

# Hur kan samarbetet mellan röstlogopedier och belastningsergonomer utvecklas?

## Arbetsrelaterade röststörningar och röstergonomi

Maria Södersten, leg logoped, docent  
Logopedkliniken, Karolinska universitetssjukhuset  
Enh för logopedi, Clintec, Karolinska Institutet

Frukostseminarium EHSS 8 april 2014



**Karolinska  
Institutet**

**KAROLINSKA**  
Universitetssjukhuset



## ”Röstteam” Karolinska

Med fokus på arbetsrelaterade  
röststörningar:

Logopeder: Ulrika Nygren, Anna  
Lundblad, Victoria Kelly, Karin  
Wier, Annika Sääf-Rothoff

Foniatrer: Stellan Hertegård, Per-  
Åke Lindestad, Gunnar Björck

Doktorand: Annika Szabo Portela

Forskare: Anita McAllister

## KTH

Ingenjörer: Sten Ternström, Svante  
Granqvist



# Röststörning

## *Definition*

När rösten inte håller för de krav som ställs på den.  
Många olika medicinska diagnoser.

## *Vanliga symtom*



Heshet, svag röst

Rösttrötthet, ansträngdhet, smärta, harklingsbehov,  
rösten sviker, bär inte, försvinner

Förvärras ju mer personen talar

# Följder av en röststörning

- Undviker att tala
- Överlåter röstkrävande arbetsuppgifter åt någon annan
- Nedsatt arbetsförmåga
- Drar sig undan umgänge med andra
- Sjukfrånvaro
- Arbetsoförmögen
- Omskolning

*Sala, Sihvo, Laine 2005*

# Röstkrävande yrken

**1/3** av den yrkesverksamma befolkningen har arbeten där en fungerande röst är nödvändig för arbetets utförande

- **Instruktörer/pedagoger** (*lärare, föreläsare, aerobics*)
- **Artister** (*skådespelare, sångare*)
- **Retoriktalare** (*politiker, jurister, förhandlare, säljare*)
- **Serviceyrken** (*receptionist, restaurant*)
- **Säkerhet** (*polis, brandkår, flygledare, piloter*)

Södersten, Lindhe 2007

# Faktorer som påverkar rösten

---

Förhållningssätt till belastning

## ARBETSMILJÖ

Kraftig röst användning

Ej tillräcklig röstvila

Bakgrundsbuller

Rumsakustik

Torr luft, kemikalier

Kroppsställning

Stress

Ej tekniska hjälpmedel

## INDIVID

Hälsa, andra sjukdomar

Livsvanor

Röstteknik, träning

Personlighet

Kön

Genetik

Tidiga tecken på allvar

---

*efter Vilkman 2004*



---

# Exploring Genetic and Environmental Effects in Dysphonia: A Twin Study

---

Susanna Simberg  
Pekka Santtila  
Anna Soveri  
Markus Varjonen

Åbo Akademi University, Turku, Finland

Eeva Sala

Turku University Central Hospital,  
Turku, Finland

N. Kenneth Sandnabba

Åbo Akademi University

**Purpose:** To explore the existence of genetic effects as well as the interaction between potential genetic effects and a voice-demanding occupation on dysphonia.

**Method:** One thousand seven hundred and twenty-eight Finnish twins (555 male; 1,173 female) born between 1961 and 1989 completed a questionnaire concerning vocal symptoms and occupation. The zygosity determination resulted in 125 monozygotic and 108 dizygotic full twin pairs. A composite variable called *dysphonia* was formed by summing 6 vocal symptoms based on the results of a factor analysis. Twin model fitting was used to explore the contribution of genetic and environmental effects on the dysphonia variable.

**Results:** Individual differences in dysphonia were explained by genetic effects (35%) and nonshared environmental effects (65%). Shared environmental effects were estimated at 0%. Also, the authors found that for the participants who worked in voice-demanding occupations, the causes of dysphonia were more environmental, whereas the etiology of the symptoms was more strongly affected by genes in the participants with less voice-demanding occupations. However, this gene-environment interaction was not statistically significant.

**Conclusion:** Both genetic and environmental factors have an impact on the etiology of voice problems. Environmental factors, either independently or interacting with genetic factors, seem to play the key role, especially if the person has a voice-demanding occupation.

**KEY WORDS:** dysphonia, behavior genetics, twin study, occupation

## Article

# Genetic and Environmental Effects on Vocal Symptoms and Their Intercorrelations

Ida Nybacka,<sup>a</sup> Susanna Simberg,<sup>a</sup> Pekka Santtila,<sup>a</sup> Eeva Sala,<sup>b</sup> and N. Kenneth Sandnabba<sup>a</sup>

**Purpose:** Recently, Simberg et al. (2009) found genetic effects on a composite variable consisting of 6 vocal symptom items measuring dysphonia. The purpose of the present study was to determine genetic and environmental effects on the individual vocal symptoms in a population-based sample of Finnish twins.

**Method:** The sample comprised 1,728 twins (125 monozygotic and 108 dizygotic twin pairs) born between 1961 and 1989, who completed a questionnaire concerning 6 vocal symptoms. Values for additive genetic, dominant genetic, shared environmental, and nonshared environmental components were computed separately for all symptoms. Multivariate analyses to determine genetic and environmental associations between the vocal symptoms were also performed.

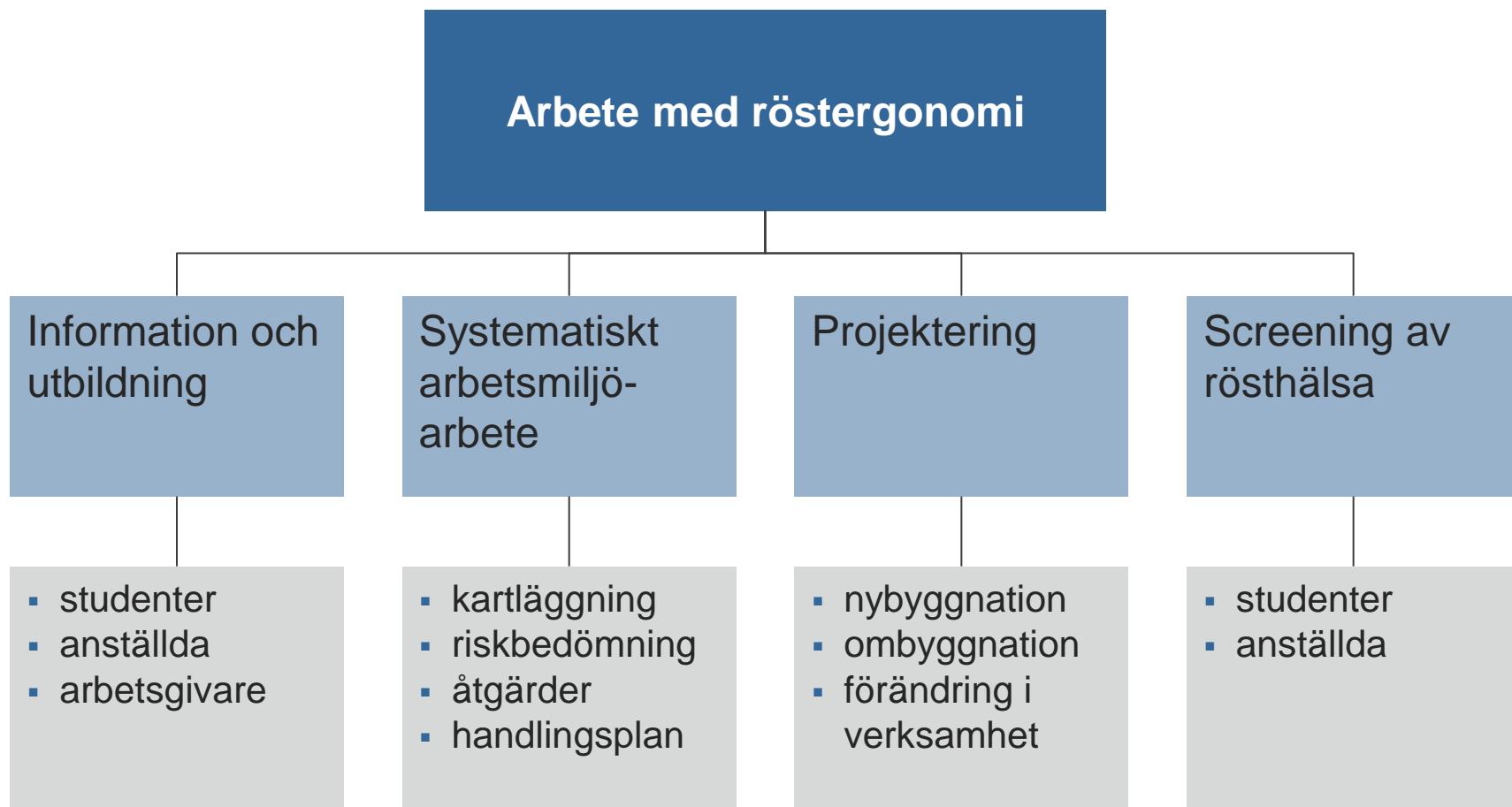
**Results:** Variance was explained by significant additive genetic effects (27%) in only one of the vocal symptoms, namely, *voice gets low or hoarse*, whereas the variance of one of the vocal symptoms, *voice gets strained or tires*, could be explained by nonshared environmental influence alone. Multivariate analyses showed that the correlations for most of the symptom combinations were significant.

**Conclusions:** Both genetic and environmental components influence vocal symptoms. Genetic and environmental influences seem to be differently balanced in different vocal symptoms. Genetic effects are moderate, whereas environmental effects seem to be the most important factor contributing to the presence of vocal symptoms.

**Key Words:** vocal symptoms, twin study, behavior genetics



# Förslag till modell för arbete med röstergonomi



(efter Lindhe 2008)

# Att diskutera

- Fler remisser från företagshälsovård
- Utbildning belastningsergonomi - röstergonomi
- Konsultera röstlogopedier vid behov
- Starta gemensamma projekt