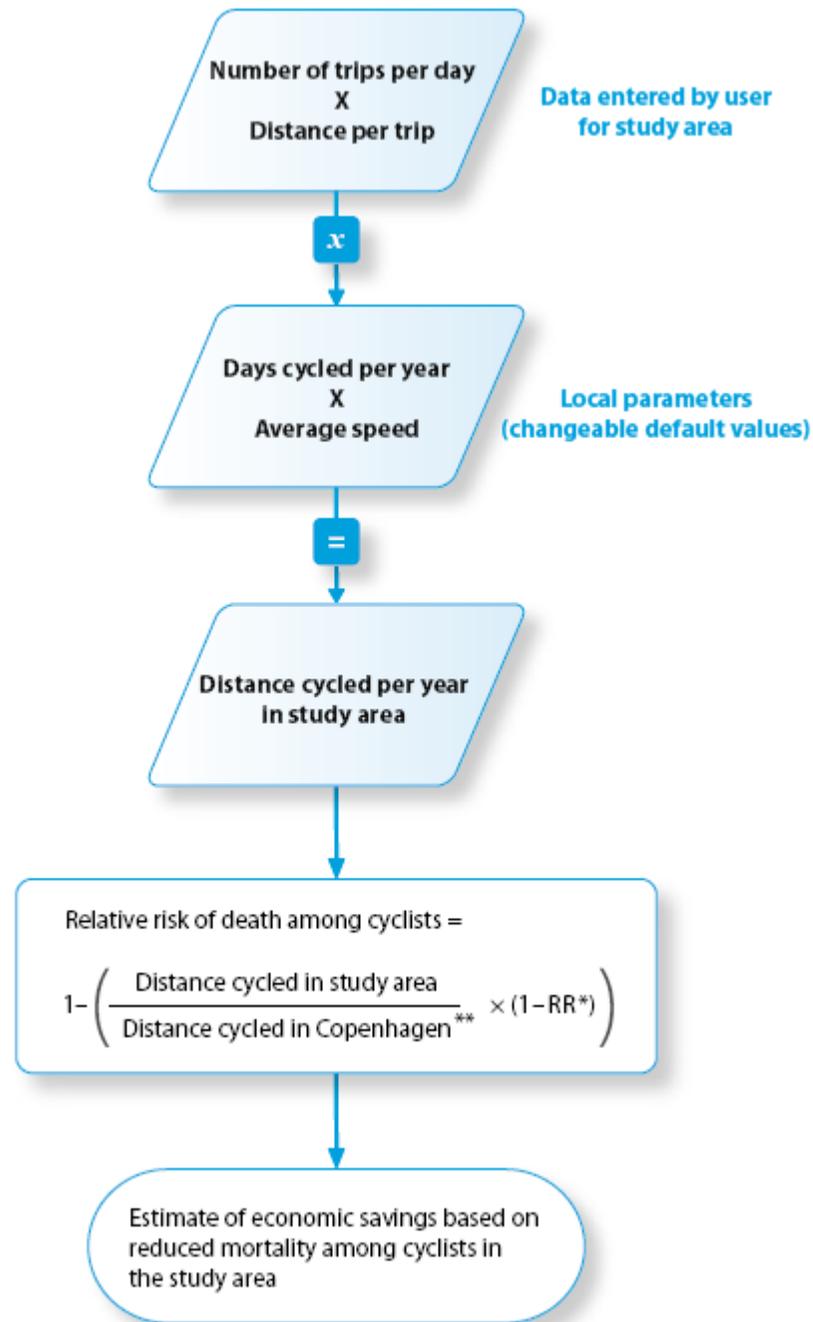
1. Literature reviews (economics; health)
2. Issues and draft tool
3. Consensus event – cycling
4. Develop HEAT cycling (Excel)
5. Literature reviews
6. Issues and draft tool
7. Consensus event – walking
8. Develop combined tool (online)

# Risk reduction for all-cause mortality for regular cycle commuters

## RR: all-cause mortality

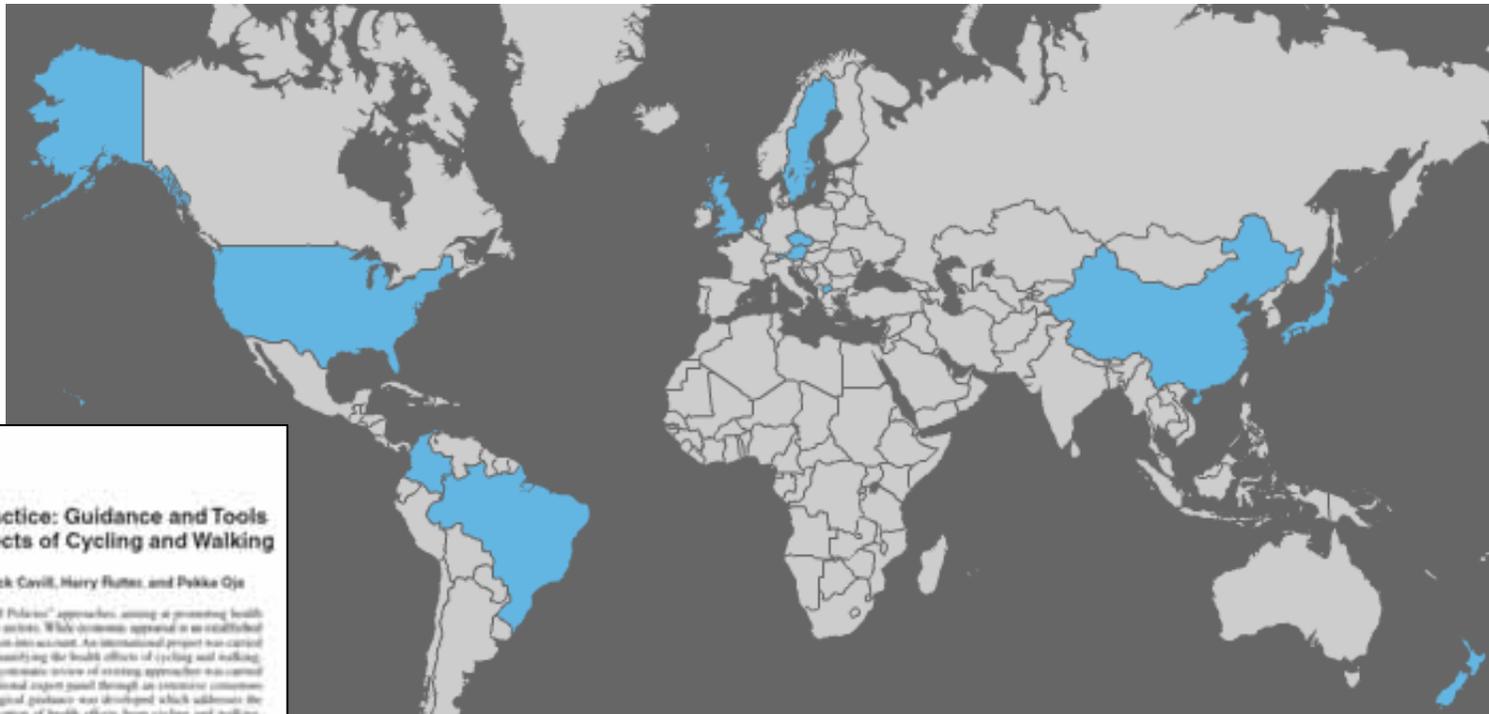


- Data from 3 population studies in Copenhagen combined
- 6,171 men and 783 women including 2,291 deaths
- **RR 0.72 (95% CI: 0.57-0.91)**
- Adjusted for age, sex, educ. level, blood pressure, weight, **leisure time physical activity**, cholesterol and smoking
- Results consistent with other cycling studies and literature on physical activity eg Matthews, Paffenbarger



# Applications

Project website visited over 6000 times,  
products downloaded over 600 times



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**"Health in All Policies" in Practice: Guidance and Tools to Quantifying the Health Effects of Cycling and Walking**

Sorja Kallmeier, Francesca Racioppi, Nick Cavill, Harry Rutter, and Pekka Oja

**Background:** There is growing interest in "Health in All Policies" approaches, aiming at promoting health through policies which are ready to consider of nonhealth sectors. While systematic approaches to an established practice of transport planning, health effects are rarely taken into account. An international project was carried out to develop guidance and tools for practitioners for quantifying the health effects of cycling and walking, supporting their full appraisal. **Development process:** A systematic review of existing approaches was carried out. Then, the products were developed with an international expert panel through an iterative consensus-building process. **Products and applications:** Methodological guidance was developed which addresses the main challenges practitioners encounter in the quantification of health effects from cycling and walking. A "Health Economic Assessment Tool (HEAT) for cycling" was developed which is being used in several countries. **Conclusions:** There is a need for a more consistent approach to the quantification of health benefits from cycling and walking. This paper is providing guidance and an illustrative tool for cycling for practical application. Results show that substantial savings can be expected. Such tools illustrate the importance of considering health in transport policy and infrastructure planning, putting "Health in All Policies" into practice.

**Keywords:** economic assessment, transport, physical activity, Europe

# HEAT walking

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## Systematic review

- PubMed search for keywords 'Walking' and 'Relative risk' in studies that
  - specified walking as an independent behavior
  - reported a relative risk for mortality or morbidity
- Meta-analysis of 9 studies (controlled for leisure time physical activity)
- **RR = 0.78 (0.64-0.98)** for all-cause mortality from walking 29 mins per day on 7 days/week

# HEAT walking

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## **Economic studies**

- Updated systematic review of economic studies
- 8 studies included; 5 good quality
- Few methodological advances
- Showed HEAT approach remained valid for walking

# What's new?

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- Step-by-step online tool
- Assessment of walking data with a brand-new HEAT walking
- More data entry options:
  - *(before: cycling trips only)*
  - New:
    - Trips
    - Distance
    - Duration
    - Steps (for walking)
- More explanations, tips and hints on every step
- Print and save results

# www.euro.who.int/HEAT



The screenshot shows the introduction page of the HEAT website. At the top right, there are links for 'Contact | Copyright | Help | Login'. On the left, the HEAT logo is displayed with the text 'HEAT Health economic assessment tool'. Below the logo is a navigation menu with the following items: 'Introduction', 'HEAT for cycling', 'HEAT for walking', 'Current Assessment', 'Previous Assessments', and 'Acknowledgements'. The main content area is titled 'HEAT - Introduction' and includes a welcome message: 'Welcome to the WHO/Europe Health Economic Assessment Tools (HEAT) for walking and for cycling.' This is followed by a paragraph explaining the tool's purpose: 'This tool is designed to help you conduct an economic assessment of the health benefits of walking or cycling by estimating the value of reduced mortality that results from specified amounts of walking or cycling.' Below this, it states 'The tool can be used in a number of different situations, for example:' and lists three scenarios: 1. 'When planning a new piece of cycling or walking infrastructure.', 2. 'To value the reduced mortality from current levels of cycling or walking, such as to a specific workplace, across a city or in a country. It can also be used to illustrate economic consequences from a potential future change in levels of cycling or walking.', and 3. 'To provide input into more comprehensive economic appraisal exercises, or prospective health impact assessments. For example, to estimate the mortality benefits from achieving targets to increase cycling or walking.' A link is provided for more information: 'More information is available at <http://www.euro.who.int/HEAT>'. A 'Next step' section lists two bullet points: 'Start using HEAT for walking' and 'Start using HEAT for cycling'. On the right side, there is a 'More information' section titled 'What data do I need?' which states: 'To produce an assessment, you need to provide data on the number of people walking or cycling, and the amount of walking they are doing (or are projected to do)'. At the bottom left, the copyright notice reads: '© World Health Organization, Regional Office for Europe, 2011'.

# Conclusions

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- Identifies a major public health issue and uses effective lever to promote it
- Works outside traditional health care paradigm to achieve health gain
- Uses language of the target sector, not health
- Highly influential
- Cheap and sustainable
- Effective demonstration of using evidence to drive practice