

# Santé mentale au travail



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## Le vrai visage de la situation

Un colloque de l'équipe de recherche sur le travail et la santé mentale des IRSC

**18 septembre 2009**

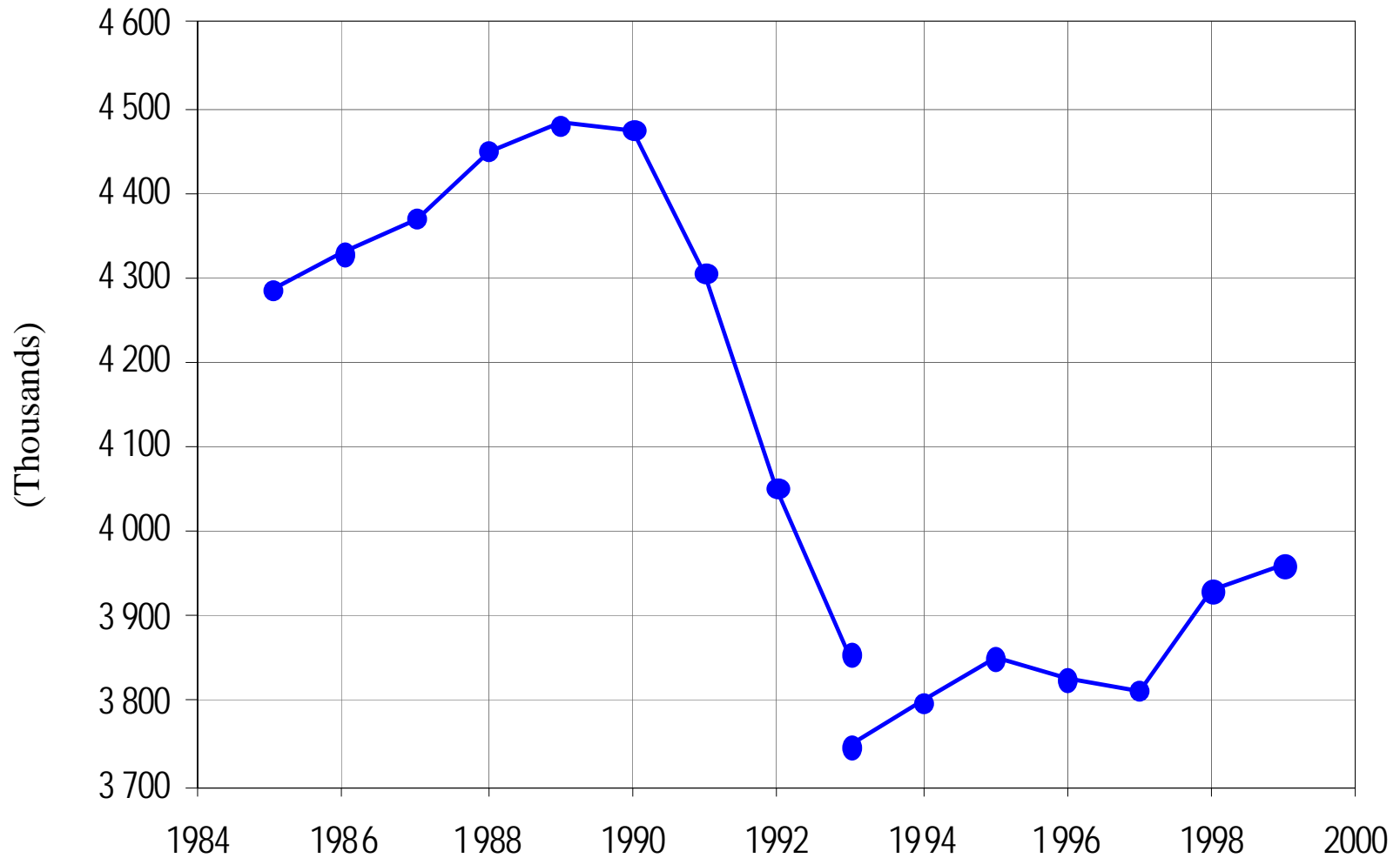
Centre de recherche Fernand-Seguin de l'Hôpital Louis-H. Lafontaine  
Renseignements et inscriptions : [www.hlhl.qc.ca/recherche](http://www.hlhl.qc.ca/recherche)

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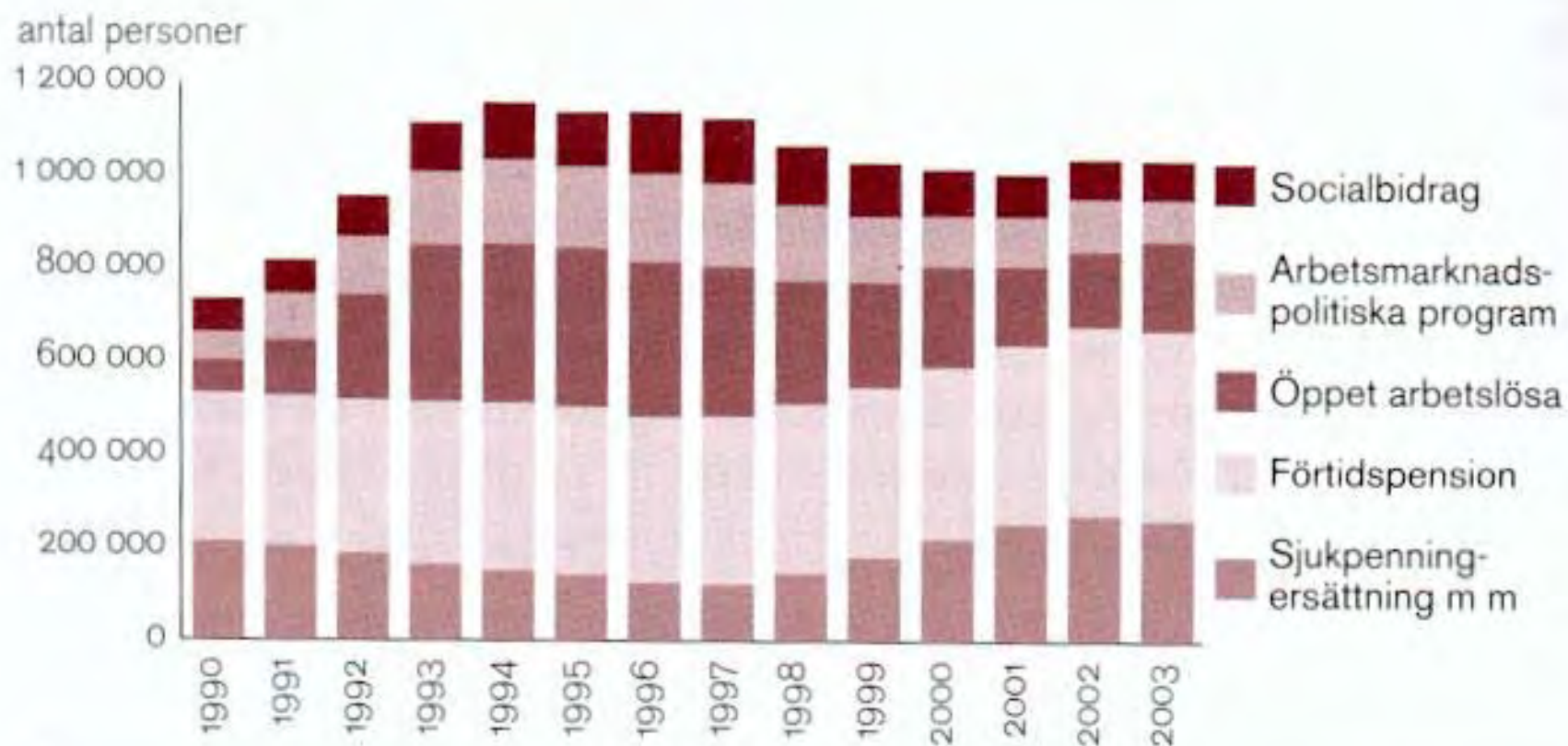
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# *Number of people in the labour force (thousands)*



During the 1990:s there was a rise in the total number of men and women in working ages who were on sick leave or outside the labour market with other forms of societal compensation (unemployment, social benefit etc)

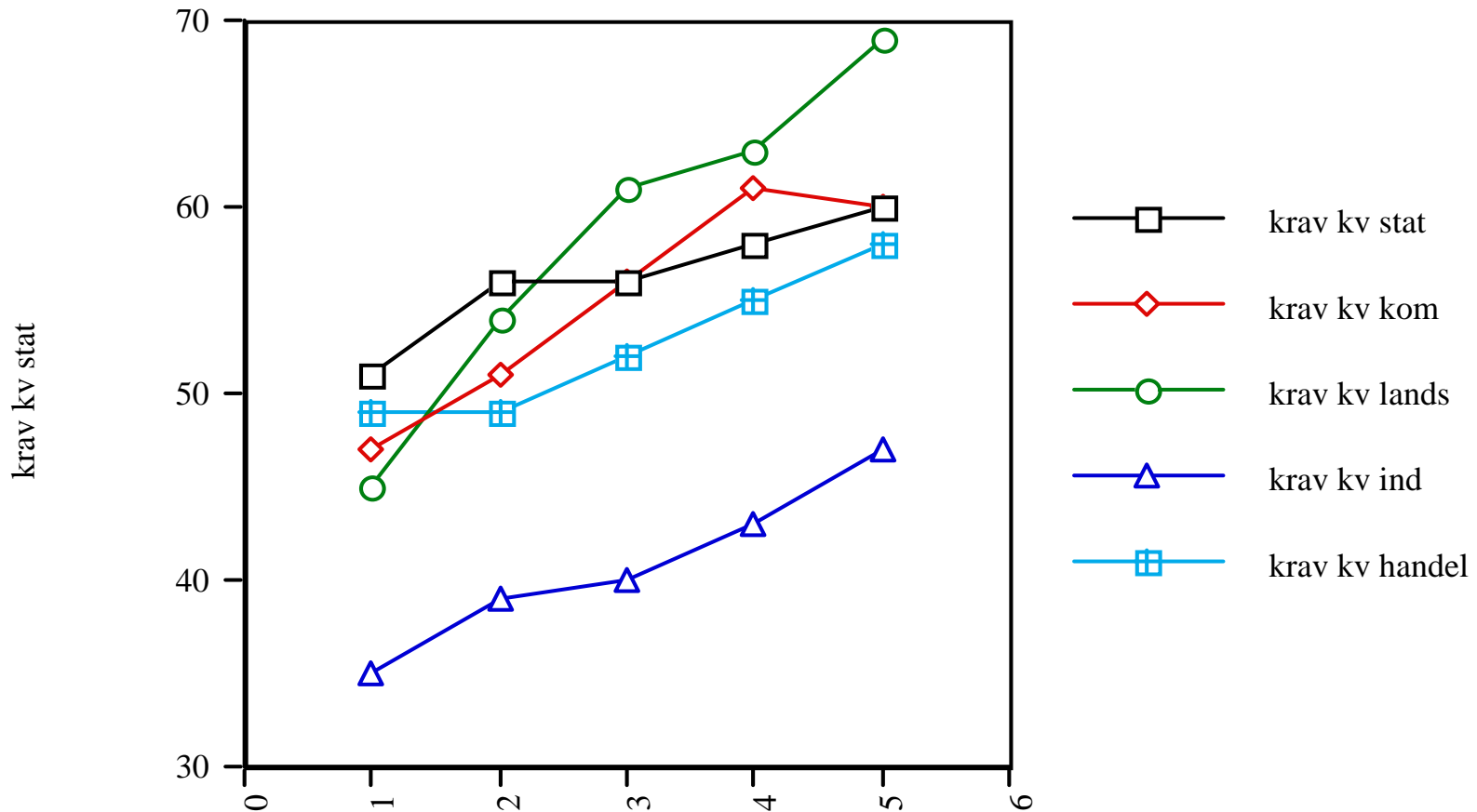
Sweden, Norway and the Netherlands had the highest sick leave rates in Europe



**Figur 1.2.** Antalet personer – uttryckt i termer av helårsarbetare – med ersättning från socialbidrag, arbetsmarknadsprogram, arbetslöshetsersättning, sjukpenningersättning och förtidspension. Källa. SCB och Ingemar Svensson, Försäkringskassans huvudkontor.

There was a general rise in work intensity during the Swedish 1990:s, among employees in municipalities, counties, state, industry and trade. The slide shows data for women

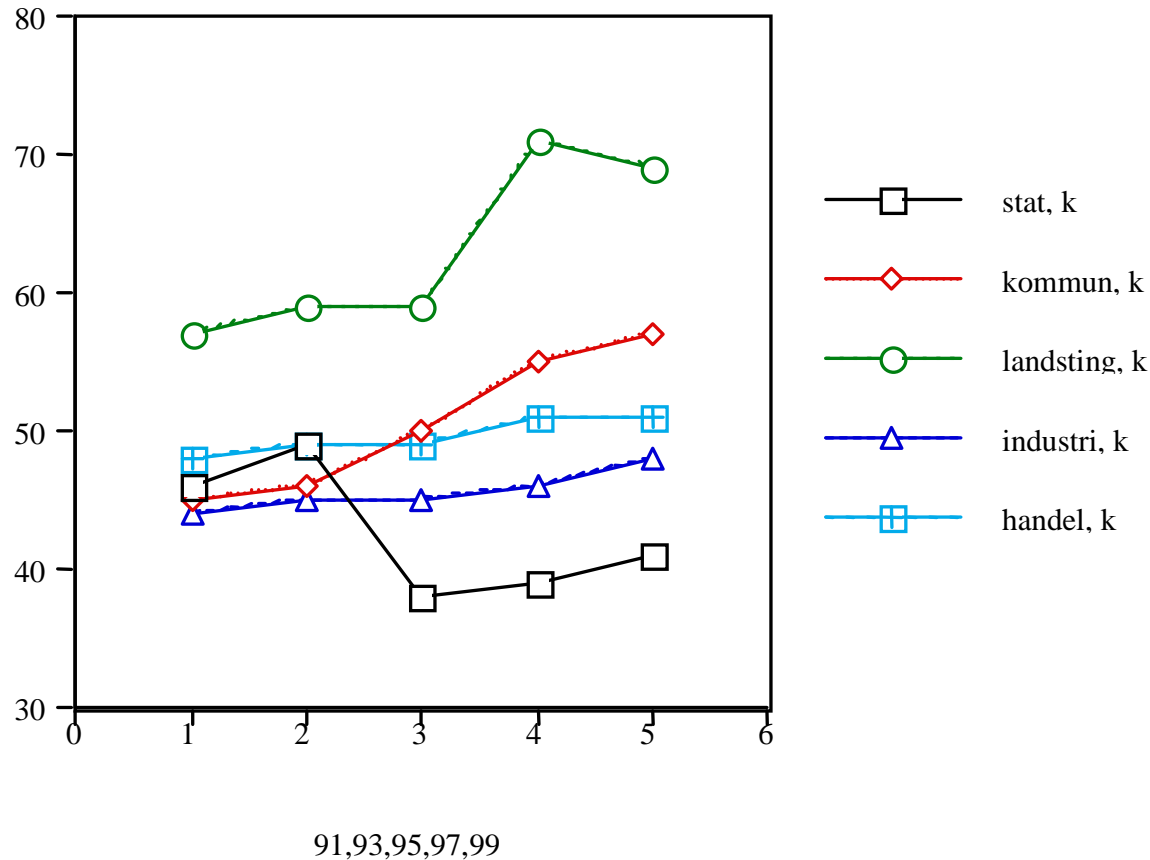
# Andel yrkesarbetande kvinnor som rapporterar för höga krav i arbetet efter sektor



1991=1, 1993=2, 1995=5, 1997=4, 1999=5

In the public sector there was also a perceived loss of control at work (municipalities=red and counties=green). Data for women

## Förekomst av bristande kontroll bland yrkesarbetande kvinnor i Sverige (%)



Källa Arbetsmiljöundersökningarna 1991-1999 sammanställning från Arbetsmiljöverket och Statistiska Centralbyrån: Negativ stress och ohälsa. Information om utbildning och arbetsmarknad 2001:2, 2001

Demand control model predicts increased illness risk with combination of high demands and low decision latitude at work (job strain). The following slide shows a compilation of prospective studies of job strain and myocardial infarction risk

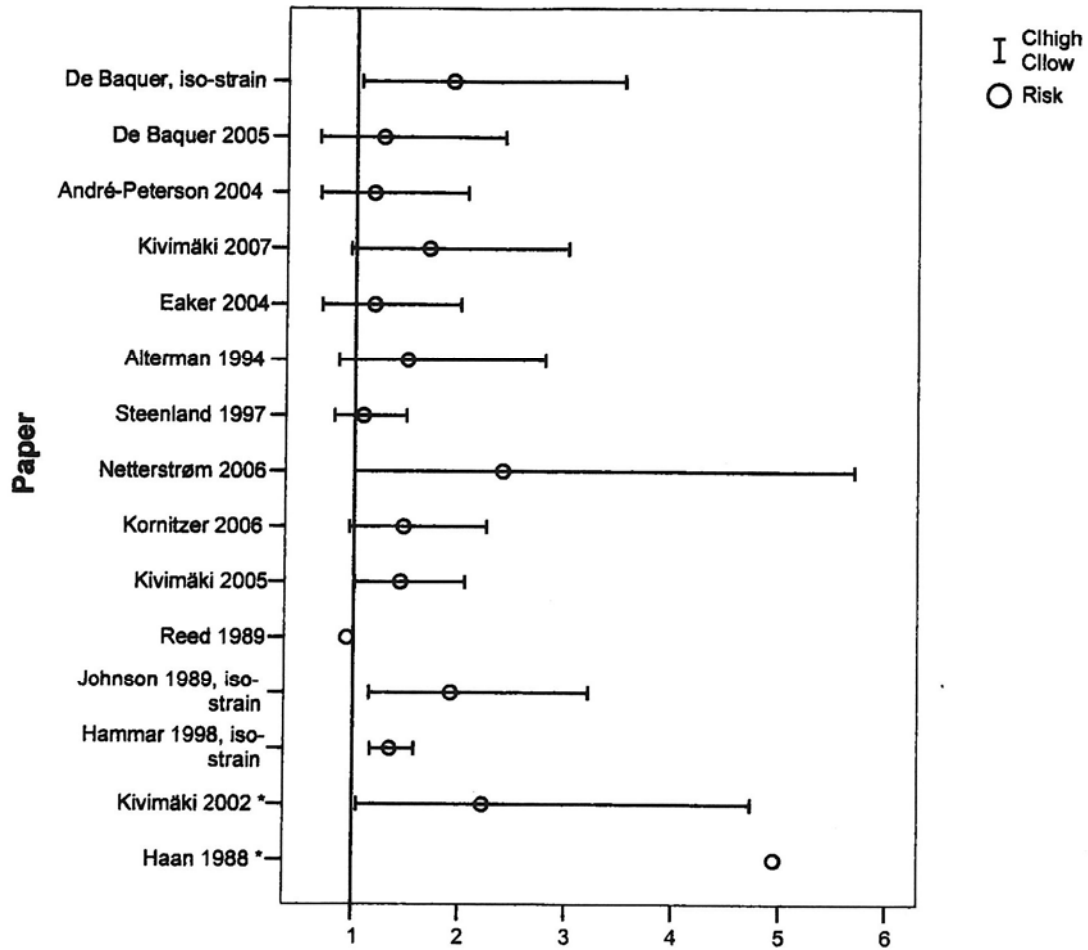
Karasek 1979

Karasek and Theorell 1990

Översikt över prospektiva studier av sambandet mellan "spänt arbete" och risk för hjärtinfarkt hos män.

○ = riskestimat

| — | = 95 % konfidensintervall



# Prediction of emotional exhaustion (Maslach) from 2003 to 2006

Hanson Magnusson L et al Scand J Publ Health 2008

	Män	Kvinnor
High demands	2.1 (1.5-2.9)	1.8 (1.4-2.4)
Low control	1.4 (1.0-1.9)	1.4 (1.1-1.9)
Low support boss	1.7 (1.2-2.3)	1.2 (0.9-1.7)
Low support mates	1.5 (1.0-2.2)	1.9 (1.3-2.9)
Downsizing	1.4 (1.0-1.9)	1.3 (1.0-1.7)

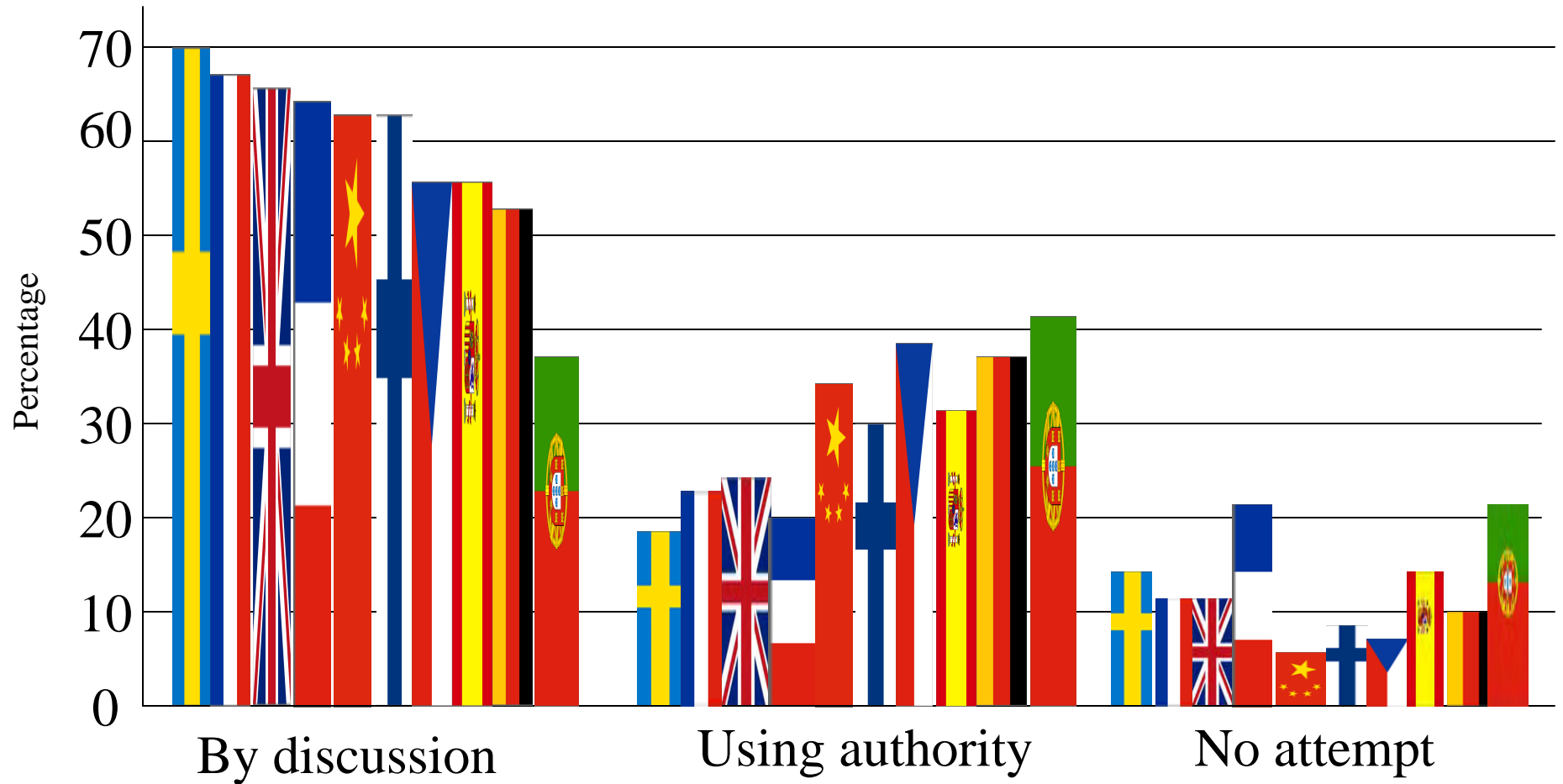
Multiple logistic regression. Adjusted for age, marital state, place of birth, social class, private/public sector, physical exhaustion 2003 and sick leave 2003

Lack of support from work mates in combination with small decision authority at work is related to elevated risk of long term sick leave during follow-up (odds ratios between 1.6 and 1.9 for both men and women after adjustment for confounders)

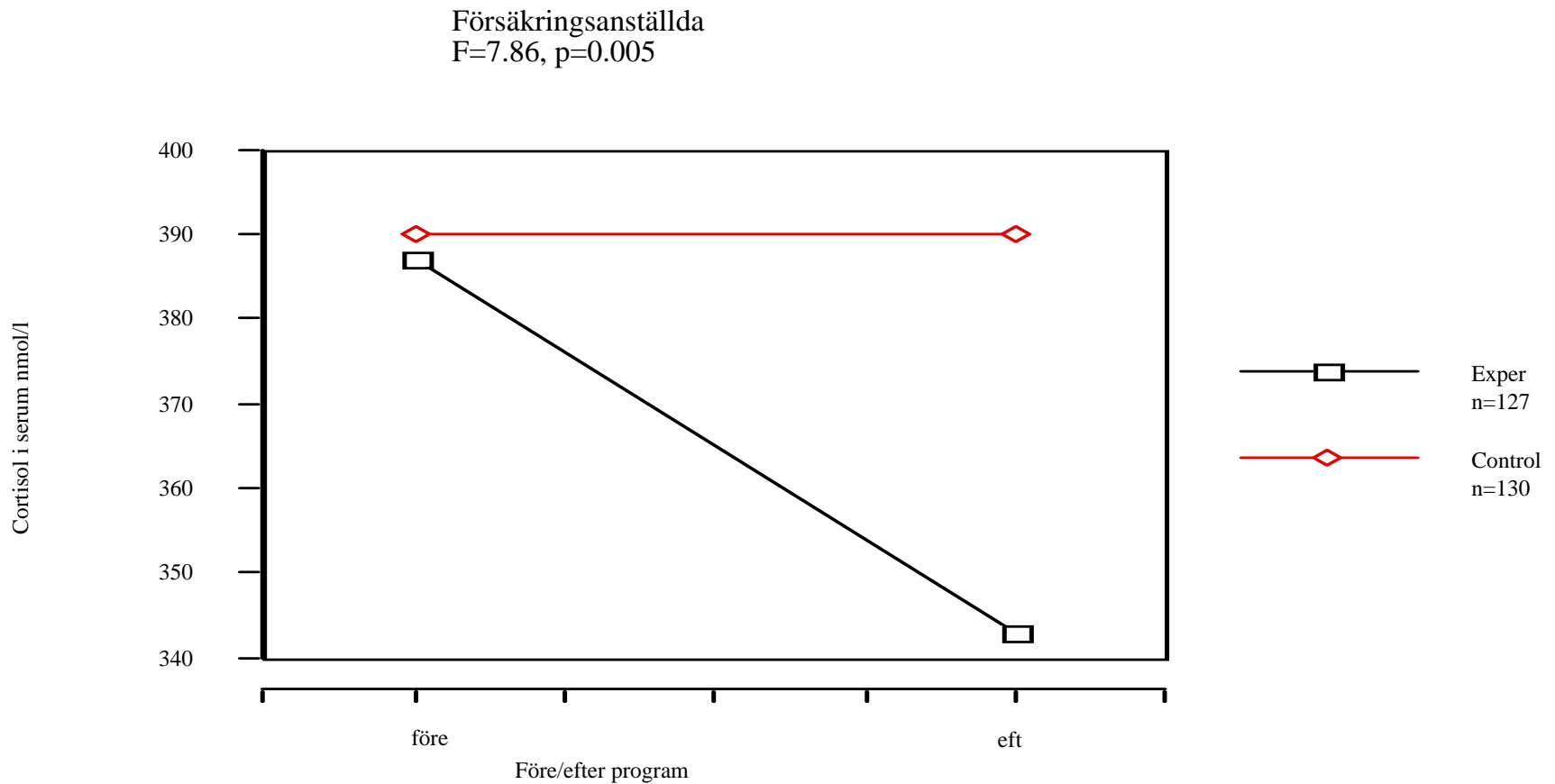
Oxenstierna et al Scand J Publ Health 2006



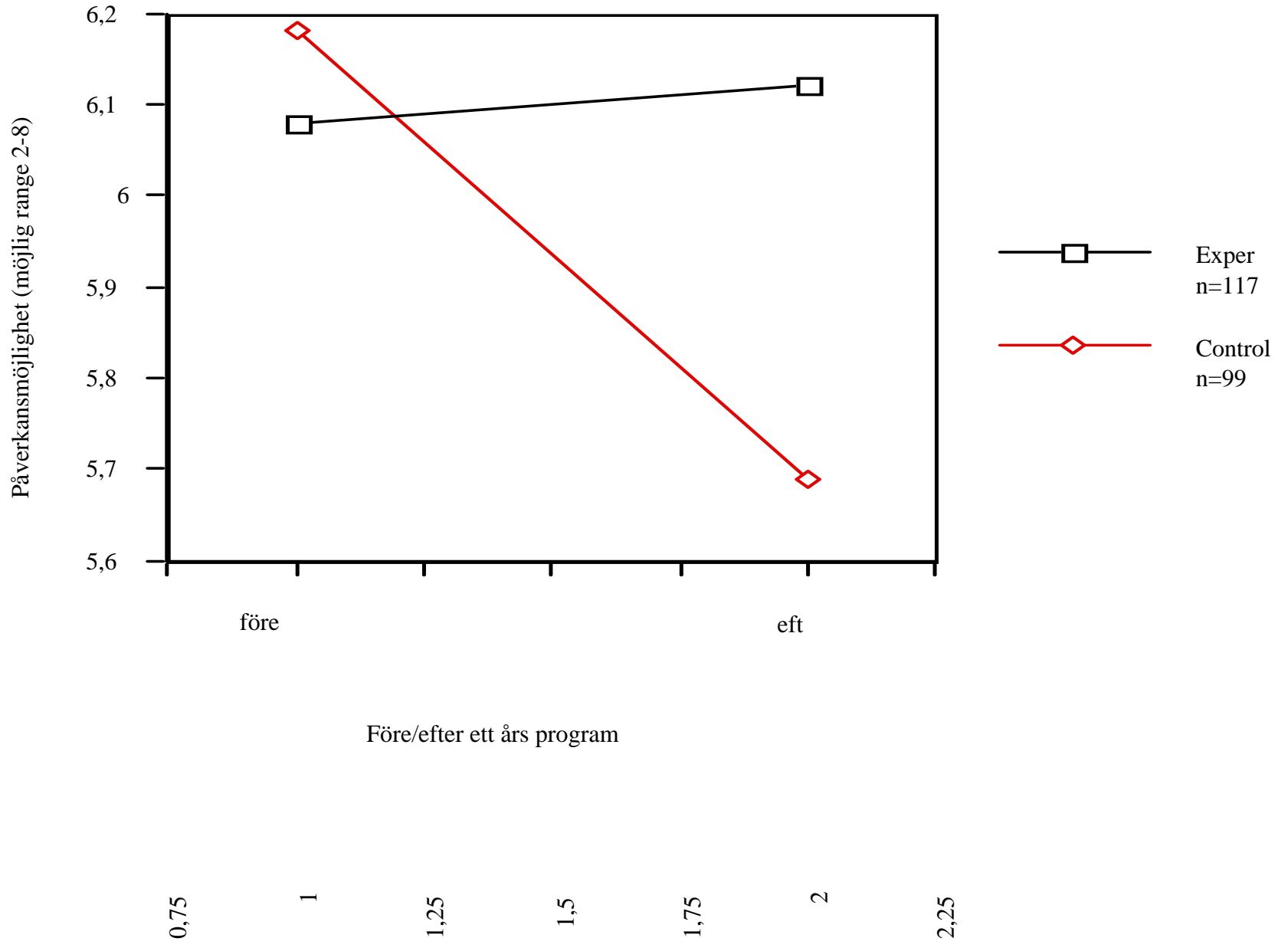
# Managerial strategy by country



Source: Theorell et al. Employee effects of an educational program for managers. Psychosom. Med. 67; 724-733, 2001.



Försäkringsanställda  
F interaktion=6.00, p=0.02

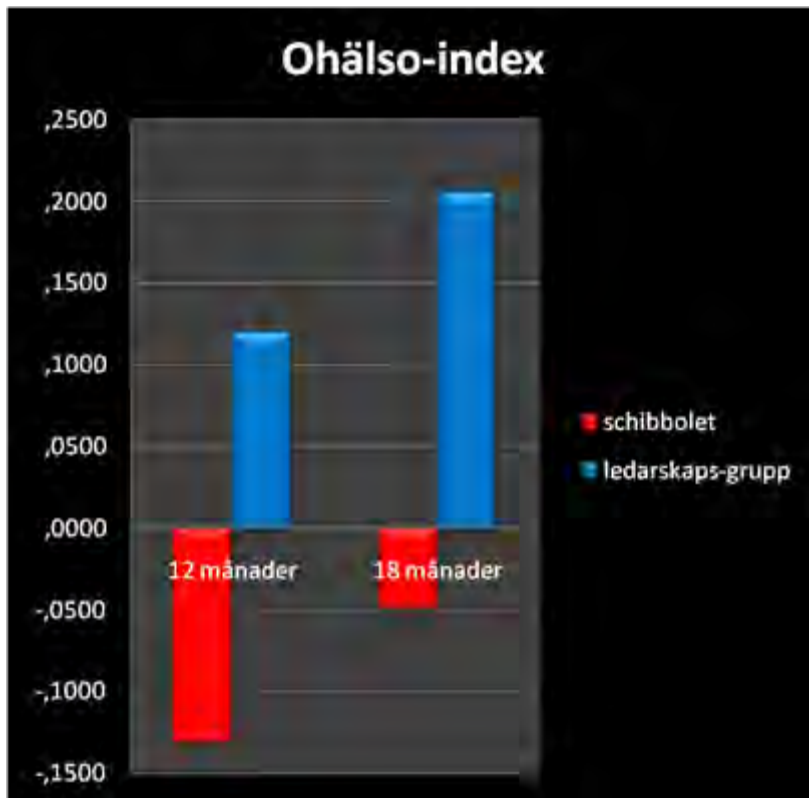


The following slide shows results from a randomised controlled trial with two different psychosocial manager training programmes, one "traditional" and one "artistic" (poetry about difficult ethically challenging situations amplified by music and followed by ethical discussions). Both programs lasting for one year with sessions approximately once a month. Results (unpublished) show significantly better results particularly 18 months after start in "artistic" group in both participants and their employees

# Self rated mental health after one year and after 18 mo

Participating superiors and subordinated employees

Blue group "traditional", red group "artistic"



Poor mental health = high score

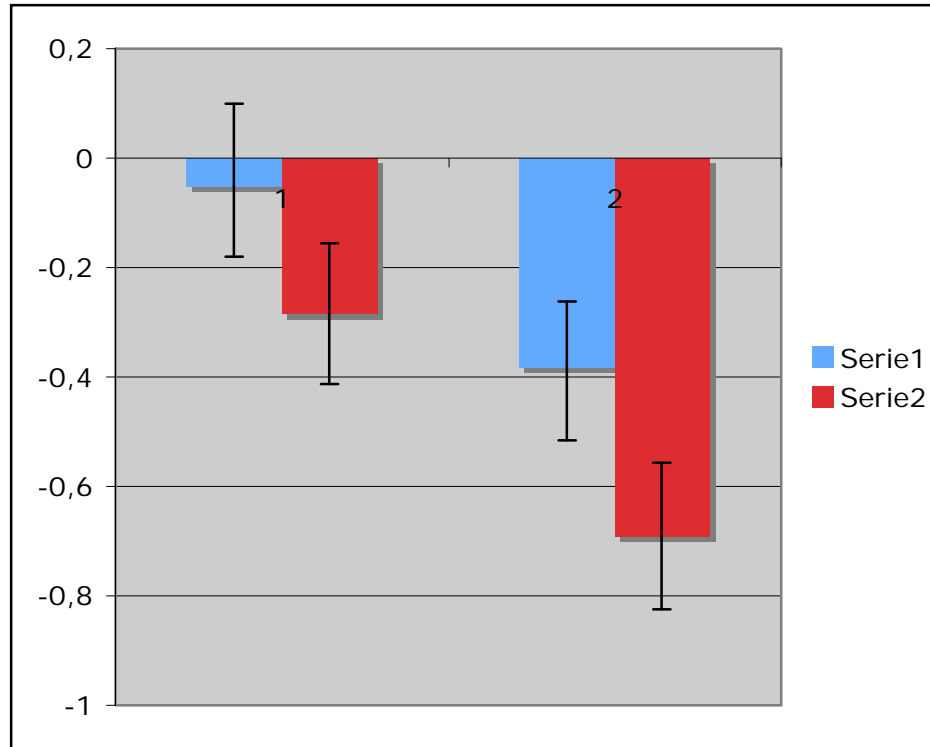
- Sleep disturbance

- Depression

- Mental exhaustion

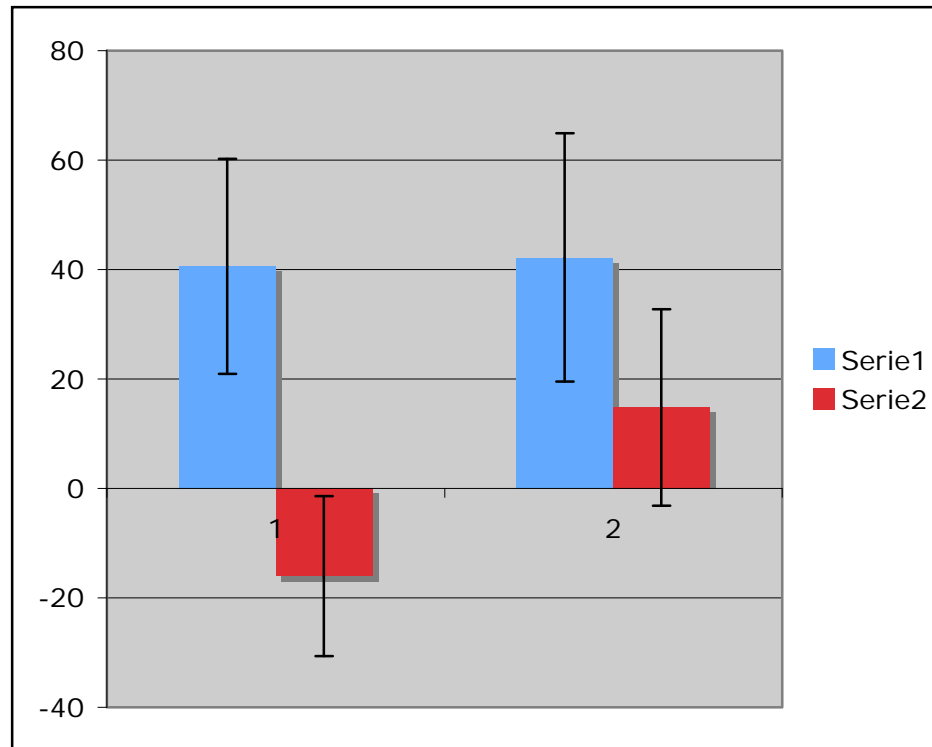
Romanowska et al, In

preparation 2009



Mean change in serum concentration of DHEA-s from start to 12 months later (1) and from start to 18 months later (2) in Schibbolet group managers and subordinates (n=48) displayed in blue and in comparison group managers and subordinates (n=73) displayed in red. Means (squares) and standard errors of means (lines)

Follow-up level minus starting level, negative sign means a decreased level and vice versa (Romanowska m fl manus 2009)



Mean change in serum concentration of cortisol from start to 12 months later (1) and from start to 18 months later (2) in Schibbolet group managers and subordinates (n=48) displayed in blue and in comparison group managers and subordinates (n=74) displayed in red. Means (squares) and standard errors of means (lines)

Follow-up level minus starting level, negative sign means a decreased level and vice versa (Romanowska manus 2009)

# Managerial Leadership and Ischemic Heart Disease Among Employees: The Swedish WOLF Study

Anna Nyberg (1), Lars Alfredsson (2,3), Töres Theorell (1), Hugo Westerlund (1), Jussi Vahtera (4), and Mika Kivimäki (5)

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- 1.) Institute for Stress Research Stockholm University
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- 3.) Centre for Public Health, Karolinska Hospital
- 4.) Finnish Institute for Occupational Health
- 5.) University College London, Dep. Epidem/Publ Health

OEM 2009

Ten questions in the OEM publication leadership scale. Four graded answers from 1=no never to 4=yes often.

Cronbach alpha=0.86

Setterlind and Larsson, Stress Medicine 11:85-92, 1995

My boss

Gives me the information I need

Is effective in instituting change

Explains goals

-Shows that he/she cares

Takes time to be engaged in employee development

Encourages me to participate in planning

I

Have a clear picture of what my boss expects of me

Have sufficient influence

Gets praise if I do something good

Is criticised when I do something bad

Association between employee rating of boss and employee risk of MI during follow-up. WOLF Stockholm (n=3122 year-old men followed for ten years)

Relative risk of MI after adjustment for risk factors associated with each increase in one standard deviation on the boss rating

0.57 (CI 0.43-0.76)

Thus: Decrease in MI risk associated with better boss score

Nyberg et al OEM 2009

# Results from SLOSH at the Stress Research Institute:

To have four or more sick leave episodes during a year was associated with having a "never or seldom" inspiring leadership (odds ratio 2.8 for men, 2.7 for women)

Nyberg et al Scand J Publ Health  
(2009)

## SLOSH results:

Long term sick leave (at least 31 days during a year)  
was associated with "often autocratic" leadership

Odds ratio for men 1.89  
Not significant for women

Adjusted for age, marital state, care of relative, children  
at home, being supervisor, sector (private/public) and  
dem/control/support

Nyberg et al Scand J Publ Health (2009)

## SLOSH results:

Sickness presenteeism was associated with "boss seldom showing integrity" (U-shaped distribution)

Odds ratio for women 1.42

Adjusted for same confounders as in previous slide  
Nyberg et al Scand J Publ Health (2009)

The antagonism between energy mobilisation/catabolism and regeneration/anabolism is reflected in antagonistic pairs on all endocrine levels (hypothalamus, pituitary, adrenocortex, cell)  
HPA against HPG.

This is also reflected in psychosocial processes

The most drastic example is wound healing during stress and during recovery (Kiecolt Glaser et al )

In women with acute onset of low back pain, low DHEA-s predicted persistent disability after six months (Hasselhorn, Theorell and Vingård, Spine E24-29, 2001)

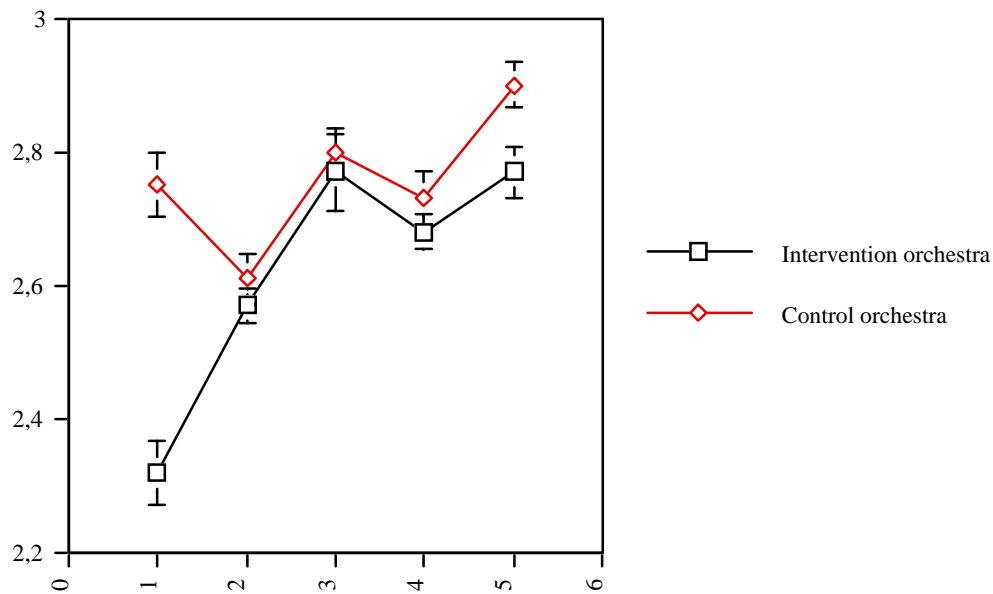
This was replicated in a larger group of 121 media workers (men and women) who were followed for 12 months: Again low DHEA-s predicted persistent pain

Schell E, Theorell T, Hasson D, Arnetz B, Saraste H. Eur Spine J. 2007

Saliva testosterone concentration in relation to major threat to whole "intervention" orchestra (musician fainting in front of audiences twice) during the start period. Observations every six months (Theorell et al Psychoneuroendocrinology 2007)

Mean log (saliva testosterone concentration) on each observation in the two orchestras

Bild 30



1= start, 5= two years later

Partial correlations adjusted for age and gender between hearing problems and 24 h high frequency power (a proxy measure of parasympathetic activity) in our sample of symphony musicians who were studied every second half-year during two years were:

T1: -0.62 (n=20)

T2: -0.58 (n=18)

T3: -0.24 (n=13)

T4: -0.63 (n=15)

T5: -0.70 (n=14)

All significant except T3.

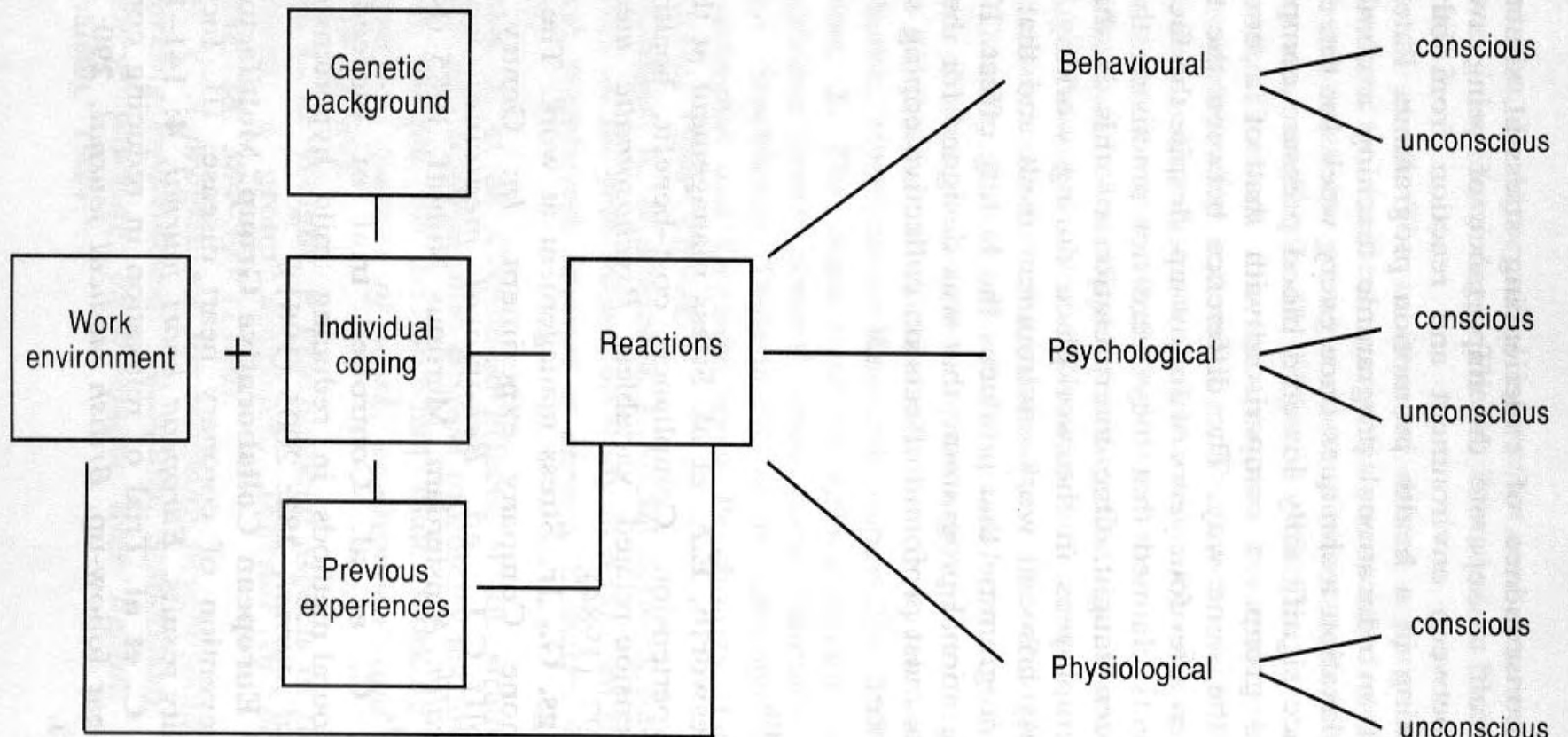
Hasson et al Int J Psychophysiology 2009 (E-print available)

Mean increase in plasma testosterone when change from "high job strain" (ratio between demand and control; average of two highest observations of four during study year) to "low job strain" (average of two lowest)

		% increase	Standard error
All men in study n=44	14		+/- 6
White collars only n=23	23		+/- 9
Blue collars only n=21	4		+/- 8

Theorell, Karasek and Eneroth, Journal of Internal Medicine 227: 31-36, 1990

Fig. 2. Theoretical model of the interaction between the environment, the individual and his or her reactions



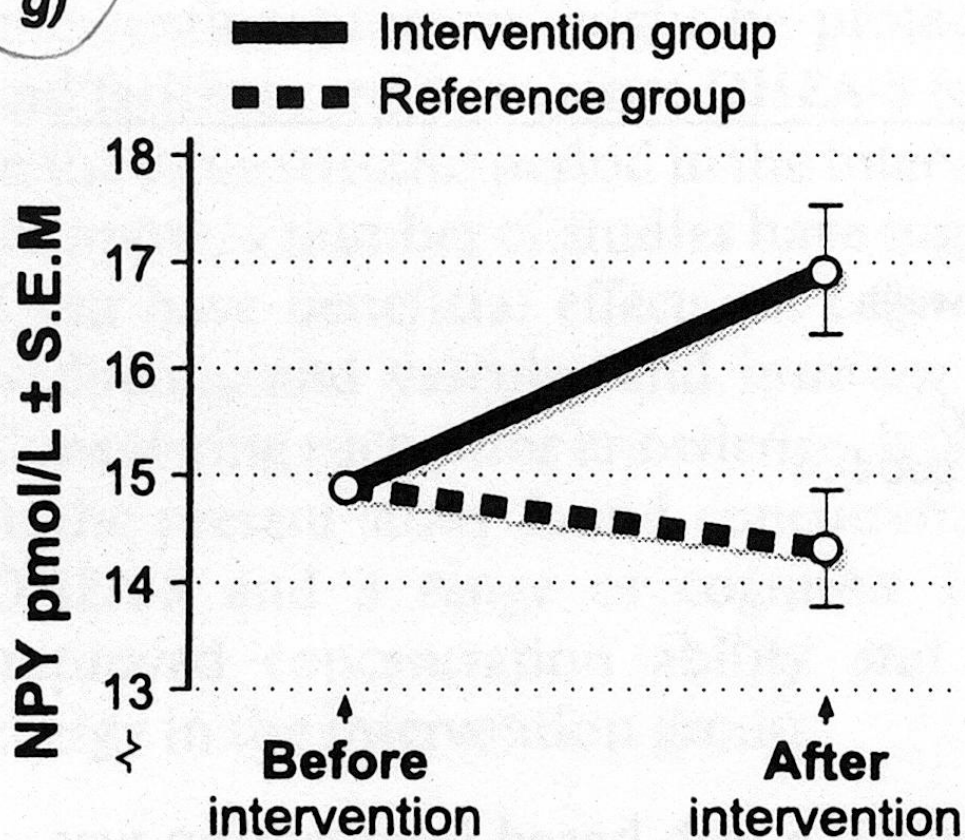
Source: Adapted from Kagan & Levi (22).

The first example illustrates that protective physiology can be activated by an interactive stress management programme that was administered electronically and evaluated in a randomised controlled evaluation with 303 employees. The physiological effect only lasted for half a year, however.

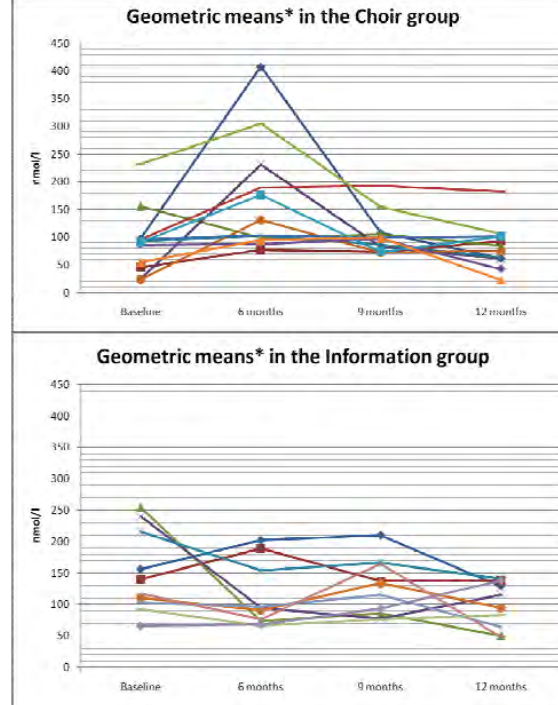
Hasson D, Anderberg UM, Theorell T, Arnetz BB.

BMC Public Health. 2005 Jul 25;5:78.

g)



Time effect .....  $p < .0001$   
Group effect .....  $p = .002$   
Time  $\times$  group effect .....  $p = .002$

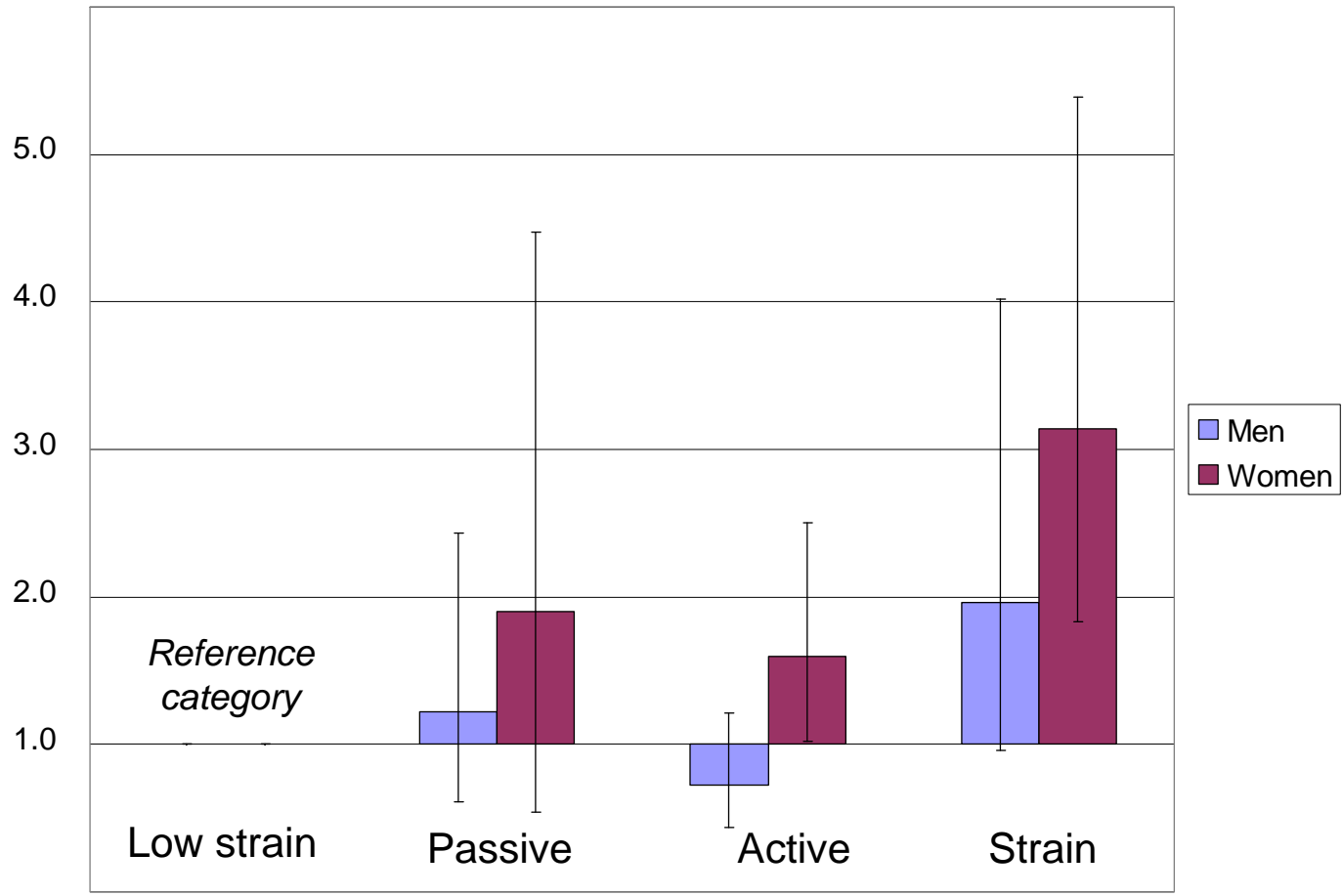


Geometric means of individual saliva cortisol concentration in choir group (beginners) and information group of IBS patients, randomly selected for once a week meetings during a year. For each individual and assessment day there are geometric means of six assessments from morning to bedtime. Baseline, six months, nine months and twelve months from start

Grape, Wikström, Ekman, Hasson and Theorell manuscript 2009

# Lack of cultural activities organised by the work site are associated with job strain (Theorell Scand J Work Env Health 2008)

Odds ratios with 95 % confidence intervals for low occurrence (never or some time per year) of cultural activities by the demand-control model (measured by DCQ 2006)



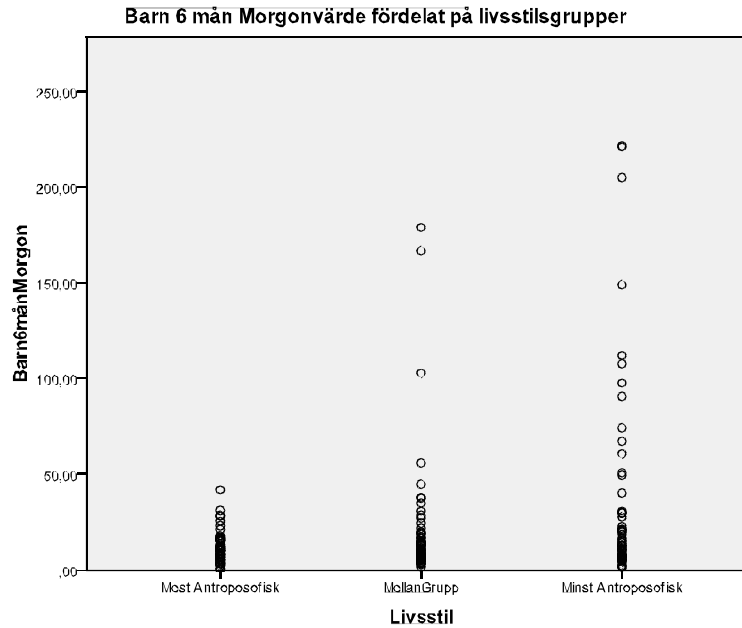
Adjusted for age, education, and branch

QuickTime och en  
-dekomprimerare  
krävs för att kunna se bilden.

27-year follow-up of 732 men and women from end of compulsory school  
at age 16 with repeated measures of social conditions and salivary  
cortisol in latest wave at age 43

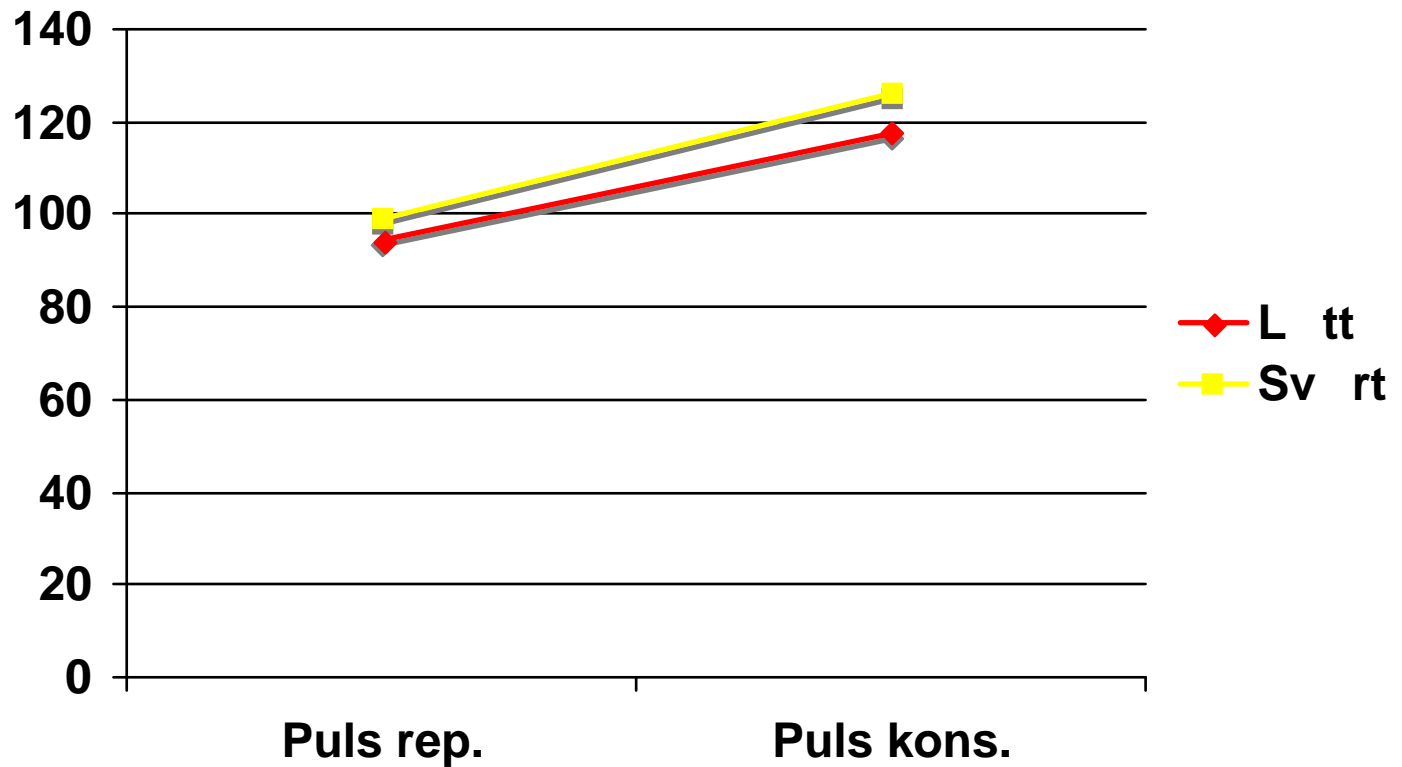
Graph shows mean awakening response (lognormal saliva cortisol 15  
min after awakening minus lognormal saliva cortisol at awakening) in  
relation to social group trajectory. Awakening response is higher in  
subjects with low social group at age 16 regardless of later social class.

Gustafsson et al 2009 in review



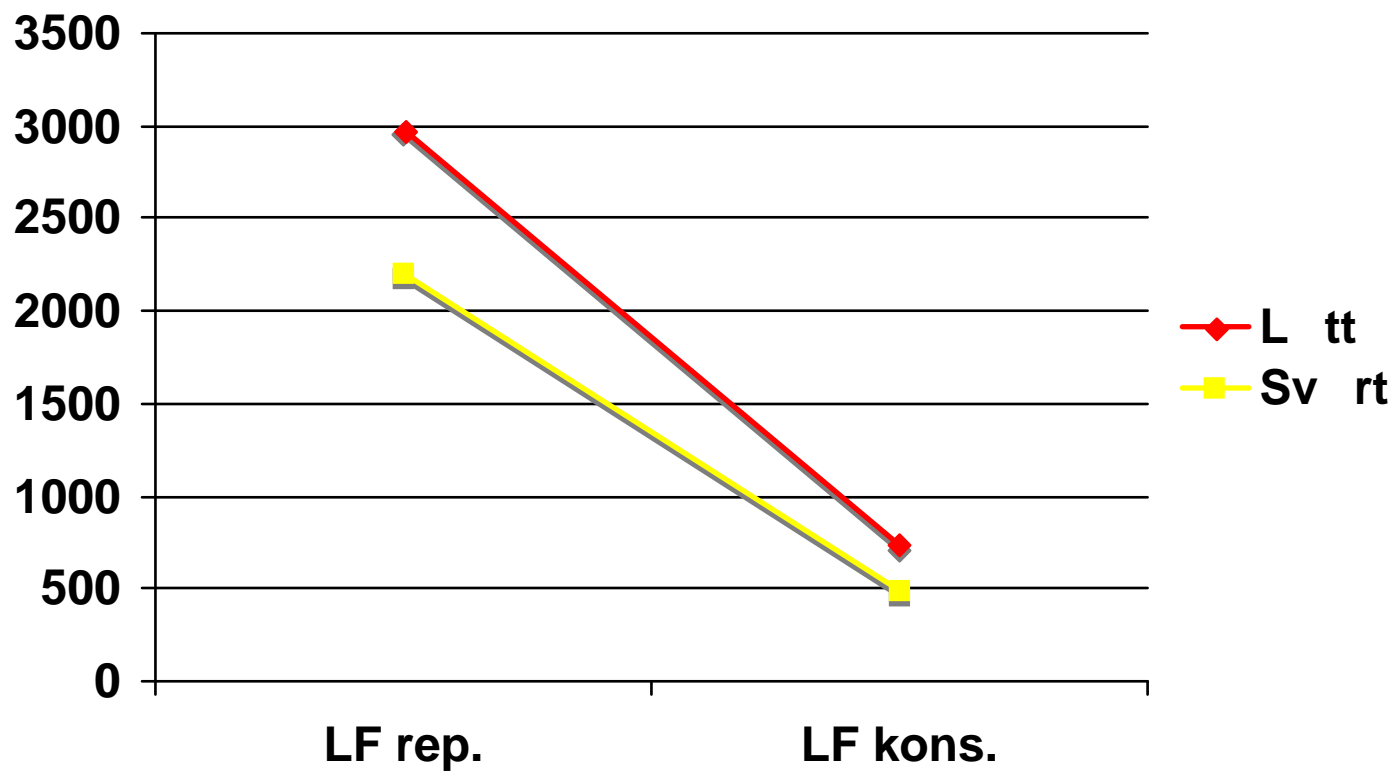
Morning saliva cortisol in 198 six-month olds in three comparably large groups, "consistently anthroposophic" (left), "less consistently anthroposophic"(middle) and "not at all anthroposophic" families in Järna south of Stockholm Sweden. Group differences are highly significant

Stenius et al in preparation 2009



Ten pairs of music performances (flute alt song) of identical pieces, (one easy, red, and one strenuous, yellow) during rehearsal with (kons) and without (rep) audience. Average heart rate per minute

Harmat and Theorell, submitted 2009



Ten pairs of music performances (flute alt song) of identical pieces, (one easy, red, and one strenuous, yellow) during rehearsal with (kons) and without (rep) audience. Geometric means of Low Frequency Power (LF) per minute

Harmat and Theorell, 2009

# De Manzano, Theorell, Harmat, Ullén: The Psychophysiology of Flow during Piano Playing

Table 1. Page test results: Physiological measures vs. flow measures

	<i>N</i>	<i>z<sub>L</sub></i>	
		<i>Flow9D</i>	<i>Flow3D</i>
EMG ZM	15	6.02 <sup>***</sup>	4.57 <sup>***</sup>
HP	19	1.90 <sup>*</sup>	2.75 <sup>**</sup>
FWHM	19	-	2.25 <sup>a**</sup>
MinP	19	1.58 <sup>+</sup>	2.48 <sup>**</sup>
MaxP	19	-	2.48 <sup>a**</sup>
MaxP-MinP	19	-	2.84 <sup>a**</sup>
RSA	17	2.35 <sup>a**</sup>	1.65 <sup>a*</sup>
LF/HF	19	1.67 <sup>*</sup>	1.79 <sup>*</sup>
Total power	19	2.32 <sup>**</sup>	2.29 <sup>**</sup>
RD	18	2.33 <sup>**</sup>	2.38 <sup>**</sup>

<sup>+</sup> trend at  $p \leq 0.06$ ; <sup>\*</sup>  $p \leq 0.05$ ; <sup>\*\*</sup>  $p \leq 0.01$ ; <sup>\*\*\*</sup>  $p \leq 0.001$

<sup>a</sup> Signifies an inverse relationship between flow measure and physiological measure