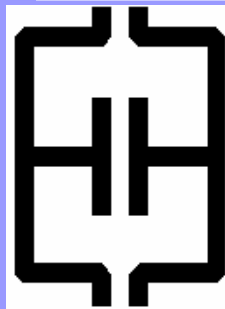


Use of hearing protection in classical music orchestras

Music – Safe and Sound 16.-17.1.2007

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Introduction

- Musician's sound exposure levels and hearing are widely studied
- Musician's working environment sets unique demands => knowledge about sound levels and hearing ability is not enough
- Current study concentrates on how musicians experience their working environment, different kind of hearing disorders, and usage of hearing protectors

Questionnaire study I, Finland

Five orchestras participated:

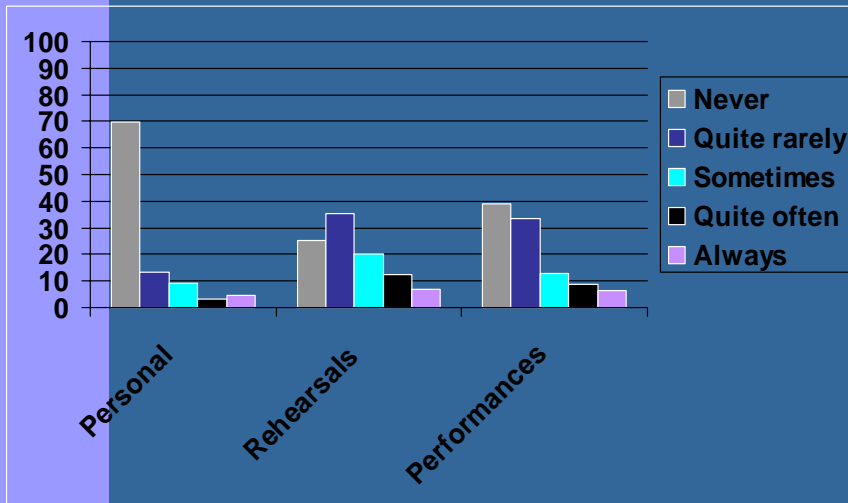
1. Finnish National Opera, 112 musicians
 2. Finnish Radio Symphony Orchestra, 98 musicians
 3. Helsinki Philharmonic, 93 musicians
 4. Tapiola Sinfonietta, 40 musicians
 5. Guards Band (military brass band), 40 musicians
- 196 answers, 51% of the musicians
 - Questions dealt with stress at work, hearing, hearing symptoms, noisiness, and usage of hearing protectors
 - Questionnaires were given to orchestras, answers were sent back by mail

Questionnaire study II, Denmark

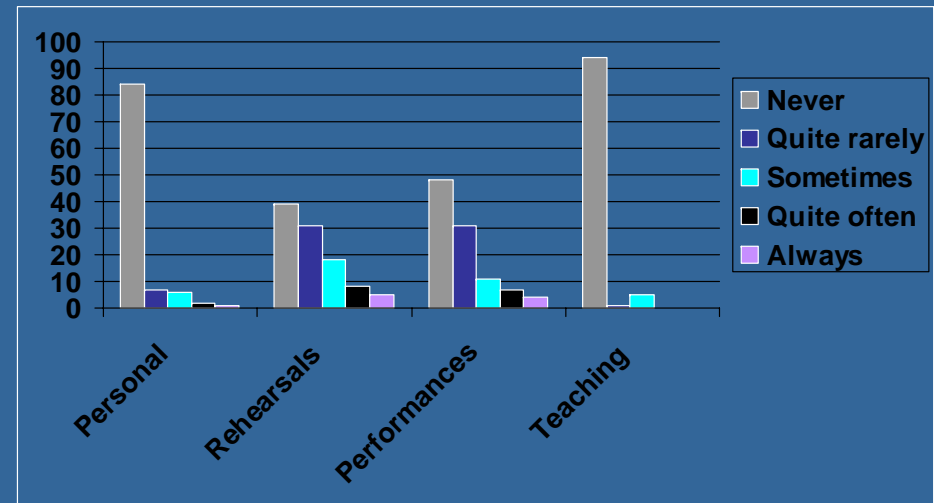
Three orchestras:

1. South Jutland Symphony Orchestra (66 musicians)
 2. Aalborg Symphony Orchestra (65 musicians)
 3. Aarhus Symphony Orchestra (72 musicians)
- Orchestras were visited and lectures about hearing protectors and questionnaire were given. Remaining time of the meeting time was used to fill out the questionnaire.
 - There were 146 respondents, all musicians who participated the lectures

Do you use hearing protection?

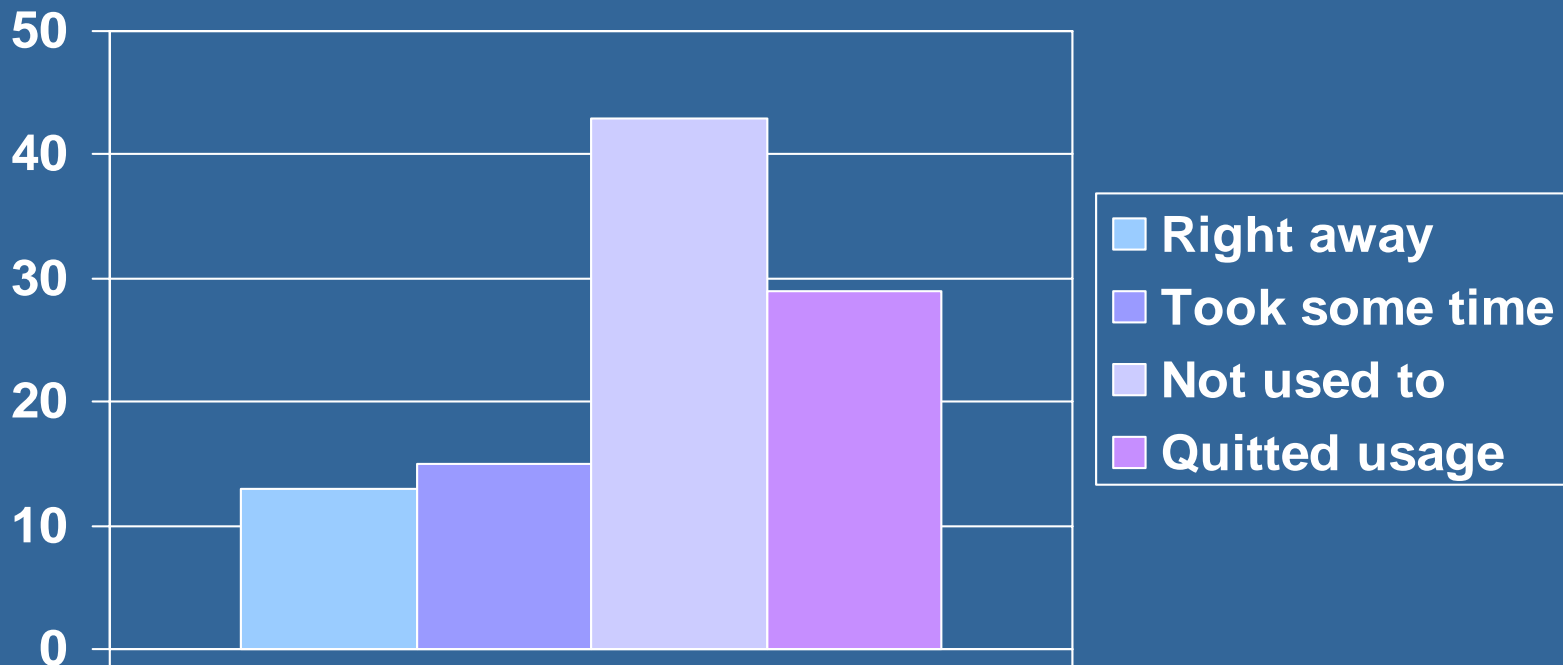


Finland

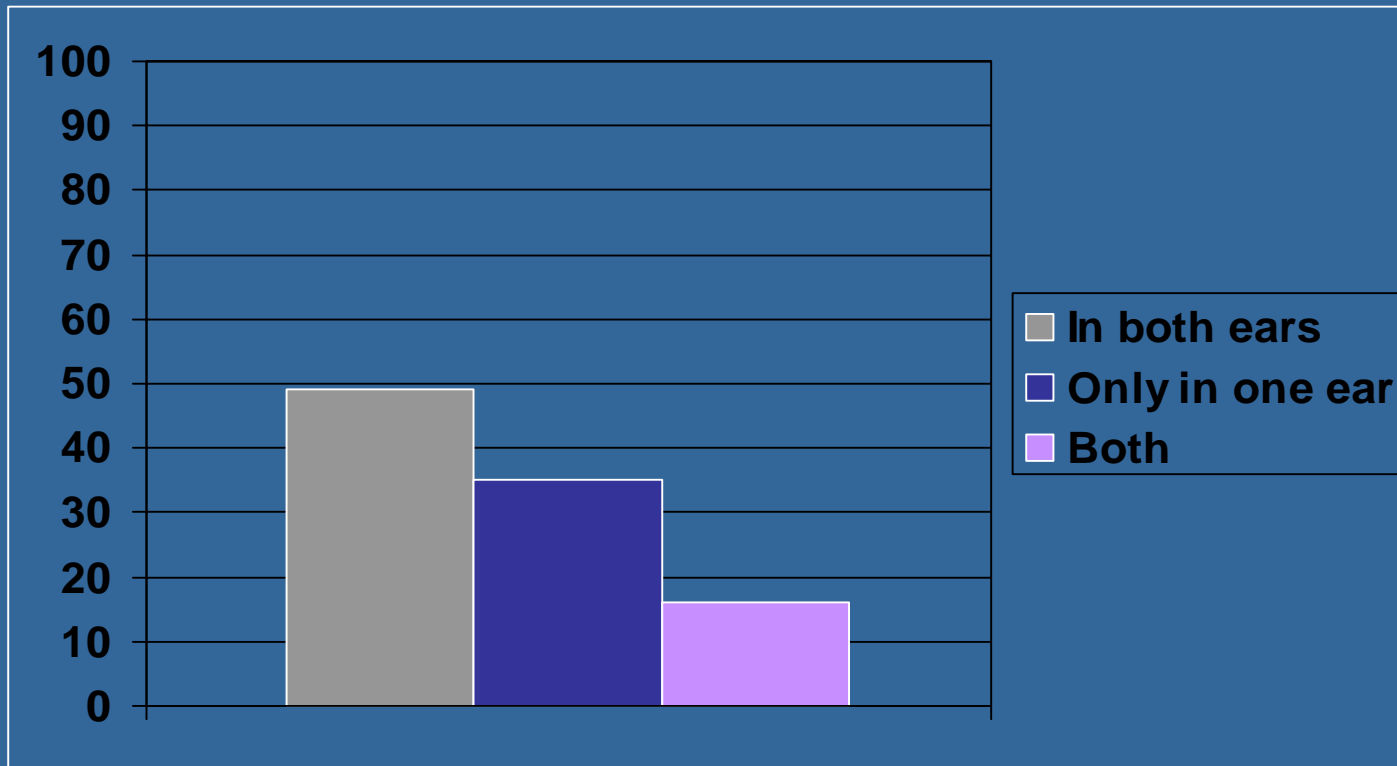


Denmark

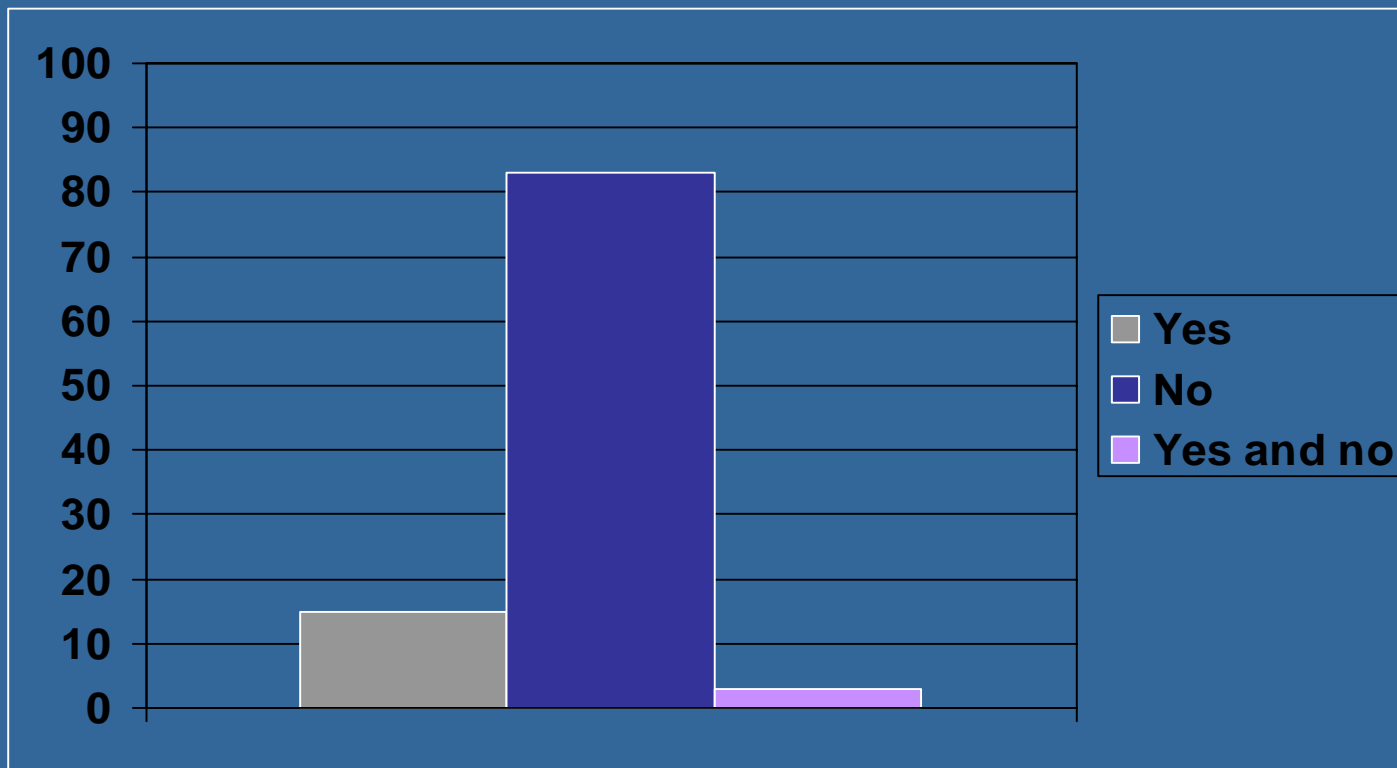
Getting used to hearing protection, Denmark



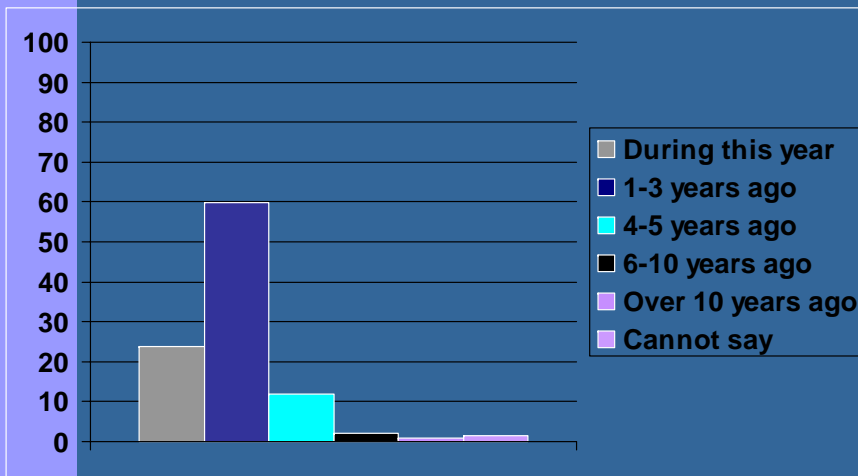
Usage of hearing protection in both ears, Denmark



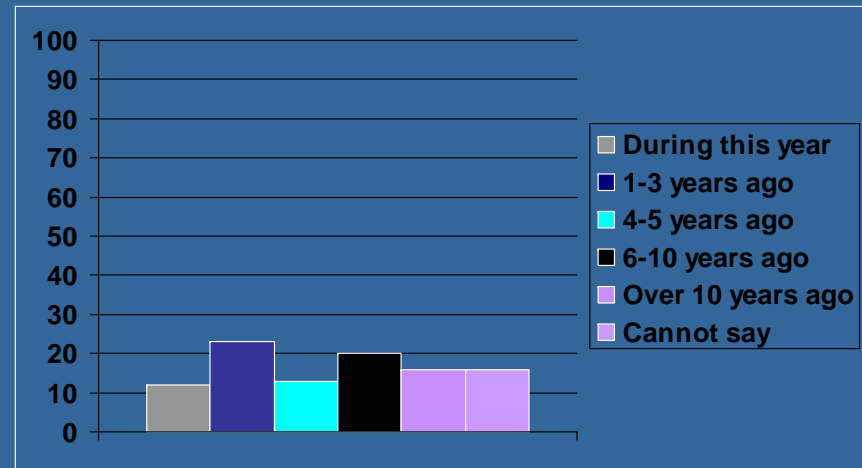
When you are wearing hearing protectors, do you use them continuously ?, Denmark



When did you have your hearing last checked?

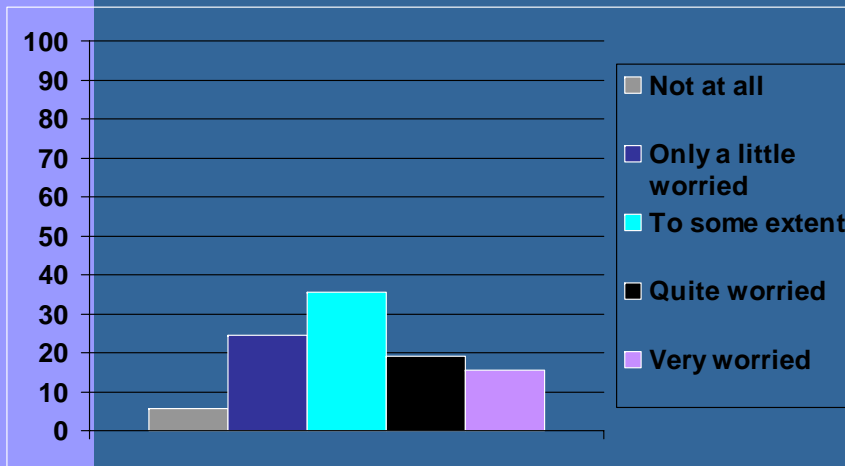


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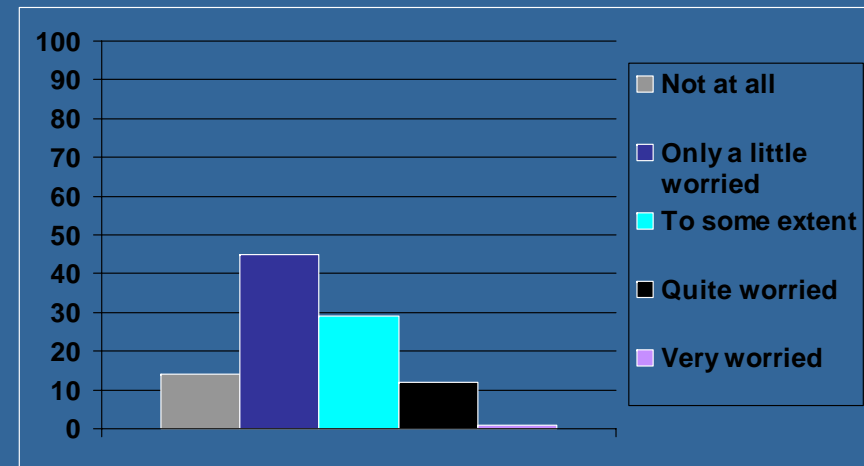


Denmark

Are you worried about your hearing?

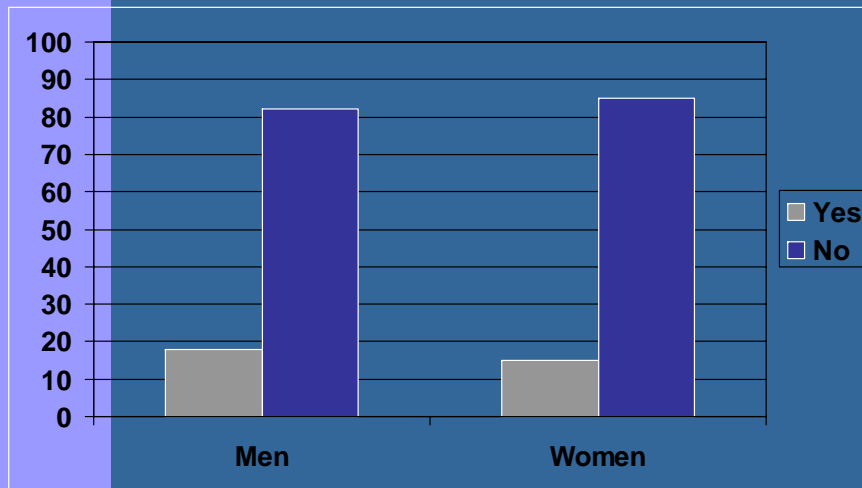


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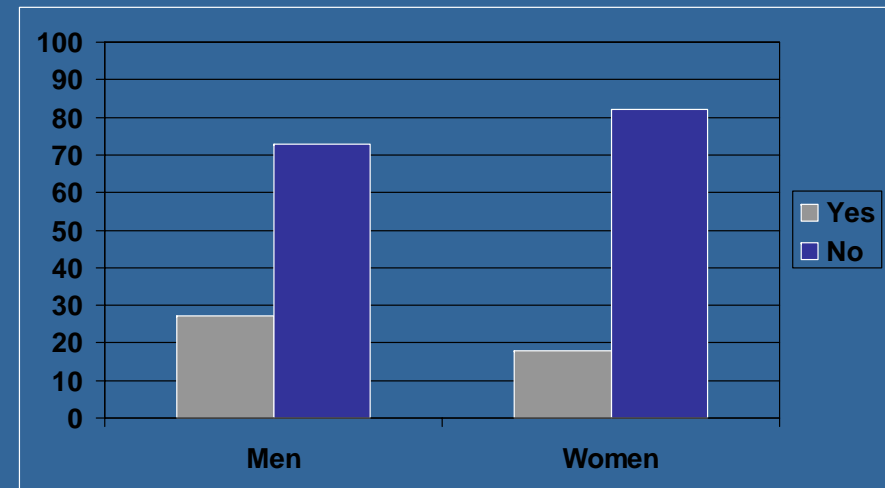


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Do you have continuous tinnitus?

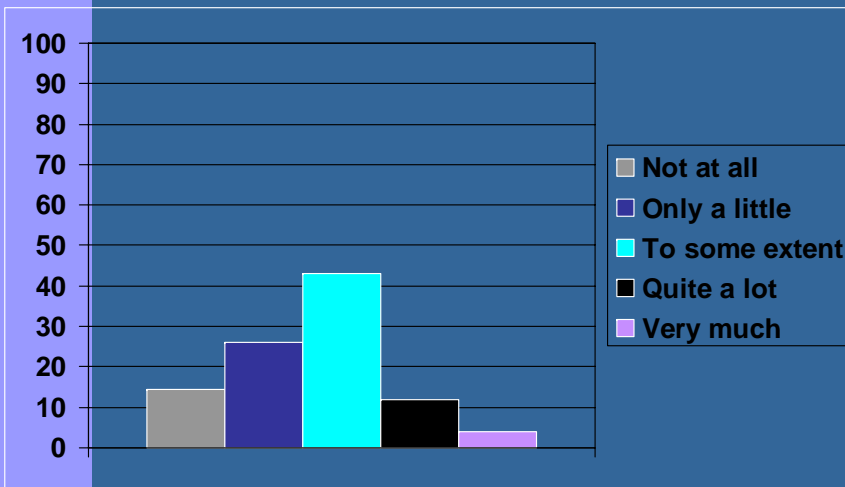


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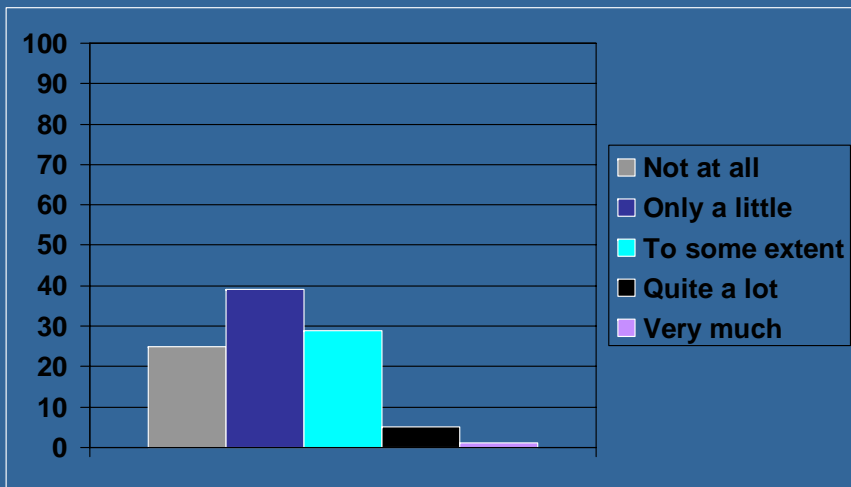


Denmark

Are you stressed?



Finland

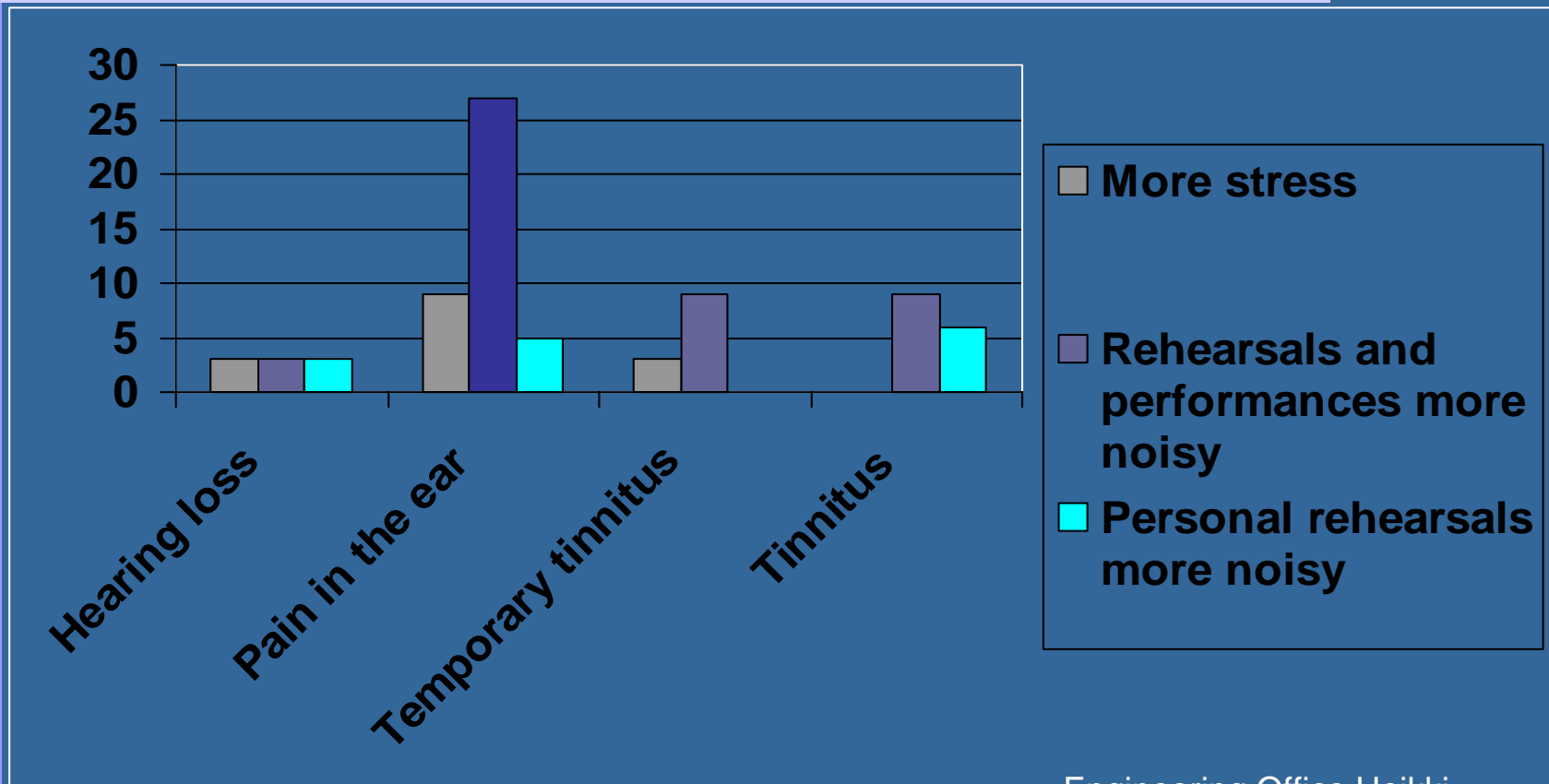


Denmark

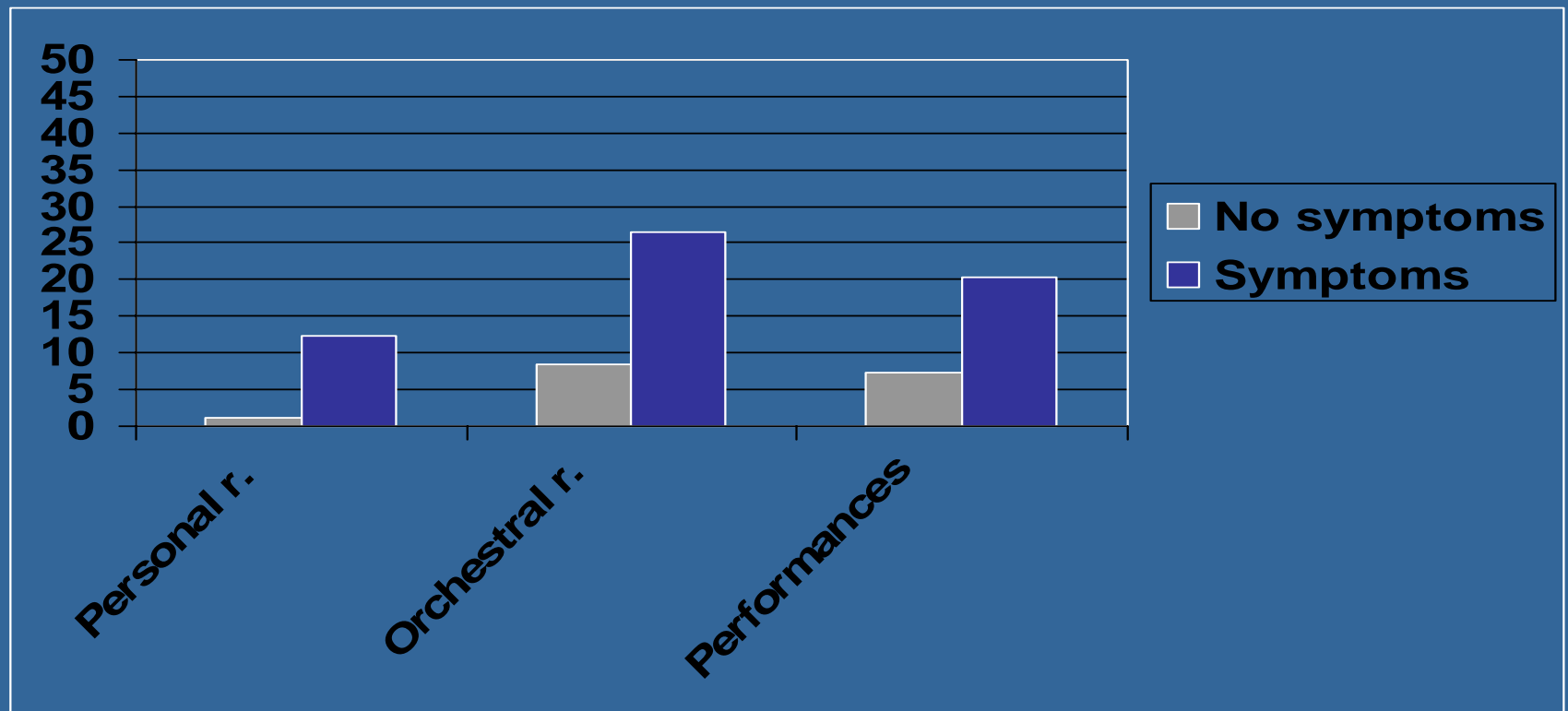
Prevalence of hearing symptoms, Denmark

- Hyperacusia:
women 31 %, men 21 %
- Distortion:
women 14 %, men 11 %
- Diplacusis:
women 6 %, men 4 %

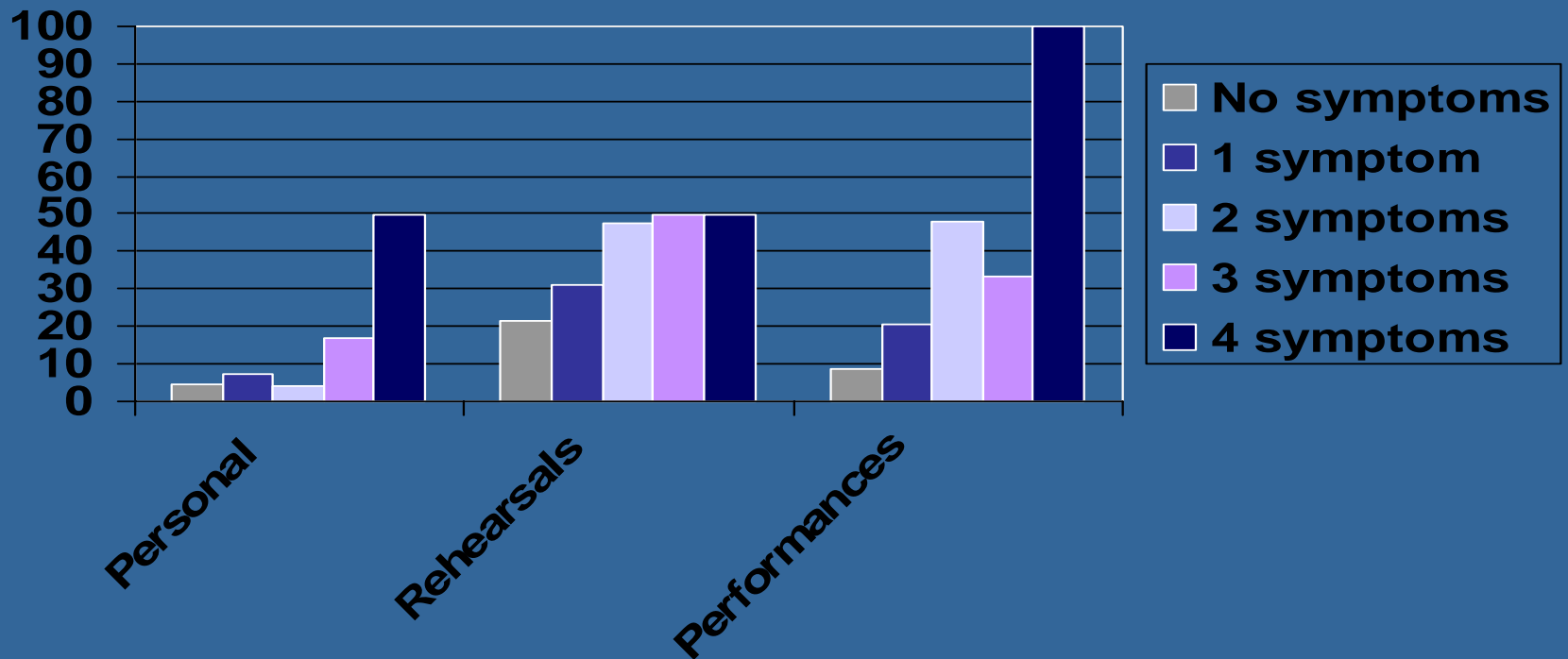
Hearing symptoms, and stress, and working conditions, Finland



Hearing symptoms and the hearing protector usage rate , Finland



Hearing symptoms and usage of hearing protectors, Denmark



Hinders in the usage, and why hearing protectors are not used

- Hinders own performance
- It is difficult to hear other's play
- Sensation from hearing protectors is unpleasant
- Difficult to install
- Sense of pressure in the ears

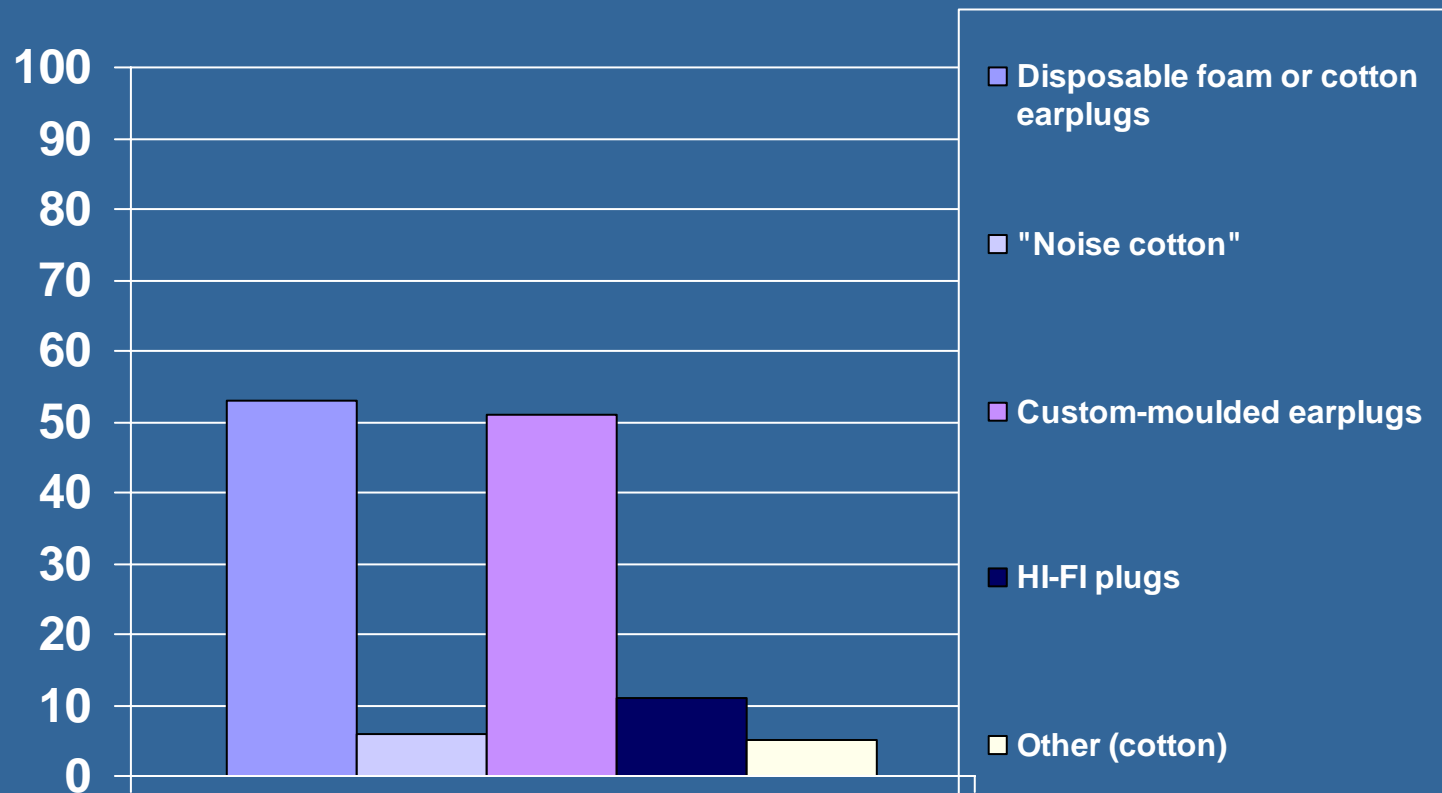
Why hearing protectors are used?

- Musicians are afraid of hearing loss and tinnitus
- To avoid pain,
- To protect ears from fatigue
- To decrease stress, irritation, and fatigue
- Due to already existing hearing loss and tinnitus

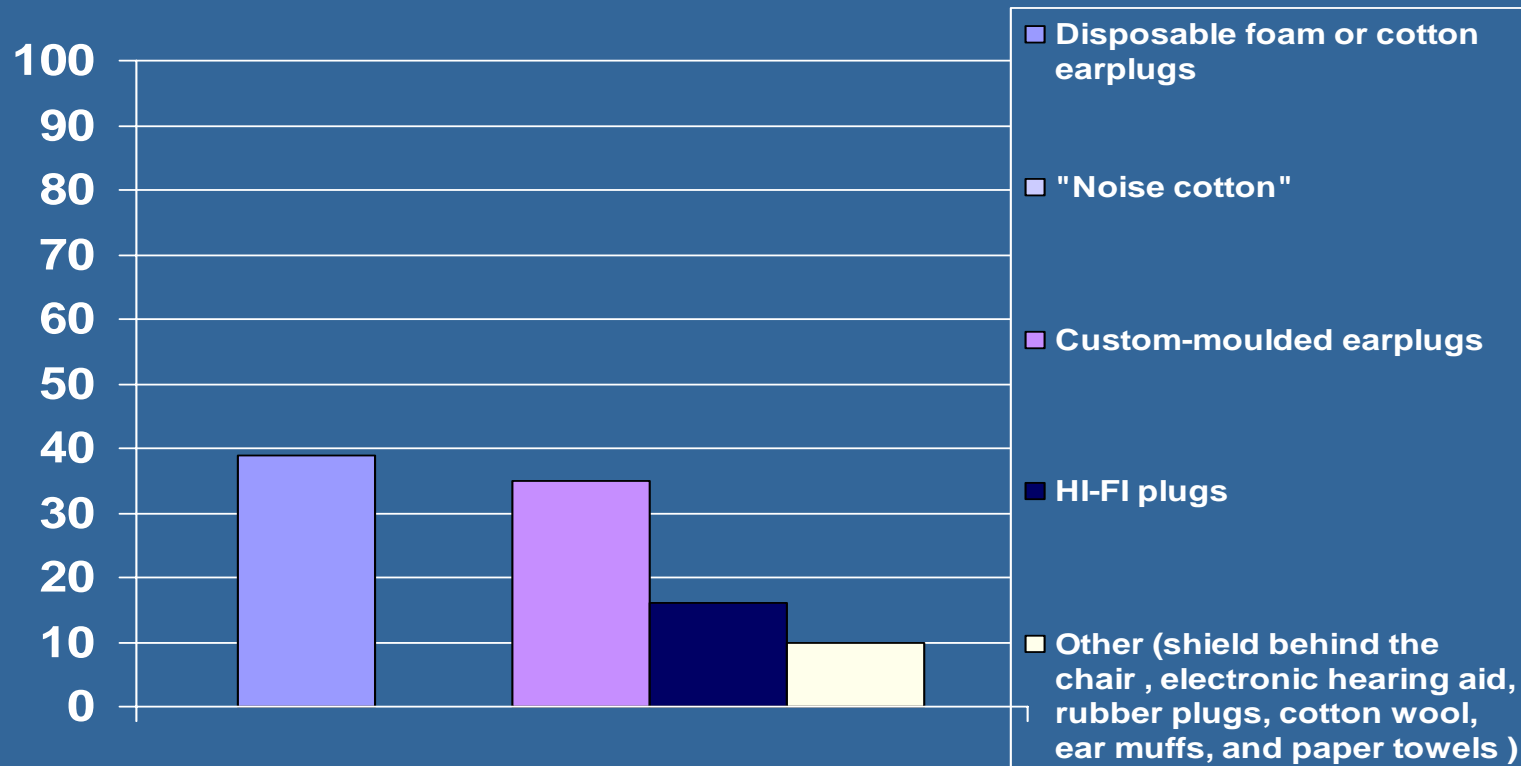
Noisiness of the instrument groups experienced by instrument groups , Denmark

	Strings	Wood	Brass	Percussion
<i>Strings</i>				
Quite noisy (%)	3	20	40	43
Extremely noisy (%)	1	3	32	40
<i>Wood</i>				
Quite noisy (%)	0	11	50	48
Extremely noisy (%)	0	0	38	36
<i>Brass</i>				
Quite noisy (%)	4	9	30	38
Extremely noisy (%)	0	4	13	33
<i>Percussion</i>				
Quite noisy (%)	0	0	20	20
Extremely noisy (%)	0	0	0	0

Hearing protectors used or tried, Finland



Hearing protectors used or tried, Denmark



Musicians' hearing protectors versus disposable earplugs

- If different types of hearing protectors are used, direction mostly seems to go from custom-moulded to something else (hifiplugs, cotton, foam plugs)
- This change from custom-moulded to something else seems to be because of the slowness of usage and efficient attenuation
- On the other hand, custom moulded do have more linear attenuation and they fit and protect better (quite difficult to wear them incorrectly)
- Disposable earplugs were complained to have bright colours

Musicians think that...

- quiet facilities are important
- good concert halls are essential
- stress, fatigue and job satisfaction affects also hearing symptoms
- own attitude is important
- sound levels of instruments could be lowered
- co-operation among musicians and administration!!!

Conclusions

- Musicians wear hearing protection sometimes only in one ear and the usage is not continuous
- Musicians do not always prefer hearing protection designed for musicians
- In musicians' hearing protection, working surroundings, acoustics of the facilities and management's attitude are the essential for job satisfaction

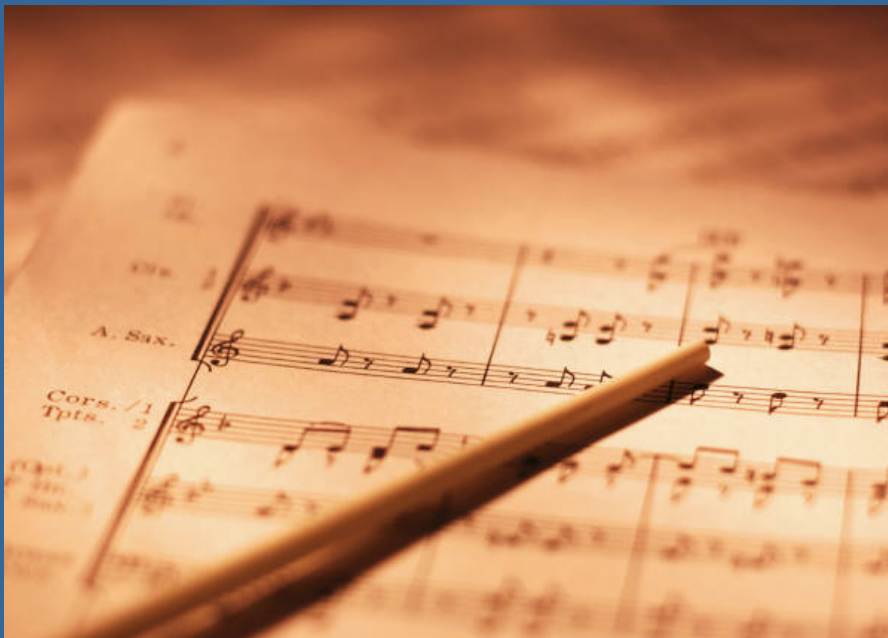
Conclusions

- Musicians are content with their work, but worried about their hearing, Finnish musicians more worried
- Danish musicians are satisfied with their work, have their hearing rarely checked and are somewhat stressed
- Hearing protector usage is small. Usage increases when hearing symptoms are present
- Hearing symptoms and stress are connected
- Orchestra musicians have stress at their work, and there are probably several factors involved
- Hearing protectors are not used so often in individual rehearsals though they should be used all the time

Discussion

- Some of the problems in hearing protector usage can be solved or improved
- In order to ensure the proper implementation of hearing protectors, sufficient training is essential

Questions, comments?



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