

Noise at Work

Reality and Delusions
(The good, the bad and the ugly!).

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NIHL

- **Big problem:**

2 million exposed to noise > with 12,000 cases of work-related hearing problems each year in UK

Noise 'Experts'

- Are they all as expert as they seem ?
- Noddies guide to 'dB Doubling'
-and F16s

Experts Reports

- Incomprehensible ..too much blurb
- Death by numbers(...too much data....not enough information)
- Frequency analysis
- Very precise readings [84.47 dB(A)]

Tolerance Limits

1967 (BS4197)

Type 1: + 1 to + 3 dB, -1 to -3 dB

Type 2: + 2 to + 6 dB, -2 to -3 dB

2013 (IEC 61672)*

Class 1: + / - 1.1 dB

Class 2 + / - 1.4 dB

- *At 1kHz (much worse at other frequencies !!)*
- Regular calibration gives more confidence
- Butreading of 84.47 dB(A) ?

Noise Controls

- Understanding basic principles (Noise source on table)
- Many simple fixes
- Sometimes need a real expert

Hearing Protection

Where necessary choose devices by

- Frequency Analysis
 - match with suppliers data then mean – 1 sd
 - HSE take away 4
- HML
- SNR (Compare with dBC reading)

Hearing Protection

HSE Guidance For Using SNR Protection Rating

dB(A)	SNR
85 – 90	20 or less
90 – 95	20 – 30
95 – 100	25 – 35
100 – 105	>30

- Nice and simple ...workers are protectedwhat can possibly go wrong ?

Hearing Protection: what can go wrong ?

- **Length of time worn**

- Any device used for 25% of day provides ~1 dB protection
- Any device used for 75% of day provides ~ 6 dB protection
- HP needs to be worn for > 90% of time to provide >10 dB protection.
- Even if worn ...Many papers report real life attenuation much lower than theoretical

Hearing Protection: what can go wrong ?

Ear plugs

- Not fitted correctly
- Work loose
- *‘plugs are prone to misuse because they can be retained in the ear even when not fully inserted, resulting in little protection’ : (HSE Noise Guidance 1990)*
- *compressible foam earplugs are generally poorly fitted (not compressed)*
- *If not properly fitted they give ‘virtually no protection even if deeply inserted (RR720 HSE 2009).*

Ear Muffs

- Damage to seals
- Stretched Bands

Hearing Protection: NIHL CASES

Realistic' sound attenuation for HP (Luttman and Coles)

- Cotton Wool 5 dB
- Personalised ear mould 10
- EAR plastic foam 15
- Earmuffs 20

[HP needs to be worn for > 90% of time to provide >10 dB protection]

Many historic noise reports state:

‘not everyone wears HP’

‘worn for some of the time’

Hearing Protection

- If HP
 - Not fitted correctly
 - Damaged
 - Not worn for >>90 % of time

Risk of hearing damage !!

even when H&S advisors believe they are protected !!

*Need careful selection, training, supervision,
enforcement*

Epilogue

- Don't always trust the experts
- Don't always need experts

Prevention of damaged hearing requires:

- Real understanding of the basics (whether numbers or limitations of HP)
- Education of workers, managers and often H&S experts
- Occupational hygienists can play a part in all this.

That's all folks !!

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