



Nordic Gerontological Federation

# GeroNord

News on research, developmental work and education within the  
ageing area in the Nordic Countries

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Dear colleagues in the Nordic countries

The highlight of the year 2018 was the 24<sup>th</sup> Nordic Congress of Gerontology (NKG) held in Oslo in May. It is always a huge effort of several people in several organizations to make everything nice and smooth, and most of all, scientifically interesting. I started as a secretary and a treasurer of NGF in 2017 and thus, took for the first time part in NKG arrangements this year. I wish to thank Nils Holand (the president of 24NKG) and Marijke Veenstra (secretary general of the 24NKG) of their hard work and patience in the long process of the planning and putting into practice the great event. In addition to the work at the national level, NGF's executive board and the scientific committee have active roles in the NKG congress preparations. The executive board has the responsibility of transferring experiences of the previous congresses to the congress organizers and the scientific committee, which is formed of experts in the fields of gerontology and geriatrics from each Nordic country, take part in reviewing the abstracts. At the end of the year, it is a pleasure to thank you all for your valuable work.

And more is coming. The 24NKG was the first of the three congresses organized consecutive years in the Nordic countries. The Nordic Gerontological Federation is one of the congress organizers in the IAGG-ER 2019 in Gothenburg and 25NKG in 2020 in Iceland. There is more information about the IAGG-ER in this newsletter.

The most visible work of the secretary is editing the GeroNord newsletter together with the president of NGF. The newsletter is published three times a year and is distributed across the Nordic countries. The board of NGF (representative from each 11 national member organizations) has decided to maintain the newsletter as one channel for spreading information about activities and upcoming events. It has been a nice task to ask materials for the newsletter from the distinguished researchers in the fields of gerontology and geriatrics, since they all agreed to provide something to the newsletter! I wish to point special thanks to the Swedish National Graduate School on Ageing and Health (SWEAH) for being very active regarding the newsletter.



Let's keep up the good work within this fantastic Nordic research community. We would be happy to share information on the forthcoming events, publish reports of the past events, present new research, especially from the junior researchers, highlight new research centers and big research projects, prize winners and so on as long as this all happens in gerontological or geriatric framework. Deadlines for materials to be published in the GeroNord newsletters in 2019 are **26<sup>th</sup> of April**, **6<sup>th</sup> of September** and **29<sup>th</sup> of November**.

Merry Christmas and happy New Year 2019!

**Linda Enroth**  
**Secretary of the NGF**

## IAGG-ER May 23-25 in Gothenburg



The 9th congress of the International Association of Gerontology and Geriatrics-European Region will for the first time be held in a Nordic country. That our bid for the congress initially was accepted is largely due to very positive experiences among delegates from previous successful NKG-congresses, known to be well organized and scientifically solid. The active support from NGF was also a major argument. The congress theme is '**Towards Capability in Ageing – from cell to society**' with a focus on our ability to perform actions in order to reach valued goals within the macro, meso, and micro contexts.

### **Annual gero-meetings in the Nordic context**

The soon approaching IAGG-ER congress means that we for a period will experience annual gero-meetings in a Nordic context, in 2018 we had the 24th NKG in Oslo, in 2019 the 9th IAGG-ER in Gothenburg, and in 2020 the 25th NKG in Reykjavik.

### **Many submissions**

At the time of this writing, we have already closed the submissions for symposia as well as for oral, oral-posters, and poster presentations. We received more than 130 symposia proposals and almost 800 proposals for other presentations formats. The symposia conveners are already informed whether the symposia was accepted or not and we are currently in the process of distributing all other abstracts for peer-review among many colleagues in Europe. There will later be an opportunity to submit late-breaking-posters. Thus, we can look forward to a very intense program with up to 14 parallel sessions during 3 full days.

### **Types of sessions – traditional formats and oral-posters**

Those of you who already have submitted an abstract know that besides symposia sessions (with 3-5 individual presentations, joined by a common theme), there will also be oral-, oral-poster-, and poster sessions. All symposia and oral sessions are 75 minutes. We hope to organize oral abstracts thematically, but if the submitted abstract cannot be thematically organized into an oral session, it will instead be considered for poster presentation. Oral-posters represent a session-format that I hope will become more frequent in upcoming major meetings, given that the presenters are offered a chance to first present the highlights and then to more in detail discuss findings and content in a poster session.

### Key Note Speakers

Our keynote speakers are well known in the scientific gero-community and they certainly represent the broad range of scientific inquires we face in aging research. **Dr. John W Rowe**, president of the International Association for Gerontology & Geriatrics will have an opening address and talk about our capabilities to age successfully. **Prof. Liat Ayalon** will raise our awareness of how to combat ageism. **Prof. Afaf Meleis** will give a strong voice for how nursing affect health care policies and practices. **Prof. Suresh Rattan**, will remind us about the fact that functioning and capability in old age are fundamentally based in the health and efficiency of cells. **Profs. Kaj Blennow** and **Henrik Zetterberg**, will expand our knowledge on brain ageing and ageing-related changes producing compromised capability in older persons. **Prof. Alexandra Freund** will inform us about how motivation influences how older adults navigate the complex interaction of changes in our biology, social context and psychology, and how these changes affect motivation and self-regulation in old age. **Prof. Brendan McCormack's** presentation will focus on how implementation of a person-centered lens can enable us to flourish in old age. **Prof. Stefania Maggi** will present her experiences on what we have learned from epidemiologic studies for the sake of effective prevention and treatment strategies. **Prof. Tommy Cederholm** will inform us about undernutrition and sarcopenia, and how these conditions affect independence and quality of life in old age. **Prof. Sarah Harper**, will remind us about the fact that aging represents a dynamic and complex process, which needs to be addressed at the individual as well as societal level. **Prof. Isabella Aboderin** will remind us about ageing-related issues of global concern in sharing her findings from sub-Saharan Africa. **Prof. Michel Poulain**, known also among laymen from TV-programs will share his research on "the secret of centenarians" and the Blue Zones, areas in which people live longer, better and healthier.

### A Master Class on Ageism – supported by NGF

A multidisciplinary Master Class course for PhD students and postdocs will also be offered in connection with the congress. The theme for the Master Class is *"Portraying Old Age and Ageing to Counteract Ageism"*. The focus for the course is on how knowledge solidly based in gerontological and geriatric research can be used to challenge prevalent age stereotypes, misconceptions and ageism that have devastating effects not only for older adults but on society in general. We have had a discussion over many years to use our scientific meeting also as a platform to reach out to emergent scholars and students interested in various aging topics. In this respect, the Master Class will provide us with experiences of great value for future NGF/NKG meetings.

The Master Class is organized and sponsored by the Centre for Ageing and Health (AgeCap) at the University of Gothenburg; the International Association of Gerontology and Geriatrics-European Region (IAGG-ER); the Nordic Gerontological Federation (NGF); the Swedish National Graduate School for Competitive Science on Ageing and Health (SWEAH); the IAGG Global Social Issues on Ageing (GSIA); and the MIRAI project/Ageing.

For more details see <https://iagger2019.se/awards-education/master-class/>

**Many pre-congress workshops - new opportunities**

The day before the congress opens (i.e. Wednesday 22), there will be a number of interesting pre-congress meetings that you can sign up for. See <https://iagger2019.se/program/pre-congress-meetings/>. Here you find more detailed information about the pre-congress meetings on 1) Geriatric Nursing, 2) Performances, processes and representations of age and ageing, 3) Ageing and its boundaries in a historical perspective, 4) "Ageing and the labour market"- interdisciplinary workshop for young researchers, 5) Geropsychology - Career opportunities for psychologists and psychological treatment for older adults, 6) Homebased eldercare: intercultural perspectives of receiving, providing and organizing, 7) Age management - organization of work and retirement for older workers, and 8) Frailty - Opportunities and boundaries.

**An AgeStage and other activities**

During the congress, you will also find a number of other activities on a special AgeStage. Here you can listen to discussions on various topics, presentations by the Award winners, or occasionally to music and other entertainments, all related to aging in some form or other. We will also offer participants to stay fit during the congress. Some of you may wish to participate in a morning run, morning walk, or practice yoga. Others may perhaps prefer lunch break Zumba.

**Welcome to IAGG-ER 2019 in Gothenburg**

For more detailed information check the congress home page <https://iagger2019.se/>. Don't forget to register as early bird (before February 19) and sign up for the optional Congress Gala- dinner. Finally, to keep you updated sign up for the Newsletters that we will distribute regularly until the opening of the congress in May.

Merry X-mas & Happy New Year  
Boo Johansson  
Congress president

NGF has 11 national member societies, three from Finland and two from each other Nordic country. The number of members in the national societies was approximately 2770 in year 2018. Since NGF is what the national member societies are, we wish to highlight the national societies also in the GeroNord newsletter. In addition to presenting research projects, research centers and environments as well as new PhDs, we are going to provide short presentations of the national member societies.

In this newsletter, we have focus in Finland.

### **The Finnish Society for Growth and Ageing Research (Kasvun ja vanhenemisen tutkijat ry)**

The Finnish Society for Growth and Ageing Research was founded in 1980 for promoting premises for good ageing. The aim is to increase understanding and knowledge of ageing issues and to promote collaboration among professions working with older people. The scientific society is targeted to all researchers, practitioners, and operatives in the gerontological field in Finland. There were about 300 members in the society at the end of the year 2017.



We have published a multidisciplinary scientific journal on social gerontology since 1987. Gerontologia appears four times a year and accepts articles and reports written in Finnish and Swedish. In 2011, it was agreed that the journal represents three organizations working in the field of gerontology: The Finnish Society for Growth and Ageing Research, Societas Gerontologica Fennica and Suomen Geriatri ry - Finlands Geriatriker rf. All three organizations are members of the Nordic Gerontological Federation. Currently the journal is participating in an open access pilot organized by the Federation of Finnish Learned Societies.

The Finnish Society for Growth and Ageing Research is one of the organizers of the Finnish Gerontology Congress. In connection with the national congress that is held every three year, we nominate the best Master's thesis in the field of social gerontology. The latest award winners are Sofia Sarivaara (2017) and Linda Enroth (2013). Sofia's thesis considered dying as a social process and Linda's socioeconomic health inequalities in very old age. In addition, the society has an annual seminar that is put together in collaboration with different organizations and third sector actors. This year the seminar was organized with the Age Institute and considered aging in the context of social relationships. The society is a member of the Federation of Finnish Learned Societies. We have four honorable members: Eino Heikkinen, Simo Koskinen, Pertti Pohjolainen and Isto Ruoppila.

**Board of the Finnish Society for Growth and Ageing Research 2018**

Minna Ylilahti, University of Jyväskylä (chair)

Sirpa Andersson (deputy chair)

Mika Simonen, University of Helsinki (secretary)

Johanna Surakka, Tampere University (secretary for member affairs)

Veera Koskinen, University of Jyväskylä (treasurer)

Sirpa Andersson (board member)

Riitta Karjalainen, City of Turku (board member)

Vilhelmiina Lehto, Tampere University (board member)

Minna Pietilä (board member)

Mika Simonen, University of Helsinki (board member)

Elisa Virkola, the Age Institute (board member)

Sini Eloranta, University of Turku and Turku University of Applied Sciences (substitute)

Linda Enroth, Tampere University (substitute)

Päivi Eskola, Open University, University of Jyväskylä (substitute)

Camilla Lindholm, University of Helsinki (substitute)

Kirsi Lumme-Sandt, Tampere University (substitute)

Ilkka Pietilä, University of Helsinki (substitute)

### **Societas Gerontologica Fennica**

Societas Gerontologica Fennica (SGF) was founded in 1948 to promote scientific research in the field of ageing. The founders were well-known researchers at the time, all interested in ageing. The first chair was Archiatre Oswald Renkonen and the secretary was Professor Eeva Jalavisto, of which the latter has had a central role in developing ageing research. Professor Jalavisto was a famous gerontologist, who had a major role in the development of geriatrics and old age care in Finland.



The aim of SGF is to promote multidisciplinary scientific research in the field of ageing and to enable collaboration between different disciplines that share an interest in ageing research. This is done by organizing scientific symposia and training sessions to promote multidisciplinary discussions in ageing research, granting scholarships and other scientific support and promoting publication of ageing research.

Today SGF has over 260 members from various disciplines. The main annual event is the Scientific SGF Symposium, which promotes the work of young researchers and the current ageing research topics that are relevant in the society. SGF yearbook *Geron* was published during the years 1949-1985. currently, the major forums of the society are the Gernet website and the GeroNord Newsletter.



SGF has representatives in the Nordisk Gerontologisk Föreningen (NGF), European Geriatric Medicine Society (EUGMS), International Association of Gerontology and Geriatrics (IAGG) and its European Region. Nationally SGF collaborates with other ageing societies and is one of the organizers of the national gerontology conference, which is next held in Jyväskylä in March 2020.

SGF board meeting at Klippan in Helsinki by the sea, from left to right: Riitta Antikainen, Timo Strandberg, Sirpa Immonen, Mikko Björkman, Annele Urtamo, Satu Jyväkorpi, Jouko Laurila, Marja Vaarama and Mikaela von Bonsdorff.



**Board of the Societas Gerontologica Fennica 2018 – 2019:**

Jouko Laurila (chair)  
Mikaela von Bonsdorff (deputy chair)  
Annele Urtamo (secretary)  
Riitta Antikainen (board member)  
Mikko Björkman (board member)  
Sirpa Immonen (board member)  
Satu Jyväkorpi (board member)  
Timo Strandberg (board member)  
Marja Vaarama (board member)

More information about the Societas Gerontologica Fennica  
<http://www.gernet.fi/>

### **The Finnish Geriatricians**

The Finnish Geriatricians (Suomen geriatri ry) is a nationwide association for geriatricians and physicians from other specialties with shared interests in geriatric medicine and health and functioning of older adults. The Finnish Geriatricians was founded and registered in 2009, now 10 years later, the society has nearly 350 members, and the number is increasing.



Geriatric medicine is a popular specialty among young physicians in Finland, and the mean age of our geriatricians is getting lower. The estimated number of new specialists needed in a year is 16, and we have reached it. However, the demand for geriatricians still exceeds the supply in the near future, especially in the Northern parts of the country.

The Finnish Geriatricians promote professional, scientific and practical development in the field of geriatric medicine. The society also takes an active stand for promoting health and care as well as role and position of older adults in Finland. The society organizes a national conference, Geriatripäivät, annually. It has become a popular event for sharing knowledge and meeting colleagues, friends and experts from the field of geriatric medicine, other specialties and interest groups. The next conference will be held in Kuopio, 12 – 13 February 2019.

We collaborate closely and actively with other gerontological societies in Finland, with Nordic Gerontological Federation, the European Geriatric Medicine Society, and the European Union of Medical Specialties.

Here you can find more information about the Finnish Geriatricians:

<http://www.eugms.org/our-members/national-societies/finland.html>

<http://www.gernet.fi/>

**Laura Kananen** defended her doctoral thesis “**Aging-associated changes in the DNA methylome and characteristics of the epigenetic clock**” on 29<sup>th</sup> of March 2018 at the Faculty of Medicine and Life Sciences, University of Tampere, Finland. The field of science of the dissertation is Microbiology and Immunology (Molecular Immunology).



**Background:** Biological aging is a continuous process, whereby the physiological integrity of an organism gradually diminishes. Eventually, disabilities in functioning evolve, and the risk of developing pathologies and death increases. The rate of biological aging differs between species, organisms and tissues, and inheritable components and environmental factors contribute to the aging process.

DNA methylation has a critical role in genomic stability, cell differentiation and development. The genomes of mammals are abundant in 5-methylcytosines i.e. methylated cytosines (5mCs), which are primarily located in the sequence CpG. Overall, interindividual differences between genome-wide DNA methylation profiles increase with age. During aging, random as well as systematic, clocklike-behaving DNA methylation changes occur, and genetic and environmental factors contribute to these changes. Here, clocklike-behavior refers to change where DNA methylation levels increase or decrease linearly with age, and these changes constitute the epigenetic clock. DNA methylation is a marker that disentangles details in human well-being at a more detailed level compared to conventional biomarkers. Importantly, DNA methylation has dynamic nature and is prone to the effect of environmental input.

The clocklike-behaving CpG sites can be used in a sophisticated manner to estimate calendar age of “a blind sample” of DNA with a high level of accuracy. The difference between chronological age and this epigenetic age estimate ( $\Delta$ -cAge-DNA<sub>m</sub>Age) is further considered a highly promising biomarker of the aging rate, and many accounts of its significance in human fitness, morbidity, mortality and longevity have been reported.

**Aims:** The specific hypotheses for this thesis comprised the following. The longitudinal within-subject behavior of  $\Delta$ -cAge-DNA<sub>m</sub>Age as well as the blood cell subtype landscapes was indefinite. In addition, discrepancies in the lists of reported aging-associated methylation sites had been emerged, thus requiring further evaluations. Another question concerned methylomic mortality predictors: were there DNA methylation sites that could be used as survival predictors in the elderly (90+ years of age) and could those predictors even overcome conventional biomarkers of aging in the survival analysis? Moreover, it was unclear whether the epigenetic aging associated with biomarkers that are related to immune system aging such as the cytomegalovirus or blood cell distribution.

**Methods:** Two study populations, the Young Finns and the Vitality 90+ Study, together representing a wide age range (from 15 to 94 years of chronological age) were used in the thesis. The sample sizes in the analysis ranged between 111 and 183 participants in Studies I - IV (cross-sectional data in Study I and II; follow-up data in Study III and IV). Participants in the Young Finns and the Vitality 90+ Study were followed for 25 and 4 years, respectively.

The epigenomes (*i.e.* ~400 000 methylation sites) of the participants were characterized using microarray technology-based method, and the subjects' DNA<sub>m</sub>Ag<sub>e</sub>s were determined using Horvath's calculator of epigenetic age. Blood cell compositions were determined using either DNA methylation profile-based estimation algorithm or fluorescence-activated cell sorting analysis. The hypotheses were tested using regression and correlation analyses.

In the thesis, aging-associated DNA methylation level changes (I), and mortality predictors (IV) at single CpG site resolution were characterized. The behavior of difference between calendar age and epigenetic age ( $\Delta$ -cAge-DNAge) (III) during follow-up, and its role as mortality predictor (IV) were explored. Furthermore, the  $\Delta$ -cAge-DNAge-association with cytomegalovirus infection was analyzed (II). In all sections in the thesis, the role of blood cell sample heterogeneity was considered (I-IV). Specifically, the relevance of controlling sample heterogeneity in epigenome-wide association studies (EWASs) was evaluated in separate analyses: results from multiple studies were compared (I), the association between  $\Delta$ -cAge-DNAge and blood cell subtype counts was explored (III), and changes in the blood cell subtype compositions over time were investigated (III).

**Results and conclusions:** The results from Study I highlighted that clocklike-behaving CpG site methylation may be reliably detected from a cross-sectional sample with an age range of only nine years. The data showed that aging-associated hypermethylation and hypomethylation at single CpG site resolution were related to different cellular functions and are enriched in different ways in single genes. The study underlined that, in order to obtain replicative results from EWASs with heterogenic tissue samples such as whole blood, cell count adjustment appears to be essential.

In Study IV, the methylomic signature performed better in mortality-prediction than the conventional aging biomarkers and was independent from the aging-associated epigenetic drift. The methylomic prediction signature supported the genomic-level role of NF- $\kappa$ B at the very end of the human lifespan.

In Study II, the increased epigenetic age of the blood cells was associated with latent cytomegalovirus infection in the populations of young adults and nonagenarians; however, this finding may be a reflection of changes in the blood cell composition. In Studies II and III, the cell subtype counts correlated clearly with epigenetic aging ( $\Delta$ -cAge-DNAge). The most significant correlate linked with DNA methylomic data were CD28- T cells, which are markers of immune system exhaustion and aging.

The follow-up data of blood cell composition (III) provided evidence that, while aging-associated shift in the immune cell composition is observable between young adults and nonagenarians, the data showed also that intra-individual changes in blood cell subtype proportions are relatively small over time in the young adulthood and middle age, as well as in the very advanced age. These results suggest that majority of aging-associated shift in the blood cell composition might occur somewhere after middle age and before very advanced ages.

Methylomic follow-up data (III) provided evidence that the difference between chronological and epigenetic age is surprisingly unchanging over several years or even decades, and, when accompanied with previous reports, it may be hypothesized that the main trajectory of the blood DNA methylome aging rate ( $\Delta$ -cAge-DNAge) is largely set before adulthood. This hypothesis is thought provoking, because older epigenetic age is also associated with e.g. increased mortality rate in adulthood. Therefore, in this light, these epigenetic changes underline even more the issue that the beginning of life has crucial meaning for the entire human lifespan.

The thesis is available at: <http://urn.fi/URN:ISBN:978-952-03-0669-4>  
Contact: [Laura.E.Kananen@staff.uta.fi](mailto:Laura.E.Kananen@staff.uta.fi)

On the 4th of June, 2018, the dissertation titled: **“Cardiovascular risk factor profiles in the development and progression of physical limitation in old age: A population-based study”**, was defended by **Emerald G. Heiland** for a PhD from the Aging Research Center, (ARC), Department of Neurobiology, Care Sciences and Society, Karolinska Institutet. Emerald was also affiliated with the Swedish National Graduate School on Ageing and Health (SWEAH).

Preservation of independence has been reported to be highly desired by older adults, even more than longevity. However, subclinical vascular pathology can threaten a healthy older adult’s maintenance of physical function. With the increasing aging population, we expect more older adults to be unable to perform basic care tasks, such as feeding, dressing, or going to the toilet without external help. This will place an additional burden not only on the individual, but also on their families, and society. Disability in basic personal care activities of daily living (ADL) is one of the main drivers increasing healthcare costs, and also one of the greatest fears of older individuals. Therefore, it is

crucial to identify early modifiable factors for the development and implementation of effective interventions to improve the health of older adults and maintain a good quality of life. Greater comprehension into the preclinical stages in the decline of physical function (such as in slowed walking speed and poor balance) and effective tests that detect prodromal disability are also advantageous for clinicians and epidemiologists to identify older adults at risk of requiring more care.

Thus, in this thesis, I hypothesized that modifiable cardiovascular disease-related risk factors (i.e. lifestyle, cardiometabolic, and inflammatory factors) play a critical role in the underlying atherosclerotic process in the absence of disease, increasing the risk of physical impairment and subsequent disability. Furthermore, microvascular brain abnormalities arise along what may be the pathological pathway accelerating the decline in physical function. Therefore, the aim of this thesis was to investigate the role and potential neuropathological mechanisms of cardiovascular disease-related risk factors in the development of physical limitation and disability in older adults. Data from the longitudinal population-based Swedish National study on Aging and Care in Kungsholmen (SNAC-K) and the embedded SNAC-K magnetic resonance imaging sub-study were utilized, using data over six or nine years of follow-up.

Four specific studies were carried out in order to investigate this hypothesis, with the following aims:

1. To estimate the risk of developing disability in ADL according to limitation in walking speed, balance, or both.
2. To examine the association of the cardiovascular risk burden with the likelihood of physical limitation in older adults.
3. To examine whether cardiovascular risk factors are associated with increased risk of disability, and the role of functional limitation and age.
4. To explore whether and to what extent brain imaging markers of microvascular brain pathologies are associated with incipient physical limitation in older adults.



Photo: Stina Ek

The results from our studies showed that in older adults free of disability in activities of daily living (ADL) at baseline (age 60 years and older), having limitation in both the one-leg balance stand (<5 sec.) and walking speed (<0.8 m/s) tests at baseline were associated with increased risk of future ADL-disability, but having both simultaneously showed a 10-fold higher likelihood of future ADL-disability.

Furthermore, having a greater cardiovascular risk burden, defined by the Framingham general cardiovascular risk score (FRS), was associated with increased risk of walking speed limitation over nine years of follow-up, but only in the younger-old adults (60-72 years old), not in the older-old ( $\geq 78$  years old). Moreover, the FRS was not associated with future balance performance or muscle strength. While, among the younger-old adults, physical inactivity, diabetes, and high C-reactive protein were associated with disability over nine years of follow-up. Among the older-old ( $\geq 78$  years old), only physical inactivity was associated with greater risk of ADL-disability. Among the younger-old being physically inactive and having walking speed limitation, concomitantly, showed an even higher risk of ADL-disability.

Finally, in the fourth study, we were able to observe that underlying microvascular brain abnormalities may contribute to the decline in physical function. Specifically, there was an accelerated decline in walking speed over the nine years of follow-up in older adults with greater volumes of white matter hyperintensities (WMH) at baseline, or having a higher burden of brain abnormalities (WMH+lacunes+perivascular spaces).

Overall, cardiovascular risk factors increase the risk of future physical limitation and disability, and brain abnormalities explain part of the underlying pathology driving the decline in physical function. However, risk profiles may differ between age groups of older adults, which suggests that interventions targeting decreasing cardiovascular risk may be more beneficial among younger-old adults, while older-old may benefit more from the maintenance of physical independence.

The thesis is available at: <https://openarchive.ki.se/xmlui/handle/10616/46342>

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More info about SWEAH: [www.sweah.lu.se/en](http://www.sweah.lu.se/en)

The 14th of June, 2018, the dissertation “**Activity avoidance, perceived walking difficulties, and use of mobility devices in people with Parkinson's disease**” was defended by **Manzur Kader** for a PhD in Health Science, specialization Physiotherapy, at Department of Health Sciences, Lund University, Sweden. Manzur Kader was also affiliated with Swedish National Graduate School on Ageing and Health (SWEAH).



Photo: Kennet Ruona

Factors that contribute perceived walking difficulties have been identified in the dissertation by doctoral student and physiotherapist Manzur Kader. He has investigated several personal, disease related and socio environmental factors that influence perceived walking difficulties in people with Parkinson's disease. Moreover, activity avoidance due to risk of falling, and use and need of mobility devices have been demonstrated.

Just imagine that your feet are suddenly stuck in the ground when you are about to cross a pedestrian crossing and your walking stops suddenly. Such sudden stop called freezing of gait is something that people with Parkinson's disease (PD) can experience while walking. This study showed that freezing of gait was the most important contributing factor to perceived walking difficulties in people with PD.

Other factors that affected the perceived walking difficulties were general self-efficacy, fatigue, reduced leg strength, reduced orthostatic hypotension (postural hypotension), bradykinesia (reduced movement speed) and postural instability or balance.

The study included 251 participants with PD from Southern Sweden. The perceived walking difficulties in daily life were assessed by using a self-administered questionnaire called Generic Walking-12. If a questionnaire is used in a different population and context, this needs to be validated before its use. Thus, Manzur Kader in his thesis validated this questionnaire in PD population in Swedish context. The findings demonstrated that the Generic Walk12 has good validity and reliability and can be used to evaluate perceived walking difficulties in people with PD.

People with PD have an increased risk of falling, and most of their falls occur while walking. While there has been an increased research attention paid to falls and fear of falling, there is less knowledge about activity avoidance due to risk of falling.

Three examples of activities that were commonly avoided were “Going out when it is slippery”, Reaching for something above head”, and “walking a kilometer”. Avoiding activities that they presumably consider as risky can be a sound strategy. But avoiding meaningful activities or situations may limit their activity and restrict participation in society, and may lead to a sedentary lifestyle with many negative consequences.

Manzur Kader also investigated the use and perceived need of mobility devices both indoor and outdoor over a three-year period. He could follow 165 participants over the three-year period. The thesis demonstrated that the use and need of mobility devices increased remarkably, with transition towards rollator or wheelchair from the use of cane over the follow-up period. This knowledge may facilitate improvement of the provision and regular follow-ups of mobility devices over time people with PD.

The results of this PhD thesis are expected to contribute to the knowledge base for the development of future means and interventions including preventive efforts and routines for follow-ups of people with PD.

The thesis is available at: [http://portal.research.lu.se/portal/en/publications/activity-avoidance-perceived-walking-difficulties-and-use-of-mobility-devices-in-people-with-parkinsons-disease\(86703b87-c8d5-4743-bac7-a9febf12c06e\).html](http://portal.research.lu.se/portal/en/publications/activity-avoidance-perceived-walking-difficulties-and-use-of-mobility-devices-in-people-with-parkinsons-disease(86703b87-c8d5-4743-bac7-a9febf12c06e).html)

Contact: [manzur.kader@med.lu.se](mailto:manzur.kader@med.lu.se)

More info about SWEAH: [www.sweah.lu.se/en](http://www.sweah.lu.se/en)



**Executive committee**

Nils Holand: President

Steinunn Þórðardóttir: 1. Vice president

Marja Jylhä: 2. Vice president

Marijke Veenstra: Secretary General of the 24NKG

**Representatives from the member organizations**

**Denmark:** Danish Gerontological Society (Dansk Gerontologisk Selskab): Jette Thuesen

Danish Society for Geriatrics (Dansk Selskab for Geriatri): Pia Nimann Kannegaard

**Finland:** Societas Gerontologica Fennica: Mikaela von Bonsdorff

Finnish Geriatricians (Suomen Geriatriit ry - Finlands Geriatriker rf): Eija Lönnroos

Finnish Society for Growth and Ageing Research (Kasvun ja vanhenemisen tutkijat ry - Föreningen för forskning i uppväxt och åldrande): Minna Ylilahti

**Iceland:** the Icelandic Gerontological Society (Societas Gerontologica Islandica): Sigurbjörg

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