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# Lighting intervention – glare from LED panels

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# Glare problems at an open plan office

- Contacted by the company as a part of the Lighting Metropolis Interreg project
- Newly renovated facilities with LED panels
- Conflict among the staff about having the lights on
- Part of them got headache from the luminaires
- Some always wanted to have the lighting on.
- The union had to become involved

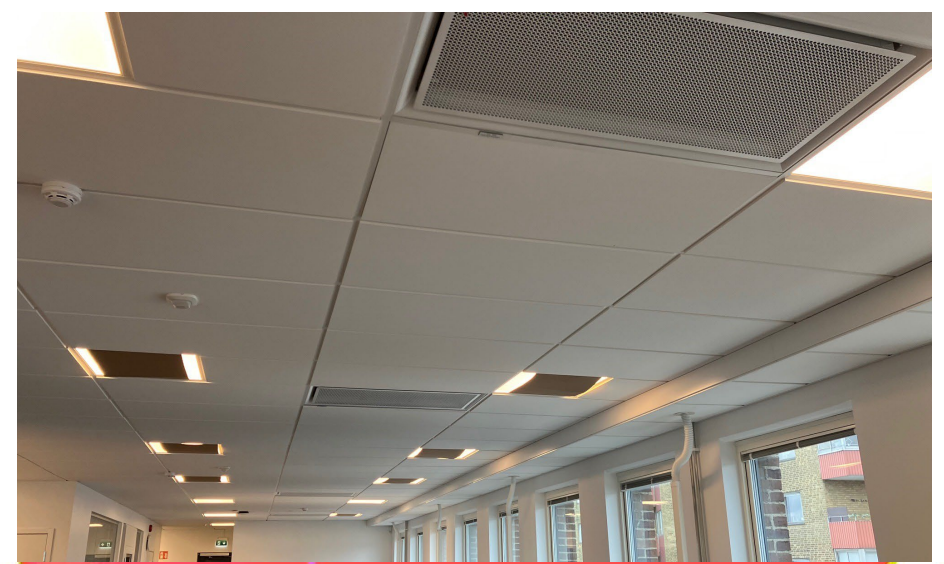


# Glare - problems

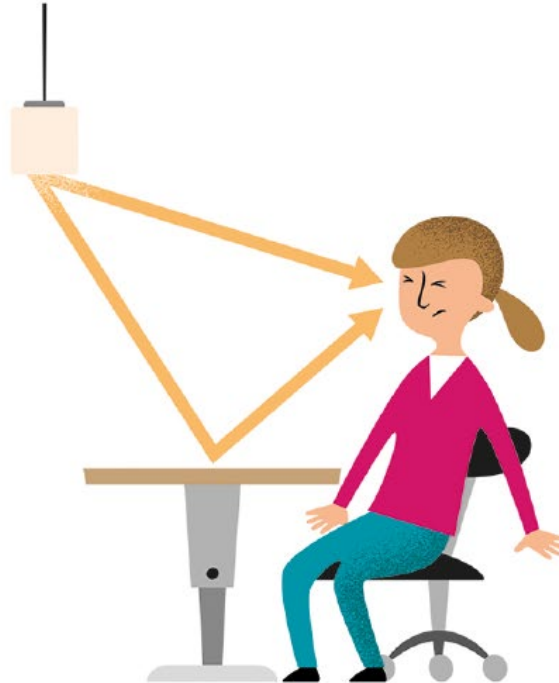
- Luminance ratio 1:80
- Psychosocial conflict between workers
- Do an intervention study with pendant luminaires with up and downlights



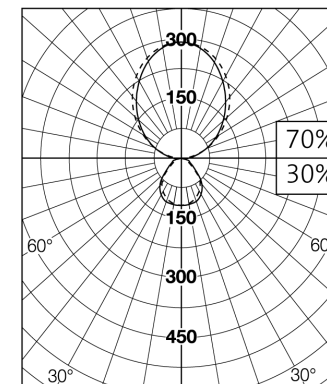
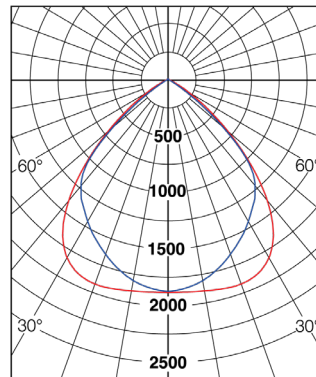




# Direction of the light – glare and reflexes



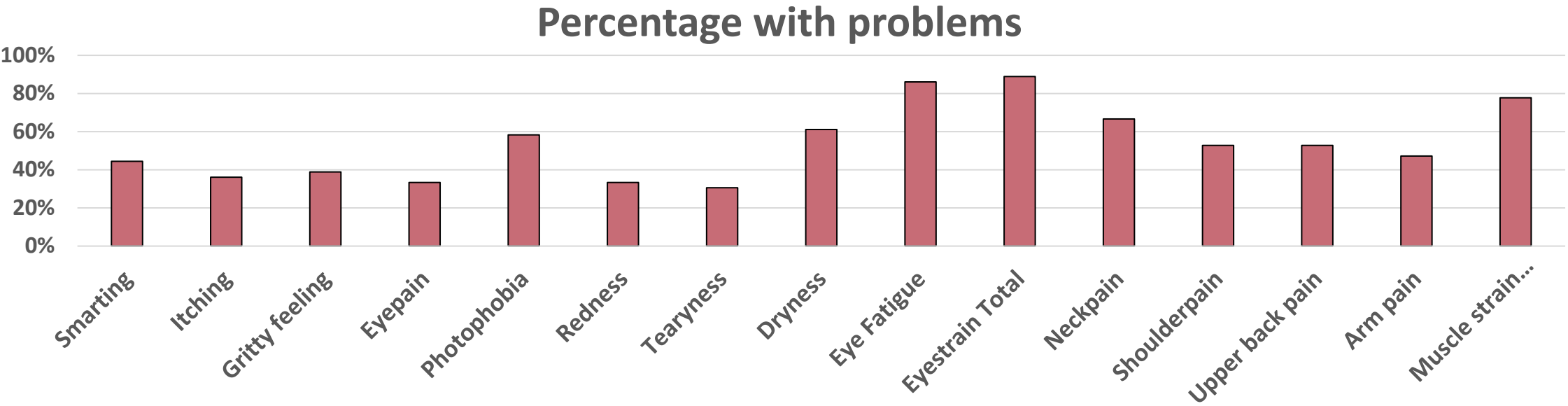
Hillevi Hemphälä, Lund University, 2023





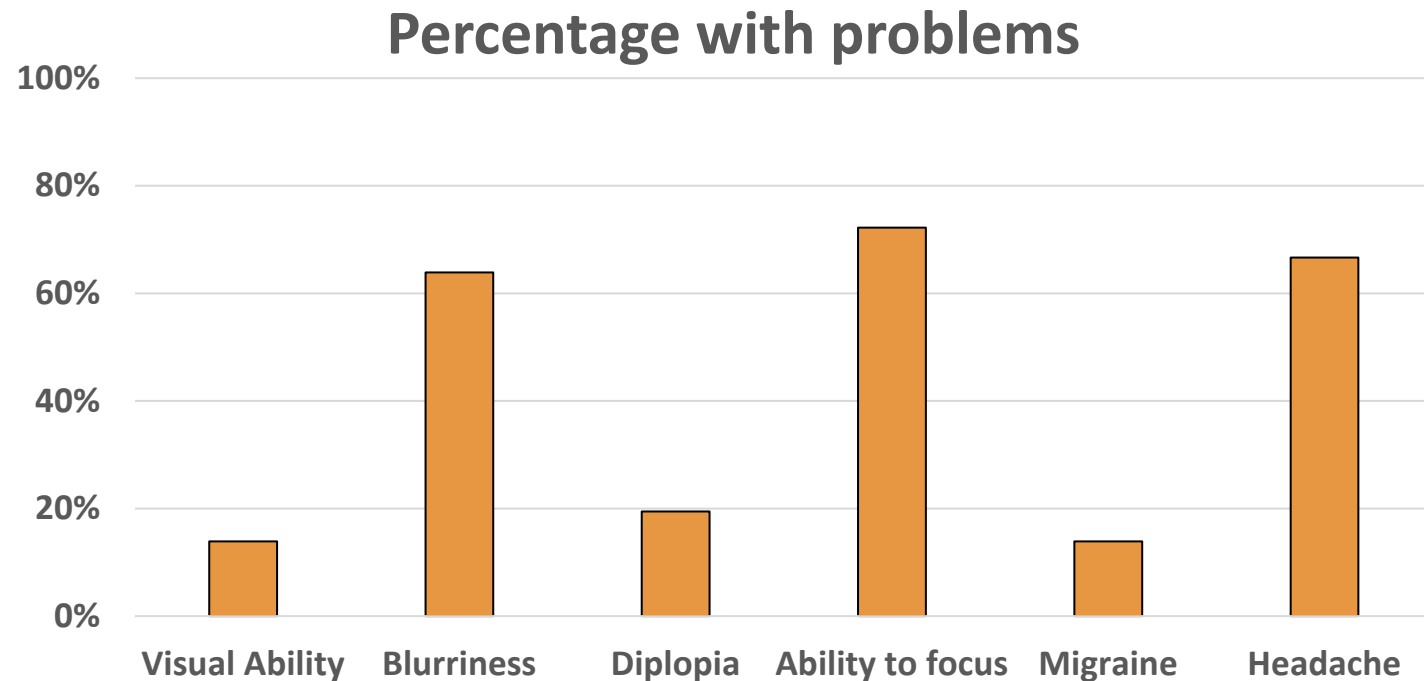
# Results from VERAM questionnaire (n=36)

	Smarting	Itching	Gritty feeling	Eyepain	Photophobia	Redness	Tearyness	Dryness	Eye Fatigue	Eyestrain Total
Percentage with problems	44,4%	36,1%	38,9%	33,3%	58,3%	33,3%	30,6%	61,1%	86,1%	88,9%
Average	0,72	0,53	0,58	0,56	1,14	0,50	0,36	1,17	1,69	7,25
Ratings	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-36
	Neckpain	Shoulderpain	Upper back pain	Arm pain	Muscle Pain Total					
Percentage with problems	66,7%	52,8%	52,8%	47,2%	77,8%					
Average	1,17	1,17	0,89	0,78	4					
Ratings	0-3	0-3	0-3	0-3	0-12					



# Results from VERAM questionnaire (n=36)

	Visual Ability	Blurriness	Diplopia	Ability to focus	Migraine	Headache
Percentage with problems	13,9%	63,9%	19,4%	72,2%	13,9%	66,7%
Average	1,22	1,06	0,31	1,14	0,86	1,17
Ratings	0-4	0-3	0-3	0-3	0-1	0-3



# Results from VERAM questionnaire (n=36)

	Enough light to perform work	Sufficient light levels	Subjective glare
Percentage	91,7%	38,9%	77,8%
Average	2,31	1,56	1,47
Ratings	0-3	0-2	0-3

0=Never  
1= Occasionally  
2= Often  
3=Almost always

0 =To low  
1= satisfactory  
2= too high

0= No, never  
1=Sometimes  
2=Often  
3=Almost always



# Glare intervention study

- After study will take place in November 2023
- Same amount of daylight hours

Looking forward to the results!





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