Next Practice in Physical Education and Movement Science

The 2nd NORDPLUS-IDROTT Conference
May 6th to 8th 2013, Odense, Region of Southern Denmark

University of Southern Denmark

Program & Abstracts



Welcome to the 2nd NORDPLUS-IDROTT Conference

'Next practice in physical education and movement science'

2013 marks the 25th anniversary of the Nordplus-Idrott Network. This milestone is celebrated with a scientific and professional conference dealing with the overall theme 'Next practice in physical education and movement science'.

In the next three days specialists from different areas will debate and present enquiries into the many ways physical activity and, specifically, physical education influences human life. Thus, the conference is a prominent opportunity to get insight and overview of new studies and evidence on a number of key topics within movement science and physical education.

Moreover, the conference is designed in order to encourage participants to identify, explore and discuss ways to influence developments in sports, physical activity and physical education at local, national and international levels.

In this way we honor the overall purpose of the Nordplus-Idrott Network – namely to promote innovation, cooperation and solid partnership building between higher education institutions and other relevant organizations in order to strengthen the broad area of sports science and physical education.

More than 120 participants from 12 different countries will take part in the conference.

The conference includes five key-note speeches, ten practical and theoretical workshops and round-table discussions, plus a poster session. During scheduled breaks, at lunch and dinner we will have ample opportunities to catch up with established acquaintances and build new contacts.

Welcome to the conference and the University of Southern Denmark

On behalf of the Nordplus-Idrott network and the organizing committee

Karsten Froberg & Thomas Skovgaard

Program

MONDAY 6TH OF MAY

1400 Welcome and keynote speech by Lars Bo Andersen, University of Southern Denmark: Effectiveness of Schoolbased physical activity interventions - What do we know?

1530 Coffee

1600 Workshop related to keynote speeches

1800 Posters up - presentations on Tuesday

1830 Drinks in the lobby

1900 Dinner in SDU Restaurant

TUESDAY 7TH OF MAY

0900 Keynote speech by Charles H. Hillman, University of Illinois: Exercise, physical activity and Cognition

1000 Coffee

1030 Workshop related to keynote speeches

1230 Lunch

1330 Keynote speech by Richard Tinning, University of Auckland and University of Queensland: Global trends in school (H)PE: Expectations and realities

1430 Coffee

1500 Poster presentation

1600 Short break

1615 Workshop related to network groups

1815 Physical activity

1830 Drinks in the lobby and Danish Folk Music

1930 Dinner in SDU Restaurant

WEDNESDAY 8TH OF MAY

0900 Keynote speech by Helle Winther, Department of Nutrition, Exercise and Sports, University of Copenhagen: The Language of the Body in Professional Practice- contact, presence, embodied leadership and personal communication

1000 Coffee

1030 Keynote speech by Sigmund Loland, Norwegian School of Sport Sciences: Exercise as Profession

1130 Summary and conclusions

1200 Sandwiches and goodbye

Keynote

Effectiveness of School-based Physical Activity Interventions
Nordplus Conference 2nd of May 2013

Lars Bo Andersen
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The world today is facing an increasing number of individuals with lifestyle related diseases such as cardiovascular diseases (CVD), type 2 diabetes and certain types of cancers [1]. This has tremendous consequences both at the individual and the societal level in terms of decreased quality of life, increased morbidity and mortality [1]. Recent research has shown that physical activity and high aerobic fitness (VO_{2peak}) level are associated not only with insulin sensitivity, obesity and other metabolic risk factors, but also with improved cognitive function in relation to biological markers (brain derived neurotrophic factor, BDNF), and cognitive tests [2]. Furthermore, it has been found that BDNF is closely associated with the metabolic risk factors [3,4]. These apparently very different parameters, obesity, physical activity, fitness and cognitive function, seem to be interlinked. Associations between physical activity, fitness, obesity and CVD risk factors such as insulin resistance are well known, while knowledge of the association between the physical activity and cognitive function and biological mechanisms behind this association is increasing fast.

School-based interventions have shown that it is possible to improve CVD risk factor profile in children with an adverse risk factor profile [5,6]. Despite of that, the number of physical education (PE) lessons has decreased in Denmark since 1960s from four lessons a week to only two lessons. The National guideline for physical activity for children is 60 min per day of moderate intensity PA [7], but still the political will to increase PA in school has been limited. The main reason is probably that the purpose of the school system is primarily to teach children academic skills. The reluctance from teachers teaching other subjects and politicians to increase PE might be based on the concerns of taking time from theoretical subjects will decrease the abilities in these subjects. The scientific knowledge about the association between PA or physical performance and cognitive function in children is still deficient and inconclusive [8,9]. It is therefore of utmost importance to obtain more knowledge both about implementation of PA and benefits of PA on cognitive function in different age groups in order to implement preventive strategies in the school system. In order to do so knowledge about biological mechanisms of how PA exerts the effects on cognitive function and how this can be measured is needed.

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Keynote

The relation of childhood fitness and adiposity to brain health, cognition, and achievement

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There is a growing public health burden of inactivity among children of industrialized nations. In recent years, children have become increasingly inactive, leading to concomitant increases in the prevalence of being overweight and unfit. Inactivity during childhood often tracks throughout life and has implications for the prevalence of several chronic diseases during adulthood. Of further interest is the absence of public health concern for the effect of physical inactivity on brain health and cognition. It is curious that this has not emerged as a larger societal issue, given its obvious relation to childhood obesity and other inactivity-related disorders that have captured public attention. Further, many school districts have minimized or obviated physical activity opportunities from the school day despite a growing literature indicating the benefits of physical activity to cognitive health and learning. Such educational practices are growing in popularity due to budgetary constraints and an increased emphasis placed upon student performance on standardized tests. For more than a decade, my research program has examined the relation of physical activity to brain health and cognition across the lifespan, with particular interest in preadolescent childhood. My techniques of investigation involve a combination of neuroimaging (i.e., electroencephalography [EEG], magnetic resonance imaging [MRI]), behavioral assessments, and scholastic achievement in an effort to translate basic laboratory findings into everyday life. Central to this translational approach to science is the identification of etiological substrates of brain regions and networks that are changed via physical activity. As such, the overarching goal of my research is to determine factors that improve cognition, maximize health and well-being, and promote the effective functioning of individuals as they progress through the lifespan. In this presentation, I intend to describe a program of research that utilizes correlational and longitudinal designs to investigate lifestyle factors such as cardiorespiratory fitness and adiposity on brain, behavior, and scholastic achievement in preadolescent children. Findings from these studies have indicated that greater aerobic fitness is positively related to brain structure and function, as well as better task performance and achievement. Alternatively, central adiposity appears negatively related to brain function, behavior, and achievement. Such findings are timely and important for public health concerns related to chronic disease prevention as a function of childhood inactivity and obesity. These findings link these pervasive societal concerns with brain health and cognition, and have implications for the educational environment and the context of learning.

Keynote

The Language of the Body in Professional Practice

- *contact, presence, embodied leadership and personal communication*

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The language of the body is our primary language. The language of the body may therefore be of great importance to contact, trust, presence and embodied leadership, in many professional capacities. This is especially relevant for teachers, leaders and health care professionals. By giving more attention to bodily communication, professionals may develop their humane insight and their ability to read a situation and sense the language of the body. Awareness about the professional's own soma may be important for the development of authenticity and leadership. Bodily communication is namely both personal and professional, and is at the same time an overlooked and still young field of development in practical work, education and research.
Based on concepts, stories and exercises from the book *The language of the body in professional practice* this presentation illustrates central aspects of the importance of embodiment for leadership, personal communication and professional education, also as related to PE education.
Keywords: *Embodied professional competence, self-contact, bodily communication, embodied leadership, grounding, centering.*

Helle Winther
Associate Professor, Ph.D.

Keynote

Professor Sigmund Loland
Norwegian School of Sport Sciences

Sport education and the professions: a quest for reflexive knowledge

Traditionally, educating professionals within the sport and exercise field has meant educating PE teachers and sport coaches. Following the differentiation of sport and exercise in society, educational institutions have developed new professional degrees within themes such as physical activity and health, and sport management. A critical reflection is presented upon this development. A warning is issued on what is referred to as a technologization of professional education. Using a series of historical and current examples, an argument is made in favor of a significant core of reflexive knowledge in the education of sport and exercise professionals.

Workshop – Physical activity and Cognition

Physical activity and Cognition

Mona Have Sørensen

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Many of us are aware of the fact that physical activity makes us feel better. Nevertheless, in today's technology-driven world, it is easy to forget that we are born movers given that to a great extent, we have engineered movement out of our lives. The sedentary character of modern life in Western societies affects the brain in the same way as it affects the body, increasing with activity and declining with inactivity. (Ratey 2009)

Various studies have sought to provide updated knowledge on the relationship between children's physical activity and cognitive abilities by studying the influence of physical activity on the subsequent cognitive learning (Andersen & Froberg 2006; Ericsson 2003; Hillman CH et al. 2009; Moser 2007;, Sibley & Etnier 2003, Tomporowski et al. 2003, 2008; Trudeau & Shephard 2008). These studies have showed unequivocal results with respectively enhanced, impaired and no effect on cognitive abilities.

Never the less, the most recent results indicate a significant and positive effect of physical activity on children's cognition. (Best 2010, Chaddock L, 2010, Davis CL, et al. 2011, Kamijo K, et al. 2011). These studies have investigated the relationship between physical activity and cognition by looking at the implementation of an increased number of physical education lessons in the educational institution. This fact may among other things, be due to the predominantly philosophical dualistic tradition where knowledge is regarded as a separate phenomenon independent of bodily movement.

Contrary to this dualistic approach there has been a growing interest and research integrating the body in the study of cognition (E.g. Aziz-Zadeh & Damasio 2008; Aziz-Zadeh et al. 2006; Binkofski et al. 2004; Buccino et al. 2006; Gibbs 2007; Glenberg et al. 2008; Lutz & Thompson 2003; Pfeifer & Bongard 2007; Rizzolatti & Craighero 2004; Tettamanti et al. 2005). This has opened new opportunities to increase knowledge about the body as a potential learning resource. However these studies are of isolated laboratory experimental nature and therefore they lack connection to the learning processes present in an educational setting. Consequently there is a great need for research in classroom-based physical activity characterized by a meaningful connection between the movement and learning objectives. Thereby an abstract phenomenon will be connected with a concrete bodily experience which could optimize the comprehension and memory. Thus an interesting and promising challenge for future research is to investigate the effect of integrating the physical activity in classroom-teaching connecting mind and body as a synergetic catalyst for learning. Results from this kind of research could have a great impact on the way we think of and organize our educational system.

Workshop: Effectiveness of School-based physical activity interventions

Associations between the bicycle use and Carotid arterial stiffness in Danish adolescents; The European Youth Heart Study.

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Aim: To study the association between the frequency of bicycle use and carotid arterial stiffness in a population based sample of adolescent boys and girls enrolled in the European Youth Heart Study (EYHS).

Methods: This was a population-based cross-sectional study of Danish adolescents (mean age (SD): 15.8 (0.4) years, N=375). The frequency of bicycle use was assessed using a computerized questionnaire containing the question *"How often do you ride your bicycle"* (response options; **1)** "<3 times per week", **2)** "Nearly every day" or **3)** "Every day". Carotid arterial stiffness was assessed using B-mode ultrasound. Effect sizes are expressed as standardized values.

Results: Modification by sex was observed ($p<0.05$ for interaction) with no associations between bicycle use and carotid arterial stiffness in girls. However, boys riding their bike every day displayed a higher Carotid compliance (beta= 0.46 (95% CI; 0.11 to 0.81)), distensibility (beta= 0.40 (95% CI; 0.02 to 0.77)) and a lower Young's elastic modules (beta= -0.52 (95% CI; -0.89 to -0.16)) compared to the ones riding their bike less than three times per week. Adjusting for personal and demographic variables did not change the associations materially.

Conclusion: Our observations suggest that increasing the use of bicycling could effectively decrease arterial stiffness in boys. Increasing the use of bicycling in youth could potentially be beneficial for later vascular health.

Workshop: Effectiveness of School-based physical activity interventions

Abstract: "The Odense Overweight Intervention Study"

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Background: To encounter the problem of increasing cases of overweight among children, it is important to develop methods that are feasible and effective. Since 2005 the Municipality of Odense and the Institute of Sports Science and Clinical Biomechanics cooperatively founded Camp Fanoe for overweight children. Taking place on an island 150 km from Odense, the 40 fifth grade children accepting to participate undergoes an intense 6-week program based on a combined diet, physical activity and lifestyle intervention programme. During the following year the intervention continues with inclusion of parents on several meetings. Results from BMI and circumference measurements have been promising. However, until now it has not been possible to implement a scientific evaluation of the programme. In 2011 the Tryg foundation supported an evaluation of the intervention. As generalizability was a priority the setting of the camp was established in the city of Odense. In 2011 forty children were recruited for a pilot project to gain practical knowledge of conducting a day camp in Odense based on the same principals as Camp Fanoe. In 2012 the RCT was initialized.

Aim: The study aim is to investigate the effect of a 6-week health intervention aimed at overweight and obese children in fifth grade from the municipality of Odense, Denmark.

Methods: Approximately 100 overweight children from the municipality of Odense are in the spring of 2012 and 2013 (two cohorts recruited with one year between) randomized into 1) an intensive camp of 6 weeks followed by a follow up period of 10 months with focus on family health, or 2) six times of activity and health information lessons of 1 – 2 hours of duration. The health of the children is measured before, immediately after and in the end of the intervention period (1 year after initial measurements). Measurements includes height, weight, circumference, jump height, hand strength, ultrasound of the carotid artery, questionnaires, DEXA scan, cognitive tests, motor coordination tests, fitness test, and a blood sample. Activity assessments are conducted before, during, and after the intervention period by accelerometry. Test members remain blinded at all time.

Results: The last data from the first cohort is collected by April 2013 and are awaiting to be analyzed. In regard to statistical power the main findings will be not be published before the remaining data is secured. So far merely data from the first cohorts' two first measurements are available and are showing an effective intervention on several outputs.

Workshop: Effectiveness of School-based physical activity interventions

Mapping implementation of two weekly physical activity lessons in grade 5-7 in Norwegian schools

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Aim:
The study aims to identify the didactic practice related to the physical activity lessons to see if they are in line with the key policies that the authorities have formulated [1]. The lessons are supposed to have preventive health content as well as encouraging students who are not normally physically active to become more physically active.

Methods:
Questback electronic questionnaire was chosen, and there were both single and multiple choices and a possibility to add comments in a free text box. An electronic invitation was sent to all the primary schools in Bergen municipality asking the staff to participate in the survey. 153 persons participated in the survey, and it was conducted in spring 2011.

Results:
Planning of lessons is mainly done by teachers and physical education teachers. However, when it comes to execution of lessons there is an increase in assistants involved. Most respondents report that lessons are organized as regular lessons, followed by being an extension to recess or as mid-day breaks. 65.4% reported that specific plans for the lessons were made. Only 14.7% responded that students who are not normally physically active are more active in the physical activity lessons.

Conclusions:
The guideline findings indicate that the main challenge is related to when the lessons are scheduled.

It seems as if the schools have solved the implementation of the lessons in different ways, partly in line with, and partially in conflict with, the policy. Further research should try to find out more about the lessons preventive effect related to public health.

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Workshop: Effectiveness of School-based physical activity interventions

Effects of school-based intervention on the objectively measured physical activity and sedentary time during school hours

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Aim: The 'Finnish Schools on the Move' programme of 2012-2015 aims to enhance physical activity and decrease sedentary behaviour in the school setting. This study aims to evaluate the differences between intervention schools and control schools in students' objectively measured physical activity and sedentary time during school hours.

Methods: The preliminary results presented herein are from the first measurements of a 3-year longitudinal study, and are derived from three schools. The same parameters measured in this study will ultimately be conducted in a total of nine schools, and include questionnaires administered to students, parents and school staff as well as objective measurements of physical activity, physical functioning capacity and body composition. The study population reported on herein included 102 girls and 91 boys in grades four to six (aged 10 to 13 years), from two intervention schools and one control school. Their physical activity was measured objectively over 7 days with a GT3X+ ActiGraph accelerometer. The cut-off values described in Evenson *et al.* [1] were used to determine the time spent engaged in vigorous physical activity (VPA: 4012 cpm), moderate-to-vigorous physical activity (MVPA: 2296 counts per minute) and time spent sedentary (SED: 100 cpm).

Results: During school hours, students at the intervention schools were sedentary for an average of 7% (3.0 min/h) less time than those at the control school, and engaged in 59% (1.8 min/h) more MVPA and 51% (0.5 min/h) more VPA (Figure 1). These differences were not evident with regard to total daily physical activity that included physical activity outside of school hours, including the weekend.

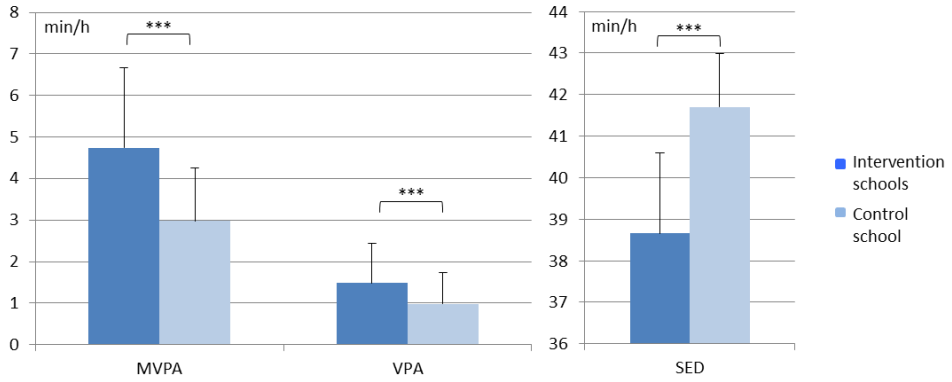

Figure 1 Objectively measured physical activity and sedentary time during school hours in intervention schools and a control school. *** $p < .001$

Conclusions: The school-based physical activity intervention investigated was associated with a lower sedentary time, and a higher time spent engaged in MVPA and VPA during school hours.

References

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Workshop: Effectiveness of School-based physical activity interventions

Impacting Skeletal Health through Recreational Gymnastics: A 4-Year Longitudinal Study of School-Aged Children

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In young children, it has been demonstrated that regular participation in physical activity is associated with greater bone strength at the femoral neck.

Aim: to investigate whether recreational gymnastics training influenced the estimated structural geometry development at the proximal femur in young children.

Methods: one hundred and sixty five children (28 gymnasts, 64 ex-gymnasts, and 73 non-gymnasts) between the ages of 4 and 6 years were recruited into this study and assessed annually for 4 years. A dual-energy X-ray absorptiometry (DXA) image of their hip was obtained. Values of cross-sectional area (CSA), section modulus (Z) and cortical thickness (CT) at the narrow neck (NN), intertrochanter (IT), and shaft (S) were estimated using the hip structural analysis (HSA) program. Multilevel random-effects models were constructed and used to develop bone strength development trajectories (Estimate ± SEE).

Results: Once the confounders of size and lifestyle were controlled it was found that gymnasts had 6% more NN CSA than non-gymnasts (0.09 ± 0.03 cm^2, $p<0.05$), 7% more NN Z (0.04 ± 0.01 cm^3, $p<0.05$), 5% more IT CSA (0.11 ± 0.04 cm^3, $p<0.05$), 6% more IT Z (0.07 ± 0.03 cm^3, $p<0.05$), and 3% more S CSA (0.06 ± 0.03 cm^3, $p<0.05$).

Conclusions: These results suggest that early exposure to low-level gymnastics participation confers benefits related to geometric and bone architecture properties. Participation in recreational gymnastics offers important benefits for bone strength development in childhood and if maintained may improve bone health in adolescence and adulthood.

Acknowledgments: *We gratefully acknowledge the study participants and their families for their enthusiasm and commitment to the project. This study was supported by funding from the Saskatchewan Health Research Foundation (SHRF) #2436*

Workshop: Effectiveness of School-based physical activity interventions

Correlates of objectively measured physical activity in 5-6 year old preschool children

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The aim of this study was to identify gender specific physical activity correlates in Danish preschool children. Methods: Cross-sectional study in Odense, Denmark. The gender specific models were based on data from 174 boys and 177 girls, 5-6 years of age and enrolled in 40 randomly selected preschools. Percentage of total daily time spent in moderate and vigorously physical activity (MVPA) was measured using ActiGraph accelerometers over 5 preschool days and 2 days off. Thirty-nine potential correlates of child MVPA across 5 domains were tested for associations with gender specific MVPA.
Results: The gender specific models consistently identified motor coordination and the parents´ perceptions of their child´s activity preferences during free play were positively associated with MVPA. Days with rain or no preschool attendance were negatively associated with MVPA.
For boys, rural area and the size of the preschool playground were positively associated with MVPA, whereas for girls, it was the age and the relative preschool indoor area.
Conclusion: Individual and overall environmental correlates of MVPA were identified. However, most correlates were not or only weakly related to MVPA. It is possible that the interaction with peers and surrounding adults might contribute the most to preschool child MVPA.

Acknowledgement
The authors thank all who have devoted their time to the data collection process, especially Odense Municipality, the children, the parents, and the preschool staff.

Workshop: New pathways and possibilities in Physical education and pedagogies

A possible mission?

- A case study of learning health in PEH.

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Aim:
The aim of this study was to examine a laboratory instrument with focus on physical health in the subject physical education and health (PEH).

Method:
A strategic sample of one upper secondary class of 32 students was chosen for an implementation of a laboratory instrument aiming at knowledge requirements within the area of physical fitness within the Swedish PEH curricula for upper secondary school. The students used the lab instrument during seven weeks. The construction of the laboratory instrument was based on the concept of health literacy [1]. The laboratory instrument consisted of practical physical fitness labs, a daily physical activity lab, lab reports and a pre and post questionnaire. The questionnaire included open and closed questions concerning the student's perceived physical fitness, level of physical activity and leisure time habits as well as actual knowledge of certain basic facts of physical health. In addition, the student's reflections over their individual results were reported in lab reports.

Results:
A majority, 24 out of 30 students reported that they had increased their level or kept an already high level of physical activity ($p=0.001$). Regardless of former knowledge all of the students had improved their theoretical knowledge of what physical fitness is. Four months after the intervention the students had kept their improved level of physical activity and level of theoretical knowledge.

Conclusions:
In this class with this laboratory instrument the majority of the students' improved their practical and theoretical learning of physical fitness as well as aspects of critical thinking and self-awareness. Therefore one way to support learning in physical education is to let students work with physical labs and to reflect over their results and ways to influence their personal health.

References:
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Workshop: New pathways and possibilities in Physical education and pedagogies

Group work in Swedish physical education and health: A post-Vygotskian analysis

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The purpose of this paper is to examine the factors that influence learning when two or more learners are co-constructing meaning in the absence of a teacher. Empirical material was produced with eight different HPE classes in years 6-9 (lower and upper secondary schools) in Sweden. Observations consisted of four video-recorded lessons with each of the eight classes. Between two and five students were generally in the frame at any one time and filming was done with the intention of capturing sequences where groups of students worked with specific problems or tasks. Due to the proximity of the camera to students, audio material could be obtained and detailed transcripts of speech exchanges were produced. Data suggest that: (1) teachers often focus on the outcome of group work but pay less attention to process factors; (2) many group work situations do not result in agreement and hence do not result in learning in a Vygotskian sense; (3) learning as agreement is achieved through corporeal *and* through linguistic strategies. The emerging results suggest that HPE teachers should pay more attention to how they define and implement group work.

Workshop: New pathways and possibilities in Physical education and pedagogies

Queering Physical Education 2.0

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Mikael Quennerstedt, Örebro University, Örebro, Sweden
Marie Öhman, Örebro University, Örebro, Sweden

Keywords: Physical Education, Queer pedagogy, Heterotopia

The purpose of this presentation is to outline how prevailing gender structures can be challenged in physical education (PE) through exploring queer potentials in an event taking place during a dancing lesson in an upper secondary physical education class. In general, PE is seen to convey traditional masculine and feminine values, where a certain version of dominant – and 'sporty' – masculinity occupies a hegemonic position. These traditional values also express heteronormativity, i.e. the taken for granted assumptions that people are heterosexual (see e.g. Larsson et al., 2009). We believe that our case offers a concrete approach to challenging gender and sexuality norms in PE. Theoretically, we draw on Foucault's (1986) concept *heterotopia*, designating a social space where dominating cultural norms are challenged, and on what American educationalist Kevin Kumashiro (2004) terms *paradoxical teaching*. The lesson was video recorded, and after the lesson, interviews were conducted with the teacher and two students. In the beginning of the lesson, some of the girls approached the teacher to discuss why boys and girls have to dance with each other. The teacher claimed that this is normal procedure, implying that dancing is part of the heterosexual game. "But what if I'm a lesbian?" one of the girls replied. The teacher took this reply seriously and together the teacher and the students discussed dominating cultural norms specifically related to dancing. In this heterotopia, the teacher tried to challenge gender and heteronormativity. While the teacher was not consciously planning for this to happen, we believe that the case could point in the direction of a queer teaching for PE.

Workshop: Innovation in physical activity and health incl. ICT

Innovation and ICT in physical activity and health

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Aim:
To develop and initiate a Nordic network about innovation in the area of sport, movement and PE with and without a digital dimension.

Workshop in movement innovation:
In the last twenty years there has been a tremendous increased interest in health perspectives in terms of physical activity and body focus. Human training are recommended in the area of workspace exercise, physical activity and learning as well as general health perspectives' in the curriculum of the schools, exercise on prescription and physical activity as a societal general health promoter in a healthy lifestyle[1].
How does that affect the curriculum profile of the sport, PE and health education?
Contrary to this an increased use of technology in general and especially an increase in computer use as well as TV use, has promoted a sedentary lifestyle. As a result, it has led to an increased risk of cardiovascular and lifestyle diseases[2]. How do sport, PE and health students gain competences to deal with the challenge to change these habits or patterns of inactivity?
Therefore a more innovative and entrepreneurial approach among students is needed.
Over the past 30 years there has been a tremendous change in relation to how people accessing information, how they choose to be informed and how they use digital media in nearly all elements in their life. Within the last 15 years it has also come through how people use digital media in relation to physical activity, exercise and in performing a healthy lifestyle. Therefore I think PE and health students are out to get some interaction design skills.
Due to the above outlined circumstances, I believe that educational institutions in sport and movement are out to in the future to find it important, that health educator and health professionals do have innovative knowledge and skills. This should be tools that give them competences to develop products and services as well as promote social change in the area of movement health at any levels in the society. To have these innovative competences as a health promoter incorporates a co-design approach in which the health developer can work with both analogue concepts as well as develop digital concepts.

Therefore our research should aim to identify, develop and better understand innovative approaches to reduce sedentary behavior and enhance the level of physical activity in the population. This includes social innovations where new ideas (products, services and models) simultaneously meet social needs and create new social relationships or collaborations.

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Workshop – Innovation in physical activity and health incl. ICT

Body and movement in »Play and Learning – Kids n' Tweens Lifestyle«

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Aim:
To give inspiration to work scientifically as well as educationally with public private innovation in the area of play, learning and movement for children and youth at universities.

Introduction:
Physical inactivity among children and youth is a increasing challenge. As a setting for promoting physical activity the school is an important component in getting youngsters moving. Building on this premise I point to a potential new innovative role for schools and physical education teachers in relation to engaging the youngest part of our population in sports, physical and recreational activities and to deal with physical activity and learning[1].

Results:
The interactive trampoline addresses the use of technology as an add-on to traditional and well-known dynamics of play. The concept development of the interactive trampoline emphasizes the relationship between physical activity, safety and sociality as important issues for future development of interactive design for play practices. The findings show us, that in order to design fun play activities, which have a prolonged use, we need to consider children´s play practices, as a part of the solution for a safer environment[2][3].

The video concept can promote learning at three levels. It can demonstrate exercises that can subsequently be imitated. It can mirror exercises, which facilitate reflection about the exercise and afterwards can encourage the pupils learning. It can be used in creatively working with movements and subsequently the improvisations can be presented for the public.
School pupils communicate using a digital video platform. In the platform a smartphone app for upload of video in physical education is included. The concept developed did improve the quality of learning in physical education[4][5].

Perspective:
Further, the project has worked with mock-ups and students at the course "Sport and Design" have produced mock-ups of:

- A new category of interactive furniture for the classroom that promote physical activity and learning
- An interactive narrative, experience and motor learning room for preschools institutions
- An interactive training equipment for children with cerebral palsy

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Workshop – Innovation in physical activity and health incl. ICT

Development of interactive school furniture

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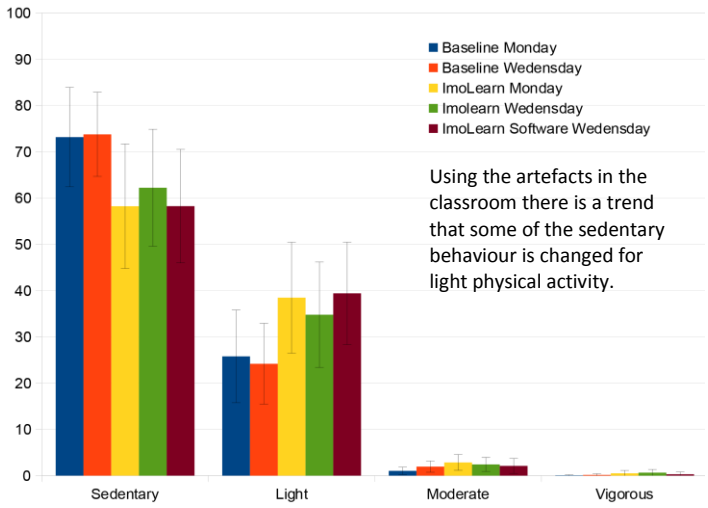
Aim:
To develop interactive furniture like artefact which can be used in the promotion of physical activity and learning in the schools.

Introduction:
Human bodily movement is crucial for survival but also plays an essential role in improving, maintaining, or regaining bodily and cognitive functions. Today technology occupies youth in the spare time spending numerous hours playing computer games and it assists students in their schoolwork.
Evidence has accumulated that lack of physical activity or active bodily movement results in life style diseases[1]. Importantly, the positive influence of physical activity on health has likewise been proven valid for the learning processes[2].

Methods:
Digital learning resources are developed in a co-design of the technological solutions. Our research methodology in developing the digital didactics is based on Educational Design Research[3]. The user involvement in digital design processes was applied to both of the primary target groups – children and teachers.

Results:
The artefact has increased the amount of total movement between 25 and 39% in the teaching classes and thus expectations of better health among students and thereby a reduced risk of lifestyle diseases.
The artefact increased the students' attention in class and the motivation to work with training of basic academic skills were enhanced.
Using the artefact in vocational training embodied student learning. They were thus able to explore and strengthen several aspects of themselves in learning academic skills.
The artefact motivates teaching in groups and has supported the development of educational practice. It thus helped to promote a general innovative practice among teachers.



Conclusion:
The results show that there are basis for a new type of movement enhancing and interactive school furniture.

Acknowledgments:
I would like to thank Kolding municipality, Alexandra Instituttet, VANERUM-SIS A/S, the EU Foundation and Spinderihallerne at Vejle municipality (Denmark).

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Workshop – Applied biomechanics

Problem based learning and the use of digital tools, for improving use and understanding of biomechanics in practical sports subjects.

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Abstract:

Its the aim of this study to exploit the options of problem based learning (PBL) and free digital tools to improve the understanding and practical implications of biomechanical theory.

Biomechanics and practical gymnastics subjects is available to the students during the first year (second quarter) during their studies at SDU. While studying biomechanics theory the students are required to complete two assignments within the gymnastics subject. Both assignments are focused around 2D video based kinematics analysis of gymnastics movements and use the PBL teaching method. First assignment is focused on descriptive kinematics and the second on optimizing movements. The software used is SkillSpector. The biomechanical curriculum is aligned with the PBL assignments to make sure the theory has been presented.

During the assignments there is a great deal of confusion but as it progress it seems that a large number of the students grasp the practical implications of the biomechanics. This teaching method has been used for almost three years but its only recently it has been possible to measure the possible implications. Most important finding seems to be the fact that its possible to introduce 3D kinematic analysis during later subjects.

PBL and digital tools seems to improved the students understanding and practical implications of biomechanical theory. But, there is also important aspects to improve to make sure the interdisciplinary subjects is strongly associated. Currently the instructors helping the students with biomechanical theory/calculations is not helping out during the assignments in gymnastics. This creates some confusion as to which formula's to use in which situations. Also the PBL assignments during gymnastics requires high level of guidance.

SkillSpector http://video4coach.com

Workshop description:

Teaching and improving sports movements is greatly optimized by understanding biomechanical theory, but for many students around the Nordplus-Idrott Network (NIN) the theoretical background can be difficult to exploit within the practical subjects. At the Institute of Sports Science and Clinical Biomechanics (ISSCB) at the University of Southern Denmark (USD) the combination of Problem Based Learning (PBL) and Digital Technology (DT) has been used to improve the use and understanding of biomechanics within practical sports (e.g. tumbling and gymnastics). PBL has been used at USD for some time but the combination with DT has only been around for 2 years. This teaching method, probably only used at USD within the network, could potentially improve the understanding and teaching of biomechanics and practical sports subjects across the whole NIN. With only a 2-year lifespan the method is currently in its infancy. Further work is needed to exploit the full potential of the teaching method. The purpose of the workshop is to facilitate knowledge transfer within the network in order to use the method at other institutes. During the workshop it will be possible to discuss the possible impact of different biomechanical curriculum, the understanding and implementation of PBL, options and adjustments for teaching practical sports subjects, usage of digital tools, and how quality insurance could be improved and standardized.

Workshop - Dance

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University of Southern Denmark

From the work shop description:

> Workshop participants are invited to make presentations and/or practical demonstrations and take part in the exchanges and discussions of daily practice and experiences, development and research within the field of dance and movement in physical education; Also, potential research and development projects can be presented. In addition, it will be possible to take part in discussions regarding the specificities of dance as a subject area, explications of the achieved competences related to different practices of dancing, and the (gendered?) discourses which characterizes dancing.

We suggest that the workshop takes form as a shared process combining practice, presentations and discussions. Focusing on the latter part of the description (above) we also suggest that the following considerations and questions inform the theoretical perspective of this shared process:

Taking a meta-perspective on the ways dance practices is presented and discussed in different discourses (fx. as stage-art, performance art, fitness activity, subject area in physical education and as main the main subject area in performance related studies) it seems that *the concepts of improvisation and (or versus) imitation* is used with different kinds of meaning and/or includes very different connotations for students, teachers and researchers. Accordingly also the related ideas of *how we are to understand an (em)bodied technique and how we think of the body, movement and interaction* differ across the different discourses in which we find dance described and practiced.

Based on two introductory practices of dancing: contact improvisation and wii dance, we invite the workshop participants to take part in a shared discussion as well as to further specify the good questions to be asked in relation to the descriptions of the concepts of improvisation – and imitation as well as the understanding of (em)bodied techniques.

We suggest the following schedule but we also would like to emphasize that it is to be read and understood as a very plastic outline. We find it important that there will be both space and time 'enough' to nurse the shared discussions.

- Short intro (Helle Winther and Susanne Ravn -10 minutes?)
- Shared practice: contatct impro (Christina Blicher Johnsen – 30 minutes?)
- Shared practice: Wii dance (Béatrice Gibbs – 20 minutes?)
- Shared discussions …
- Dance and physical Education – perspectives from Sweden (Torun Mattson 15- 20 minutes?)
- Shared discussions continued

Workshop – Dance

Next Practice in Physical Education and Movement Science

The 2nd NORDPLUS-IDROTT Conference

May 6th to 8th 2013, Odense, Region of Southern Denmark

The position of dance in physical education

Torun Mattsson
Malmö University

Abstract

Dance has been part of the physical education (PE) curriculum in several countries for a long time. In spite of this, studies demonstrate that dance in PE is questioned, and that little time is devoted to dance. The overall aim is to examine the position of dance as pedagogical discourse in Swedish steering documents over time. The empirical material consists of five Swedish curricula for PE for a period of 50 years (1962-2011). Discourse analysis is used to identify organized systems of meaning, including privileged and prioritized values. The theoretical frame of reference draws on Bernstein's concept of codes. Three different knowledge areas related to dance come forward in the text material: ´dance as cultural preserver´, ´dance as bodily exercise´ and ´dance as expression´. Three pedagogical discourses emerge: an identity discourse, a public health discourse and an aesthetic discourse. The identity discourse is in previous curricula related to the perpetuation of Swedish and Nordic cultural traditions, and in later curricula to the construction of a broader multicultural identity formation, related to the understanding of different cultures. The public health discourse constitutes a prioritized understanding of dance as physical training related to a healthy lifestyle. The aesthetic discourse, which has the weakest position over time, represents the valuing of embodied feelings expressed through movements. This discourse is tightly linked to the construction of gender. Over time an underpinning rationale in the steering documents came to exclude a former competence code in favour of a performance code. This positions dance in PE as a mainly physical activity with little artistic and aesthetic value. The pedagogical discourse of dance, as explored in the material studied, remains in a very disciplinary framework of social control.

Keywords: Dance; Physical education; Curriculum; Bernstein; Codes; Discourse analysis; Pedagogical discourse

Workshop – Nordic Outdoor life

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"*TRYG I naturen*" - research in risk and safety related to outdoor recreation and education - *friluftsliv* - in the coastal regions of Denmark

- Different organizations, traditions and cultures – different patterns of accidents and different strategies of risk-management

Background and aim

In Denmark there is a lack of research within risk and safety connected to the field of outdoor recreation and education - *friluftsliv*. Accidents are registered by different organizations but are not subject to further analysis, and focus seems to be on fatalities only. The general understanding and practices connected to risk and safety in the outdoors seem to be based on tradition, prejudices and common sense rather than on evidence.

Several newer studies indicate strong links between health and participation in leisure activities in the outdoors. Risks and accidents in the outdoors may on one hand be seen as an attraction especially for young peoples participation and on the other hand as a constraint for participation.

The project "Safe in nature" aims to identify patterns of accidents, including near-misses, within three selected activities in the coastal regions - seakayaking, kitesurfing and dinghysailing. The three selected activities are selected as representatives of different cultures in outdoor recreation and education with different traditions and practices related to risk and safety.

Design and methods

The study integrates quantitative and qualitative methods using document-study as well as case-studies with use of survey and qualitative interviews. The first part of the study aims to form an overview of risk and safety related to outdoor recreation and education in the coastal regions in Denmark. Already existing statistics and registrations from different organizations and institutions are being analyzed. The second and central part of the study is a case-study trying to identify the safety-culture or –profile of the selected activities - seakayaking, kitesurfing and dinghysailing. This part involves a quantitative survey among participants in the selected activities followed by qualitative interviews with groups of participants. The collection of data is being analyzed intending to identify a specific safety profile connected to the specific activity and culture of *friluftsliv*, which might on one hand help to understand patterns of accidents and on the other hand help form strategies to improve safety.

The third part of the study involves an international comparative perspective with a minor study focusing on organization, risk-management and strategies related to risk and safety in the outdoors in New Zealand and Australia. Results are being discussed in a

Danish context. This part of the study will not be included in this presentation.

Results

First part

In the first part of the study we concentrate on the period of 2005 – 2010. The reason for this is simple and relates to the lack of consistent data related to accidents and rescues before this period.

Results from the ongoing study indicate that the development in accidents does not follow the general development in outdoor recreation and education - friluftsliv. Patterns of accidents seem to be rater complex, involving socioeconomic standards and seem to be closely related to the culture of outdoor recreation and education - *friluftsliv*.

The results show a general decline in the numbers of near-misses but a stable level of accidents related to *friluftsliv* and outdoor activities in the coastal regions (bathing and swimming not included). Within the selected activities - seakayaking, kitesurfing and dinghysailing – there seems to be interesting differences in the proportions of incidents, near-misses and fatal accidents. There appears to be many accidents and near-misses related to sailing and fishing, and many false alarms especially related to kitesurfing.

Second part

The three selected activities of *friluftsliv* - seakayaking, kitesurfing and dinghysailing – are different in a number of ways, - i.e. age, gender, education, socioeconomic status. Results from survey and interviews show that the tree groups seem to have different consciousness, focus and behavior related to risk and safety.

The ability to perform a self-rescue in case of capsize seems to be vital and to relate to the attitude and behavior related to safety. It is suggested to understand the results as a *chain of safety* involving 5 elements. The three selected activities seem to represent different safety profiles according to this chain:

- knowledge and technical skills
- equipment, clothes and vessel
- education and methods of achieving relevant skills
- behavior and habits
- consciousness and attitude to risk

Conclusions

The study points out that safety related to *friluftsliv* in the coastal regions can not be related to or reduced to one single factor – but rather has to be understood as a *complex pattern*.

The study points out the importance of taking a *holistic or cultural approach to risk-management* involving a deeper understanding of the traditions, the context and the taken for granted thinking and behaving related to a specific culture.

The study is focusing on outdoor recreation and education – *friluftsliv* – in the coastal regions of Denmark. It can however be discussed whether the results can give indications or perspectives to other ways of understanding and managing risk and safety in *friluftsliv* in general.

Workshop – Ballgames & Coaching

Next Practice in Physical Education and Movement Science – The 2nd NORDPLUS-IDROTT Conference

University of Southern Denmark, 6-8 May 2013 – Workshop: Coaching

The Danish Badminton Elite Training Environment

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Abstract:

Introduction:
Danish badminton has been an important factor in world badminton during the last two decades. Badminton Denmark is an elite sport environment that continuously manages to create senior performance at the highest international level and win medals at the World Championships, European Championships and the Olympics. The study is founded on theories of holistic ecological psychology which favors the entire environment as opposed to the individual athlete.

Objectives:
The main objective was to describe and examine the Danish badminton elite training environment at the National Training Center as a successful elite environment. The research questions are: 1) What characterizes the environment as a successful elite environment and 2) how does it correspond with and differ from successful talent development environments as they are described by Henriksen et al (2010,2011)?

Methods:
A case study design was used, data originated from interviews, participant observations from daily training and tournaments and documents supplied by Badminton Denmark.

Findings:
Data showed that the environment was centered on the notion that: "*It's us against the rest of the world"*. This notion combined with a fundamental value of the environment was to create intelligent players and at the same time focus on individual development through high quality training. The organizational culture was constructed as: 1) Co-responsibility in own development and a wish for developing intelligent players, 2) combined with fierce internal competition and 3) hard work equals respect from other players

Discussion:
Centers on the relations between the group of players, team of coaches and the sports director and how they are working with each other. Another important thing to be discussed is the culture of Badminton Denmark - what makes this federation so successful at what they do?

Conclusion:
This study argues that the way Badminton Denmark has constructed their environment combined with the team of coaches, has been very successful for them and to be able to continue to compete with the best badminton nations in the World, they need to maintain the environment based upon the three requirements which were mentioned earlier.

Key words: Sport expertise, elite environment, individual development, coaching, interdependent interactions

Workshop – Ballgames & Coaching

"The 2nd NORDPLUS-IDROTT Conference"

Next Practice in Physical Education and Movement Science.
May 6th to 8th 2013, Odense,
Region of Southern Denmark

A holistic ecological analysis of a world-class talent development environment in football

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Abstract

Aim:
The purpose of the study was to a) present a description of a highly successful Athletic Talent Development Environment in football, Ajax Amsterdam; b) provide an analysis of the factors influencing the success of the environment in developing professional football players; and c) discuss if and in what way this study confirms the recent holistic ecological research in athletic talent development.

Methods:
The study is a qualitative single case study. During two weeks separated by four months, the information was gathered through 6 semi-structured interviews with players, coaches and administrators, a total of 110 hours of participant observation with informal chats with coaches, leaders and volunteers and analysis of documents.

Results:
The environment had a clubhouse community at the Sport Complex (De Toekomst) as its centre, where the administrators, coaches, staff and players meet to talk, eat, work and practice. There is a large group of ex-professional football players that serve as coaches and they have a great influence on the players. There are several communication pathways among the schools, teachers, administrators, coaches and players. Furthermore, the environment had a strong organizational culture based on a clear football philosophy, a prioritizing of talent development and a holistic approach to talent development.

Discussion:
Compared to previous holistic ecological research, this ATDE hold both similarities and differences with other successful environments.

Conclusion:
This study presents a description of a highly successful Athletic Talent Development Environment in football and provides an analysis of the factors influencing the success of the environment in developing professional football players. This study extends our understanding of which features a successful talent development environment in football contains.

Keywords: Athletic talent development, holistic ecological, football, environment.

Workshop: Sports pedagogies

Healthier Generation through Physical Education?

Suzanne Lundvall, associate prof. (1) & Gunilla Brun Sundblad, med dr. (2)

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Physical Education and Health (PEH) has during the last decades been under debate. Reports claim that students learn sport but not health (1, 2). Alongside with this, changes in society show new scenarios around health, wellbeing and illness among young people, and a growing uneven distribution of access to physical activity and knowledge in health.
The aim of the study was to describe and analyze students' attitudes to participation and learning in PE with the help of a nine year follow up study. The study consists of a population from randomly selected schools in Sweden, with students aged 9, 12, and 15, in the year of the baseline study, 2001.
Method: An almost identical questionnaire was used during the follow-up studies three, six and nine years later after the base line study.2010, 75% of the original population answered the questionnaire (1290).
The results show a significant difference in participation pattern between male and female students; 18% of the female students never or very seldom participates in PEH in their older ages, in relation to 8% of the male students. From 15 to 18 years of age, one third of those who experience that they learned "nothing" remained in this category. Leaving school, 21% of the students at the age of 18 thought that they knew well how to train and be physically active, 2 out of 10 regarded themselves as not having this knowledge at all. Those who scored themselves as very active in the age of 12, were also the ones most stable over the years, with the female students being the most stable.
Conclusion: A surprisingly large amount of students leaving school are uncertain of the relationships between health, life style and environment, indicating a need of a reconstruction of PEH.

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Workshop – Sports pedagogies

Facilitators associated with frequency of external coaches' participation in school-based extracurricular sport activities

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Introduction:
School-based extracurricular sport activities (SBECSA) provide the one of main opportunities for adolescents to play sports. However, maintaining active SBECSA is difficult because of the large burden on teachers to manage SBECSA and a lack of SBECSA teachers who can coach expertly (1). To resolve these issues, the recruitment of external coaches has been promoted. However, the coaching frequency is not sufficient (2).
Aim: The purpose of the present study was to clarify the relationship between facilitators associated with the involvement into SBECSA among external coaches and frequency of external coaches' participation in the SBECSA.

Methods:
The present study conducted a self-administrated questionnaire survey with 1974 external coaches at SBECSA in Japan. A series of demographic questions, coaching frequency, and the questions assessed the reasons and benefits to engage in the SBECSA were obtained. After an exploratory factor analysis performed to extract facilitatory factors, a multiple regression analysis was used to determine the correlation between coaching frequency and facilitatory factors.

Results:
Five factors extracted were “willing to coach”, “own growth”, “network building”, “acceptance of SBECSA team members”, and “support from others”. Multiple regression analysis indicated that "own growth" ($\beta = 0.19$) was only significant predictor of coaching frequency in the model ($R^2 = 0.11$, $p = 0.03$).

Conclusion:
Preparing the environment or giving support to improve own growth of external coaches would increase coaching frequency of external coaches.

Acknowledgments:
The present study was supported by the Sasakawa Sports Research Grant (No. 120B3-010) from Sasakawa Sports Foundation, and Global COE Program “Sport Sciences for the Promotion of Active Life” from the Ministry of Education, Culture, Sports, Science and Technology in Japan.

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Workshop – Sports Pedagogies

Abstract NORDPLUS konference 2013

Teaching resources in physical education

v. Annemari Munk Svendsen

Traditional teaching resources (like textbooks) are not very common in physical education classes in primary schools, but this does not mean that there aren't teachings resources in PE. The ball, the springboard and the bodies of both the teacher and the students are central sources in PE to support the student´s learning. And also – especially in the planning of the PE-class - the PE-teacher uses different teaching books for inspiration.

Thus, teaching resources are central in relation to the planning and completion of PE-classes. They contain more or less explicit perspectives on PE as a subject, on the body and on the student. They give us some possibilities and neglect others. In that way it becomes important for the PE-teacher to be aware of the role of these teaching resources in PE. On that background I will present a framework for analysing and assessing teaching resources in PE. I will argue that a perspective on teaching resources is a central component in the pedagogy of PE. The presentation gives examples from the Danish Primary School and is based on theories from the Nordic countries on teaching resources (Selander & Skejbred, 2004; Skovmand og Hansen, 2011, Knudsen & Aatmosbakken, 2010), and a new publication on teaching resources in PE (Svendsen, 2013).

Selander, S. & Kjelbred, D. (2004): *Pedagogiske tekster for kommunikasjon og læring*, Universitetsforlaget, Oslo.
Skovmand, K. & Hansen, T. (2011): *Fælles Mål og Midler – læremidler og læreplaner I teori og praksis*. Klim, Århus.
Knudsen, S. & Aatmosbakken, B. (2010): *Teoretiske tilnærminger til pedagogiske tester*. Høyskoleforlaget, Oslo.
Svendsen, A. (2012): *Idræt – I serien Mål og Midler*. Klim, Århus.

Workshop –Sports pedagogies

Inclusion in PE

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Aim of the presentation: to present and discuss methods and model(s) for inclusion.

Background for the presentation:
A study separated in three parts: 1) a quantitative, 2) a qualitative and 3) an innovative study and 4) a guideline for teachers
Aim of the study: to eliminate barriers and to explore pedagogical and didactical methods and models for inclusion in PE in ordinary classes with one or more pupils with disabilities.

The *quantitative* study (2006):
Participation in PE?
Method**:** 63 schools. Questionnaires to the PE-teachers in first – 10th grade.
Results**:** N=75 pupils with disabilities. 68 % participate in PE, 23 % participate in some of the activities and 10 % of the pupils do not participate in PE. This last group mainly counts pupils with physical disabilities.

The *qualitative* study (2008):
What characterises the PE-teaching, the pupil with disabilities receives, when included in PE? How do the pupil interact socially with the teacher, the remedial teacher and the classmates? What are the didactical possibilities to strengthen the pupils learning and social participation in PE?

Method:
6 "best practice" studies: 2 pupils with physical disabilities, 2 with visual impairments, 2 with ADHD. All pupils participate in PE. They are single-integrated in ordinary classes in first - 6th grade.
Observation in two PE-lessons per pupil and interviews with the 6 pupils (alone), there PE-teachers and remedial teachers.
Results: pedagogical and didactical methods.

The *innovative* study (Jan. 2010):
How can we include one pupil with physical disabilities in a PE-lesson in a common class when every child in the class shall obtain flow and be in a social and motor learning position?
Method**:** N = 6, first – 6th. grade. Preparation, teaching and evaluation in co-operation with the teachers.
Aim: to try out and explore different methods and models for inclusion in PE.

The guideline (april 2012) will be handed out.

Poster

Physical education at preschools: the meaning of 'physical education' to practitioners at three preschool settings in Scotland

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Aim: The study examined the meaning of the term 'physical education', in relation to preschool contexts, to 14 practitioners working at three preschool settings in Scotland. Preschool physical education has been largely unexplored by researchers. Our focus on preschool physical education reflects a change in the language associated with young children's physical education in Scottish educational policy. The recently implemented *Curriculum for Excellence* refers to 'physical education' in relation to preschool education, whereas the previous Scottish preschool curriculum referred to 'physical development and movement'.

Methods: Underpinned by a poststructural, Foucaultian theoretical framework, the study employed a type of discourse analysis concerned with identifying patterns in language use. Research methods employed were observations and interviews.

Results: Practitioners generally indicated that they were uncomfortable with the term 'physical education' in relation to preschool contexts. Terms they preferred included 'physical play', 'exercise' and 'health and wellbeing'. Drawing on developmental discourses, they tended to associate 'physical education' with schools, positioning it as something more formal and structured than what preschool children would (or should) experience. It seemed that, for some practitioners, their privileging of play clashed with the notion of 'physical education'.

Conclusions: We suggest that researchers and policy-makers need to be aware that using the terms 'physical education' or 'PE' with preschool practitioners may be a problematic endeavour. Consulting with preschool practitioners is important for understanding why particular language, discourses and practices associated with physical education may be supported or resisted in preschool contexts. Furthermore, we suggest that preschool practitioners should critically reflect on taken-for-granted developmental discourses that position preschool children as 'too young' for particular experiences.

Acknowledgements: We would like to express sincere thanks to the participating practitioners. Thanks also to Dr. Mike Jess and the Developmental Physical Education Group at The University of Edinburgh for funding the research.

Poster

To explore nature with the help of a map

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Aim:
The aim of the study is to investigate children's ability to read, understand and use a map in order to adapt the education for best results.

Method:
The method used is a School Based Physical Activity Intervention Study derived from Learning Study principles. I have used a phenomenographic approach for analysing the study object and a variation theoretic approach for planning and analysing the class lessons studied. Lessons were video taped and field notes were taken along with some interviews. The research population consisted of three groups of ten year old pupils (n=65) and the number of participating teachers was six.

Results:
Through this method I have identified the critical aspects of how the pupils follow and read a map. With this knowledge I have developed the lesson content with variation of the critical aspects. The study also, more hands on, shows how children's ability to use a map can be improved.

Conclusion:
The research can be considered a subject specific knowledge contribution by its enhancement of the importance of grounding education in actual challenges.

Acknowledgements: *Through identifying problematic areas in the education plan teachers within a certain field can collaboratively research and enlighten the critical aspects. By incorporating this understanding in the teachers study plans they have the ability to smoothen the learning process for the children to achieve better study results. The study shows the value of researching and understanding the children's appreciation with regards to the study object. By incorporating this knowledge into the class lessons development significant problem areas can be avoided and better knowledge results achieved.*

Poster

Do Wii learn to dance?

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Aim:
The aim is to investigate the understanding of upper secondary school students' learning while using dance exergames.

Method:
In this study I will implement six lessons where the video game *Nintendo Wii Just Dance* is used as a teaching aid, whereby the students can learn about, for example, beat, rhythm, coordination and different moves. In the final lesson, groups of four to five students perform a choreography earlier constructed and practiced. To make it possible to analyse the students movements I will also video tape the lessons. In addition I will follow two groups more specific by another camera and the students in these groups will carry microphones. So far, a pilot study has been completed where lesson one and four have been tested in two different classes. In both classes the students danced to different songs several times and between the songs they practiced challenging moves. In groups of four they then danced to a song with four characters, where they perform different moves in sequences, behind and beside eachother.

Results:
So far, I can identify joy of movement and increased motivation of dancing in the classroom among the majority of the students when they used the dance exergames. Further results will be presented when the study is completed.

Conclusion:
The conclusions I can make from the results I have seen so far is that the game engage a whole class, they move their entire body and the dance exergame can be a complement to the dance education in school.

Acknowledgements: *The project is a part of the Research School for the Didactics of Physical Education at GIH - The Swedish School of Sport and Health Science. The study is also a part of the project Learning and Exergames in School (LEXIS).*

Poster

With some certainty

PE teachers´ understanding about grading criteria

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Aim:
During 2011 the Swedish national school system went through a change. A new curriculum and a new grading scale were introduced into Swedish upper secondary school. The aim is partly to study how physical education teachers experience the criterion-referenced grading system and the change in the grading levels, and partly examine how teachers understand the new knowledge expressions used in proficiency for grades E, C and A. How do teachers express themselves on knowledge expressions as *with some certainty, with certainty, complex/advanced, in basic terms* and *in detail and balanced* and how do teachers describe student's knowledge based on these knowledge expressions. And how describes the teacher that a student gets a grade E in relation to a C or A.

Method:
In this study I use semi-structured interviews with upper secondary school teachers in the subject physical education. During the interview, it will present some video sequences of students in motion by a variety of teaching situations. The idea is that they will have to explain what they see on the video sequences and describe it in words. So far, I have made some pilot study to develop the method. As a theoretical framework for the analysis and interpretation of data, I have chosen to use the curriculum theorist Bernstein (1971, 2003). He argues that in each subject is embedded an internal logic for the transfer of knowledge and assessment of the same. Furthermore, I will take the help of Linde (2006) who have developed three arenas in order to analyze what is happening from the curriculum and syllabus text, via a conversion (transformation) of these texts to the realization level students and teachers jointly operate within.

Results:
The study is in its early stages but the preliminary results shows that it is a great variation in experience the grading reform. The teachers feel supportive to the extended grading scale but the reform needs to be implemented more. Further results will be presented when the study is completed.

Conclusion:
Investigating teachers' understanding can be a part of the work of a equivalent assessment and grading in school.

Acknowledgements: *The project is a part of Research School for the Didactics of Physical Education (FIHD)*

Poster

Physical activity at recess and school-related social factors among grades 4–5 and 7–8 Finnish students

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Aim:
The Finnish school system is acknowledged for students' learning success, but the proportion of students liking school is fairly low [1, 2]. This attitude could be improved through participation in physical activities, which could provide opportunities for social interaction and decision-making. This study investigated whether students' physical activity at recess was associated with school-related social factors by school level and sex.

Methods:
The data was obtained from the Finnish Schools on the Move programme's pilot phase and its baseline measurements in autumn 2010. A questionnaire was completed by 1463 grades 4–5 and 7–8 students in 19 schools countrywide. Statistical differences were analysed with two-way ANOVA and logistic regression.

Results:
Students who participated in physically active play at most recesses reported better peer relationships, relatedness to school and autonomy at school than less active students ($p \leq 0.005$). Participation in ball games at recess was associated with better peer relationships at both school levels ($p < 0.001$), and 4–5-graders who played ball games at most recesses had over 3-fold higher odds of reporting good school climate compared to less active students. 4–5-graders reported better peer relationships in ball games and relatedness in both physically active play and ball games compared to 7–8-graders ($p=0.006$, $p=0.030$, $p=0.005$, respectively).

Conclusions
Participation in physically active play and ball games at recess was associated with better school-related social factors, especially in grades 4–5 as well as with peer relationships and relatedness to school. These results support the value of physical activities at recess for the social development of schoolchildren [3].

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Poster

The reflective outdoor teacher

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Aim:
The aim of this study is to explore reflection as a method for learning in a PETE-program.

Method:
The study explores reflective texts from thirteen male students participating in a *friluftsliv* (outdoor education) course. The reflective texts have been written during two different mountain tours and analyzed through a hermeneutic text analysis (Stensmo, 2002). The analysis focus mainly on the student´s reflections about *friluftsliv* (outdoor education) as a phenomena, didactic considerations and aspects of leadership.

Results:
The study shows that the participants initially focused on supply and equipment as well as outdoor recreation, the value of learning civilization and to have access to nature. Thoughts about outdoor education in a school context were also raised among the students during the course. A progression and greater depth can be seen in the participants´ reflective texts between the two mountain tours, suggesting both personal and educational development.

Conclusions:
Using reflection as a tool in the learning process within physical education can be seen as one positive method according to this study.

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Poster

Next Practice in Physical Education and Movement Science

The 2nd NORDPLUS-IDROTT Conference
May 6th to 8th 2013, Odense, Region of Southern Denmark

Migration and health - An upcoming research project

Anna Fabri
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Abstract
The project's starting point is that health is crucial for asylum seekers and newly arrived refugees opportunities for learning, integration and establishment in the labor market. National experience shows that health problems are often the reason for long processing times for different introduction efforts for the target group. The project will be conducted as action research in which a direct research based support for health promoting activities for asylum seekers and newly arrived refugees related to the identified problem areas will be developed. This includes training of health communicators (SHC) in the field.

Issues
How can physical activity for newcomers' opportunities be stimulated and on a practical level, and made possible within the framework of the establishment process?
How can the role of the health communicators (SHC) be professionalised?

Milestones
Increasing the target group i.e. newcomers opportunities for physical activity as part of a self-directed preventive health care in the context of the establishment.
The essential competencies for the profession are identified as well as national and international recommendations for training of health communicators (SHC) are developed in consultation with local, regional and national partners and stakeholders in the community.

Expected results
New resistant methods for increasing physical activity for the target group (newly arrived Swedes) has been developed in collaboration between public, civil and private sector and transferred to a level of implementation and that a health perspective is raised as a factor in the information interventions for asylum seekers and newly arrived refugees at regional, national and European level.

Keywords: migration, health, physical activity, integration

Poster

Physical activity across different settings in children attending normal schools and sports schools with extra compulsory physical education lessons: preliminary finding from the CHAMPS-study DK

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Aim:
The school setting as basis for physical activity (PA) interventions has been highly promoted as ideal since any benefits from such interventions targeting children from all segments of the population potentially could contribute to alleviating social inequality in health. This study relies on data from the CHAMPS-study DK which is a large controlled school-based intervention study examining possible effects of extra physical education (PE) lessons in children (n>1200, age 6-12 years) attending public primary schools. Many of the project evaluation parameters (e.g. risk factors for lifestyle diseases, bone health and motor performance) are based on the assumption that children attending schools with extra PE will be more physically active. However, a detailed description of the primary exposure "PA" is of crucial importance before interpreting the observed intervention effects. Consequently, the aim of this study is to describe the level of PA across different settings in children attending normal schools and sports schools, respectively.

Methods:
At the sports schools, the compulsory PE curriculum was increased from 2 to 6 lessons per week (270 minutes in total) over a 3-years period. Children attending normal schools were offered the standard 2 PE lessons (90 minutes in total). PA was assessed with the GT3X Actigraph accelerometer during winter and summer/fall. Children were instructed to wear the device for 7 full consecutive days (except when showering or swimming) in order to capture their entire PA for each day. A customized software program (Propero) was used to extract accelerometer data across crucial settings (i.e. total days, school time, school breaks, PE lessons) based on school-class-specific time tables. Bicycling activities (potential confounder) were quantified by SMS-track.

Results:
Children attending sports schools were more active during school time compared to children from normal schools (girls: β=55 & p=0.05, boys: β=112 & p<0.001), but less active in the leisure time during weekdays (girls: β=-41 & p=0.01, boys: β=-71 & p=0.001). There were no significant differences in total PA levels, PA levels during school breaks, PA levels during PE, and PA levels during the weekend across the two school types.

Poster

Exploring four teachers' gut feeling of what to grade in physical education and health

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Aim:

This study aims to explore the gut-feeling of four teachers in Physical Education and Health (PEH) regarding what they consider important when grading and to relate their gut feeling to the official criteria for grading and the grades given to the students.

Method:

Four Swedish teachers in PEH were interviewed with the repertory grid technique. Teachers sometimes have difficulties to express which criteria they use when grading [1, 2]. The Repertory Grid technique can visualise their constructs of qualities that they value when grading by examining which qualities that distinguish students with different grades. The generated constructs can be seen as a verbalisation of the teachers' gut-feeling. Eight students were rated on a five-grade scale by the teachers concerning the generated constructs, see Figure 1. A software program, WEBGRID5, was used to analyse the data. The constructs where also categorised into themes.

Results:

Among the 86 constructs that the teachers generated, four themes were identified: motivation, knowledge and skills, confidence and interaction with others. All four themes matched the grades given, but neither motivation, confidence nor interaction with others are expressed in the official criteria for grading. An example of all the constructs from one teacher can be seen in Figure 1.

Conclusions:

Teachers use internalised criteria when grading and the Repertory Grid technique is one possible option to help them to verbalise criteria that they have difficulties to express, enabling them to develop their grading practice for transparent and fair grades.

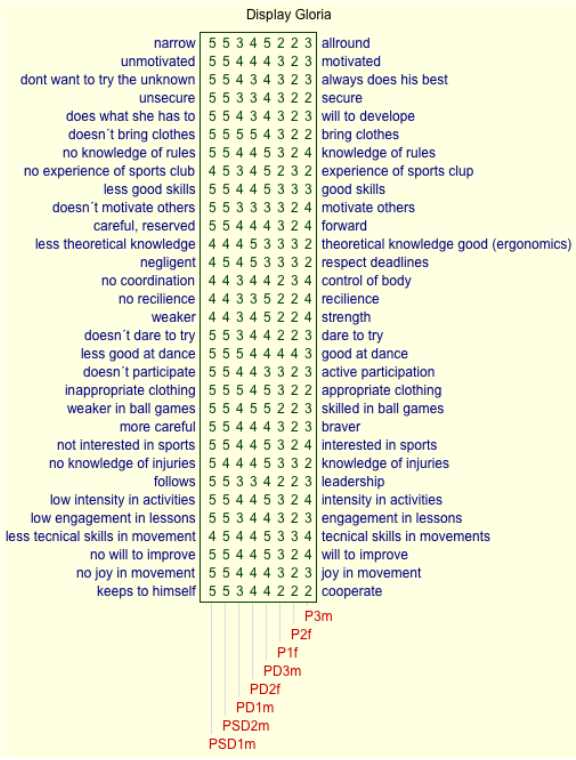

Figure 1. The generated data from one of the teachers. The constructs are displayed on the rows and the students in the columns.

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Poster

Overweight - a predictor of overuse injuries in children?

The Childhood Health, Activity and Motor Performance School Study - A 3-year prospective controlled cohort study

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Background:
Increased adiposity is a well-recognized risk factor for tendon overuse injuries in adults. The mechanisms could be excess biomechanical load and/or the low inflammatory condition caused by excess body fat. The issue has not been investigated in children.

Objective:
To investigate if children (aged 8-12) with elevated total body fat percentage (TBF%) or elevated body mass index (BMI) experience more overuse injuries than normal-weight children.

Design:
TBF% was assesses using whole body DXA. Standard anthropometric methods were used to measure weight and height. Injuries and sport participation were reported by answering text messages on a weekly basis. If an injury was reported the child was seen by a clinician. Only diagnosed injuries were included.

Main outcome Measurements:
The primary outcome measures was the number of diagnosed overuse injuries and the impact of TBF% and BMI was analysed using multilevel hierarchical poisson regression analysis taking into account the longitudinal character of the study and the hierarchical nature of the sample. The analyses were adjusted for gender, hours of physical education and sport participation.

Results:
Of 582 schoolchildren 101 (17.4 %) were overweight when using TBF% cut-points and 56 (9.6 %) using BMI cut-points.
467 overuse injuries were diagnosed. 28.5 % of the children had 1 injury in the period, 13.3 % two injuries, 4.6 % three injuries, 2.6% withstood more than 3 injuries and 50.9 % sustained no injuries.
A significantly increased risk of overuse injury was found in children that were overweight defined by both elevated TBF% and BMI (IRR 1,31 [95% CI: 1.25; 1.37]). Overweight defined by elevated TBF% but normal BMI did not increase the risk of overuse injury (IRR 1.0 [95% CI: 0.94; 1.04]), neither did elevated BMI but normal TBF% (IRR 0.95 [95% CI: 0.78; 1.16]).

Conclusion:
Children with combined elevated TBF% and BMI have a 31% greater risk of obtaining overuse injuries. It seems that neither TBF% alone nor BMI alone is a predictor of overuse injuries. This suggests that excessive body fat, which results in an increased BMI, is a risk factor for future overuse injuries.

Poster

School based intervention - does it alter Physical Health? The Childhood Health, Activity and Motor Performance School Study CHAMPS-Study DK - A 3-year prospective controlled cohort study.

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Background:
Physical inactivity has been identified as a serious problem and a major public health concern for people of all ages. More than a decade ago physical activity was labeled as "today's best buy in public health", and WHO specifically identified schools as a target setting for the promotion of physical activity among children and youth.

The overall aim of the CHAMPS -study is to investigate the short and long term health effects of attending a sport school with 4 additional lessons of physical education (PE) per week, compared to 2 lessons of PE. The objective of this sub-study was to investigate the effect on insulin resistance and body composition, comparing sport schools to normal schools.

Methods:
The CHAMPS-Study – DK is a three-year controlled intervention study (2008-11) in 10 public schools in Denmark. 1507 children aged 6 to 11 were invited to participate, 1218 accepted. Participants were 697 pupils attending six sport schools and 521 attending four normal schools, serving as comparison group, in the Municipality of Svendborg. **Methods and main outcome for the sub-study**: 2.-4th grade pupils aged 8-11 (mean 10,5 yrs; SD 1,3) were DXA-scanned at baseline and follow-up after two years. Height and weight were measured at the same time points. Fasting blood samples were drawn at baseline and at a follow-up after two years, and analysed for s-glucose and s-insulin. Complete data were available for 506 children (219 normal schools/287 sport schools). Results were multivariate analysed using hierarchical multilevel models, taking into account the longitudinal and hierarchical nature of the study.

Results:
Children attending sport schools had a significant odds ratio towards less negative development of overweight by BMI (odds-ratio: 0.24) and body fatness measured by DXA (odds-ratio: 0.57). Development in HOMA-score and s-insulin were significantly better at sport schools than "normal" schools, with a multivariate difference in HOMA of 0.23.

Conclusions:
More PE can alter physical health. At sport schools odds of being overweight were significantly lower and development in HOMA score was significantly better after 2 years
Results suggesting that 6 PE lessons a week might be one way to prevent obesity and insulin resistance escalating in pediatric population. The perspective for this large pragmatic study is of major interest for public health.

Poster

Validity and reliability of school-based anthropometric measures and physical fitness among children in Denmark

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Aim:
The purpose of the present study was to assess the stability and objectivity of school-based measures of anthropometry and physical fitness collected by teachers.

Methods:
The Healthy School Network (HSN) was initiated in 2009 by the Rockwool foundation to monitor indicators of children's health and provide the basis for health promoting initiatives. Teachers in 206 schools (of 1377 in 2011 = 15%) obtained measures of height, weight, circumference, Sargent's vertical jump and physical fitness (the Andersen test) among at least 80% of all children in grade 0 to 9. Snowball sampling was used to recruite schools. Stability reliability was assessed by comparing results with schools own control measures of 2173 children. Objectivity was assessed by comparing results of tests conducted by reseachers from SDU with schools result on a sample of 110 children. Reliability was assessed by calculation of the concordance correlation coefficient (ρc) and by visual inspection of Bland-Altman plots, separately by grades.

Results:
Across all grades, stability reliability was acceptable for height (ρc = 0.94), weight (0.95), circumference (0.79) and vertical jump (0.78). However, reliability was poor for the test of physical fitness (ρc = 0.54). Objectivity reliability was acceptable for height (ρc = 0.9), weight (ρc = 0.8), less acceptable for circumference (ρc = 0.58) and vertical jump (ρc = 0.56), and poor for test of physical fitness (ρc = 0.14).

Conclusions:
Schoolteachers can provide reliable measures of anthropometry of children in all grades but needs additional training in measuring muscular strength and physical fitness.

Acknowledgments:
a special thanks to all the children for their time, effort and entusiasm in relation to data collection

Poster

Effects of a physical activity intervention program on executive function in overweight children: preliminary results from Odense overweight intervention study

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Aim:
Recent evidence suggested that physical activity and fitness were positively associated with cognitive function [1, 2]. Few randomised controlled trials examined the effects of physical activity intervention on children's cognitive performance. The purpose of the study was to examine the effects of a 6-week physical activity intervention program on overweight children's executive function.

Methods:
The subjects (mean age=12.01±0.42 years) were recruited in the municipality of Odense, Denmark. Participants were eligible for participation in the study if they exceed age- and sex-specific BMI cut-off points for overweight based on criteria from the International Obesity Task Force [3]. The participants were randomly allocated to either intervention group (N=32, 56% girls, BMI=24.9 ± 3.1 kg/m^2) or control group (N=28, 54% girls, BMI=24.3±2.6 kg/m^2). The children in the intervention group were engaged in fun-based physical exercise and sports (approx. 3 hours or more per day) in a day camp. At the camp the food was prepared and served according to the Danish national dietary recommendations. No calorie restriction was enforced. Children allocated to the control group received a standard intervention, which consists of one weekly physical activity session and a meeting with dietician. Primary outcome for the current report is executive functioning, which was measured by Trail making test (TMT) [4] and Stroop colour-word test [5].

Results:
After 6-week intervention, the reduction in BMI was larger in the intervention group (adjusted mean difference, -2.28[95% CI -2.76, -1.81], P<0.001). TMT task and Stroop task performances were improved significantly in both groups after intervention (all P<0.001). However, there were no significant differences in the changes in TMT task and Stroop task scores between groups (all P>0.05).

Conclusions:
The preliminary results demonstrated that the 6-week physical activity intervention program for overweight children did not show greater benefits on TMT task and Stroop task performances comparing with the control group. Further research with larger sample size and longer intervention period is needed to confirm the beneficial effects of physical activity on cognitive function in youth.

Acknowledgments: This study was financially supported by TrygFonden. We thank the children and their families for their participation.

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