UNIVERSITY OF COPENHAGEN
DEPARTMENT OF NUTRITION, EXERCISE AND SPORTS

THE COPENHAGEN CONSENSUS CONFERENCE 2016

– Children, Youth, and Physical Activity in Schools and during Leisure Time

List of content

The Copenhagen Consensus Conference 2016

– Children, Youth, and Physical Activity in Schools and during Leisure Time

A desire to improve children's and youth's health, well-being and social inclusion motivated Department of Nutrition, Exercise and Sports at the University of Copenhagen to gather 24 international researchers from a variety of academic disciplines at a consensus conference in Denmark on 4-7 April 2016. A limited number of listeners from Danish sport organisations and the Ministry for Children, Education and Gender Equality also participated.

A documented link between physical activity and learning regardless of age was established in 2011 at the consensus conference "Physical Activity and Learning" which was arranged by the Ministry of Culture and the Ministry of Education in Denmark. The recommendations were utilised by politicians in Denmark to create a reform stating that every child in the Danish public school should have a minimum of 45 minutes of compulsory physical activity during each school day.

The aim of the Copenhagen Consensus Conference in 2016 was to reach an evidence-based consensus within four themes:

- Theme 1: Physical activity in children and youth: Fitness and health.
- Theme 2: Physical activity in children and youth: Cognitive functioning.
- Theme 3: Physical activity in children and youth: Engagement, motivation and psychological well-being.
- Theme 4: Physical activity in children and youth: Social inclusion and physical activity implementation strategies.

Sixteen scientific presentations summarized the international research within these fields and through a thorough and iterative process, the researchers agreed upon a common statement which is presented in this publication together with a number of recommendations to how various stakeholders and initiatives can contribute to improve children's and youth's health, well-being and scholastic performance in schools and sport settings. We hope the recommendations can be of use and contribute to strengthen the implementation of physical activity in schools and sport settings.

The Consensus Statement from the Copenhagen Consensus Conference 2016 is published in British Journal of Sports Medicine: "Bangsbo J, Krustrup P, Duda J, et al. Br J Sports Med, Published Online First, doi:10.1136/bjsports-2016-096325".

We wish to thank the participants in the consensus conference for intense and constructive days. Special appreciation goes to Thomas Skovgaard and Henrik Busch for moderating and stimulating the discussions.

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Statements from the Copenhagen Consensus Conference on Children, Youth and Physical Activity on 4-7 April 2016

From 4 to 7 April 2016, 24 researchers from 8 countries and from a variety of academic disciplines gathered in Snekkersten, Denmark, to reach evidence-based consensus about physical activity in children and youth, that is, individuals between 6 and 18 years.

Physical activity is an overarching term that consists of many structured and unstructured forms within school and out-of-school-time contexts, including organised sport, physical education, outdoor recreation, motor skill development programmes, recess, and active transportation such as biking and walking. This consensus statement presents the accord on the effects of physical activity on children's and youth's fitness, health, cognitive functioning, engagement, motivation, psychological well-being and social inclusion, as well as educational and physical activity implementation strategies.

The consensus was obtained through an iterative process that began with presentation of the state-of-the art in each domain followed by plenary and group discussions. Ultimately, Consensus Conference participants reached agreement on the 21-item consensus statement.

Consensus Statements

Theme 1: Physical activity in children and youth: Fitness and health

- Cardiorespiratory and muscular fitness levels in children and youth are strong predictors of future cardiometabolic disease, such as coronary artery disease and diabetes mellitus.
- Vigorous exercise has a marked favourable impact on cardiometabolic fitness and other cardiovascular risk factors in children and youth.

- Frequent moderate-intensity and, to a lesser extent, low-intensity exercise improves cardiometabolic fitness in children and youth.
- Physical activity is important in the treatment of many chronic diseases in children and youth.
- Children and youth participating in leisure-time sports have higher levels of physical activity, fitness and overall cardiometabolic health, and better musculoskeletal health when involved in weight-bearing sports.
- Field-based testing of cardiorespiratory fitness and waist/height scores is a valuable tool for preliminary assessment and identification of children and youth with cardiometabolic risk.

Theme 2: Physical activity in children and youth: Cognitive functioning

- Physical activity and cardiorespiratory fitness are beneficial to brain structure, brain function and cognition in children and youth.
- Physical activity before, during and after school promotes scholastic performance in children and youth.
- A single session of moderate physical activity has an acute benefit to brain function, cognition and scholastic performance in children and youth.
- Mastery of fundamental movement skills is beneficial to cognition and scholastic performance in children and youth.
- Time taken away from academic lessons in favour of physical activity has been shown to not come at the cost of scholastic performance in children and youth.

Theme 3: Physical activity in children and youth: Engagement, motivation and psychological well-being

- Engagement in physical activity has the potential to positively influence psychological and social outcomes for children and youth, such as self-esteem and relationships with peers, parents and coaches.
- An autonomy supportive, mastery focused and caring/socially supportive environment, positively influences children's and youths' self-determined motivation, physical activity behaviour and holistic well-being.
- Close friendships and peer group acceptance in physical activity are positively related to perceived competence, intrinsic motivation and participation behaviour in children and youth.
- Parental attitudes and behaviours are strongly related to children's and youths' self-perceptions, motivation and physical activity.
- Systematic and deliberate training enables teachers and coaches to create a positive motivational environment for children and youth.
- Physical activity-based positive youth development programmes that have an intentional curriculum and deliberate training are effective at promoting life skills (e.g., interpersonal, self-regulation skills) and core values (e.g., respect and social responsibility) in children and youth.

Theme 4: Physical activity in children and youth: Social inclusion and physical activity implementation strategies

- Participation of children and youth in physical activity and sport is influenced by socio-economic status, gender, ethnicity, sexual orientation, skill level and disabilities.
- Culturally and contextually relevant physical activity opportunities help to recognise and account for the diverse lives of children and youth, and to promote social inclusion.
- Social inclusion can be promoted by providing equal access to opportunities within physical activity and sports settings regardless of children and young people's social, cultural, physical and demographic characteristics.
- Whole school approaches and the provision of physical activity-conducive environments such as bike lanes, parks and playgrounds, are both effective strategies for providing equitable access to, and enhancing physical activity for, children and youth.

Recommendations

Theme 1: Physical activity in children and youth: Fitness and health

- Fitness level should be measured in children and youth for cardiometabolic risk stratification.
- Reliable and valid field testing, including intermittent maximal tests such as the Andersen and Yo-Yo intermittent children's tests and measurements of waist and height, are recommended to provide a preliminary assessment of the cardiometabolic risk for children and youth, and to provide feedback regarding relevant improvements in fitness and health status after training interventions.
- Small-sided ball games, like football, team handball, floorball and basketball, are recommended to elicit high cardiometabolic and musculoskeletal loading, individual involvement and favourable cardiometabolic and musculoskeletal training effects.
- Active transportation to and from schools, when safe, should be encouraged. Commuter cycling to and from school is recommended and is more effective to improve cardiorespiratory fitness than walking.
- For all children and youth, inclusive of healthy and those with chronic diseases, it is relevant to distinguish between training effects on cardiovascular, metabolic and musculoskeletal fitness, when evaluating the fitness and health effects of various types of physical activity.
- Assessment of cardiometabolic risk for children and youth should include fitness and be based on standardized continuous risk factor scores.
- Musculoskeletal fitness and health can be enhanced through several types of physical activity in sports clubs and schools when children and youth are engaged in vigorous, intermittent, impact-promoting activities, such as jumping, circuit strength training and ball games.

Theme 2: Physical activity in children and youth: Cognitive functioning

- Physical activity can promote scholastic performance in a broad sense. Whether it does so, depends on active participation and engagement in the physical activities.

Initiatives and adjusted practice to increase motivation and competence for participation is thus essential. Opportunities include, for example, active transport, physical education, active lessons, recess, and afterschool programming.

- Integration of movement into teaching activities of academic subjects holds promise, but studies are ongoing and there are at present only a few (but positive) available studies on this relationship. Presumably, a key feature is that the movement or physical activity is directly related to the intended learning objective.
- A single session of moderate intensity physical activity has transient benefits to brain function, cognition, and scholastic performance with benefits derived for approximately 1 hour, depending on the characteristics of the physical. Physical activity immediately prior to a learning session should not be too intense since high stress or fatigue may blunt the beneficial effect. Additional benefits to memory may be derived when moderately-to-vigorous physical activity is performed after learning.
- Mastery of fundamental movement skills is beneficial to cognition and scholastic performance in children and youth, and both physical activity throughout school and in leisure physical activities can benefit motor functions. Motor skill screening provides a valuable tool for identifying children in need of adapted support in motor skill development. Specific 'adapted' interventions should be developed and offered to children with motor skill deficits in order to benefit motor development and motivation for participation in physical activities.
- The school is the arena where it is possible to reach the vast majority of children and youth, also those who are not otherwise regularly physically active. Increased focus on and time for physical activity with qualified activities can be a possible way to promote motor skills, school performance as well as motivation for participation in physical activity.

Theme 3: Physical activity in children and health: Engagement, motivation and psychological well-being

- Children and youth should be provided with fun, personally meaningful and developmentally-appropriate physical activities

which offer opportunities for positive social interactions.

- Adults need to empower children's and youth's feelings of competence and personal autonomy and facilitate their enjoyment of and engagement in physical activity by creating environments which are autonomy supportive (e.g., provide a voice, choice, and decision making), mastery-oriented (e.g., emphasize the value of hard work, personal improvement, cooperation and continual learning), and socially supportive (e.g., ensure young people feel cared for, accepted and respected, separate children's sense of worth from their performance).
- Children and youth should be encouraged to do physical activity with close friends and be provided a variety of mutually valued physical activity options in school and out-of-school-time settings.
- Parents should serve as physical activity role models, by communicating a positive attitude about physical activity, being regularly active, and demonstrating value toward physical activity through consistent verbal and non-verbal behaviours. Parent education programs can inform them about the importance and features of positive physical activity environments.
- Coaches and teachers should receive systematic training regarding the rationale for, principles of, and strategies they can adopt to create more empowering physical activity environments for children and youth.
- Adults should take the opportunities afforded via children's and youth's engagement in physical activity to teach them life skills, such as interpersonal, self-management, and conflict resolution skills, which can generalize or transfer to other domains such as school, future work and home life.

Theme 4: Physical activity in children and youth: Social inclusion and physical activity implementation strategies

- Provide a wide variety of physical movement experiences for all children early in their lives to build fundamental movement skills and familiarity with physical activity.
- Offer a variety of sporting and physical activities that recognize and engage diverse children and youth.
- Offer a range of contexts for sporting and physical activities in order to support the inclusion of children and youth into specific activities and contexts that are meaningful to them.
- Provide capacity building interventions (e.g. policy, in-service training, ongoing technical support, resources and evidence) that support the implementation of PA policies and programs in schools and community environments.
- Organizations and stakeholders involved in sport and physical activity provision should develop social inclusion policies and practices.
- Support socially inclusive practices with education, training and support for physical activity providers.

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