

# Control of Noise at Work

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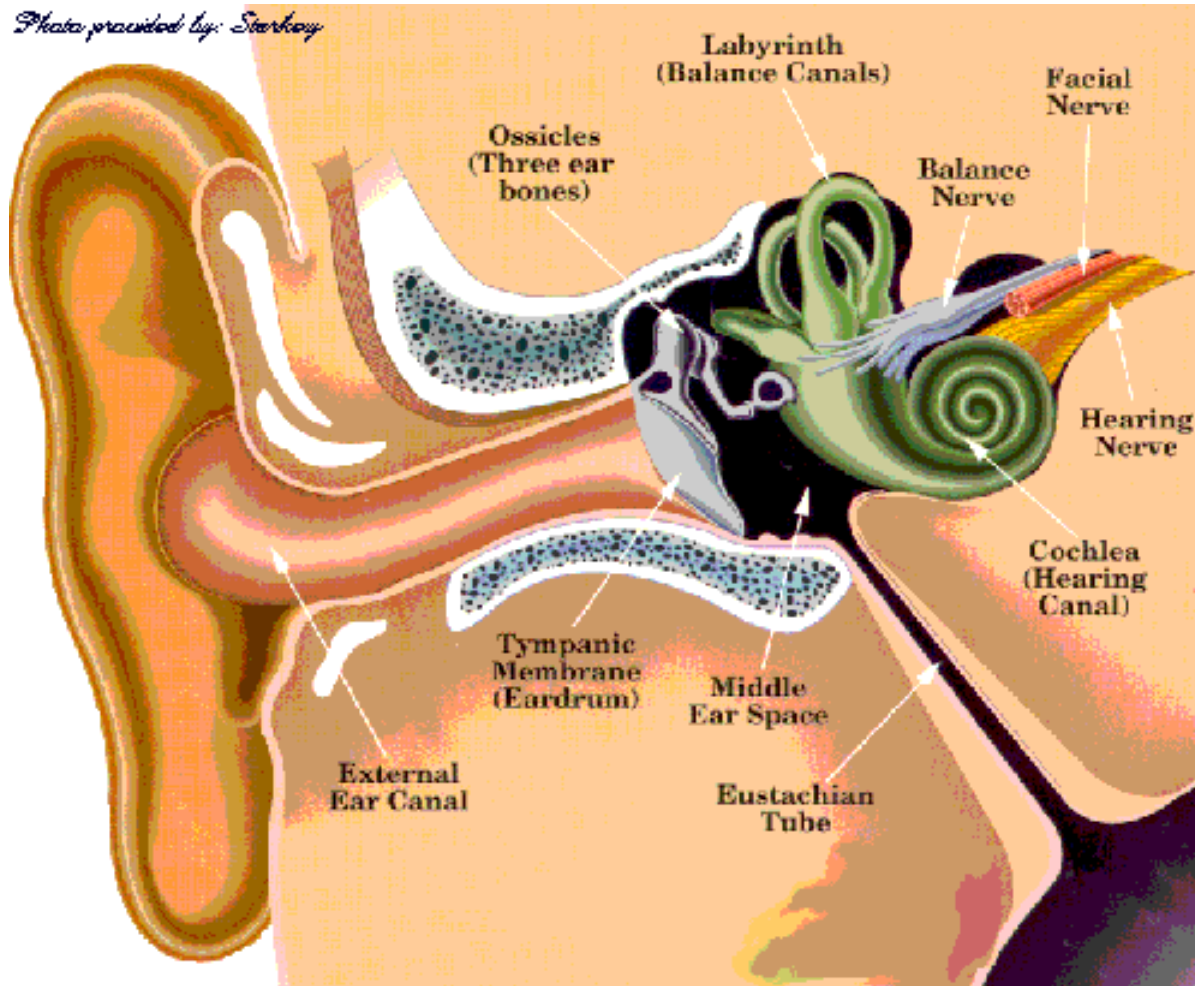
HSE, Manchester.

# Content

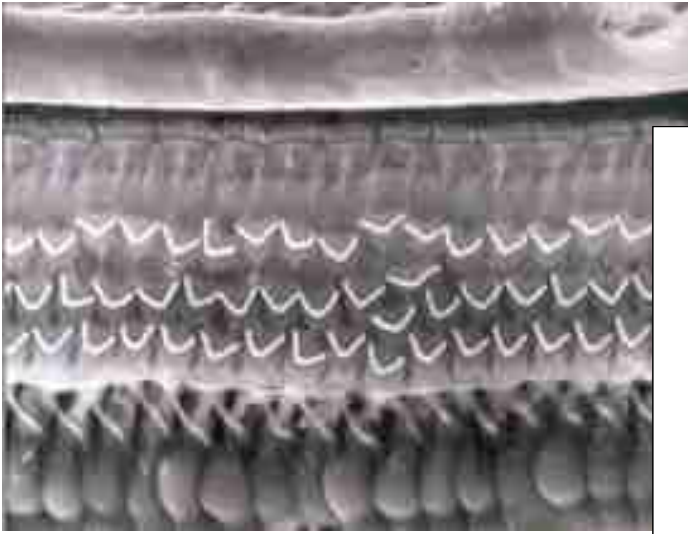
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- Noise Induced Hearing Loss
- Practical look at the Control of Noise at Work Regulations 2005
- Example;
  - noise in clubs
- Questions

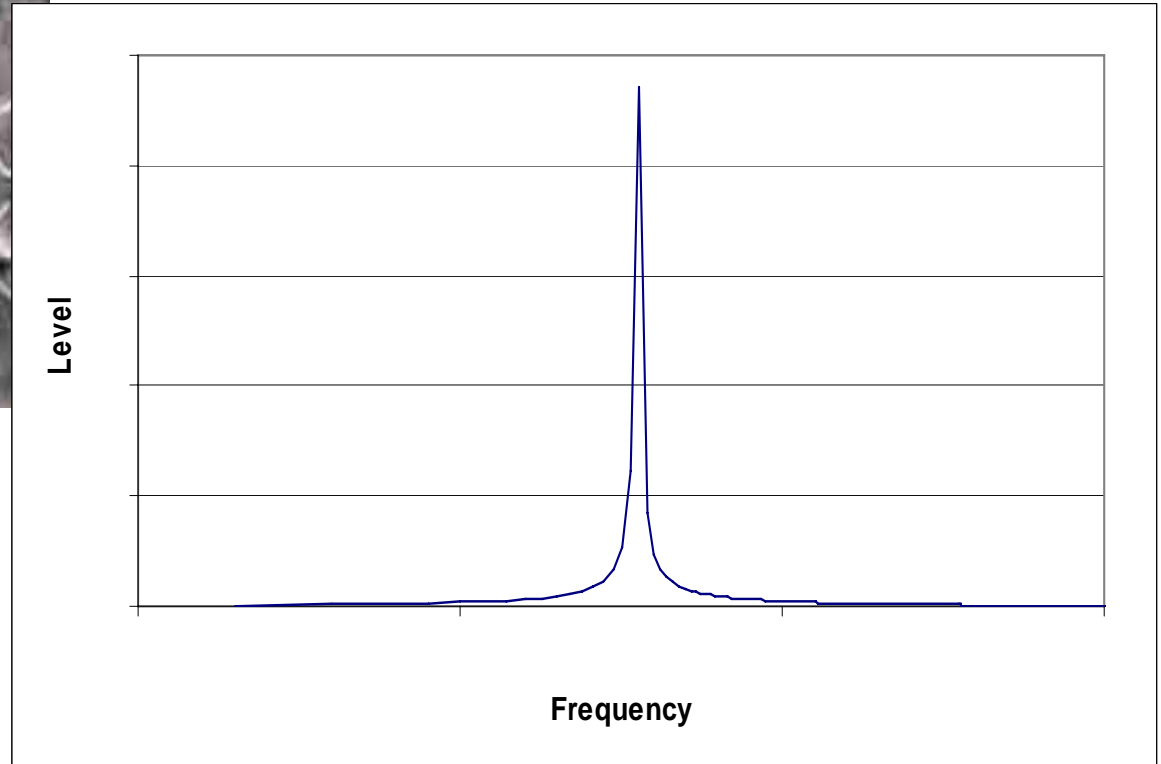
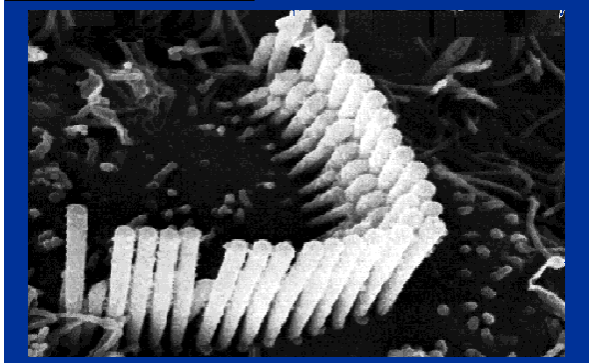
# Ear anatomy



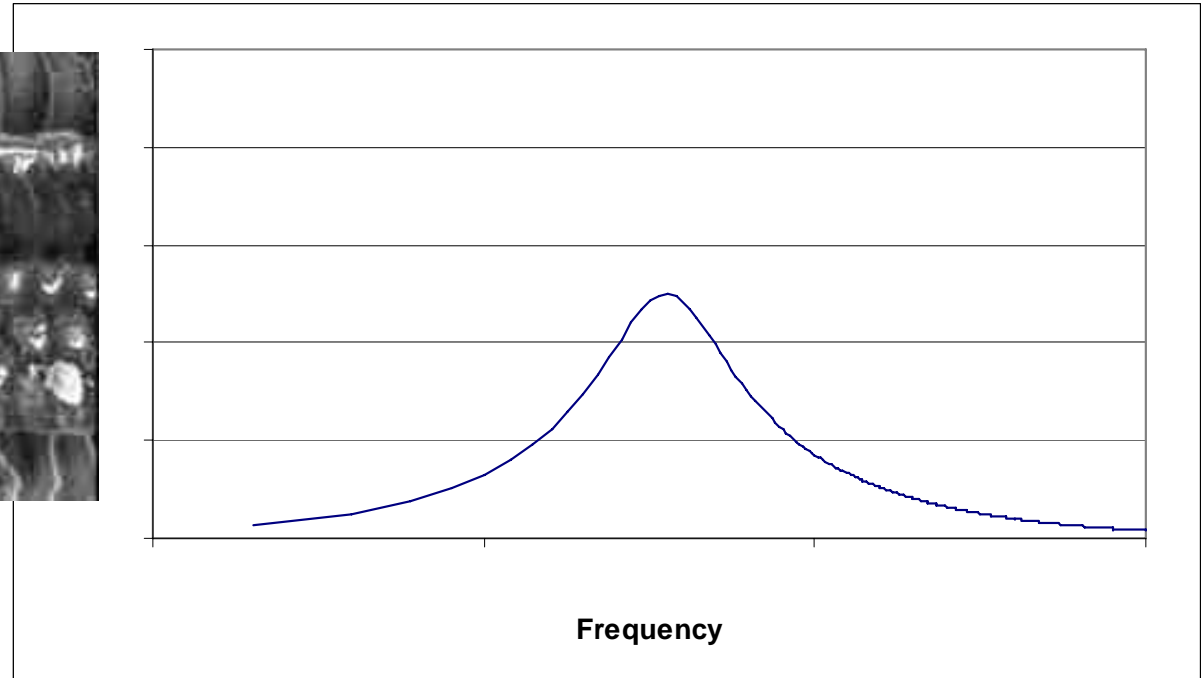
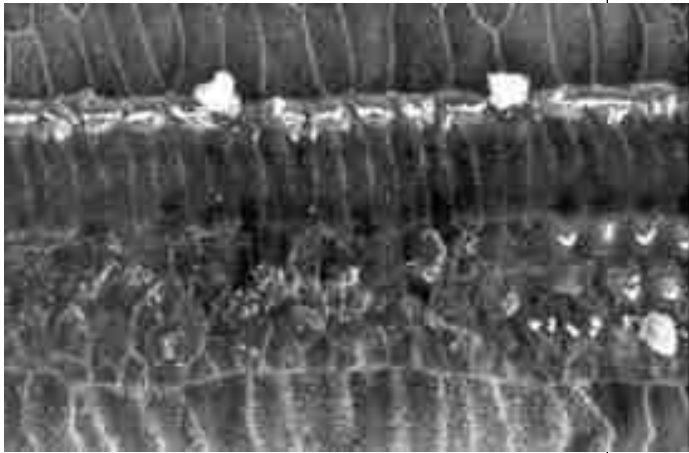
# Healthy Ear



Inner Ear  
*Outer Hair Cell Stereocilia*



# Damaged Ear



# Hearing loss



*Noise induced hearing loss*

*Tinnitus*

*Communication*

*Recent research indicates 170,000 people  
suffer from hearing damage due to noise  
at work.*

# Control of Noise at Work Regulations 2005



- Comes into force **TODAY**
- Changes to action levels (including peak level)
- New limit value of 87 dB(A), taking account of the protection offered by hearing protection
- Employee right to health checks (audiometry) above upper action level (85 dB(A))
- Otherwise, many similarities with existing regulations, particularly requirements for noise control

# Comparison of regulations

	Noise at Work Regs. 1989	Control of Noise at Work Regs. 2005	Action
Lower action value	85 dB(A)	80 dB(A)	Risk assessment Make Ear Protection available Maintenance programme Training
Upper action value	90 dB(A)	85 dB(A)	Noise reduction at source Ear Protection Zone Ear Protection must be used
Limit value	-	87 dB(A)	Reduce to below Allowed to take hearing protection into account

Levels relate to daily or weekly exposures

# Risk Assessment

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- AIM – *guide towards effective control*
- Should contain:
  - A reliable estimate of noise exposure and compare with EAVs and ELV (measurement, manufacturers)
  - Who is a risk
  - What needs to be done to comply (noise control, hearing protection)
  - Who needs health surveillance

# Calculators



You can enter data in the white cells only

See L108 "Reducing Noise at Work" for guidance on exposure calculations.

## Exposure Calculator

	Noise Level ( $L_{eq}$ dBA)	Exposure time		Fractional exposure
		Hours	Minutes	
Job or process 1	93	1		0.249
Job or process 2	85	4		0.158
Job or process 3	80	2		0.025
Job or process 4				
Job or process 5				
Job or process 6				
Job or process 7				
Job or process 8				
$L_{EP,d}$		86.4 dBA		

Note: Fractional exposures can be used to prioritise noise control. The highest fractional exposure values are given by the job or processes which make the greatest contributions to daily noise exposure. Therefore, tackling these noise sources will have t

### Instructions for exposure calculator

Enter the  $L_{eq}$  (in dBA) and the daily exposure duration (in hours and/or minutes) in the white areas for up to eight jobs or processes. A fractional exposure will appear for each entry and the overall daily personal noise exposure ( $L_{EP,d}$ ) will be displayed.

# Calculators

Sound pressure level, $L_{Aeq}$ (dB)	Duration of exposure (hours)							
	1/4	1/2	1	2	4	8	10	12
105	320	625	1250					
100	100	200	400	800				
97	50	100	200	400	800			
95	32	65	125	250	500	1000		
94	25	50	100	200	400	800		
93	20	40	80	160	320	630		
92	16	32	65	125	250	500	625	
91	12	25	50	100	200	400	500	600
90	10	20	40	80	160	320	400	470
89	8	16	32	65	130	250	310	380
88	6	12	25	50	100	200	250	300
87	5	10	20	40	80	160	200	240
86	4	8	16	32	65	130	160	190
85		6	12	25	50	100	125	150
84		5	10	20	40	80	100	120
83		4	8	16	32	65	80	95
82			6	12	25	50	65	75
81			5	10	20	40	50	60
80			4	8	16	32	40	48
79				6	13	25	32	38
78				5	10	20	25	30
75					5	10	13	15

Total exposure points	Noise exposure $L_{EP,d}$ (dB)
3200	100
1600	97
1000	95
800	94
630	93
500	92
400	91
320	90
250	89
200	88
160	87
130	86
100	85
80	84
65	83
50	82
40	81
32	80
25	79
20	78
16	77

93 dB for 1 hour = 80 pts  
 85 dB for 4 hour = 50 pts  
 80 dB for 2 hour = 8 pts

Total

= 138 pts  
 $L_{EP,d} = 86$  dB

# Noise Control

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*The purpose of the new regulations is to make sure people do not suffer damage to their hearing*

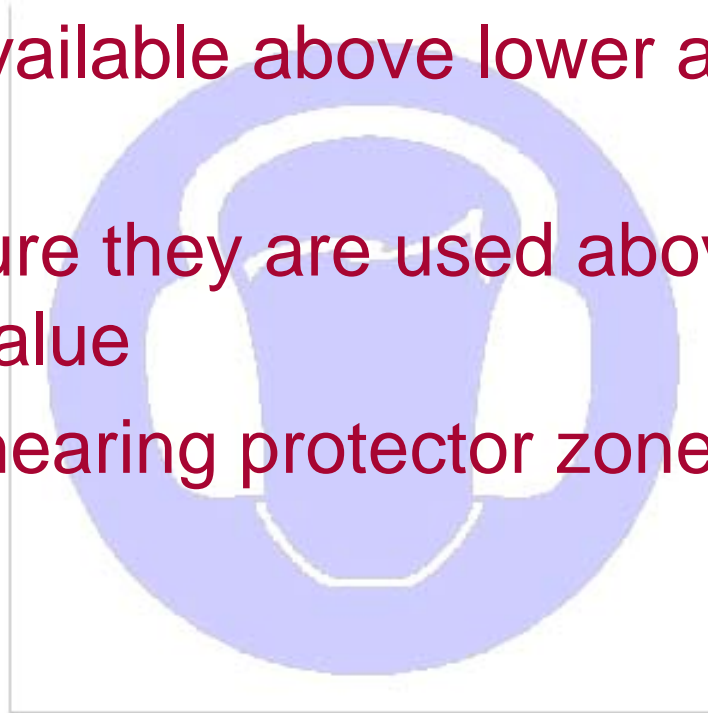
*Before ear protection is even considered, reduce the noise preferably at source.*

*The results of the risk assessment should provide a target for control*

*Example later – Noise in clubs*

# Hearing Protection

- Requirements
  - Make available above lower action value
  - Make sure they are used above upper action value
  - Set up hearing protector zones



# Hearing Protection

## Good practice

- Consider comfort and hygiene
- Make sure they give enough protection
- Consider other PPE  
(hard hats, mask etc)
- Provide a range of suitable protectors
- Keep well maintained  
(clean, seals, tension)
- Inspection routine  
(spot checks, training)



# Hearing Protection Caution!

- Don't overprotect
- Don't make the use of hearing protector compulsory where the regulations don't require it



# Information, instruction and training

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- Employees need to know
  - The risks
  - The control measures
  - Where to get hearing protection
  - How to use and look after hearing protection
  - The purpose of health surveillance

# Health surveillance

- When?
  - Likely to regularly exceed the upper exposure action value.
- Purpose?
  - Warn that employees might be suffering early signs of hearing damage
  - Provide an opportunity to do something to stop hearing damage getting worse
  - Check control measures
- Requires close consultation with employees and their representatives



# Health Surveillance

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- Frequency
  - Baseline (pre-employment)
  - Annually for the first two years
  - Three year intervals thereafter (or more regularly if problems detected)
- The health surveillance needs to be under the control of an occupational health professional

# Noise in pubs and clubs

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- Control of Noise at Work Regulation 2005 come into force in April 2008
- Regulators and social partners producing guidance (currently being piloted)
- Noise at Work Regulations 1989 still in force
- LAC 59-5

# Control

- Design
  - Focus on dance floor
  - Bass (vib. isolation)
  - Bar location (quiet zone)
  - Acoustic screens
  - Absorption
- Management
  - Why is it so loud?
  - Regulators
  - Responsibility, communication and monitoring
  - Maintenance
  - Job rotation / weekly averaging



# Summary

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- New regulations
- Emphasis on control
- HSE/LA working closely with industry
- New regulations are justifiable on health grounds

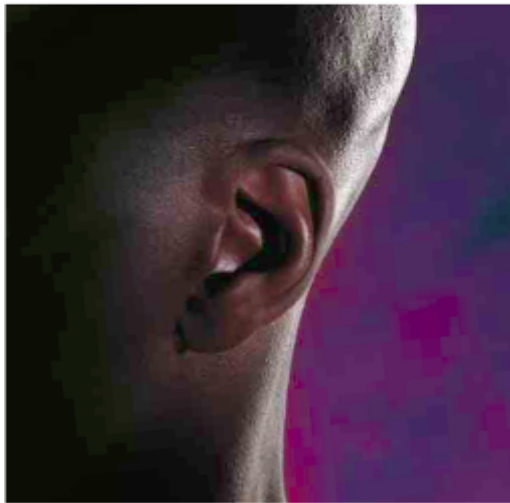
# Any questions?

## Thank you for listening



### Noise at work

Guidance for employers on the Control of Noise at Work Regulations 2005



Protect your hearing or  
lose it!



[www.hse.gov.uk/noise](http://www.hse.gov.uk/noise)

# Call centres

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- Daily noise exposure unlikely to exceed 85 dB(A)
- However, good practice is needed to control the noise exposure:
  - Equipment should be supplied with an adjustable volume control
  - Operators should receive regular training
  - Operators should be allowed time to make adjustment to their equipment (i.e. adjust levels)
  - Headsets should be clean and not shared
  - Headsets should be fully adjustable