

# **WOLF - Mental workload and indicators of chronic cardiovascular diseases - WOLF-U**

**SND-ID:** snd0847-4.

**Is part of collection at SND:** [Swedish Cohort Consortium \(Cohorts.se\)](http://Cohorts.se)

## **Creator/Principal investigator(s)**

Hugo Westerlund - Stockholm University, Stress Research Institute

Torbjörn Åkerstedt - National Swedish Institute for Psychosocial Medicine

Lars Alfredsson - Karolinska Institutet, Institute of Environmental Medicine

Peter Westerholm - National Institute for Working Life, Work and Health

Anders Knutsson - Mid Sweden University, Department of Health Sciences

Göran Fahlén - Mid Sweden University, Department of Health Sciences

Hans Goine - Mid Sweden University, Department of Health Sciences

Maria Nordin - Umeå University, Occupational and Environmental Medicine, Department of Public Health and Clinical Medicine

Bernt Karlsson - Umeå University, Occupational and Environmental Medicine, Department of Public Health and Clinical Medicine

Eleonor Fransson - Karolinska Institutet, Institute of Environmental Medicine

Töres Theorell - National Swedish Institute for Psychosocial Medicine

## **Research principal**

[Stockholm University](http://Stockholm University)

## **Description**

WOLF is a study that started in Stockholm in 1993. The acronym WOLF stands for Work-Lipids-Fibrinogen. The study is a collaboration between the former Working Environment Institute, the Institute of Environmental Health and the Institute of Psychosocial Environmental Health at Karolinska Institute and the Institute of Social Medicine in Sundbyberg.

WOLF makes up a collaboration program with the included partial projects WOLF-Stockholm, WOLF-Norrland and WOLF-F (The importance of work organisation and psychosocial strain factors to stress related poor health, five year follow up of WOLF-Norrland).

Main question formulation: Mental work load (stress) and indications for chronic cardiovascular disease. This original and general program idea has been developed and detailed in the partial projects WOLF-Stockholm (WOLF-S), WOLF-Norrland (WOLF-N) and WOLF-F (the five year follow up of WOLF-N).

WOLF-Stockholm (WOLF-S)

Project term: The importance of psychosocial working environment for the risk factors for heart attack. A study in psychosocial working environment, blood pressure, blood lipids, fibrinogen etc. (WOLF-Stockholm).

Project manager: Lars Alfredsson, the Institute of Environmental Health, Karolinska Institute, Stockholm.

Study population: 5 698 employees at companies connected to occupational health care. Studied from June 1993 to June 1995.

Method: Health examination with focus on cardiovascular disease, blood pressure measurement. Blood samples for biochemical analysis (the laboratory concern CALAB, Stockholm) + questionnaires.

#### WOLF-Norrland (WOLF-N)

In 1995 WOLF established cooperation with the University of Umeå and started the project WOLF-N with the operative management located at the occupational and environmental medicine clinic at the University Hospital of Norrland (Anders Knutsson).

Project term: Questions on associations between risk indicators of heart attack and mental work strain related to factors in work organisation, working environment and work content (WOLF-Norrland).

Project manager: Anders Knutsson, Mittuniversitetet, Sundsvall, (former University of Umeå).

Study population: 4 715 employees at companies connected to occupational health care. Studied from September 1996 to April 1998.

Method and organisation with some modifications and additions, same as for WOLF-Stockholm.

#### WOLF-F (WOLF-Follow up project, continuation of WOLF-N)

During year 2000 WOLF-F was planned with field organisations and investigational populations in northern Sweden (Norrland). WOLF-F was given two directions:

1) WOLFF - Individual follow-up (WOLFF-I) consisted of a follow-up of the earlier examined population of WOLF-Norrland.

Project term: The importance of work organisation and psychosocial factors for stress related poor health. A five year follow-up of WOLF-Norrland.

Project manager: Anders Knutsson, Mittuniversitetet, Sundsvall.

2) WOLF - Healthy Work Places - Work Organisation (arbetsorganisation) (WOLF-AO) with focus on questions on work organisation and health with elaboration and widening of data collection and interview material.

Project term: Healthy workplaces - A study on relations of organisations and individuals and health.

Project manager: Staffan Marklund and Annika Härenstam, Working Life Institute (Arbetslivsinstitutet), Stockholm.

Study population: 32 selected companies, 90 work places and about 4300 employees. To a large extent coinciding with the examined population of WOLF-Norrland.

#### WOLF U (WOLF Follow up)

In 2009, all participants who previously responded to a WOLF-questionnaire were asked to fill in a follow-up questionnaire (WOLF-U). The survey included questions about work environment, lifestyle and health. The response was positive and about 6 500 people answered the survey. The follow up did not include a health examination.

Purpose:

To study effect of work and lifestyle on health

#### **Data contains personal data**

Yes

#### **Code key exists**

Yes

#### **Language**

[Swedish](#)

## Unit of analysis

[Individual](#)

## Time Method

[Longitudinal](#)

## Time period(s) investigated

1992 – 2009

## Number of individuals/objects

6500

## Data format / data structure

[Numeric](#)

## Data collection 1

- Mode of collection: Self-administered questionnaire
- Time period(s) for data collection: 2009 – 2009
- Source of the data: Population group, Biological samples

## Geographic spread

Geographic location: [Sweden](#)

## Contributor(s)

Arbetslivsinstitutet

Karolinska Institutet

## Funding 1

- Funding agency: Arbetsmiljöfonden

## Funding 2

- Funding agency: Swedish Council for Working Life and Social Research

## Research area

[Working conditions](#) (CESSDA Topic Classification)

[Medical and health sciences](#) (Standard för svensk indelning av forskningsämnen 2011)

[Cardiac and cardiovascular systems](#) (Standard för svensk indelning av forskningsämnen 2011)

[Occupational health and environmental health](#) (Standard för svensk indelning av forskningsämnen 2011)

[Health](#) (CESSDA Topic Classification)

[General health and well-being](#) (CESSDA Topic Classification)

[Diet and nutrition](#) (CESSDA Topic Classification)

[Specific diseases, disorders and medical conditions](#) (CESSDA Topic Classification)

[Social behaviour and attitudes](#) (CESSDA Topic Classification)

## Keywords

[Blood pressure](#), [Blood specimen collection](#), [Heart failure](#), [Exercise](#), [Socioeconomic factors](#), [Emotions](#), [Anxiety](#), [Myocardial infarction](#), [Stroke](#), [Diet](#), [Alcohol drinking](#), [Alcohol-related disorders](#), [Medical history taking](#), [Work](#), [Workload](#), [Psychology, industrial](#), [Job satisfaction](#), [Decision making](#), [Chest pain](#), [Noise](#), [Diabetes mellitus](#), [Lipids](#), [Fibrinogen](#), [Leisure activities](#), [Parturition](#), [Intermittent claudication](#), [Pregnancy](#), [Cardiovascular diseases](#), [Health](#), [Hypertension](#), [Cholesterol](#), [Angina pectoris](#), [Life change events](#), [Air pollutants](#), [Drug utilization](#), [Menstruation](#), [Environmental exposure](#), [Interpersonal relations](#), [Personality](#), [Contraceptives, oral](#), [Smoking](#), [Self concept](#), [Social support](#), [Stress, psychological](#), [Sleep](#), [Occupational exposure](#), [Drug abuse](#), [Swedish cohort consortium \(scc\)](#), [Cohorts.se](#)

## **Publications**

Alfredsson L, Hammar N, Fransson E, de Faire U, Hallqvist J, Knutsson A, Nilsson T, Theorell T, Westerholm P. Job strain and major risk factors for coronary heart disease among employed males and females in a Swedish study on work, lipids and fibrinogen. *Scand J Work Environ Health* 2002;28(4): 238-248.

Dragano N. Social status, chronic work stress and cardiovascular disease. Masteruppsats vid Institutet för Medicinische Soziologie, Henrich Heine Universität 2000. (Matrikelnr 829236)

Fahlgren S. Vi och dom - en fallstudie av två samlokaliserade organisationer. Arbetslivsrapport 2001:8. Arbetslivsinstitutet, Stockholm 2001.

Peter R, Alfredsson L, Hammar N, Siegrist J, Theorell T, Westerholm P. High effort, low reward and cardiovascular risk factors in employed Swedish men and women: baseline results from the WOLF study. *J Epidemiol Community Health* 1998;52:540-547.

Peter R, Alfredsson L, Knutsson A, Siegrist J, Westerholm P. Does a stressful psychosocial work environment mediate the effects of shift work on cardiovascular risk factors? *Scand J Work Environ Health* 1999;25:376-381.

Sjögren B, Wang Z, Larsson B-M, Larsson K, Larsson PH, Westerholm P. Increase in interleukin-6 and fibrinogen in peripheral blood after swine dust inhalation. *Scand J Work Environ Health* 1999;25:39-41

Theorell T, Alfredsson L, Westerholm P, Falck B. Coping with unfair treatment at work - what is the relationship between coping and hypertension in middle-aged men and women? An epidemiological study of working men and women in Stockholm (the WOLF-study). *Psychother Psychosom* 2000;69:86-94.

Theorell T, Westerlund H, Ahlberg-Hultén G, Hertting A, WOLF study group. Krav och kontroll i magra organisationer. - en diskussion med rekommendationer inför framtida forskning baserad på analyser av data från 5620 anställda i olika företag åren 1992-1995 i WOLF-studien samt av indikatorer på arbetsmiljöförändringar för vårdpersonal i MUSIC Norrtälje-studien. Stockholm. RALF:s konferens om magra organisationer. Stockholm 1999.

Åkerstedt T, Knutsson A, Westerholm P, Theorell T, Alfredsson L, Kecklund G. Sleep disturbances, work stress, and work hours. A cross-sectional study. *J Psychosom Res* 2002;53:741-748.

Åkerstedt T, Knutsson A, Westerholm P, Theorell T, Alfredsson L, Kecklund G. Work organisation and unintentional sleep: results from the WOLF study. *Occup Environ Med* 2002;59:595-600.

[Swepub](#) | [Till lärosätets \(miun\) databas](#)

Fransson EIM, Alfredsson L, de Faire U, Knutsson A, Westerholm P. Leisure time, occupational and household physical activity, and risk factors for cardiovascular disease in working men and women:

the WOLF study. *Scand J Public Health*. 2003;31:324-333.

[Till lärosätets \(miun\) databas](#)

Karlsson B, Knutsson A, Lindahl B, Alfredsson L. Metabolic disturbances in male workers with rotating three-shift work. Results of the WOLF study. *Int Arch Occup Environ Health* 2003;76:424-430.

Theorell T, Oxenstierna G, Westerlund H, Ferrie J, Hagberg J, Alfredsson L. Downsizing of staff is associated with lowered medically certified sick leave in female employees. *Occup Environ Med*. 2003;60:e9.

Brostedt EM, de Faire U, Westerholm P, Knutsson A, Alfredsson L. Job strain and plasminogen activator inhibitor-1: results from the Swedish WOLF study. *Int Arch Occup Environ Health*, 2004;77:341-344.

Westerlund H, Theorell T, Alfredsson L. Organisational instability and cardiovascular risk factors in white-collar employees. An analysis of correlates of structural instability of workplace organisation on risk factors for coronary heart disease in a sample of 3,904 white collar employees in the Stockholm region. *Eur J Publ Health* 2004;14:37-42.

Åkerstedt T, Knutsson A, Westerholm P, Theorell T, Alfredsson L, Kecklund G. Mental fatigue, work and sleep. *J Psychosom Res*. 2004;57:427-433.

Fahlén G, Peter R, Knutsson A. The effort-reward imbalance model of psychosocial stress at the workplace - a comparison of ERI exposure assessment using two estimation methods. *Work & Stress* 2004;18:81-88.

Theorell T, Westerlund H, Alfredsson L, Oxenstierna G. Coping with critical life events and lack of control - the exertion of control. *Psychoneuroendocrinology*. 2005;30:1027-1032.

Karlsson B, Alfredsson L, Knutsson A, Andersson E, Torén K. Total mortality and cause-specific mortality of Swedish shift- and dayworkers in the pulp and paper industry in 1952-2001. *Scand J Work Environ Health*. 2005;31(1):30-35.

Theorell T, Hasselhorn H-M. On cross-sectional questionnaire studies of relationships between psychosocial conditions of work and health - are they reliable? *Int. Arch Occup Environm Health* (2005) 78:517-522 (Editorial).

Fahlén G, Knutsson A, Peter R, Åkerstedt T, Nordin M, Alfredsson L, Westerholm P. Effort-reward imbalance, sleep disturbances and fatigue. *Int Arch Occup Environ Health* 2006 May;79(5):371-8.

Nordin M, Knutsson A, Sundbom E, Åkerstedt T, Westerholm P, Alfredsson L. Low social support and vulnerability in the association with disturbed sleep. Longitudinal results from the WOLF study. Submitted to *J Occup Health Psychology*.

Nordin M, Knutsson A, Sundbom E, Åkerstedt T, Alfredsson L, Westerholm P. Low social support and coping strategies in the prediction of disturbed sleep: Main and interactive effects from the longitudinal WOLF study.

Höckertin C, Härenstam A. The impact of ownership on psychosocial working conditions: a multilevel analysis of 60 workplaces. *Economic and Industrial Democracy* 2006; 27(2):245-284.

Marklund S, Bolin M, von Essen J. Can individual health differences be explained by workplace characteristics?-A multilevel analysis. *Soc Sci Med*. 2008 Feb;66(3):650-62.

Kivimäki M, Theorell T, Westerlund H, Vahtera J, Alfredsson L. Job strain and ischaemic disease: does the inclusion of older employees in the cohort dilute the association? The WOLF Stockholm Study. *J Epidemiol Community Health*. 2008 Apr;62(4):372-4.

Fransson E, Knutsson A, Westerholm P, Alfredsson L. Indications of recall-bias found in a retrospective study of physical activity and myocardial infarction. *J Clin Epidemiol* 2008Aug;61(8):840-7.

Bolin M & Härenstam A. An empirical study of bureaucratic and post-bureaucratic characteristics in 90 workplaces. *Economic and Industrial Democracy*. 2008; 29(4): 541-64.

Höckertin, C. Control and participation for employees within geriatric care - does ownership make a difference? *Work: A Journal of Prevention, Assessment & Rehabilitation*. 2008;30(2);137-147.

Bolin M, Marklund S, Bliese P. Organizational impact on psychosocial working conditions. *Work: A Journal of Prevention, Assessment & Rehabilitation*. 2008;30(4):451-9.

[Swepub](#) | [Till lärosätets \(umu\) databas](#)

Fahlén G, Goine H, Edlund C, Arrelöv B, Knutsson A, Peter R. Effort-reward imbalance, "locked in" at work, and long-term sick leave. *Int Arch Occup Environ Health*. 2009 Jan;82(2):191-7.

Nyberg A, Alfredsson L, Theorell T, Westerlund H, Vahtera J, Kivimäki M. Managerial leadership and ischaemic heart disease among employees: the Swedish WOLF study. *Occup Environ Med*. 2009 Jan;66(1):51-5.

Tsutsumi A, Iwata N, Watanabe N, de Jonge J, Pikhart H, Fernández-López JA, Xu L, Peter R, Knutsson A, Niedhammer I, Kawakami N, Siegrist J. Application of item response theory to achieve cross-cultural comparability of occupational stress measurement. *Int J Methods Psychiatr Res*. 2009 Feb 4;18(1):58-67.

Åkerstedt T., Nordin M., Alfredsson L., Westerholm P., Kecklund G. Sleep and sleepiness: impact of entering or leaving shiftwork - a prospective study. *Chronobiology International*, 2010, 27, 987-96.

Leineweber C, Westerlund H, Theorell T, Kivimäki M, Westerholm P, Alfredsson L. Covert coping with unfair treatment at work and risk of incident myocardial infarction and cardiac death among men: Prospective cohort study. *J Epidemiol Community Health*, 2011;65:420-425

Nyberg ST, Heikkilä K, Fransson EI, Alfredsson L, De Bacquer D, Bjorner JB, Bonenfant S, Borritz M, Burr H, Casini A, Clays E, Dragano N, Erbel R, Geuskens GA, Goldberg M, Hooftman WE, Houtman IL, Jöckel KH, Kittel F, Knutsson A, Koskenvuo M, Leineweber C, Lunau T, Madsen IEH, Magnusson Hanson LL, Marmot MG, Nielsen ML, Nordin M, Oksanen T, Pentti J, Rugulies R, Siegrist J, Suominen S, Vahtera J, Virtanen M, Westerholm P, Westerlund H, Zins M, Ferrie JE, Theorell T, Steptoe A, Hamer M, Singh-Man

Åkerstedt T, Nordin M, Alfredsson L, Westerholm P, Kecklund, G. Predicting changes in sleep complaints from baseline values and changes in work demands, work control, and work preoccupation - The WOLF-project. *Sleep Medicine* 2012;13(1):73-80.

Fransson EI, Nyberg ST, Heikkilä K, Alfredsson L, De Bacquer D, Batty GD, Bonenfant S, Casini A, Clays E, Goldberg M, Kittel F, Koskenvuo M, Knutsson A, Leineweber C, Magnusson Hanson LL, Nordin M, Singh-Manoux A, Suominen S, Vahtera J, Westerholm P, Westerlund H, Zins M, Theorell T, Kivimäki M; for the IPD-Work Consortium. Comparison of alternative versions of the job demand-control scales in 17 European cohort studies: the IPD-Work consortium. *BMC Public Health* 2012;12:62

If you have published anything based on these data, [please notify us](#) with a reference to your publication(s). If you are responsible for the catalogue entry, you can update the metadata/data description in DORIS.

### **Accessibility level**

Access to data through an external actor  
Access to data is restricted

### **Homepage**

[The study homepage](#)

### **Contacts for questions about the data**

Eleonor Fransson

[eleonor.fransson@ju.se](mailto:eleonor.fransson@ju.se)

Lars Alfredsson

[lars.alfredsson@ki.se](mailto:lars.alfredsson@ki.se)

### **Related research data in SND's catalogue**

[WOLF - Mental workload and indicators of chronic cardiovascular diseases - WOLF - Norrland](#)

[WOLF - Mental workload and indicators of chronic cardiovascular diseases - WOLF-Stockholm](#)

[WOLF - Mental workload and indicators of chronic cardiovascular diseases - WOLFF-AO](#)

### **Is part of collection at SND**

[Swedish Cohort Consortium \(Cohorts.se\)](#)

### **Download metadata**

[DataCite](#)

[DDI 2.5](#)

[DDI 3.3](#)

[DCAT-AP-SE 2.0](#)

[JSON-LD](#)

[PDF](#)

[Citation \(CLS\)](#)