

New model for creating physical activity-friendly cities

A Physical Activity Friendly Environment (PAFE) facilitates and stimulates people to be physically active or to do sports. Many Dutch cities tend to include PAFE in their city policy. The Knowledge Centre for Sport & Physical Activity Netherlands designed a model that helps to create these safe, activity-friendly environments.



The Netherlands has a dense sports infrastructure: there are approximately 21,1 sports facilities per 10,000 inhabitants. In each area code, at least three different kinds of sports facilities can be found. The average distance between home to the nearest sports facility is just over 600 meters. No wonder that the Dutch, compared to other Europeans, are most satisfied with their sports facilities (European Commission 2014).

In many Dutch municipalities, initiatives are growing to create an environment that promotes physical activity. PAFE-policies are part of municipal city planning strategies. The Dutch can choose from roughly 35,000 km of cycle paths, and more

bicycle highways for commuting and recreational purposes underway.

Developing activity-friendly cities: PAFE model

The Knowledge Centre for Sport & Physical Activity Netherlands has developed instruments (a model, a scan, an indicator, a roadmap, a whitepaper, and a theme website) and published more than a hundred articles on Physical Activity Friendly Environment about good and best practices, policy examples, and scientific research results. The PAFE-model consists of software, 'orgware', and hardware. Software contains a supply of activities (interventions, programmes, events), coaching (community sports coach, youth workers, volunteers), and communication (information, campaigns, websites, apps).

'Orgware' concerns the process of (participatory) designing, building, and maintaining (citizen participation, ownership, management, maintenance, enforcement, finance, monitoring & evaluation, policymaking).

Hardware is the physical environment for which we have developed an indicator: SPORT+. It contains 6 sub-indicators:

- 1 Sports accommodations/venues: pitches, sports halls, gyms, pools;
- 2 Playgrounds: schoolyards, skatepark, outdoor fitness
- 3 Open space: green areas, parks, exercise gardens for the elderly, and play ponds
- 4 Routes for walking, cycling, horse riding, inline skating, mountain biking
- 5 Touristic & recreational areas: forest, heath area, dunes, beach
- 6 + Proximity public services (schools, supermarket, church)

International participations

Many cities consider a Physical Activity Friendly Environment to be a goal in their policy (also due to the new National Strategy on Spatial Planning and the Environment in which health is a key factor). The Knowledge Centre has participated on an international level in Active City projects of WHO (a technical package for increasing physical activity), HEPA, TAFISA (Active Cities), and physical activity-friendly environment project IMPALA (Finland, Germany, I, Est, A, NL).



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Thermo Tokyo: Beat the heat

Elite athletes regularly train under extreme environmental conditions. The Thermo Tokyo Consortium develops strategies for safe and optimal performance in these circumstances.

The combination of endogenous heat production during exercise with exogenous heat stress due to high air temperature and humidity places the athlete at risk. He or she could develop heat-related disorders or severe performance loss. Both are highly undesired and underline the need for effective mitigation measures. The Thermo Tokyo consortium developed and performed personalised heat stress tests to determine the individual vulnerability of an athlete for hyperthermia and performance loss. Based on the outcomes of these tests, the athlete and coach were advised on which mitigation measures fitted best to their profile.

Second, individualised cooling solutions for different sports were developed, optimised, and implemented into a training regime.

Third, the feasibility and effectiveness of a novel heat acclimation protocol were evaluated, which aids elite athletes to incorporate this more easily during their taper phase. Thermo Tokyo outcomes are currently implemented in the Olympic training schedules of a large group of TeamNL athletes.




Interdisciplinary research

The consortium is an excellent example of interdisciplinary research and innovation, evidenced by a strong and fruitful collaboration between universities, professional sports associations, elite athletes, coaches, small and medium-sized, and the Dutch Olympic Team.

Shortly, the consortium will develop and implement novel strategies to allow safe and optimal exercise performance in extreme environmental conditions, such as expected during the Tokyo 2021 Olympic Games.

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