

Hearing Rehabilitation in Unilateral Severe-to-Profound Hearing Loss

Simon Taylor, Audiologist
simon.taylor@aintree.nhs.uk

T. Hampton, Clinical Lecturer
University of Liverpool

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1. INTRODUCTION

- Adults with unilateral severe-to-profound hearing loss struggle:
 - in background noise
 - when speech comes from the impaired side (Snapp & Ausili, 2020)
- Common aetiologies: vestibular schwannoma, Meniere's disease, trauma, and idiopathic sudden loss
- Rehabilitation options:
 - Conventional hearing aid (HA):** amplifies poorer ear
 - Contralateral Routing of Signal (CROS):** routes sound to better ear; improves awareness but not binaural hearing



2. METHOD

- Systematic search following protocol, 4 eligible studies included.
- Outcomes reviewed: speech recognition, localisation, tinnitus, patient-reported benefit & preference
- Quality appraisal: CASP + GRADE + NOS

3. RESULTS

Study	Aldè et al., 2024 (Italy)	Lively et al., 2024 (USA)	Potier et al., 2023 (France)	Updike et al., 1994 (USA)
Subjects	70 children with UHL	18 adult CI users	14 adults with asymmetry/SSD	6 children with UHL
Devices	HA, CROS, CI	CI alone, CI+HA, CI+CROS	StereoBiCROS	HA, CROS, FM
Design	Retrospective review	Repeated measures	Pre-post quasi-experimental	Repeated measures
Key Findings	Improved speech-in-noise & localisation Parents reported better attention & less fatigue	Both improved speech-in-noise HA best for lateralisation 15/18 preferred HA	Large reductions in tinnitus StereoBiCROS program used 82% of the time	FM improved speech in noise HA/CROS sometimes worsened performance
Quality (NOS)	Fair	Good	Good	Poor

Outcome	GRADE	Summary
Speech recognition in noise	Very low	Findings inconsistent across studies; small samples and varied populations/devices.
Localisation/Lateralisation	Very low	Improvements noted with HA use, but limited by small, heterogeneous samples.
Device use & preference	Very low	Device uptake varied; HAs preferred in adults; results limited by self-report and design bias.
Tinnitus severity	Very low	One small study showed large improvements with StereoBiCROS; no comparison group.

4. DISCUSSION

- Evidence limited by: small samples, paediatric studies, inconsistent measures, outdated technology.
- Clinicians currently lack evidence-based guidance for device selection in this population.
- Audiologists currently rely on trial-and-error fitting because no robust evidence defines:
 - when residual hearing becomes “too poor” for conventional amplification and therefore CROS becomes more beneficial
 - which patient characteristics predict benefit with each device

5. REFERENCES

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