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Stockholm Stress Center

- a center for interdisciplinary research on work, stress and health

Stockholm Stress Center

Stockholm Stress Center is an interdisciplinary “Centre of Excellence” for research on work, stress and health. The center was established in 2009 and comprises of six collaborating research groups from Stress Research Institute and the Department of Psychology at Stockholm University and also from the Department of Clinical Neuroscience and the Department of Public Health Sciences at Karolinska Institutet.

Within the collaboration between Stockholm University and Karolinska Institutet, the aim is to build a center with outstanding, internationally competitive research in the field of work, stress and health. The combination of expertise is unique and will help to create a new type of intellectual setting for stress research.

Introduction

Modern society is characterized by constant activity during the 24 hours of the day and 7 days per week. The work environment of the post-industrial society also involves constant accessibility, high demands and individual responsibility, fuzzy borders between work and private time, more flexible work hours characterized by a high degree of variability from week-to-week or even day-to-day, and job insecurity/temporariness.

At the same time there is a new pattern of occupational diseases characterized by stress related disorders. This may be particularly true for Sweden, which has seen a doubling of long term sickness absence, sleep disturbances, fatigue, and anxiety from 1993 to 2003, followed by a leveling out during the recent years. It is well known that work related stress is a risk factor for several of the most common public health diseases, such as cardiovascular disease (Belkic et al., 2004) and depression (Stansfeld & Candy, 2006).

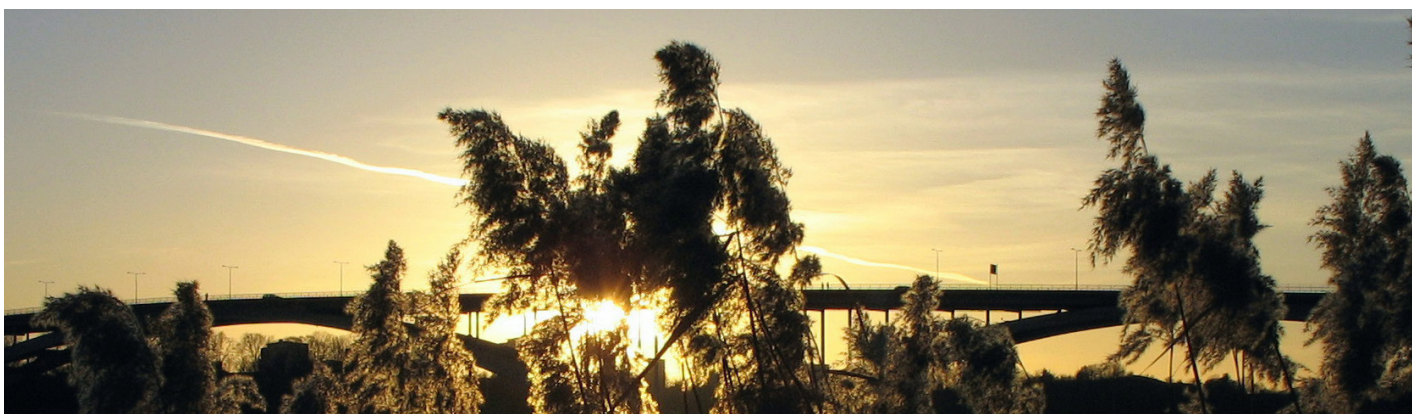
However, the landscape of work related stress has changed considerably and there is a lack of knowledge on how the post-industrial work environment affects health and disease. Although there is substantial evidence that stress causes disease, the mechanisms are as yet not fully understood. A deeper understanding of the pathways between work stress and disease is necessary in order to develop effective prevention and treatment.

Research

The research program at Stockholm Stress Center consists of several projects that together and separately contribute to the knowledge about working life, work organizations, stress, sleep and restitution and treatment.

The role of Stockholm Stress Center is to systematically examine how psychosocial factors interact to induce stress, which factors have the greatest weight, which affects individuals who are most vulnerable, what the physiological mechanism are, how stress countermeasures (sleep, recovery) interact with other mechanisms, which are the most serious consequences and how prevention and treatment can affect the development of stress-related conditions.

The focus will span from the social causes, via biological mechanisms, to long-term health outcomes and we believe that in order to understand stress, we also need to understand sleep and restitution. Stockholm Stress Center will have a strong emphasis on stress/sleep mechanisms that may cause reduced brain metabolism and increased immune and endocrine system activity that both may be related to fatigue and sickness perception. The Center will also focus on treatment of stress, related diseases and on the new types of stress due to lack of borders between work and free time, as well as temporary employment and work hours.



Another strong focus is the combined effects of physical and mental load, as well as the stress of risk of health hazards of new technology. Sickness absence is a strong endpoint, apart from traditional public health diseases and efforts will be made to determine what characterizes low absence work places. Much of the work will be based on advanced physiological (sleep recording, brain scanning, immune system analysis) and epidemiological (large longitudinal databases) studies.

The research will cover:

- Longitudinal and nationally representative, epidemiological studies with hard endpoints (the SLOSH and RALF data bases – see below).
- Field studies based on natural experiments and well controlled interventions.
- Innovative experimental studies using advanced neuroscience (e.g. PET and fMRI methodology), psychoneuroendocrinology, immunology, as well as classical psychophysiological methods involving heart rate and blood pressure monitoring and polysomnographical recordings.
- Research on rehabilitation and treatment based on cognitive and behavioral treatment techniques. This research will focus on vulnerable groups suffering from chronic stress, and with a poor health prognosis.
- Bio-epidemiology: the epidemiological databases will be utilized to strategically recruit individuals to mechanism-oriented laboratory research as well as to treatment research. Additionally, we will use register data and follow-up questionnaires to investigate long-term health trajectories for those who have been intensively studied in the laboratory or treated for stress related disorders.

Projects

For information on current research projects, see listing on page 7. Each project is described separately, including participating researchers.

Funding

Stockholm Stress Center is funded by a grant from the Swedish Council for Working Life and Social Research (FAS) under the additional strengthening of the founding for research on working life, that the government posted in 2008. The funding of the center is 15 million SEK for 2009 until 2011, with a possible extension of 5 million SEK per year for an additional 7 years, a total of 50 million SEK.

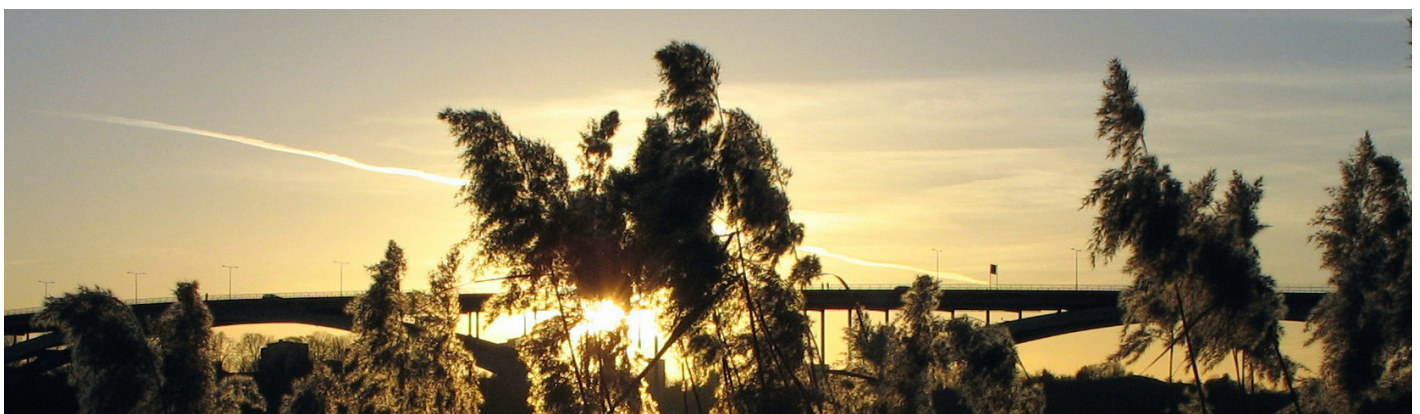
Organization

An organizational and administrative unit for Stockholm Stress Center has been established at the Stress Research Institute, Stockholm University. Director of the center is Professor Torbjörn Åkerstedt.

Stockholm Stress Center has a steering group with a representative from each collaborating partner. There is also a management team for current executive decisions. Issues concerning economy, archives, coordination and information for SSC are handled by the Institute's administrative staff.

Stress contributes to many common diseases. This center gives us a unique opportunity to implement research in a broad and systematic collaboration on stress causes, stress mechanisms and stress prevention.

Professor Torbjörn Åkerstedt, Director
Stockholm Stress Center



Collaborating Partners

Stockholm University

Biological Psychology and Treatment Research

One of the research divisions at the Stress Research Institute is the Division of Biological Psychology and Treatment Research. It consists of Professor Torbjörn Åkerstedt who is Division Manager, Associate Professor Aleksander Perski, Associate Professor Giorgio Grossi, Associate Professor Göran Kecklund, Dr. Arne Lowden and several PhD students. The group focuses on research on the links between stress and sleep, shift work and sleep, sleep loss and sleepiness, the measurement of restitution, sleep regulation, fatigue, and psychological treatment of stress disorders. The facilities include two laboratories; a sleep laboratory with two beds (sound insulated), arrangements for drawing blood unobtrusively, and with equipment for ambulatory recording of EEG, EOG, EKG, etc. through six solid state recorders and also a biochemistry laboratory for analysis of endocrine and other variables (cortisol, testosterone, melatonin).

Epidemiology

Another research division at the Stress Research Institute is the Division of Epidemiology with Associate Professor Hugo Westerlund as Division Manager. The division also includes Professor Emeritus Töres Theorell, Dr. Linda Hansson, Dr. Constanze Leineweber, Dr. Gabriel Oxenstierna, Dr. Walter Osika and Dr. Dan Hasson. Several others are more loosely connected to the group. The Division of Epidemiology is in charge of the longitudinal SLOSH cohort study, which is focused on work organization, psychosocial work environment, restitution, and health. SLOSH is linked to national register data on e.g. work, income, morbidity, and mortality.

Work and Organizational Psychology

The Division of Work and Organizational Psychology is one of six divisions within the Department of Psychology. Its research focuses on e.g. the balance and interac-

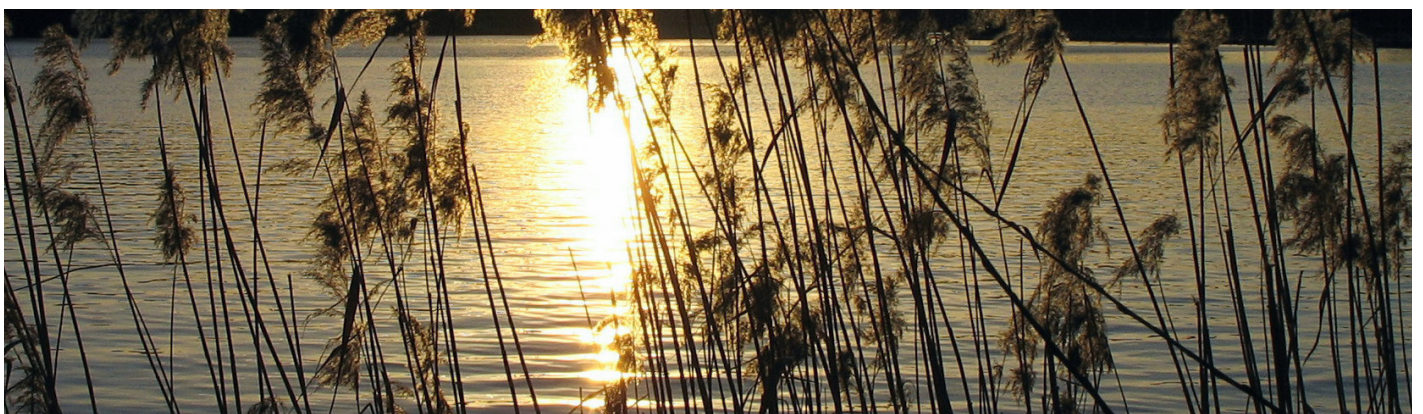
tion between paid work and life outside of work job insecurity, new organizational and employment forms. The division comprises of four professors, five associate professors, and seven researchers/lecturers, as well as approximately fifteen doctoral students/research assistants and one research administrator.

The division is probably the largest research group in Scandinavia, within the area of work and organizational psychology. Some key names are Professor Gunnar Aronsson, Associate Professor Johnny Hellgren, Associate Professor Petra Lindfors, Dr. Christin Mellner, Associate Professor Katharina Näswall, and Professor Magnus Sverke. Professor emeritus Gunn Johansson, one of the leading specialists in occupational psychology, is still active and will have an advisory role.

Karolinska Institutet

Stress and Psychoneuro-immunology/Endocrinology

The research group of Stress and Psychoneuro-immunology/Endocrinology within the section of Psychology at the Department of Clinical Neuroscience, is headed by Associate Professor Mats Lekander. The group also includes Professor Bo Melin, Associate Professor Caroline Olgart Höglund, and Dr. John Axelsson. Among its foci are endocrinology and immunology in relation to stress, impaired sleep, health behavior, and brain metabolism. Mats Lekander is a member of the Stockholm Brain Institute and also the co-director of Osher Center for Integrative Medicine at the Karolinska Institutet. This, and the bifurcation of his research group give means to neuroimaging (fMRI and PET), biobanking, immunological and endocrinological, psychophysiological analyses and additional biomedical resources (including researchwards) at Karolinska Institutet and Karolinska University Hospital. Several projects involve epidemiological approaches to stress, sleep, inflammation and health which in turn makes Swedish registers available, with the largest merge of data include approx. nine million Swedes.



Senior Researchers

Stress Research Institute, Stockholm University

Insurance Medicine

The Division of Insurance Medicine at the Department of Clinical Neuroscience, is lead by Professor Kristina Alexanderson. The research has a strong focus on sickness absence, work health, injury, sickness, health, life style and living conditions. The research programmes are interdisciplinary, factors at different structural levels are included, both from individual-, organizational and societal levels and focus on contemporary social problems often in close cooperation with the users of the knowledge. The program holds some 25 persons of different professional backgrounds, including Prof Marklund, and some ten post-docs. An essential asset of the group is the many large and high quality datasets, most of them in terms of prospective cohort studies, e.g. all 246,000 inhabitants in one county with a 12 year follow-up, 60,000 twins followed over life with several different types of data, including SA and DP; 100,000 patients who in 1992-2006 had a coronary revascularization, followed till 2007. The group will soon have data on the whole Swedish population aged 16-65, regarding demographics, income, SA/DP etcetera, where 5,100,000 can be followed up for 23 years.

Work Stress and Environmental Exposure

The division of Work stress and Environmental exposure within the Section of Occupational Health, Department of Public Health Sciences, includes Professor Magnus Svarthengren, and Associate Professor Lena Hillert, both qualified specialist in occupational and environmental medicine. The group also includes Associate Professor Mikael Forsman, and Associate Professor Carl Åborg.

Within the section there are a large number of occupational physicians, psychologists and other professions. There is also access to a number of laboratory facilities. Apart from being the clinical partner, the division has a long research interest in effects of combined effects of physical and mental load and is engaged in research on what psychosocial factors characterize high absence companies.



Torbjörn Åkerstedt, Professor and Director
Division of biological psychology and treatment research.

Torbjörn's research field is mainly stress, sleep and restitution including sleep regulation, sleep quality, work hours, shift work, fatigue and sleepiness.

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Göran Kecklund, Associate Professor
Division of biological psychology and treatment research.

Göran's research field is work hours and health, shift work and flexible work hours, the relation between stress and sleep and the consequences of sleepiness in working life.

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Alexander Perski, Associate Professor
Division of biological psychology and treatment research.

Alexander's research includes stress - psychology, prevention, diagnosis and treatment. He is also the Director of the Stress and Sleep Clinic - a stress treatment clinic.

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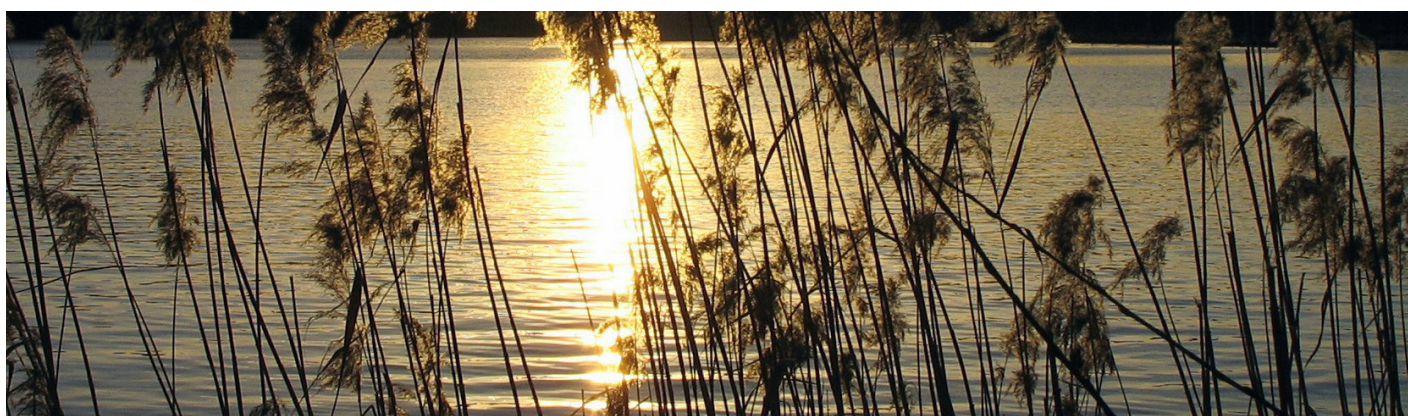


Hugo Westerlund, Associate Professor
Division of Epidemiology.

Hugo's research area is the relationship between work environment, labour market participation, and health, e.g. the health effects of organisational changes, sickness presenteeism, and retirement.

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Department of Psychology, Stockholm University



Magnus Sverke, Professor
Division of work and organizational psychology.
Magnus research interests are organizational change and its effects on employees, downsizing and job insecurity, labor market flexibility and temporary employment, and well-being.
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Gunnar Aronsson, Professor
Division of work and organizational psychology.
Gunnar's research field is the modern and flexible working life with sickness presence, new organizational and employment forms, and boundaryless work.
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Katharina Näswall, Associate Professor
Division of work and organizational psychology.
Katharina's research is on work-related stress and well-being, with a special interest for uncertainty in the workplace, balance between work and life outside work, as well as factors which aid coping with work-related stress, such as social support and leadership factors.
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Department of Clinical Neuroscience, Karolinska Institutet



Mats Lekander, Associate Professor
Division of Psychology
Mats field of research is stress effects on immune function, the relation between immune function and sleep, and immunological effects on brain function and subjective health.
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Kristina Alexanderson, Professor
Division of Insurance Medicine.
Kristina's research field is insurance medicine; sickness absence, health and living conditions including consequences of being sickness absent or on disability pension, factors that effect return to work, and physicians' sickness certification practices.
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Department of Public Health Sciences, Karolinska Institutet



Magnus Svartengren, Professor
Division of Occupational and Environmental Medicine.
Magnus research includes work environment and health, and how different chemical, ergonomical, physical or psychosocial exposures by themselves or in combination may contribute to health or disease, associations studied at an organizational level as well as in experimental and clinical settings.
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Lena Hillert, Associate Professor
Division of Occupational and Environmental Medicine.
Lena's research field is environment and health including the interplay between physical, biological and psychosocial factors and with a special interest in psychophysiological reactions and self reported illness, in research as well as in clinical work.
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List of projects

Here is a list of some current projects.

For more information, visit www.stockholmstresscenter.se/research projects.

- *Covariates and predictions of day-to-day variability of subjective health, fatigue, and sleep.*
Principle Investigator: Torbjörn Åkerstedt.
- *Predicting disturbed sleep from change in stress and other work environment factors – 5 years.*
Principle Investigator: Torbjörn Åkerstedt.
- *Segmentation or integration - a study of work strategies in boundaryless work.*
Principle Investigators: Gunnar Aronsson and Christine Mellner.
- *Sickness presence - a study of health effects, performance, and stability over time.*
Principle Investigators: Gunnar Aronsson and Christine Mellner.
- *Dynamics of the stress hormone system - immune regulation in relation to stress and sleep.*
Principal Investigators: Mats Lekander and Caroline Olgart Höglund.
- *Experimental sickness and subjective health, brain function and tiredness - a fMRI study.*
Principal Investigators: Mats Lekander and John Axelsson.
- *Consequenses of being sickness absent or on disability pension.*
Principal Investigator: Kristina Alexanderson.
- *Psychosocial stress in physician's work regarding sickness certification of patients.*
Principal Investigator: Kristina Alexanderson.
- *Sickness absence, sickness presence, confinement, and exclusion.*
Principal Investigator: Hugo Westerlund.

- *Pathways and trajectories - towards a causal understanding of the relationship between environmental exposures and health.*
Principal Investigators: Hugo Westerlund, Linda Magnusson Hanson and Constanze Leineweber.
- *Evaluation of stress intervention programs offered by occupational health services.*
Principal Investigators: Magnus Svartengren and Lena Hillert.
- *The effect of cognitive behavioural therapy and a physical training program on work ability in patients with work stress related psychological disorders.*
Principal Investigators: Magnus Svartengren and Lena Hillert.
- *Job insecurity as a predictor of physiological indicators of health.*
Principle Investigator: Katharina Näswall (Magnus Sverke, Petra Lindfors)
- *A multilevel approach to job insecurity: Objective and subjective health outcomes*
Principle Investigator: Magnus Sverke (Katharina Näswall, Erik Berntson, Claudia Bernhard-Oettel)

List of publications

Here is a list of publications, as soon as the projects have produced results.



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