

Advisory board meeting

Effects of physical activity on metabolic health and cognitive function.

A follow-up and an expansion of The CHAMPS study-DK

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Content of presentation


- History of the CHAMPS study-DK
- Aims of the new application
- Main themes in CHAMPS study-DK 3
- Challenges in reaching the aims


History of the CHAMPS study-DK



Niels Wedderkopp

History of the CHAMPS study-DK

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- CHAMPS part 1
 - Autumn 2008 – summer 2011

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- CHAMPS part 2
 - Autumn 2011 – summer 2014

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- CHAMPS part 3
 - spring 2015

CHAMPS 1

Extra PE for three school years in sports schools

Dxa scan

Blood sample
Blood pressure
Pubertal stage
assessment

Motor-
performance
Aerobe fitness
Height/weight/
waist
Hypermobility

Motor-
performance
Aerobe fitness
Height/weight/
waist
Hypermobility

Blood pressure
Pubertal stage
assessment

Motor-
performance
Aerobe fitness
Height/weight
/waist
Hypermobility

Motor-
performance
Aerobe fitness
Height/weight
/waist
Hypermobility

Dxa scan

Blood sample
Blood pressure
Pubertal stage
assessment

Height/weight
/waist
Hypermobility

Motor-
performance
Aerobe fitness
Height/weight
/waist
Hypermobility

August
2008

Spring
2009

Autumn
2009

Spring
2010

Autumn
2010

Spring
2011

June
2011

Questionnaire on
lifestyle and
socioeconomics

One week
accelerometry

One week
accelerometry

SMS-Track: Registration of injuries and participation in organized sport

CHAMPS 2

Extra PE for three school years in sports schools (until 6th grade)

Aerobe fitness
Height/ weight/waist
Hypermobility
Pubertal stage
assessment
Motor performance

One week
accelerometry

Aerobe fitness
Height/ weight/waist
Hypermobility
Pubertal stage
assessment
Motor performance

August
2011

Spring
2012

Autumn
2012

Spring
2013

Autumn
2013

Spring
2014

June
2014

SMS-Track: Registration of injuries and participation in organized sport

Chiropractor RCT study

History of the CHAMPS study-DK

CHAMPS 3

Aims of the new application

1. *To test the long-term effects on metabolic risk factors as well as academic achievement of a large-scale school-based intervention increasing physical education (PE) from two lessons to six lessons per week.*
2. *To examine the associations between metabolism, academic achievement, cognition, BDNF and physical activity/cardiorespiratory fitness in a large cohort of children followed for 6 years.*
3. *To strengthen the exchange, synthesis and application of knowledge between research and practice through all program phases.*

Main themes

Three main themes in the application;

1. Metabolism; CVD risk factors, body composition, aerobic fitness and physical activity
2. Cognitive function and academic performance
3. Implementation research/knowledge translation

CHAMPS 3 – Spring 2015

Blood sample
Blood pressure
Aerobe fitness
Height/weight/waist
Pubertal stage assessment
Motor performance
Cognition
Accelerometry

Dxa scan
Visual examination (myopia)
Pulse wave velocity measurement
Academic achievement

**CHAMPS 1
and 2**

Process evaluation The CHAMPS

August
2014

Autumn
2014

Spring
2015

June
2015

Measurements of academic achievement

Final examination in 9th grade

Subject and grade	2.	3.	4.	5.	6.	7.	8.
Danish, reading	X		X		X		X
Math		X			X		
English						X	
Geography							X
Biology							X
Physics and chemistry							X
Danish as second language				X		X	

Problems in reaching the aims

1. *To test the long-term effects on metabolic risk factors as well as academic achievement of a large-scale school-based intervention increasing physical education (PE) from two lessons to six lessons per week.*

Challenges:

- New Danish School Reform!!!

Implementation of intervention

Sports schools: six weekly PE lessons

Control schools: two weekly PE lessons

**New
School
Reform**

**45 min
of PA
daily!**

Year
2008/09

Year
2009/10

Year
2010/11

Year
2011/12

Year
2012/13

Year
2013/14

Year
2014/15

Problems in reaching the aims

1. *To test the long-term effects on metabolic risk factors as well as academic achievement of a large-scale school-based intervention increasing physical education (PE) from two lessons to six lessons per week.*

Challenges:

- New Danish School Reform!!!
- Not completely controlled intervention...

Implementation of intervention

Sports schools: six weekly PE lessons

Sports schools: six weekly PE lessons the first years

Two weekly PE lessons the last years

Control schools: two weekly PE lessons

New School Reform:
45 min of PA daily!

Year
2008/09

Year
2009/10

Year
2010/11

Year
2011/12

Year
2012/13

Year
2013/14

Year
2014/15

Problems in reaching the aims

1. *To test the long-term effects on metabolic risk factors as well as academic achievement of a large-scale school-based intervention increasing physical education (PE) from two lessons to six lessons per week.*

Challenges:

- New Danish School Reform!!!
- Not completely controlled intervention
- We have to figure out the longitudinal statistic...

Problems in reaching the aims

2. *To examine the longitudinal associations between metabolism, academic achievement, cognition, BDNF and physical activity/cardiorespiratory fitness in a large cohort of children followed for 6 years.*

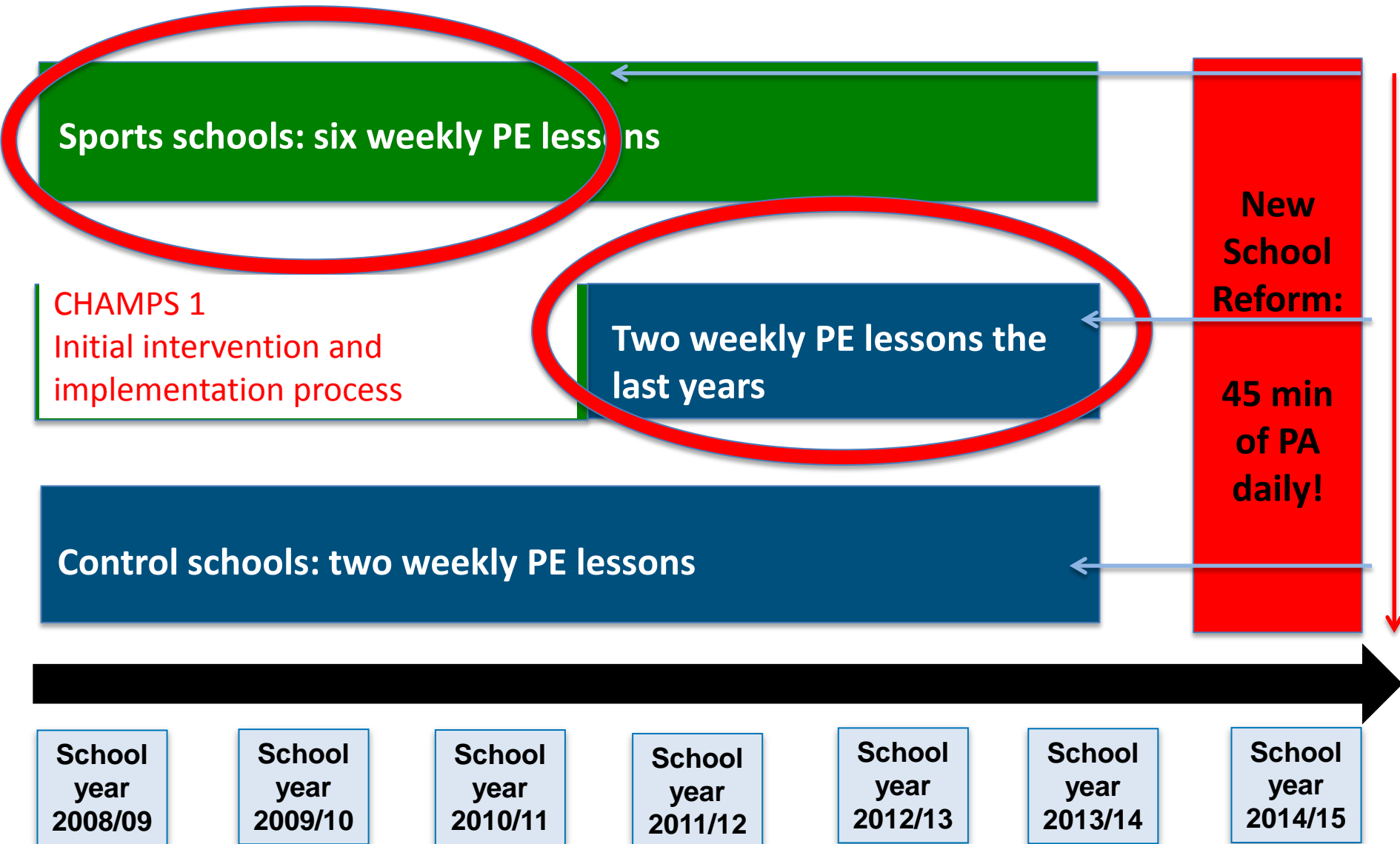
Challenges:

- Only cross-sectional data on cognition
- Only cross-sectional data on BDNF - hopefully...
- Longitudinal research questions to be answered?

Problems in reaching the aims

3. *To strengthen the exchange, synthesis and application of knowledge between research and practice through all program phases.*

Challenges of process evaluation



Challenges in reaching the aims

So what we can answer:

- How well does the implementation reflect the initial idea?
- How has the intervention evolved during the past seven years?
- What characterizes maintenance and sustainment?
- What barriers and mediators for implementing extra compulsory PE at all schools can be identified ?
 - At all levels and all phases

Challenges now

Selecting tests – cognitive tests, motor skills

BDNF analyses

Implementation research...

The end

Thanks for your attention!

Funded by:

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