AARHUS UNIVERSITY

# Press release

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## Basic information

Name: Hanan Amadid Email: hanan.amadid.01@regionh.dk Phone: 27585300

Department of: Public Health

Main supervisor: Annelli Sandbæk

Title of dissertation: Which physical activity patterns prevent diabetes and cardiovascular disease in people with elevated diabetes risk?

Date for defence: 21st June 2019 at (time of day): 14:00 Place: Steno Diabetes Center Copenhagen, Building NSK, Auditorium.

Press release (Danish)

Fysiske aktivitetsmønstre samt forebyggelse af diabetes og hjertekarsygdom

Sundhedsfordelene ved fysisk aktivitet er alment kendte. På trods heraf er forekomsten af fysisk inaktivitet høj, især iblandt individer med høj risiko for kroniske sygdomme såsom type 2 diabetes og hjertekarsygdom. På baggrund af et stærkere bevisgrundlag er der i anbefalinger om fysisk aktivitet kun lagt vægt på moderat til hård fysisk aktivitet. Viden omkring hvordan andre dimensioner af fysisk aktivitet, fysiske aktivitets mønstre og stillesiddende tid er relateret til kardiometabolisk sundhed er fortsat mangelfuld. Endvidere er det uklart om der er subgruppe forskelle i hvordan fysisk aktivitet og stillesiddende tid relaterer sig til kardiometabolisk sundhed. Dette blev undersøgt i et nyt ph.d.-projekt fra Aarhus Universitet, Health. Projektet er gennemført af Hanan Amadid, der forsvarer det d. 21/6-2019

Ph.d.-projektet tog overordnet sigte på at undersøge sammenhængen mellem forskellige objektivt målte dimensioner og mønstre af fysisk aktivitet samt stillesiddende tid og forringet glukosestofskifte (dvs. forstadiet til type 2 diabetes) og hjertekarsygdom. Ydermere undersøgtes, hvorvidt denne sammenhæng varierer i forskellige subgrupper. Resultaterne af projektet kunne tyde på at forøgelse af moderat til hård fysisk aktivitet og nedsættelse af stillesiddende tid hos forholdsvis overvægtige/fede mænd og kvinder kunne have en gavnlig indvirkning på glukosestofskifte. Desuden at forøgelse af let fysisk aktivitet blandt midaldrende og ældre individer med normal vægt også kunne have en gavnlig indvirkning på glukosestofskifte. Hvad angår hjertekarsygdom, kunne det tyde på at en øgning af enhver form for fysisk aktivitet, der resulterer i øget energiforbrug, kan forhindre udvikling af hjertekarsygdom såfremt fysisk aktivitet implementeres, før en højrisikotilstand for hjertekarsygdom er udviklet. Mens forskellige fysiske aktivitetsmønstre blev afdækket, viste de ingen relation til udvikling af hjertekarsygdom.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 21/6-2019 kl. 14 på Steno Diabetes Center Copenhagen, Bygning NSK i auditorium, Niels Steensens Vej 2, 2820 Gentofte. Titlen på projektet er ”Which physical activity patterns prevent diabetes and cardiovascular disease in people with elevated diabetes risk?”. Yderligere oplysninger: Ph.d.-studerende Hanan Amadid, hanan.amadid.01@regionh.dk, tlf. 27585300.

Bedømmelsesudvalg:
Kristian Overgaard, Associate professor, PhD (chair of committee)
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Usher Institute of Population Health Sciences and Informatics, University of Edinburgh

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National Research Centre for the Working Environment and Department of Sports Science and Clinical Biomechanics, University of Southern Denmark

Press release (English)

# Which physical activity patterns prevent diabetes and cardiovascular disease in people with elevated diabetes risk?

Despite the widely known health benefits of physical activity, the prevalence of physical inactivity is high, especially in subgroups at high risk of chronic disease. Due to a stronger evidence base, emphasis is only on moderate-to-vigorous physical activity in public health recommendations. However, physical activity is a multi-dimensional and dynamic behaviour which can from day-to-day be shaped in patterns from various combinations in frequency, intensity and duration. How physical activity dimensions other than moderate-to-vigorous physical activity, physical activity patterns and sedentary time are associated with cardiometabolic disease remain to be fully established. Moreover, whether the associations between physical activity dimensions, physical activity patterns and sedentary time and the risk of developing cardiometabolic disease differ in varied subgroup (e.g. different sex, ages or levels of risk factors) are unclear. This was examined in a ph.d-project carried out by Hanan Amadid, who is defending her/his dissertation on 21/6-2019.

The project assessed the role of various objectively measured dimensions and patterns of physical activity and sedentary time as determinants of impaired glucose metabolism and cardiovascular disease and to examined whether subgroup differences exist. The findings suggest that increasing modetate-to-vigorous physical activity and reducing sedentary time in overweight/obese men and women, respectively and increasing light intensity physical activity in middle-aged and older people with under or normal weight may have a beneficial impact on glucose metabolism. As for cardiovascular disease, increasing any activity which result in increased physical activity energy expenditure may prevent cardiovascular disease if implemented before a high-risk state for cardiovascular disease has developed. Additionally, different underlying weekly physical activity patterns were uncovered. Although the adversity of cardiovascular disease risk profile correlated to the patterns' overall levels of physical activity energy expenditure they showed no relation to development of cardiovascular disease.

The defence is public and takes place on Steno Diabetes Center Copenhagen, Building NSK, auditorium, Niels Steensens Vej 2, 2820 Gentofte. The title of the project is "Which physical activity patterns prevent diabetes and cardiovascular disease in people with elevated diabetes risk?". For more information, please contact PhD student Hanan Amadid, email: hanan.amadid.01@regionh.dk, Phone +45 2758 5300.

Assessment committee:
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