Method

- **Groups**
  - 6-year-old children
  - 60-year-old adults

- **Audiogram Selection Criteria**
  - Right ear thresholds only
  - Thresholds for each octave test frequency (250-8000 Hz)
  - At least one threshold $\geq 30$ dB HL
  - Confirmed sensorinueral hearing loss by bone conduction audiometry
  - Air-bone gaps $\leq 10$ dB
Method

• Core Set of Audiograms
  – 227 children
  – 248 adults

• Analyses
  – Configuration
  – Asymmetry
  – Progression
*Transducer Effects*
*Transducer Effects*

TDH Series Earphone  ↓  NBS 9A Coupler
*Transducer Effects*
All Audiograms

Adults (n=248)

Children (n=227)
All Audiograms

**Adults (n=248)**

**Children (n=227)**
All Audiograms

Adults (n=248)

Frequency (Hz)
250  500  1000  2000  4000  8000

Hearing Level (dB HL)
-20  0  20  40  60  80  100  120  140

Children (n=227)

Frequency (Hz)
250  500  1000  2000  4000  8000

Hearing Level (dB HL)
-20  0  20  40  60  80  100  120  140
All Audiograms

Adults (n=248)

- Frequency (Hz)
  - 250
  - 500
  - 1000
  - 2000
  - 4000
  - 8000

- Hearing Level (dB HL)
  - -20
  - 0
  - 20
  - 40
  - 60
  - 80
  - 100
  - 120
  - 140

Children (n=227)

- Frequency (Hz)
  - 250
  - 500
  - 1000
  - 2000
  - 4000
  - 8000

- Hearing Level (dB HL)
  - -20
  - 0
  - 20
  - 40
  - 60
  - 80
  - 100
  - 120
  - 140
Audiometric Classification

- **Sloping**
- **Rising**
- **Flat**
- **U-Shaped**
- **Tent-Shaped**
- **Other**
Results (Mean)

- **Adults**
- **Children**

**Frequency (Hz)**

- **Sloping**
- **Rising**
- **Flat**
- **U-Shaped**
- **Tent-Shaped**
- **Other**
Results (Mean)

- **Adults**
- **Children**

**Sloping**

**Rising**

**Flat**

**U-Shaped**

**Tent-Shaped**

**Other**
Results (Mean)

Adults

Children

Sloping

Rising

Flat

U-Shaped

Tent-Shaped

Other
Results (SD)

- Adults
- Children

Frequency (Hz)

- Sloping
- Rising
- Flat
- U-Shaped
- Tent-Shaped
- Other
Results (SD)

- Adults
- Children

- Frequency (Hz)
  - Sloping
  - Rising
  - Flat
  - U-Shaped
  - Tent-Shaped
  - Other

- Hearing Level (dB)
Distribution of Configurations

- Sloping: Adults 50%, Children 10%
- U-Shaped: Adults 40%, Children 20%
- Tent-Shaped: Adults 30%, Children 10%
- Flat: Adults 20%, Children 10%
- Other: Adults 10%, Children 5%
- Rising: Adults 5%, Children 10%
Sloping Losses

- Adults
- Children

- Sloping
- Rising
- Flat
- U-Shaped
- Tent-Shaped
- Other

*Hearing Level (dB)*

*Frequency (Hz)*
*Sloping Losses*

- **Adults**
- **Children**

![Graph showing sloping hearing losses](image)
**Sloping Losses**

- **Adults**
- **Children**

**Diagram 1:**
- Frequency (Hz)
- Hearing Level (dB)

**Diagram 2:**
- Frequency (Hz)
- Hearing Level (dB)

**Bar Chart:**
- Sloping
- U-Shaped
- Tent-Shaped
- Flat
- Other
- Rising

*Legend:*
- **Adults**
- **Children**
*Sloping Losses*

**Adults**
- Sloping: 73%

**Children**
- Sloping: 33%

Diagram showing the percentage of sloping audiograms for adults and children, with categories like Sloping, U-Shaped, Tent-Shaped, Flat, Other, and Rising.
Asymmetry
Asymmetry

4000 Hz

Adults

Children

Left-ear Threshold

Right-ear Threshold

0 20 40 60 80 100 120

0 20 40 60 80 100 120
Binaural Fitting Strategies

Frequency (Hz)

Hearing Level (dB)
Progression

Baseline Audiogram (6-yr-old)

Subsequent Audiogram

Frequency (Hz)

Hearing Level (dB)

Baseline Audiogram (6-yr-old)

Subsequent Audiogram

+5  +5  +10  +10  +20  +15
Progression

![Progression Graph]

- Change in Threshold (dB)
- Age at Subsequent Audiogram (years)
Progression
Summary

• Configuration
  – Children had a wider variety of audiometric configurations

• Asymmetry
  – More children had asymmetric losses and those asymmetries were more severe

• Progression/Fluctuation
  – Thresholds increased and decreased on subsequent audiograms
The End