

Lise Hestbaek<sup>1,2</sup>, Jan Hartvigsen<sup>1,2</sup>, Niels Wedderkopp<sup>1,3</sup>, Jens Troelsen<sup>1</sup>



<sup>1</sup> Institute of Sports Science and Clinical Biomechanics, University of Southern Denmark  
<sup>2</sup> Nordic Institute of Chiropractic and Clinical Biomechanics  
<sup>3</sup> Spine Center of Southern Denmark



## Background

There is an increased awareness about how early prevention of lifestyle diseases such as diabetes and cardiovascular disease involve physical activity. Physical activity may also play a role in the prevention of musculoskeletal disorders but the literature remains inconclusive. We know that back pain starts early in life and therefore research into primary prevention should focus on children and adolescents. Thus, the impact of increased physical activity in childhood and adolescence on musculoskeletal health should be explored. Subsequently, it must be investigated how scientifically proven strategies can be applied in society. Often these two issues are explored separately with health issues being investigated through registers, in clinical settings or other medical facilities without any involvement of schools, city-planners, politicians and other decision makers while at the same time initiatives to promote health takes place in society without the cooperation of researchers. This poster presents two examples of research projects where implementation is inherent in the design of the projects, rather than a next step.



### *The "Svendborg-project": The effect of more physical education in school*



#### Study subjects:

1 municipality  
10 schools (6 intervention and 4 control)  
1220 students, 0<sup>th</sup> to 3<sup>rd</sup> grade at baseline

#### Follow-up:

6 years  
Weekly sms-track  
Regular physical testing  
Accelerometers

#### Research

##### questions:

- Risk factors for lifestyle disorders
- Sportsinjuries in children and adolescents
- Motor co-ordination and talent detection
- Bonedensity in childhood
- Treatment of musculoskeletal disorders

#### Interventions:

- 6 hrs. physical education/wk (2 for controls)
- Postgraduate education for physical education teachers in age-related exercise
- Education in health and lifestyle
- Free treatment of musculoskeletal complaints at the schools during school hours

#### Measures:

- Health (many outcomes)
- Endurance and strength
- Fitness and motor co-ordination
- Level of physical activity
- Blood samples
- DEXA scans

### *"SPaCE": The impact of built environment of physical activity*

#### Study subjects:

1 region  
14 schools (7 intervention and 7 control)  
1200 students, 5<sup>th</sup> -6<sup>th</sup> grade at baseline

#### Follow-up:

3 years  
Yearly physical testing  
Accelerometers  
Activity diary

#### Research

##### questions:

- How the built environment combined with individual and organizational-oriented initiatives can promote physical activity in everyday life.
- The relationship between spinal health and physical activity.
- The value of screenings for spinal health.

#### Interventions:

- Changes in the physical environment in order to:
- enhance the schoolyard as an arena for self-organised play, sports and physical activity, encourage more children to cycle and walk in the local area,
  - promote physical activity and play in residential areas,
  - provide fitness settings with flexible opening hours at a low cost

#### Measures:

- Registration of activity on the various sites
- Health (many outcomes)
- Endurance and strength
- Fitness and motor co-ordination
- Level of physical activity
- ROM and flexibility
- Spinal examination

## Perspectives

Involving the primary players in the community as early as the design phase complicates the process and sometimes requires the will to compromise between an optimal research design and realistic possibilities. However, it does have several advantages:

1. The interventions are realistic and close to real life, and therefore are readily applied and expanded, if the results are positive.
2. Positive and constructive input and feedback from the people working in the projects on a daily basis (pupils, teachers, city-planners etc.) helps to qualify the study.
3. It opens opportunities for unusual alliances between professions not traditionally working together (health care professionals, sociologists, educational scientists etc.)
4. The broad focus on back pain, public health, education, and society improves financing possibilities by attracting funds that do not traditionally show an interest in research and medical science.
5. If results are negative, projects are easily terminated at the end of the project period.



TEAM DANMARK



NORDEA FONDEN

IMK

