The use of technology for active living

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Fontys

COMMIT/

Health in NL

- 44% of people living in the Netherlands do not meet Dutch Guidelines of active living
- People living in cities are less healthy and have a decreased life expectancy (Hoeymans et al., 2014)
- Also clear relation between liveability of city and physical activity (Tiessen-Raaphorst, 2015).

Sport in NL

- Shift from sport in clubs to differently organized communities
- More participation in individual sports as running, cycling and fitness
- Increase in participation in events

Consequences

- Still a lot to win
- More sports in public space
- Bigger importance of technology

Dutch research agenda

- Value of Sports
- Performance
- **More people, more active, more often**

More people, more active, more often… through…

- Better use of technology
- Improved urban planning
- Personalized exercise

More people, more active, more often… with focus on…

- Elderly
- Disabled individuals
- Those in lower socio-economic status

More people, more active, more often… use of big data…

- Use of realistic environments: schools, rehabilitation centers, sportfields
- Collect data of inactive individuals through apps, wearables and beacons
- Collecting data in large cohorts (for instance sportevents)

Current research questions/projects

- Use of apps and effects of apps on lifestyle and physical activity
- Stimulating physical activity in inactive city citizens with use of beacons
- Use of app data to facilitate urban planning
- Measuring and evaluating motor skills

Use of apps and effects of apps on lifestyle and physical activity

Data collection

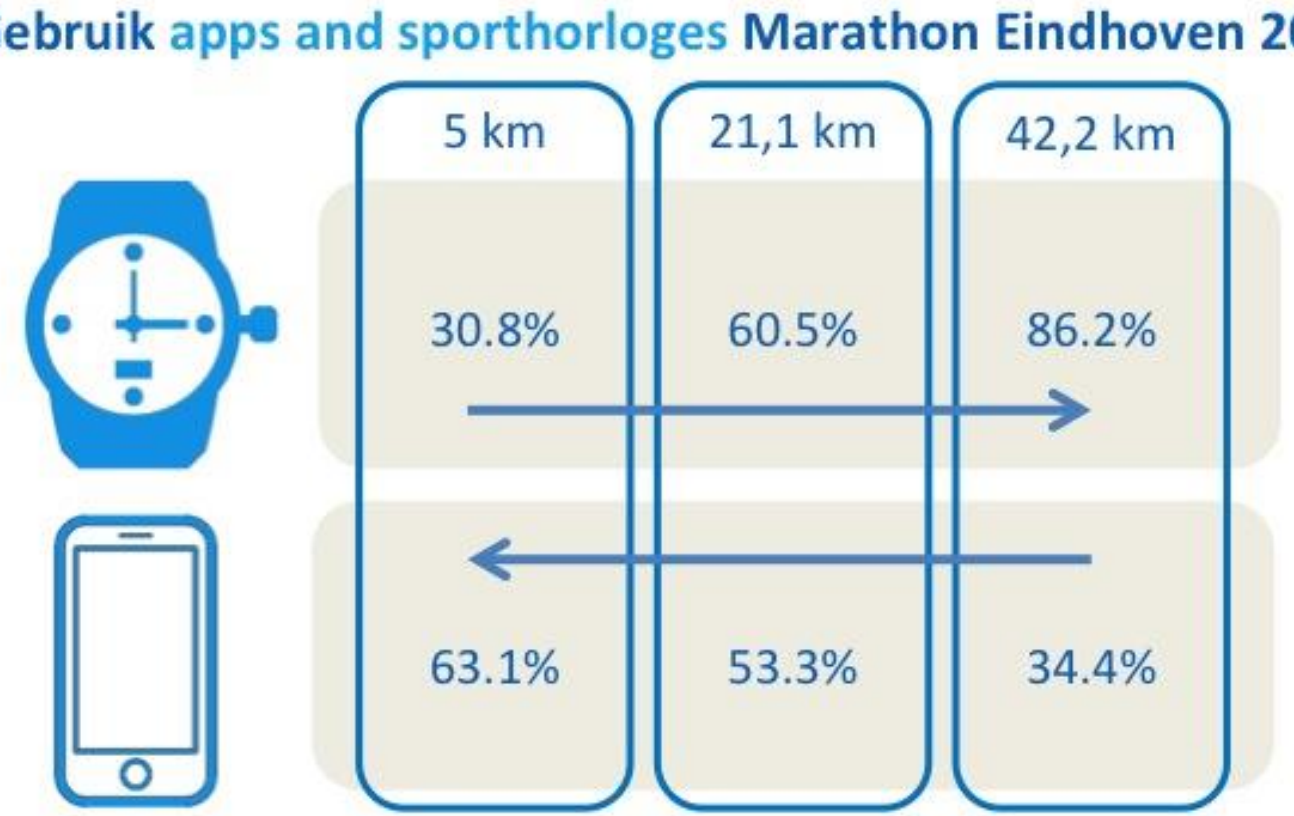
Dam tot Damloop &
Eindhoven Marathon

50,000 participants

Recreational runners

Surveys

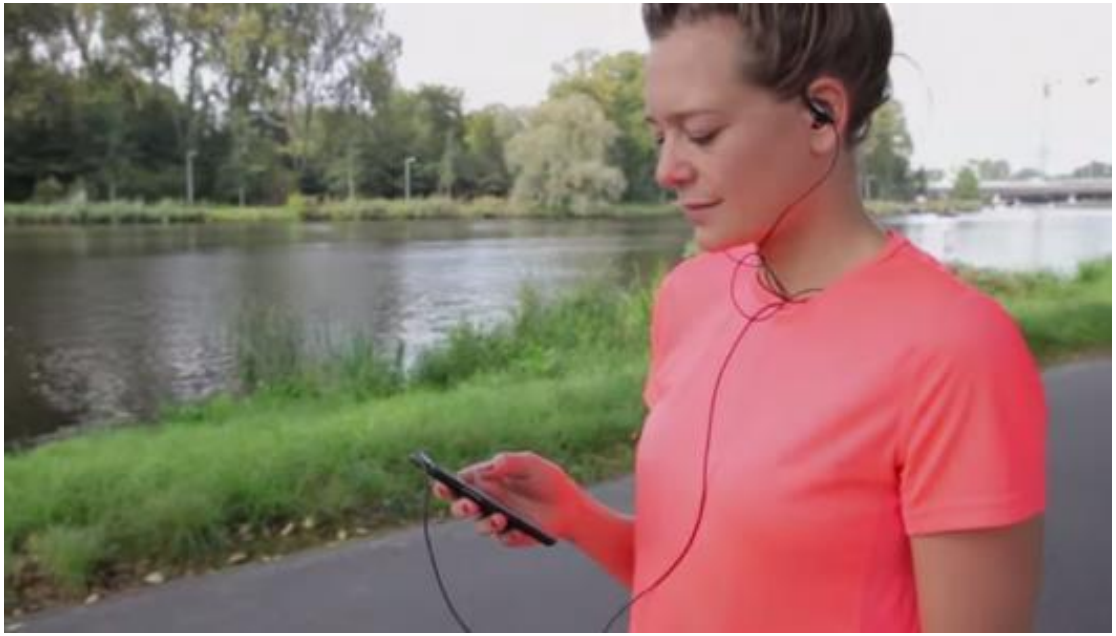
App use



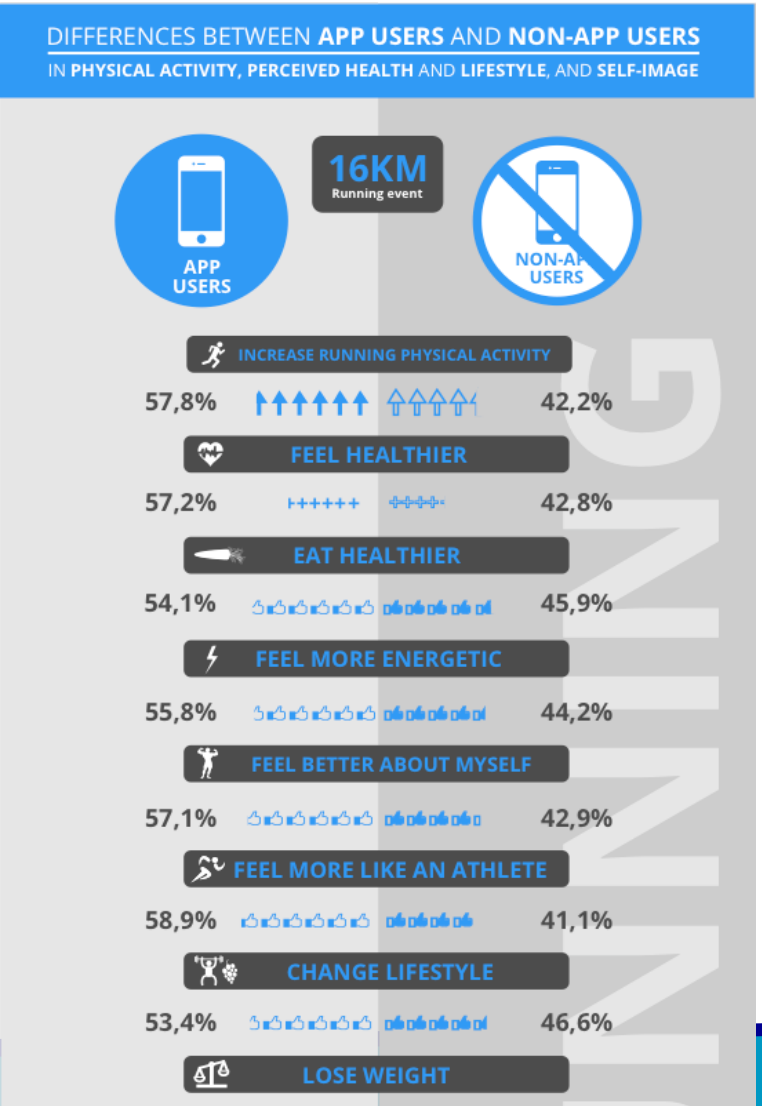
Bron: Janssen, Vos, Brombacher & Scheerder (2015)

App users

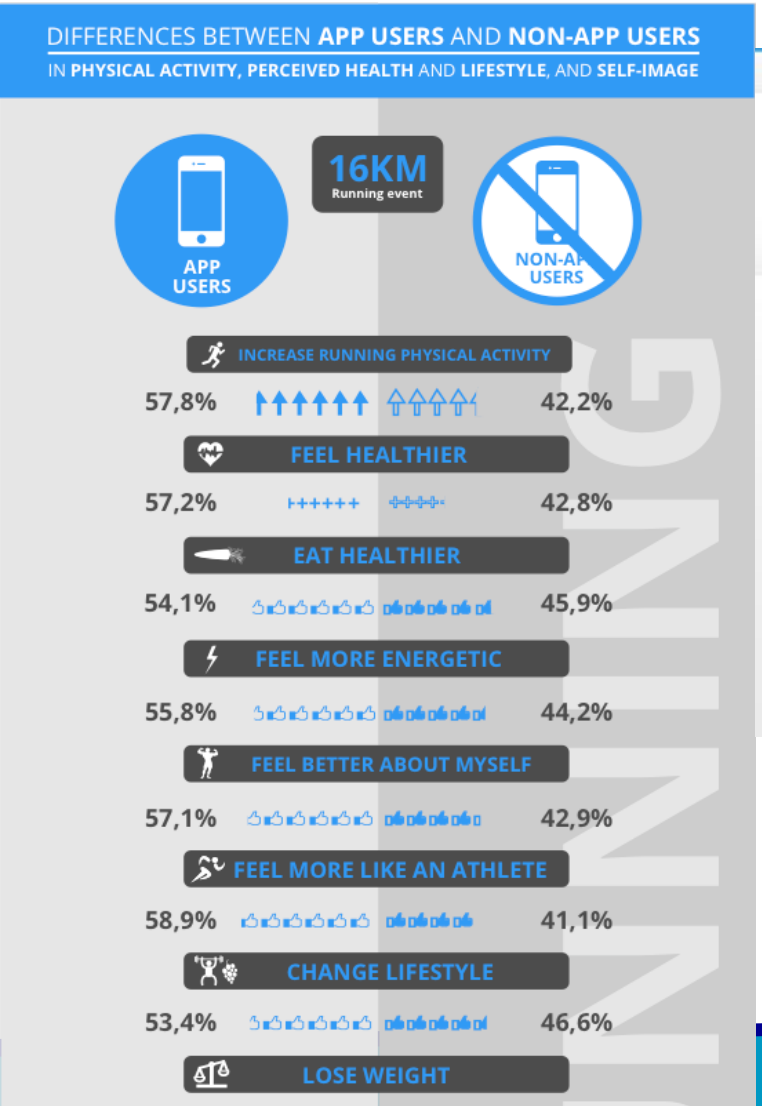
- Less active runners
- More females
- Younger



Effect of app use



Effect of app use



Promising?
Or even more possible?

- “Health and Fitness” apps >32.700 (Yuan 2015)
- Apps not evidence based (Knight 2015; Middelweerd 2014)
- Development of new and evidence based apps (for instance SENSEI (commit) and inspirun)

Stimulating physical activity in inactive city citizens with use of apps and beacons

Living lab in Amsterdam

Bambea project

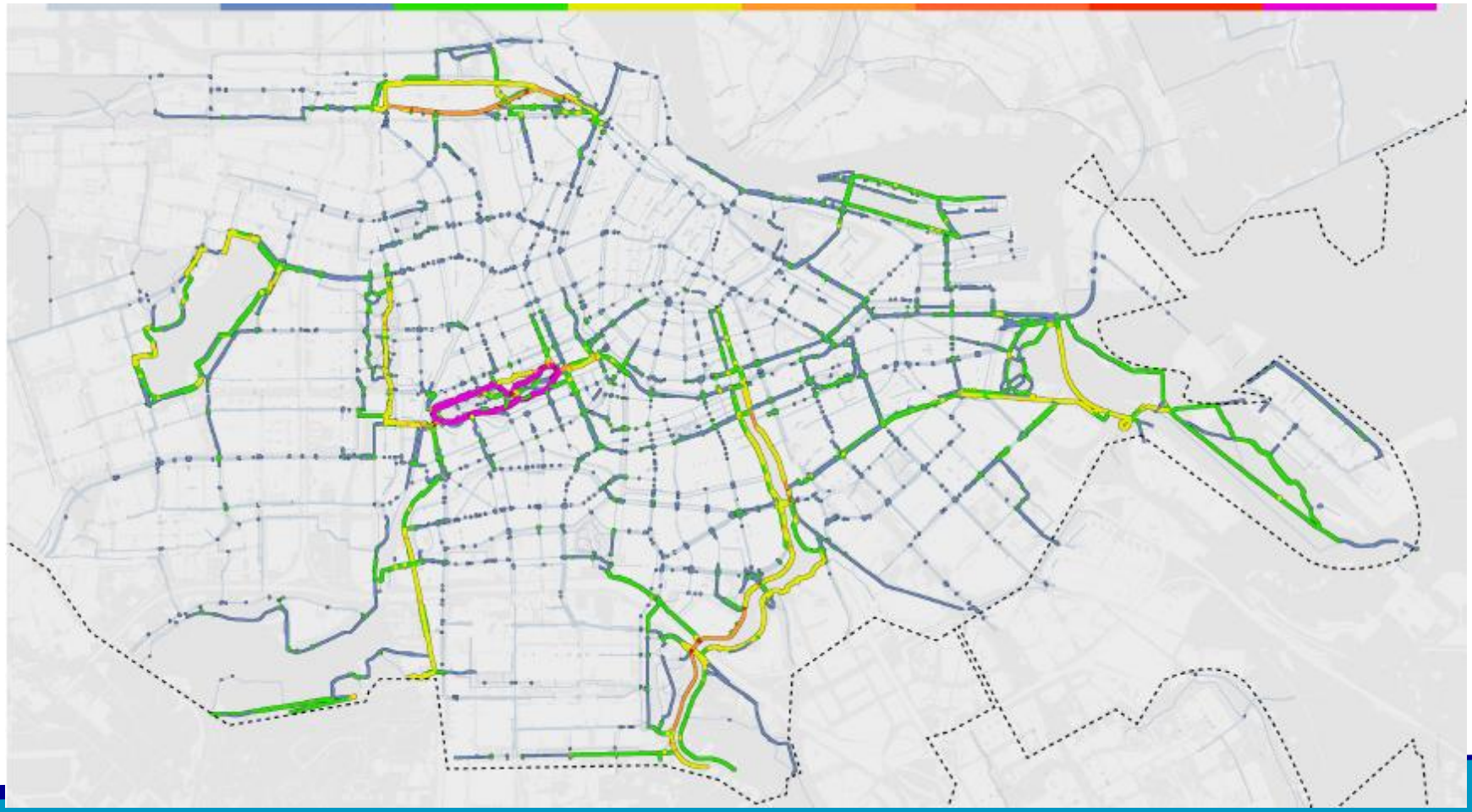
Beacon

App

motivational feedback

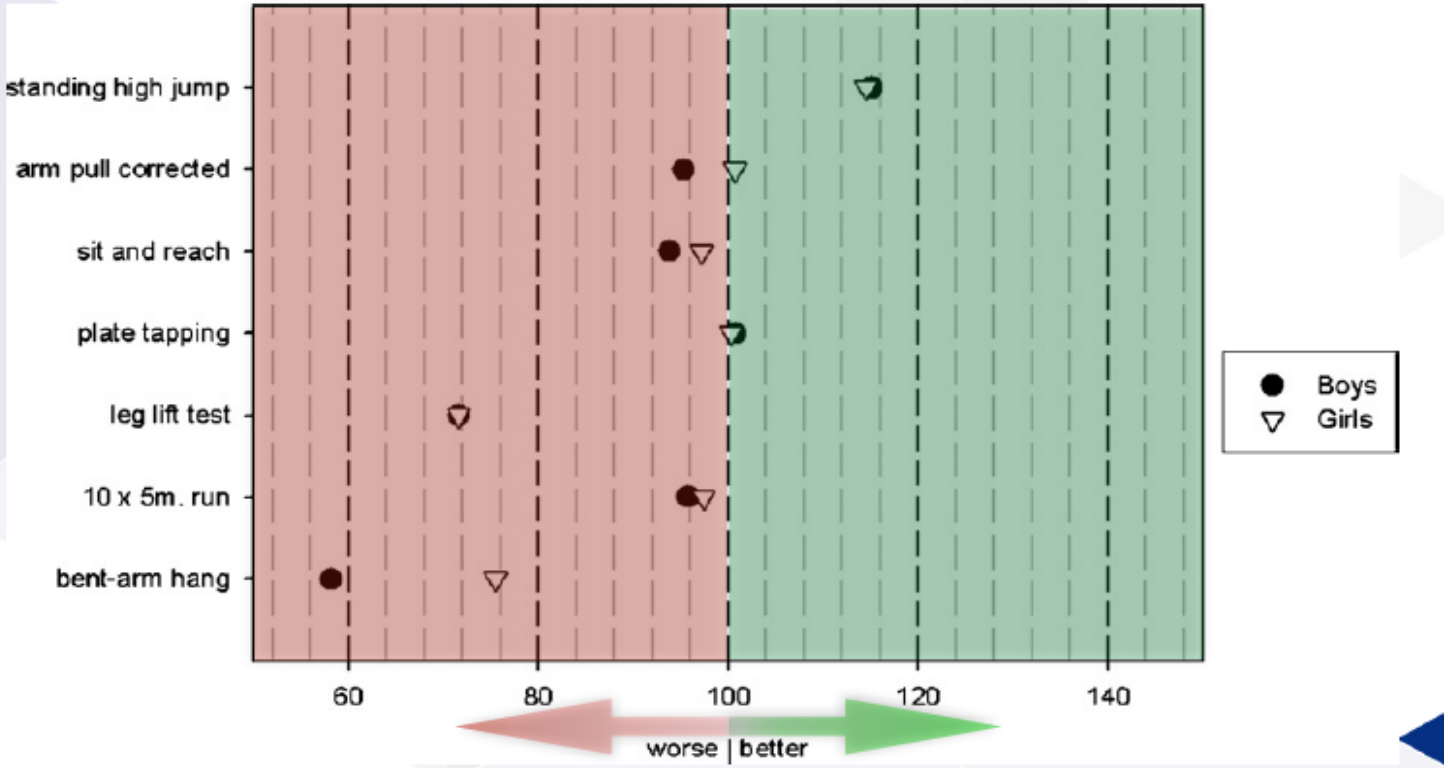
- Easy accessible
- Increased interaction with the neighbourhood
- Motivational feedback based on self-determination theory and transtheoretical model

Using app data to facilitate urban planning



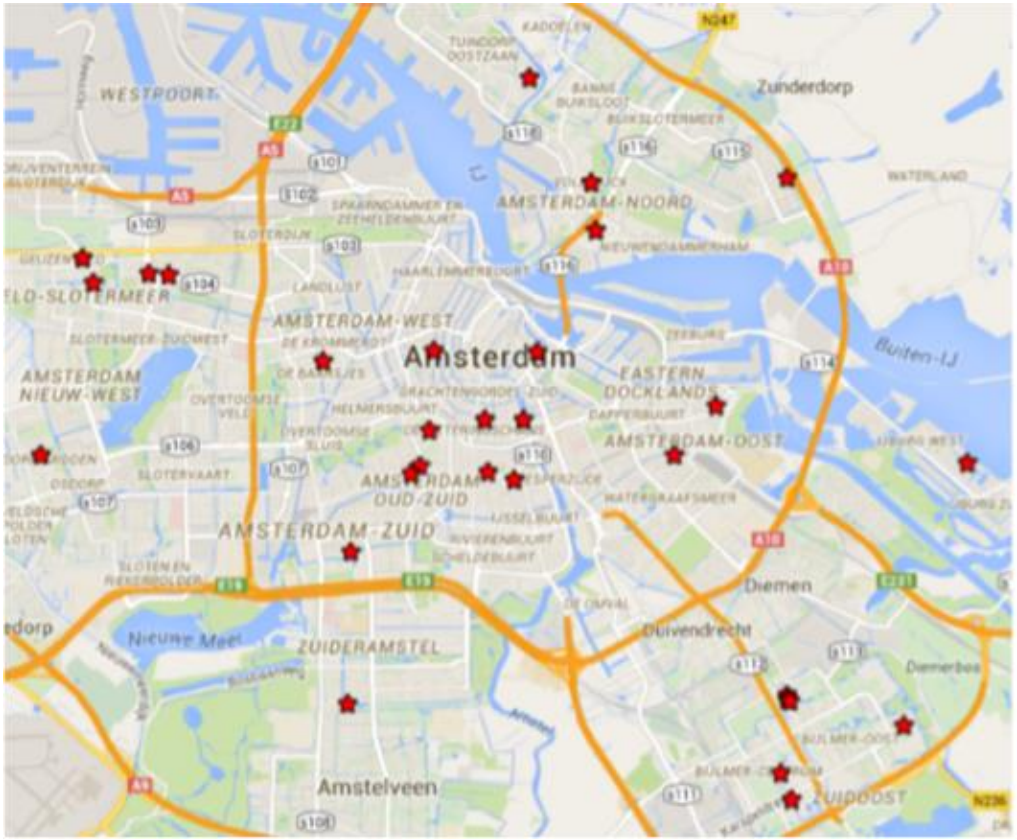
Motor skills in children

PERFORMANCE DIFFERENCES ON MOPER TEST ITEMS OF 9–12-YEAR-OLD DUTCH KIDS BETWEEN 1980 AND 2006 (1980 = 100)



Runhaar, J., Collard, D. C. M., Singh, A. S., Kemper, H. C. G., Mechelen, W. v., & Chinapaw, M. (2010). Motor fitness in Dutch youth: Differences over a 26-year period (1980–2006). *Journal of Science and Medicine in Sport, 13*, 323-328.

Measuring and evaluating motor skills



Mambo fieldlabs
30
Schools
4493
children

Relation Motor Skills

School Environment

Social Economic Status

MOTOR SKILLS

SCORE SHEET 4-SKILLS TEST Name ..... Date of birth .....

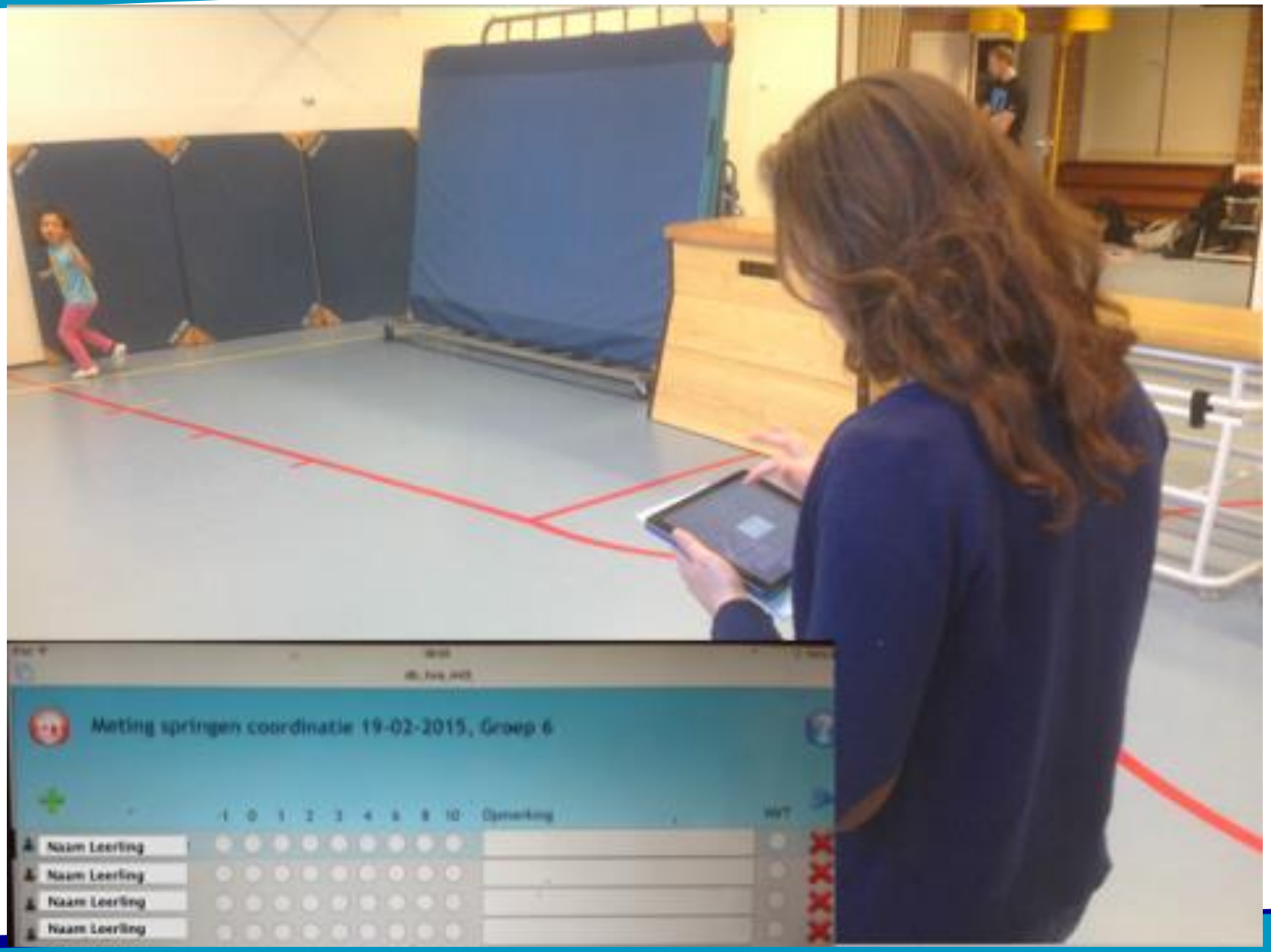
	Level -I 2.0 yo	Level 0 3.0 yo	Level I 4.0 yo	Level II 5.0 yo	Level III 6.0 yo	Level IV 7.0 yo	Level VI 9.0 yo	Level VIII 11.0 yo	Level X 13.0 yo
Standing still	can step over 4 cm ☐	can shoot a ball without falling ☐	stand on one leg for 3 sec. ☐	can stand on one leg for 10 sec. (wobbling allowed) right ☐ left ☐	can stand on one leg for 10 sec. (stable) right ☐ left ☐	can stand on one leg for 30 sec. (wobbling allowed) right ☐ left ☐	can stand on one leg for 30 sec. (stable) right ☐ left ☐	can stand on one leg for 60 sec. (stable) right ☐ left ☐	can stand on one leg with eyes closed for 10 sec. right ☐ left ☐
Jumping-Force	steps from a 20 cm high platform ☐	jumps from a bench (30 cm) and stands still ☐	hops 3 x ☐	hops 10 x ☐	hops over 9 m. distance ☐	hops over 9 m. distance 11 x ☐ 12 x ☐	hops over 9 m. distance 9 x ☐ 10 x ☐	hops over 9 m. distance 7 x ☐ 8 x ☐	hops over 9 m. distance 5/6 x ☐ 6/7 x ☐
Jumping-Coordination	tramples when child wants to jump ☐	jumps with 2 legs synchronously ☐	jumps forward as a kangaroo 3 x ☐	skips ☐	makes ski jump 10 x ☐	makes quick AC jump ☐	can hop and clap in hands synchronously ☐	can cross-spread-cross jump + clap hands at cross ☐	can cross-spread-cross jump + clap hands at spread ☐
Bouncing (ball)	hits (regularly) a well aimed balloon ☐	keeps balloon in the air 3 x to 5 x ☐	keeps balloon in the air 6 x ☐	drops - bounce - catch ☐	bounce 15 x with preferred hand right ☐ left ☐	bounce 15 x in a row with 'other' hand ☐	can dribble 10 x in a 8-shape ☐	bounce >15 x without looking at ball right ☐ left ☐	can dribble 12 x in 8-shape within 30 sec. ☐

After School Sports Activities

Jumpin

BMI

Member of Sports Club


Meting springen coordinatie 19-02-2015, Groep 6
Naam Leerling
Naam Leerling
Naam Leerling
Naam Leerling

Challenges

- Developing evidence based technology to stimulate inactive citizens
- Smart use of data collected in sport apps to increase urban planning aimed to stimulate exercise
- Advanced data mining for finding motivational triggers (for physical activity)
- Providing relevant feedback from collected data

Wish for collaboration

Thanks

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