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English summary

Physical inactivity and mental health issues are considered central risk factors for developing non-communicable diseases. A large part of the population is insufficiently active and mental health issues are increasing. To counteract the unfortunate prevalence of these phenomena, it has been suggested to target determinants of physical activity and well-being, such as physical literacy. Physical literacy is such a determinant. Physical literacy describes the individuals' foundational for participation in physical activities and is often defined as the *“the motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life”* (International Physical Literacy Association). It is, grounded in theory, hypothesised to be important for well-being in physical activity contexts, and therefore also for overall well-being. In this thesis, four direct and indirect hypothesized associations between physical literacy, physical activity and well-being are outlined by unfolding the theory of physical literacy and self-determination theory and reviewing the literature. The aim of this thesis was to investigate the four hypothesized associations empirically by conducting three individual cross-sectional studies, synthesizing results across the three studies and combining the results with previous evidence and theoretical perspectives from physical literacy and self-determination theory. This aim was reached by conducting three studies.

In Study 1, children's physical literacy was shown to be associated with less relative time spent sedentary and more relative time spent in physical activity of moderate and high intensities. In Study 2, children's physical literacy was shown to be associated with their well-being. Part of the association between physical literacy and physical well-being – but not emotional and social well-being – were mediated by daily amount of physical activity. In Study 3, adolescents' physical literacy was shown to be associated with their well-being. A relatively small part of this association was mediated by weekly engagement in sport and exercise. In Study 2 and 3, physical activity levels and sport and exercise

participation were shown to be associated with the well-being outcomes, but to a smaller extent than the association between physical literacy and well-being. Small or no effect sizes on the mediating path of physical activity on the association between physical literacy and well-being combined with the observed direct association between physical literacy and well-being indicates that physical literacy may be more important than the amount of physical activity for the overall well-being of children and adolescents.

Combining these empirical results with the theory of physical literacy and the self-determination theory have expanded on the understanding of the investigated associations and underlying mechanisms. With this thesis, I contribute with high-quality evidence on the assumed link between children's and adolescents' physical literacy, physical activity participation and well-being as well as provide expanded knowledge of why physical literacy may be important for well-being and continuous physical activity participation. Results of this thesis indicate that physical literacy is important for well-being above and beyond daily amount of physical activity levels, and that physical literacy is important for engagement in physical activities, which may have long-term health implications. Strategies and initiatives should be designed to promote and develop children's and adolescents' prerequisites for physical activity which are encompassed in the domains of physical literacy.

Dansk resumé

Fysisk inaktivitet og mentale sundhedsproblemer betragtes som centrale risikofaktorer for at udvikle kroniske ikke-smitsomme sygdomme. En stor del af befolkningen er ikke tilstrækkelig fysisk aktiv, og befolkningens mentale sundhedsproblemer er stigende. For at modvirke denne uheldige tendens er det blevet foreslået at fokusere på determinanter for fysisk aktivitet og trivsel. *Physical literacy* er en sådan determinant. Physical literacy beskriver individens grundlag for deltagelse i fysiske aktiviteter og defineres ofte som "*motivationen, selvtilliden, fysiske kompetencer, og viden og forståelse for at værdsætte og tage ansvar for deltagelse i fysiske aktiviteter gennem hele livet*" (International Physical Literacy Association). Baseret på teorien, formodes det desuden at physical literacy er væsentligt vigtigt for trivsel i fysiske aktivitetskontekster, og derfor også for den generelle trivsel. I denne afhandling udfoldes fire direkte og indirekte hypotetiske sammenhænge mellem physical literacy, fysisk aktivitet og trivsel ved at gennemgå litteraturen og ved at udfolde teorien om physical literacy og self-determination [selvbestemmelses-teorien]. Formålet med denne afhandling var at undersøge de fire formodede sammenhænge. Dette blev gjort empirisk ved at udføre tre individuelle tværsnitstudier, syntetisere resultaterne på tværs af de tre studier og kombinere resultaterne med tidligere evidens og teoretiske perspektiver hentet fra teorien om physical literacy og self-determination. Formålet blev nået ved at gennemføre tre studier.

I Studie 1 var børns physical literacy associeret med mindre relativ tid brugt stillesiddende og mere relativ tid brugt på fysisk aktivitet af moderat og høj intensitet. I Studie 2 var børns physical literacy associeret med trivsel. En del af sammenhængen mellem physical literacy og fysisk trivsel - men ikke følelsesmæssigt og social trivsel – kunne forklares via den daglige mængde fysisk aktivitet. I Studie 3 var teenagernes physical literacy associeret med deres følelsesmæssige og sociale trivsel. En relativt lille del af denne sammenhæng kunne forklares via ugentlig deltagelse i idræt og motion. I Studie 2 og 3 var fysisk aktivitetsniveau og idræts- og motionsdeltagelse associeret med trivsel, men i mindre grad end

sammenhængen mellem physical literacy og trivsel. Små eller ingen indirekte forklarende effekt af fysisk aktivitet på sammenhængen mellem physical literacy og trivsel, kombineret med den observerede direkte sammenhæng mellem physical literacy og trivsel, indikere at physical literacy kan være vigtigere for børns og unges generelle trivsel end mængden af fysisk aktivitet isoleret set.

Kombinationen af disse empiriske resultater med teorien om physical literacy og self-determination har udvidet forståelsen af de undersøgte sammenhænge underliggende mekanismer. Med denne afhandling bidrager jeg med viden af høj kvalitet om de antagne sammenhænge mellem børn og unges physical literacy, fysisk aktivitet og trivsel, og med øget viden om, hvorfor physical literacy kan have betydning for trivsel og fortsat deltagelse i fysiske aktiviteter. Resultaterne af denne afhandling indikerer, at physical literacy er vigtig for børn og unges trivsel ud over det daglige niveau af fysisk aktivitet, og at physical literacy er vigtig for hvorvidt man deltager i fysiske aktiviteter eller ej, hvilket kan have langsigtede sundhedsmæssige og trivselsmæssige konsekvenser. Strategier og initiativer bør fokusere på at fremme og udvikle børn og unges forudsætninger for fysisk aktivitet, som er beskrevet i physical literacy-domænerne.

List of research articles included in the thesis

Study 1

Melby, P. S., Elsborg, P., Brønd, J. C., Nielsen, G., & Bentsen, P. A compositional analysis of cross-sectional associations between children's level of physical literacy and health behaviours (submitted to *The International Journal of Behavioural Nutrition and Physical Activity*).

Study 2

Melby, P. S., Nielsen, G., Brønd, J. C., Tremblay, M. S., Bentsen, P., & Elsborg, P. (2022). Associations between children's physical literacy and well-being: Is physical activity a mediator? *BMC Public Health*, 22(1), 1-13.

Study 3

Melby, P. S., Elsborg, P., Bentsen, P., & Nielsen, G. Cross-sectional associations between adolescents' physical literacy, sport and exercise participation and well-being (submitted to *Frontiers in Public Health*).