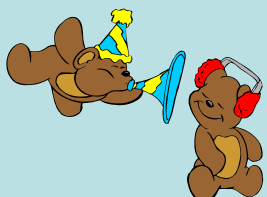


Value of ULLs and patient's subjective report in diagnosis of hyperacusis

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Background



Aim

To ensure all students understand the evidence-base for different criteria used for diagnosis of hyperacusis

Introduction



Learning Objectives

1. Recognize the value of using accurate and evidence-based diagnostic criteria for hyperacusis in clinical practice.
2. Compare different approaches for diagnosis of hyperacusis.
3. Describe the impact of various diagnostic criteria for hyperacusis on patient's care.
4. Summarise the practical solution and the need for future research.


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- | | |
|-------------------------------------|---|
| 1. Rosenhall et al (1999) | 1. Intolerance to broadband clicks at 80 dB HL. |
| 2. Jastreboff and Jastreboff (2000) | 2. Average LDLs below 100 dB HL |
| 3. Hazell et al (2002) | 3. 100 dB HL |
| 4. Khalfa et al (2004) | 4. 80 dB HL |
| 5. Herraiz et al (2005) | 5. 90dB HL |
| 6. Coelho et al (2007) | 6. 90 dB HL at 0.25 kHz, 95 dB HL at 0.5 kHz, and 100 dB HL from 1 to 6 kHz |

- ### Normative ULL estimates
- Geller and Margolis (1984)
 - Elberling and Nielsen (1993)
 - Sherlock and Formby (2005)



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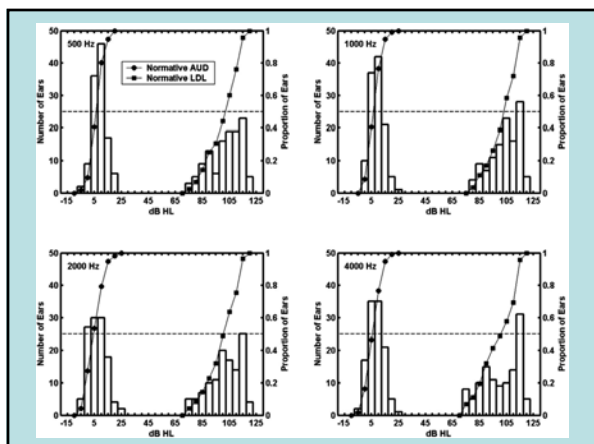


J Am Acad Audiol 16:85-100 (2005)

Estimates of Loudness, Loudness Discomfort, and the Auditory Dynamic Range: Normative Estimates, Comparison of Procedures, and Test-Retest Reliability

LaGunn P. Sherlock*
Craig Formby*

- Generate normative values (59 subjects, 14-40 yrs old)
- Test-retest reliability (18 subjects)
- Compare measures of absolute and relative loudness discomfort (18 subjects)




- ### Results
- Average ULLs was 100 dB HL (SD=10.67 to 13.58 dB)
 - Large range of normal inter-subject variability for ULLs
 - Test-retest difference is less than 5 dB
 - Estimate of ULLs are comparable for absolute and relative judgments of loudness discomfort

Audiological Medicine, 2008; 6: 78-84

Pilot study to evaluate psychiatric co-morbidity in tinnitus patients with and without hyperacusis

G. GOEBEL & U. FLOETZINGER

Clinic Rosenach, Hospital for Behavioural Medicine, Prien, in cooperation with the University of Munich, Germany



- Criteria, item 18a. Patients experience slight or everyday noises (e.g. turning the pages of a newspaper, ventilator of a computer, own laughter, buzzing of the refrigerator) as uncomfortable to painful.
- Criteria, item 18b (exclusion of phonophobia). The increased sound sensitivity not only pertains to certain noises (e.g. a child crying, music), but is generalized to different types of noises and multiple situations.

Clinically relevant hyperacusis is present if criteria 1 and 2 both are fulfilled ('agree' or 'probably').

Table II. Diagnostic sensitivity and specificity.

	Diagnostic sensitivity	Diagnostic specificity
ULL to tones (ULL _t)	65%	58%
ULL to broad bands of noise (ULL _n)	59%	63%
GUP	77%	57%



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Original Article

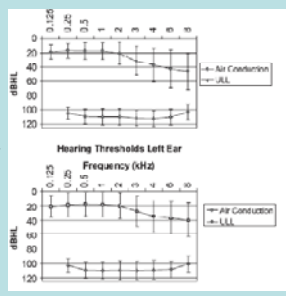
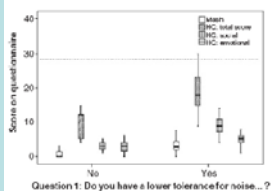
International Journal of Audiology, 2010; 49: 7-13

Olivier M. Mees*
Matthias Spaepen*
Dirk De Ridder†
Paul H. Van de Heyning*

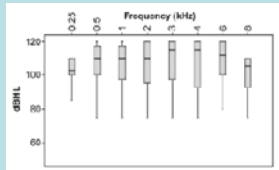
Correlation between hyperacusis measurements in daily ENT practice

- 46 tinnitus patients
- HQ
- Do you have a lower tolerance for noise than other people?
- Are you afraid of noise?





When comparing results in patients answering 'Yes' and patients answering 'No' to Question 1, no significant difference could be shown in ULL, DR, or ULL_{tone} values ($p=0.214$, $p=0.330$, and $p=0.087$, respectively).



Shortcomings of the ULL-based approach

- Conflict in the literature concerning the cut off point in ULLs indicating hyperacusis
- Patients with no subjective complaint regarding environmental loud noises may be classified as hyperacusis



Combination of lowered LDLs and subjective perception of sound intolerance

- Hallberg et al (2005)

Patient being rapidly exhausted in normal social situations and has annoyance for tones >80 dB.

- Henry et al (2005)

ULLs should be done if patients report a sound tolerance problem

- Aazh et al (2008)

average LDLs were 90 dB HL or lower and the patient complained about the loudness of environmental sounds.

GROUP TASK 2

Discuss the group of patients who could be misdiagnosed using the combination approach (ULLs + patient's report).



The impact on patient's care

- Patients with normal LDLs but reporting sound tolerance problem

Practical solutions and the need for future research

- When to perform ULLs
- Diagnostic criteria based on ULLs and patient's subjective report
- EBP
- The range for the normal ULLs at different age groups
- The basis for the listener's loudness judgments (Punch et al, 2004)

Reading list

Most comfortable and uncomfortable loudness levels: six decades of research.

Punch J, Joseph- A, Rakerd B.
Am J Audiol. 2004 Dec;13(2):144-57. Review.

Estimates of loudness, loudness discomfort, and the auditory dynamic range: normative estimates, comparison of procedures, and test-retest reliability.

Sherlock LP, Formby C.
J Am Acad Audiol. 2005 Feb;16(2):85-100. Review.

Effects of test order on most comfortable and uncomfortable loudness levels for speech.

Punch J, Rakerd B, Joseph A.
Am J Audiol. 2004 Dec;13(2):158-63.

A comparison of presentation levels to maximize word recognition scores.

Guthrie LA, Mackeris CL.
J Am Acad Audiol. 2009 Jun;20(6):381-90.