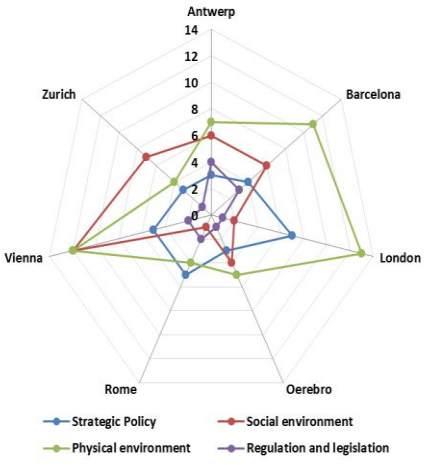
Publishable summary

PASTA "Physical Activity trough sustainable transport approaches" is a project aiming to improve health by promoting active mobility (AM), namely walking, cycling and the use of public transport, as an innovative approach to increase physical activity (PA).

Increasing PA is one of the key approaches to address non-communicable diseases, as only one third of the European population is estimated to meet the minimum recommended levels of PA (150 minutes of moderate-intensity aerobic PA throughout the week) by the WHO (WHO, 2011)[1]. In view of the fact that people in Europe approximately spend 80 minutes per day travelling and half of all car trips are shorter than 5km (European Commission, 1999)[2], replacing at least some of them by cycling or walking and thereby integrating physical activity into daily life routines seems feasible.

The PASTA project identified key challenges in three areas of research: a) the effectiveness of measures to promote AM and related framework conditions, b) improved understanding of correlates of AM and its effects on general PA and injury risk and c) health impact assessment (HIA) of AM as a crucial component to its success as an innovative approach to health promotion. The generated knowledge and findings of PASTA will be spread among stakeholders and decision makers in European cities to contribute to a wider understanding of the link between transport and health. A detailed description of the approach can be found here (Gerike et al., 2016)[3].



PASTA started in November 2013 with a thorough literature review classifying AM measures and reviewing factors and indicators affecting AM. Based on this theoretical approach a total of 138 AM measures were collected in the seven case study cities (CSC) (Antwerp, Barcelona, London Borough of Newham, Rome, Oerebro, Vienna, Zurich) and assigned to one of the four categories defined within the project (strategic policy, social environment, physical environment/infrastructure, regulation and legislation) together with city profile factors.

Figure 1.1: Overview on the measures collected

[1] WHO. (2011). "Physical Activity and Adults. Recommended Levels of Physical Activity for Adults Aged 18 - 64 Years." from http://www.who.int/dietphysicalactivity/factsheet_adults/en/index.html.

[2] European C
ommission (1999). Cycling: The Way Ahead for Towns and Cities. Luxembourg, Office for Official Publications of the European Communities.

[3] GERIKE, R., DE NAZELLE, A., NIEUWENHUIJSEN, M., PANIS, L. I., ANAYA, E., AVILA-PALENCIA, I., BOSCHETTI, F., BRAND, C., COLE-HUNTER, T., DONS, E., ERIKSSON, U., GAUPP-BERGHAUSEN, M., KAHLMEIER, S., LAEREMANS, M., MUELLER, N., ORJUELA, J. P., RACIOPPI, F., RASER, E., ROJAS-RUEDA, D., SCHWEIZER, C., STANDAERT, A., UHLMANN, T., WEGENER, S., GOTSCHI, T. & CONSORTIUM, P. 2016. Physical Activity through Sustainable Transport Approaches (PASTA): a study protocol for a multicentre project. *BMJ Open,* 6**,** e009924.

To reveal challenges and barriers of promoting active mobility and to complete the city specific image on walking and cycling, a workshop with stakeholders from different city departments (health, transport, urban planning), PT operators, walking and cycling associations and health experts was organized in each CSC resulting in a total of 162 participants. In addition 75 interviews were carried out. The cross city analyses show that the cities are indeed very different – in number and structure of population, topography, climate, built up area, modal split, transport system, political responsibility etc. – which makes it quite difficult to draw general conclusions. What they have in common is that in each city a big variety of different measures and interventions was implemented. More or less ambitious goals to reduce motorized traffic and to increase the share of walking and cycling are defined in the strategic policies (urban development plans, transport concepts etc.), clearly directed towards more sustainable and healthy cities. Political will, often tied with a powerful politician, is the most important driving force and a cornerstone for promoting AM, while missing political will is one of the main barriers together with missing collaborations between the different administrative departments, planning sectors and stakeholders. Transport planners are often aware of the positive health impacts of increased AM as a welcome side effect, but do not use it as argument for investments in AM measures.

These contacts were expanded to collect more AM measures from other cities as well. Good practice examples will be filtered and collected in a good practice compendium, which will be brought to decision makers, city authorities, civil society organizations and end users.

Figure 1.2: HEAT, available at: http://www.heatwalkingcycling.org/

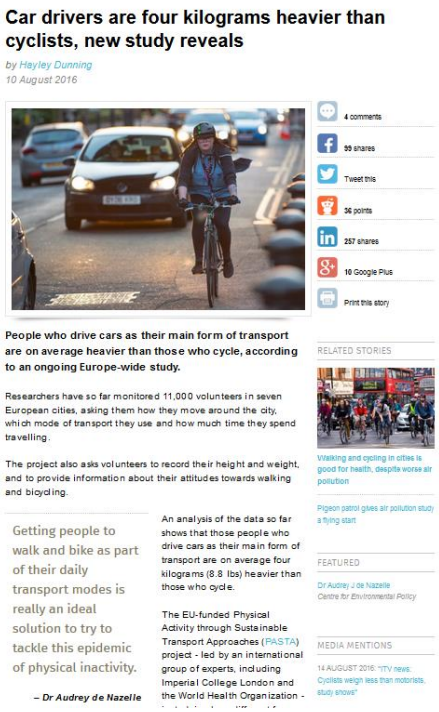
Decision makers in the cities are also the target group for a comprehensive and user-friendly health impact assessment (HIA) tool for AM and for WHO's Health Economic Assessment Tool (HEAT) for cycling and for walking, which will be improved during the project. After performing a systematic review of quantitative health impact assessments on active transport policies (Mueller et. al., 2015)[4], procedures to implement morbidity, carbon and traffic injuries in HEAT were developed. The new air pollution module will be presented at the final PASTA conference in September 2017.

Main part of the project is a longitudinal study in all seven CSCs that was launched in the beginning of 2015 aiming for a better understanding of correlates of AM and their effects on overall PA, injury risk and exposure to air pollution. Recruitment was done individually by each city, based on a common recruitment strategy. A comprehensive baseline questionnaire (collecting socio-demographic, individual, household, health, attitudinal and other variables as well as frequency of use of different modes and GPAQ questions) and frequent short (colleting PA behaviour) and long follow-up questionnaires (colleting PA and a trip diary) form the core of the survey. An additional crash questionnaire records circumstances and injuries of reported walking or cycling incidents.

After 1 ½ years of recruitment in total more than 12,500 participants took part in the survey across the 7 cities, completing more than 82,000 questionnaires. More important than the total number is the fact that about 5,700 participants filled in 3 or more questionnaires in a row giving us a

[4] MUELLER, N., ROJAS-RUEDA, D., COLE-HUNTER, T., DE NAZELLE, A., DONS, E., GERIKE, R., GOTSCHI, T., INT PANIS, L., KAHLMEIER, S. & NIEUWENHUIJSEN, M. 2015. Health impact assessment of active transportation: A systematic review. *Prev Med*, 76**,** 103-14.

powerful dataset on PA and traffic. Recruitment efforts are lowered now, but participants continue to receive questionnaires until the end of 2016.



Car drivers are four kilograms heavier than cyclists, new study reveals

by Hayley Dunning
10 August 2016

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People who drive cars as their main form of transport are on average heavier than those who cycle, according to an ongoing Europe-wide study.

Researchers have so far monitored 11,000 volunteers in seven European cities, asking them how they move around the city, which mode of transport they use and how much time they spend travelling.

The project also asks volunteers to record their height and weight, and to provide information about their attitudes towards walking and bicycling.

Getting people to walk and bike as part of their daily transport modes is really an ideal solution to try to tackle this epidemic of physical inactivity.

– Dr Audrey de Nazelle

An analysis of the data so far shows that those people who drive cars as their main form of transport are on average four kilograms (8.8 lbs) heavier than those who cycle.

The EU-funded Physical Activity through Sustainable Transport Approaches (PASTA) project - led by an international group of experts, including Imperial College London and the World Health Organization -

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Dr Audrey de Nazelle
Centre for Environmental Policy

MEDIA MENTIONS

14 AUGUST 2016: "ITV news: Cyclists weigh less than motorists, study shows"

Figure 1.3: Example of press coverage in London

First analyses of preliminary PASTA survey data of about 11,000 participants led to a press release, showing that car drivers are on average 4kg heavier than cyclists: For the analysis a multivariate linear regression model was used taking into account a number of confounding variables.

In three selected CSCs (Antwerp, Barcelona and London) a real life measurement of physical activity levels, black carbon exposure and subclinical health effects (e.g. heart rate variability, blood pressure or changes in retinal arteries) was done by 40 healthy volunteers. The measurements are finished and first results of the health add-on module are expected at the beginning of 2017.

A subsample of about 500 participants in all CSCs was tracked with a smartphone app (Moves) to help validating the PASTA travel diary, to assess the relevance of environmental attributes in determining route choices and to estimate air pollution exposures as function of people's daily activities. Experiments in the tracking add-on are ongoing until the end of the core survey. A more detailed description of the survey can be found here (Dons et. al., 2015)[5].

The website www.pastaproject.eu is a very important instrument in the PASTA overarching communication strategy, which aims at clear, consistent and targeted communication about the project and its findings to the outside world, to inform cities in Europe about the health and economic benefits of active mobility and to encourage the take up of the integrated innovative approaches of active mobility.

The project and results will be presented within the PASTA final conference, which takes place on 20th September 2017 in Mannheim in cooperation with the International Cycling Conference (ICC) and THE PEP meeting aiming to bridge the gap between research and practice: www.uba.de/en/icc2017

Figure 1.4: Logo ICC & PASTA Final conference

[5] DONS, E., GOTSCHI, T., NIEUWENHUIJSEN, M., DE NAZELLE, A., ANAYA, E., AVILA-PALENCIA, I., BRAND, C., COLE-HUNTER, T., GAUPP-BERGHAUSEN, M., KAHLMEIER, S., LAEREMANS, M., MUELLER, N., ORJUELA, J. P., RASER, E., ROJAS-RUEDA, D., STANDAERT, A., STIGELL, E., UHLMANN, T., GERIKE, R. & INT PANIS, L. 2015. Physical Activity through Sustainable Transport Approaches (PASTA): protocol for a multi-centre, longitudinal study. *BMC Public Health*, 15**,** 1126.

Table 1.1: PASTA consortium

Partner short name	Partner name and country	Type of partner	Websites
BOKU (lead)	Universität für Bodenkultur Wien, AT	University	http://www.rali.boku.ac.at/verkehr/
UZH	Universität Zürich, CH	University	http://www.uzh.ch
VITO	Vlaamse Instelling voor Technologisch Onderzoek N.V, BE.	Research Organisation	www.vito.be
ISGLOBAL	Instituto de Salud Global Barcelona, ES	Research Centre	http://www.isglobal.org/
TRIV	Trivector Traffic AB, SE	SME	http://www.trivector.se/en/
ICL	Imperial College of Science, technology and medicine, UK	University	http://www3.imperial.ac.uk
LBN	London Borough of Newham, UK	Public body	http://www.newham.com/
RSM	Roma Servizi per la Mobilita SRL, IT	Public equivalent body	http://www.agenziamobilita.roma.it/
WHO	World Health Organisation, DK	International Organisation	http://www.who.int/en/
UOXF	The Chancellor, Masters and Scholars of the University of Oxford, UK	University	http://www.ox.ac.uk/
DSHS KOLN	Deutsche Sporthochschule KÖLN, DE	University	http://www.dshs-koeln.de/
POLIS	POLIS – Promotion of operational links with integrated services, association international, BE	International Organization	http://www.polis-online.org/
ICLEI EURO	ICLEI European Secretariat GmbH; DE	SME	www.iclei-europe.org
GÖG FP	Gesundheit Österreich FP GmbH, AT	Health promotion foundation	http://www.goeg.at/
TUD	Technische Universität Dresden, DE	University	tu-dresden.de