

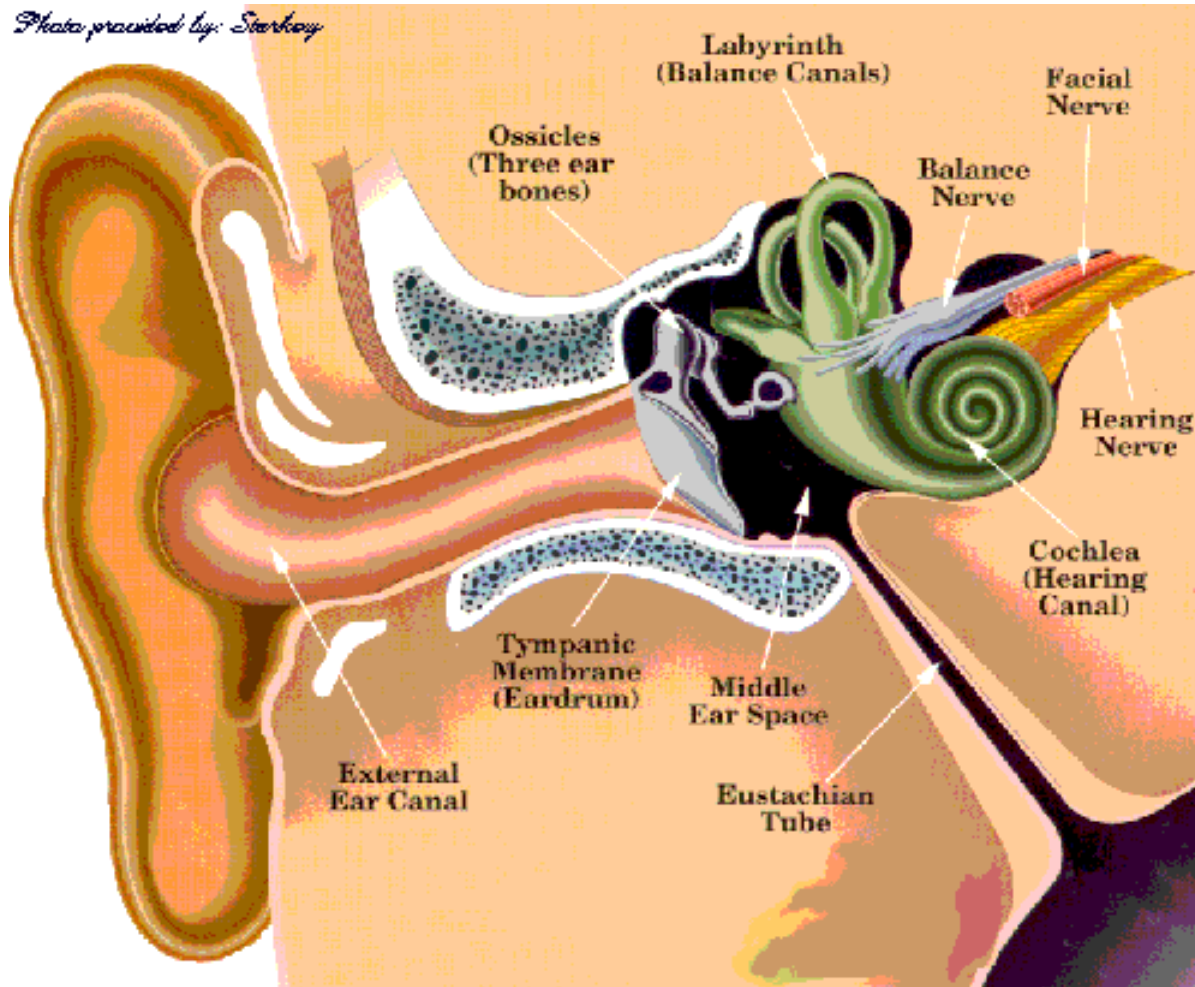
# **The control of noise in entertainment: An Introduction.**

**David Smeatham**

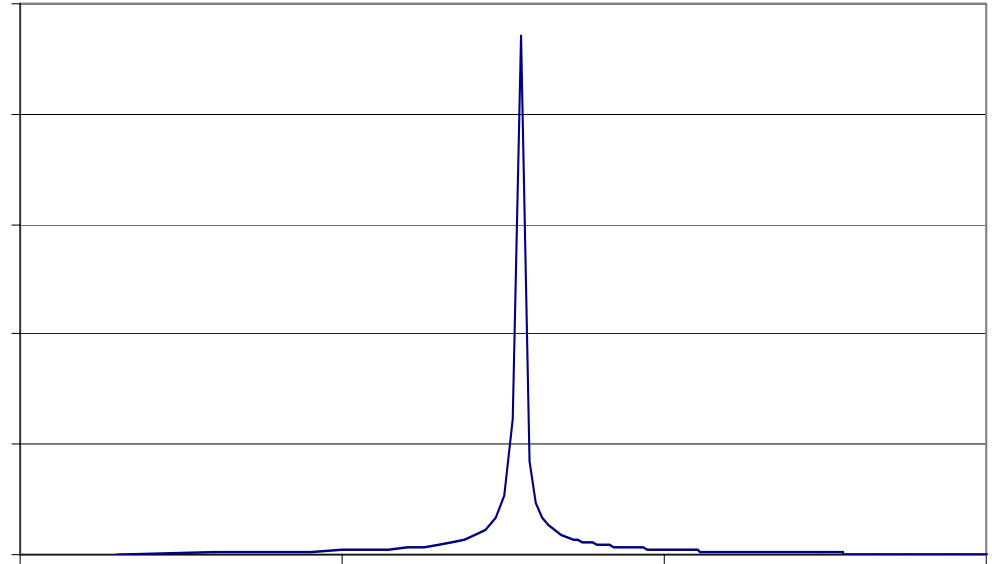
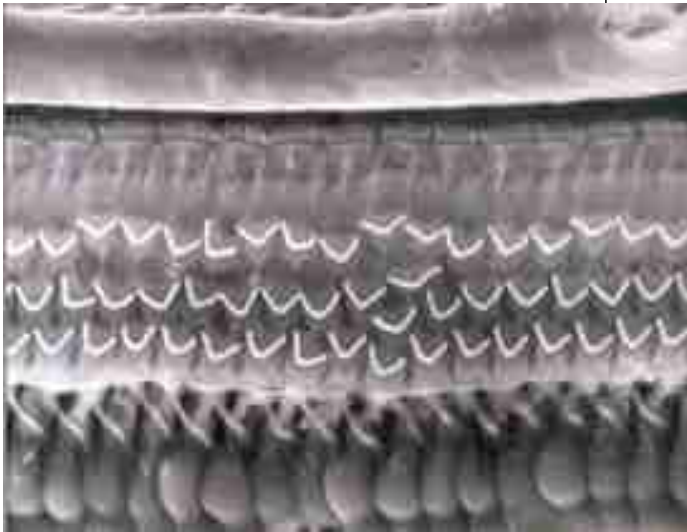
Noise and Vibration Specialist Inspector, Manchester  
and

HSE's Communications Directorate.

# The ear

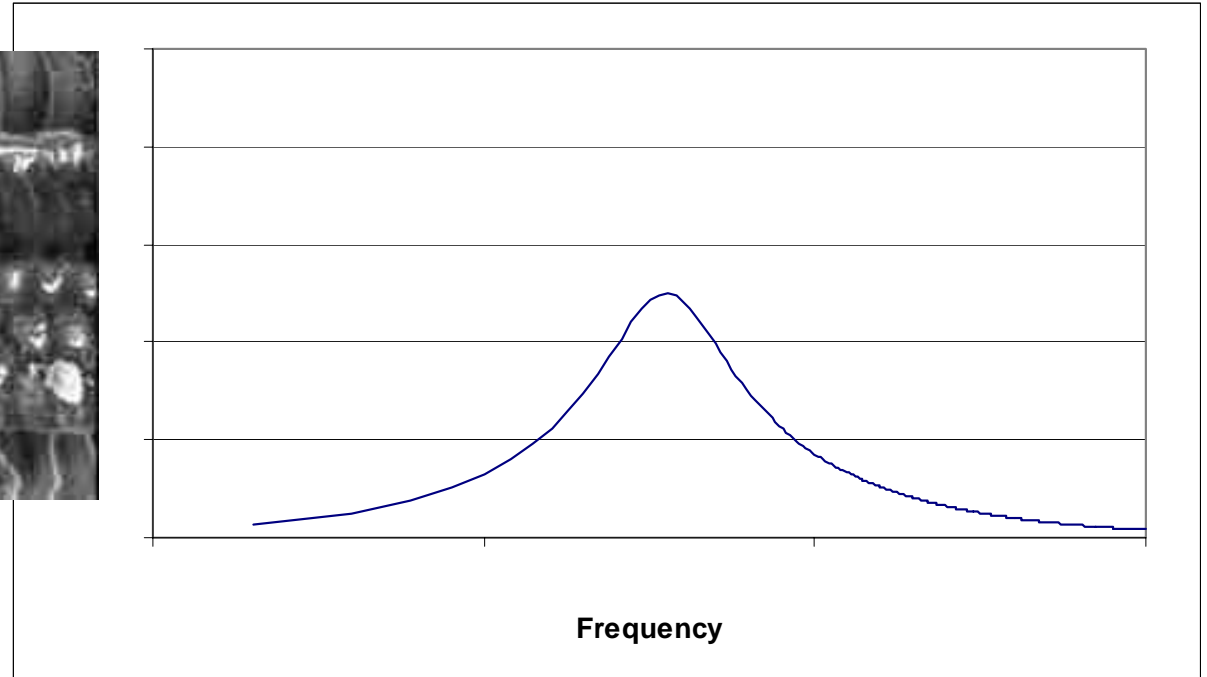
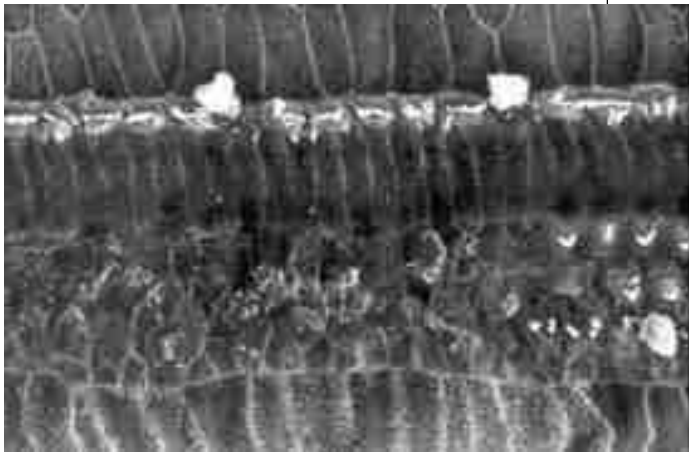


# Healthy Ear



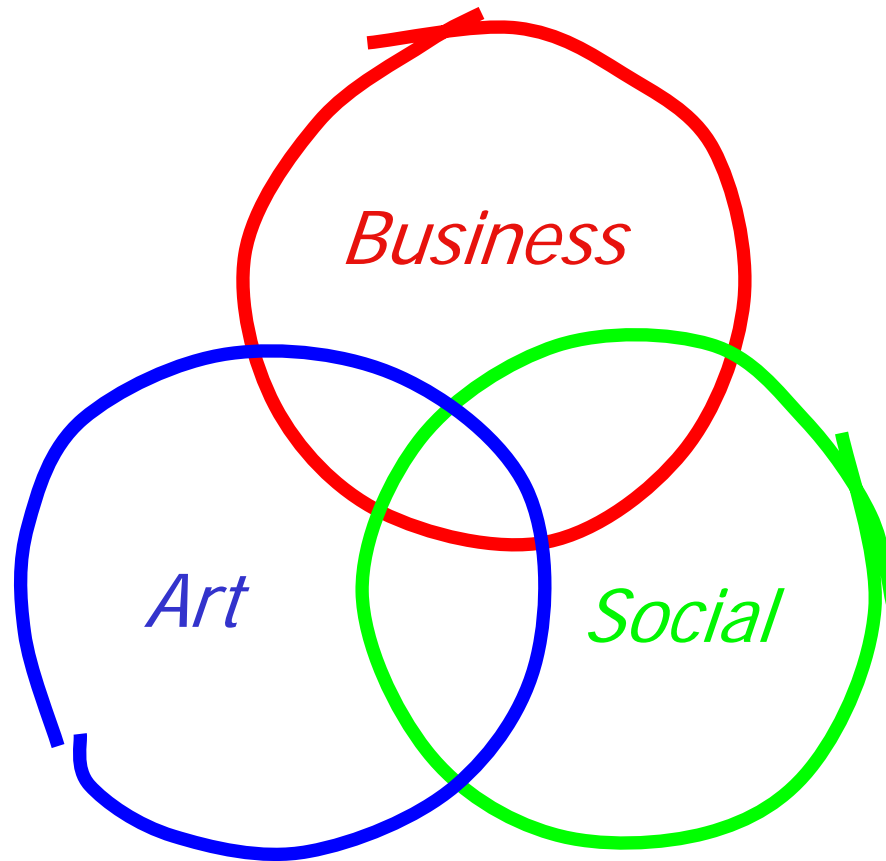
Frequency

# Damaged Ear



# The broader picture

---



# Control of Noise at Work Regulations 2005



- Pan-European;
  - Physical Agents (Noise) Directive,
  - Ensure that workers' hearing is protected from excessive noise at their place of work,
  - They do not apply to public.
- Music and Entertainment – 6<sup>th</sup> April 08;
  - Two years to develop guidance,
  - Working group – Regulators and social partners,
  - Sound-Advice.

# Control of Noise at Work Regulations 2005



	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

# Typical noise exposure

- Clubs.

Job	Range $L_{EP,d}$ dB(A)	Average $L_{EP,d}$ dB(A)
Bar staff	89 – 99	92
Floor staff	90 – 100	93
DJ	93 – 99	96
Security	-	96

- Musicians.

# Risk Assessment

---

- Where.
- Who.
- Estimate of exposure.
  - “good enough to decide whether the exposure is likely to be greater than the action values or approaching the limit values”
- What is needed to comply.
- Who needs health surveillance.

# Good design to reduce noise exposure in Clubs



- Physical separation.
- Sound equipment.



Both require absorption.

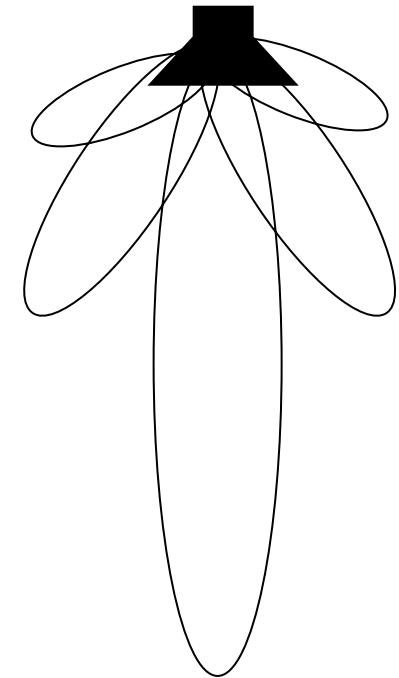
# Absorption



Without absorption the sound level will be similar throughout the club.

# Sound equipment

- Directional loudspeakers,
  - avoid “hot-spots”,
  - point away from the bar,
  - avoid peripheral loudspeakers or keep them quite.
- Use anti-vibration mounts on loudspeakers.
- Use equipment that does not distort.
- Equalise properly.



# Management

- Why is it loud?
- Regulators.
- Maintenance.
- Job rotation / weekly averaging.
- Responsibility, communication and monitoring.



# Hearing protection for musicians



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

- Attitudes are changing.
- Suitability:
  - correct amount of protection,
  - comfortable,
  - the need to hear.
- Specialist ear protectors.



# Information, instruction and training

---



- Employees need to know;
  - The risks.
  - The control measures.
  - Hearing protection;
    - Where to get it,
    - How to use and look after it,
    - The importance of wearing it.
  - How to use and look after equipment.
  - The purpose of health surveillance.

# Health surveillance



- When?
  - Dose likely to regularly exceed action value.
- What?
  - Audiometry.
- Purpose?
  - Warn that employees might be suffering early signs of injury.
  - Provide an opportunity to do something to stop the injury getting worse.
- Requires close consultation with employees and their representatives.

# The role of the specialist

---

- Employers need;
  - access to good quality advice and information;
  - to understand the level of risk to their employees,
  - to take action to control the risks.
- Consultants need to;
  - provide tailored advice on the specific circumstances,
  - understand the limits of their own competence,
  - communicate clearly;
    - what has been done,
    - what more needs to be done to manage the risks.

# Information



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

Sound Advice