Greensettle
GREEN CITIES AND SETTLEMENTS

UNIVERSITY of OULU
OULUN YLIOPISTO

Assesing Health and Economic Impacts of Cycling

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Health impacts of Physical Activity and Inactivity

- Physical inactivity is the most significant risk factor of bad health
- Physical activity prevents weight gain and furthers physical and mental wellbeing
  - PA reduces the risk of cardiovascular diseases by 50 %
  - PA reduces the risk of hypertension and various cancers
  - PA also relieves stress and depression
- Two thirds of European adults excercise less than what is recommened (at least 30 minutes a day)
- Physical inactivity is associated to one million death anually in Europe (about 10 % of all deaths)
- Physical inactivity is the fourth most important cause of death in high-income countries

Source: www.euro.who.int

National Strategy for Walking and Cycling 2020

- According to the national travel survey 32 % of all trips are made by foot or bicyle (2004–2005)
- National Stratey for Walking and Cycling was published in 2011, the share of walking and cycling should be 35–38 % of all trips in 2020
  - ⇒ 20 percent increase of walking and cycling trips is expected (2005–2020)
- Great potential for this, over 40 % of car rides are less than 5 km long, most of these could be made either by foot or by bike
- How can this be achieved?
  - ⇒ Investments on road infrastructure, building of integrated urban structures, etc.
- But do these investments bring some return to the cities that have to pay for these costs and to the society in general?

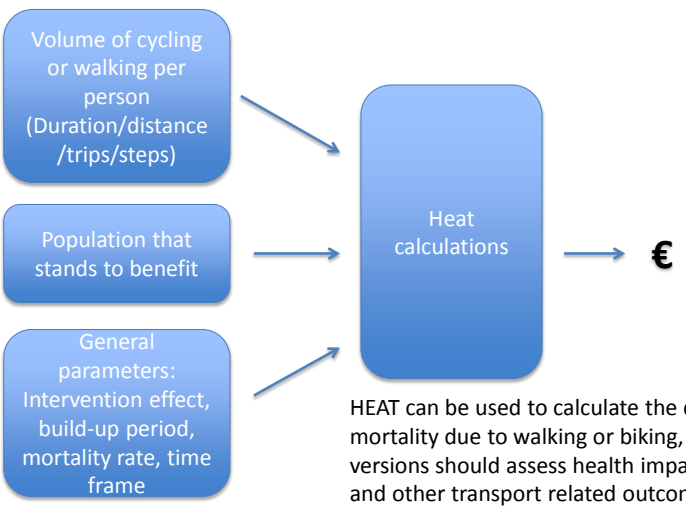
Health Economic Assessment tools (HEAT)

- Nordic countries have been pioneers in tying to assess overall costs and benefits of transportation infrastructures and their health effects
- WHO produced their own tool for cycling in 2009 and in 2011 an internet based updated version and manual: www.heatwalkingcycling.org
- Health Economic Assesment Tools (HEAT) for walking and cycling helps to answer the following question:
  - ⇒ *"If **x** people cycle or walk for **y** minutes on most days, what is the **economic value** of the health benefits that occur as a result of the reduction in mortality **due to** their **physical activity**?"*
- Tool is meant for transport planners, traffic engineers and special interest groups working on transport, walking, cycling or the environment
  - ⇒ Health economists, physical activity experts and health promotion experts might find it interesting aswell…

What can HEAT be used for?

- HEAT can be used in planning of new cycling or walking infrastructures
  - ⇒ Provides and estimation for the the use of, for example, new bicycle way when it has been completed
  - ⇒ Cost-benefit ratio of different investments can be compared and most cost effective investment can be chosen
- HEAT can help to evaluate the reduced mortality from past or current levels of cycling at a specific workplace, city or even country
  - ⇒ Can also be used to illustrate the economic consequences of a potential future change in levels of cycling or walking
- Current version of HEAT can be used to calculate the decreased mortality due to walking or biking

How does HEAT work?



HEAT can be used to calculate the decreased mortality due to walking or biking, but future versions should assess health impacts wider and other transport related outcomes

HEAT case of Kuopio

- Kuopio was one of five cities, where HEAT was tested in 2011
- A survey on bicycle commuting was carried out among the staff of the city

  ⇒17 % of 6069 employees replied to the survey, 366 cycles normally to work

	How many months per month do you cycle?	How many days per week do you cycle during a cycling month?	How many minutes do you cycle to and from work?
Cyclists	366	366	366
Minimum	3	2	1
Maximum	12	7	150
Average	8.9	4.9	45
Standard Deviation	2.4	0.8	23.6
Standard Error	0.1	0.0	1.2

  ⇒Due to cycling 0.4 deaths were prevented annually in Kuopio leading to an annual benefit of 0.6 million euros/annual benefit of 1582 euros/cyclists

Assessing the overall benefits of Cycling

- New versions of HEAT are being developed, which would assess health impacts wider and take morbidity into account, as well as other transport related outcomes – less congestion, reduced journey times, etc.
- HEAT has been used to calculate the economic benefits, if the aims of the national walking and cycling will be achieved (increase of these trips by 20 %)