Hybridstimulation
- Indikation, Möglichkeiten und Grenzen -

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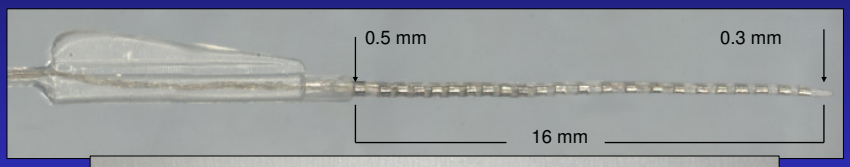
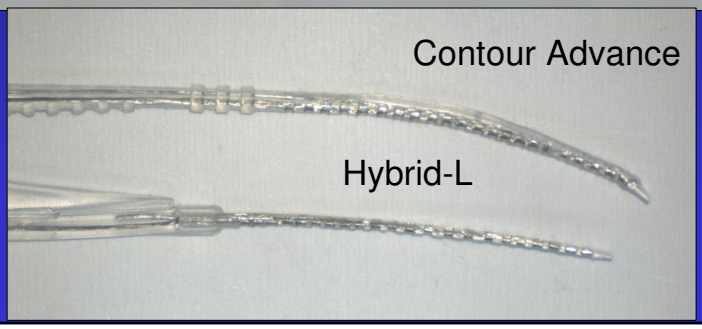
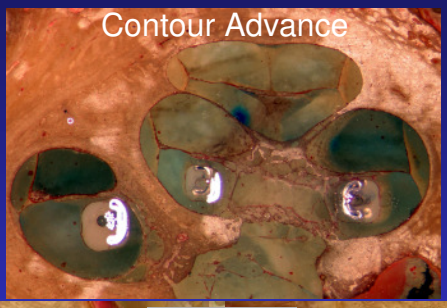
Hybrid-L Elektrode
Warum?

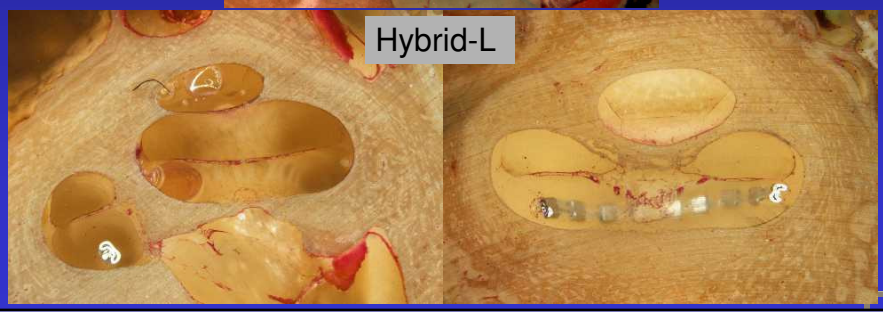
- Chance f. Hörerhaltung verbessern
- Lösung für progr. HV tieffrequent = 22 channels/ (¾ turn (vs 10mm Hybrid-S array)



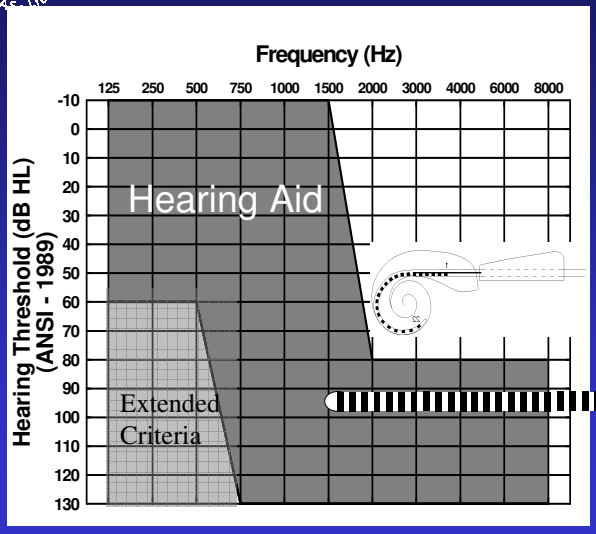


Elektrodenposition und Größe





Indikation



1. **Hochtontaubheit**
   - Progred. post-ling. Erw.
   - Congenitale Resthörigkeit
   - Frühkindl. progdr. SH
2. **Bds. cong. hochgr. SH**

➔ Standard El. + Hybrid

Hybrid-L MHH klinische Studie
(1/2010)

- **Hybrid-L24 implantations**
  - **80 Erw.**
  - **16 childs 9 Hybrid unilat. als bimodal**
    7 bilat."Standard + Hybrid"

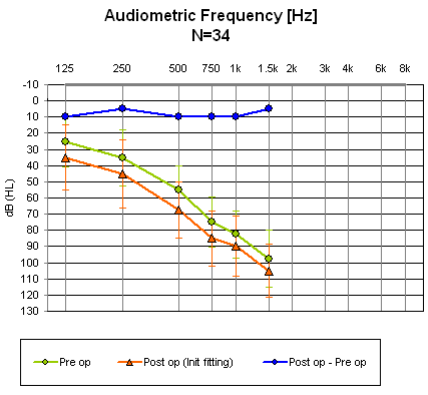
- Available study data:
  - Initial activation : N=34
  - 6 month : N=32
  - 9 month : N=31
  - 12 month : N=26

- Standard tests :
  - Audiometric data, speech in quiet and in noise
- Extended tests :
  - Music perception, speech tests with separated noise sources

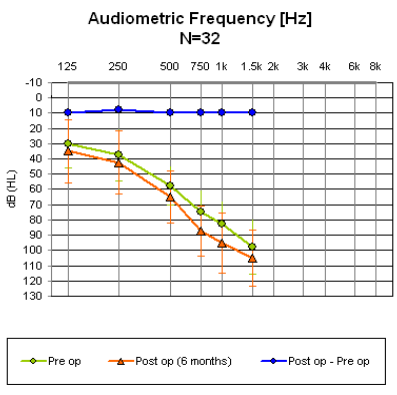
MHH

Hybrid-L24
Audiometrie prä- und post-op
bei der Erstanpassung und 6 Monate postop.

Erstanpassung



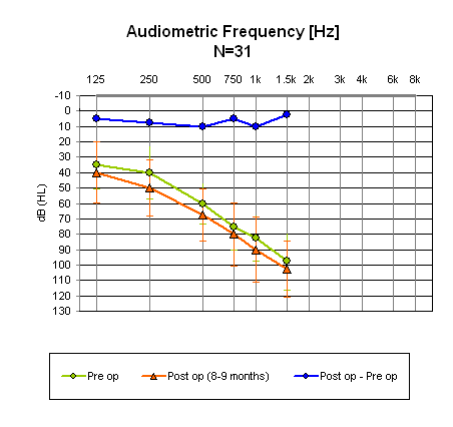
6 Monate postop.



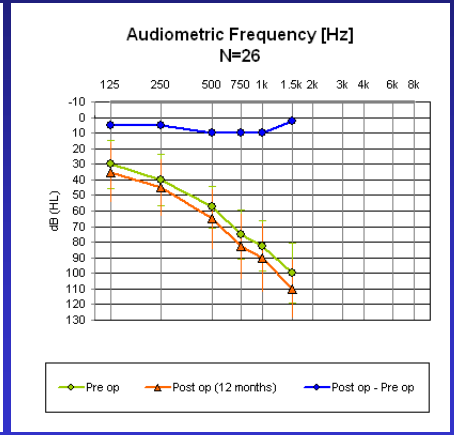
MHH

Hybrid-L24
Audiometrie prä- und post-op
nach 9 und 12 Monaten

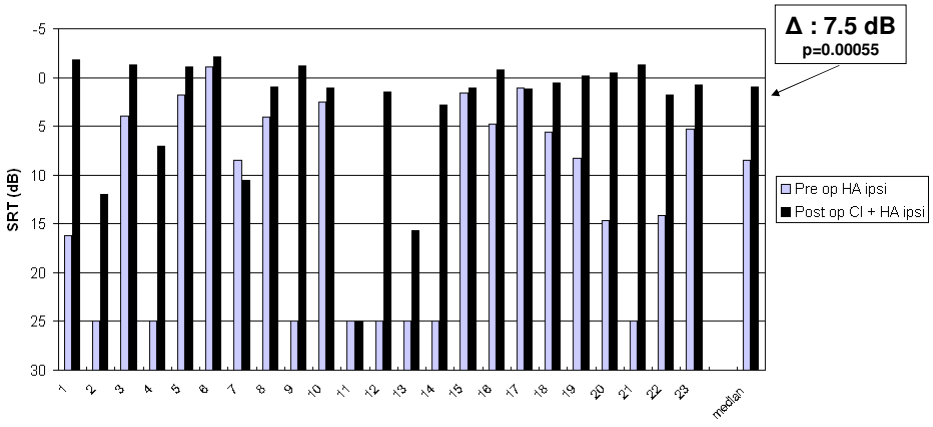
9 Monate post op



12 Monate post op

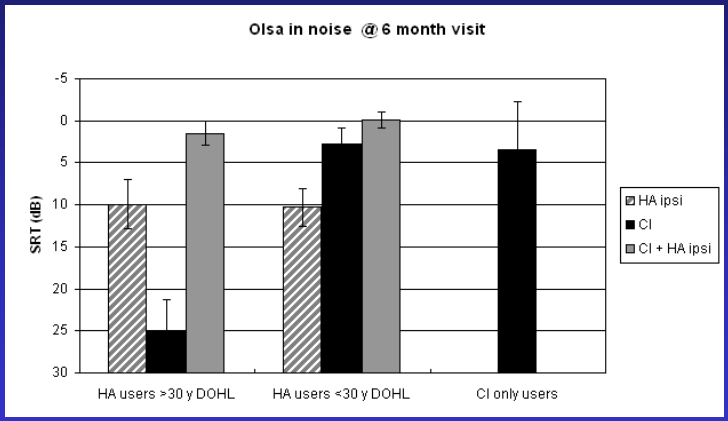


OLSA adaptive in noise
prä op mit HG vs. 6 Monate post op mit Hybrid



6 postop. Monate
Implanted Ear Noise Testing Median Score

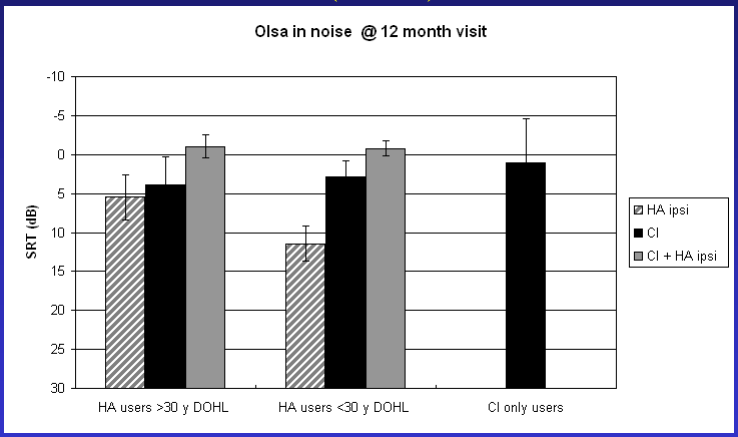
Dauer der Hörverlustes (DOHL)



Total N = 29
HA < 30y N = 18
HA > 30y N = 11
CI only users N=4

12 postop. Monate
Implanted Ear Noise Testing Median Score

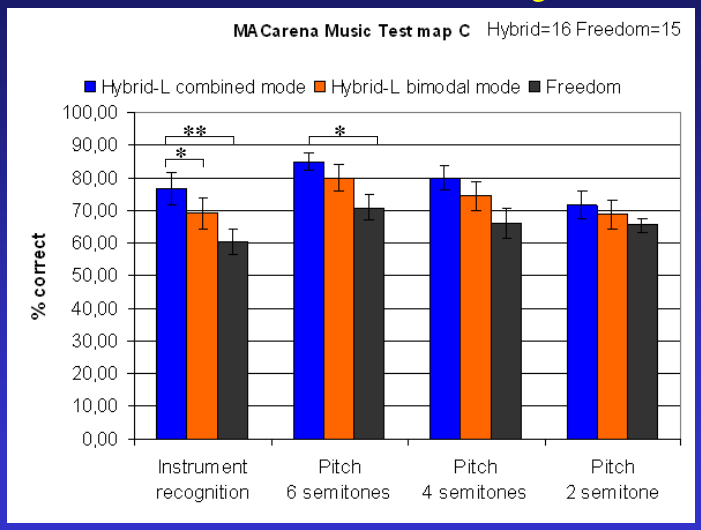
Dauer der Hörverlustes (DOHL)



Total N = 25
HA < 30y N = 15
HA > 30y N = 10
CI only users N=4

Music perception test

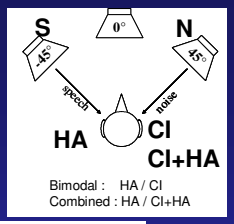
Benefit of conserved hearing

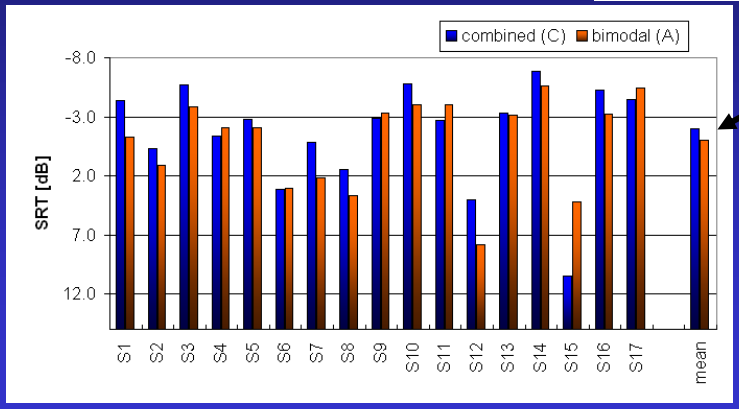


Instrument recognition : 1 out of 8

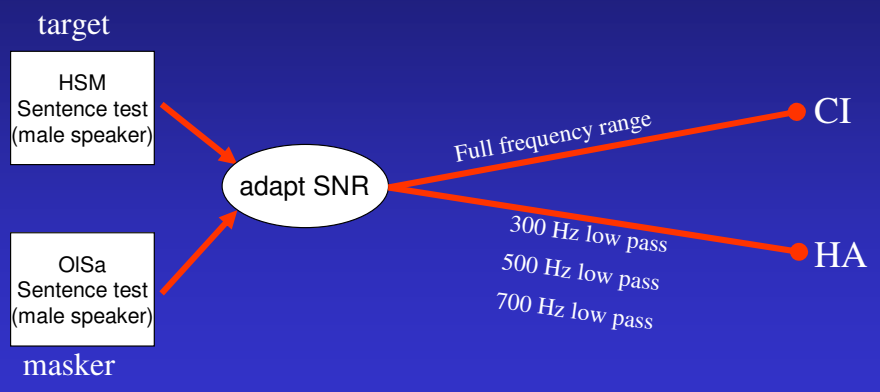
Räumliches Hören :

Benefit der tiefen Frequenzen (ipsilateral)



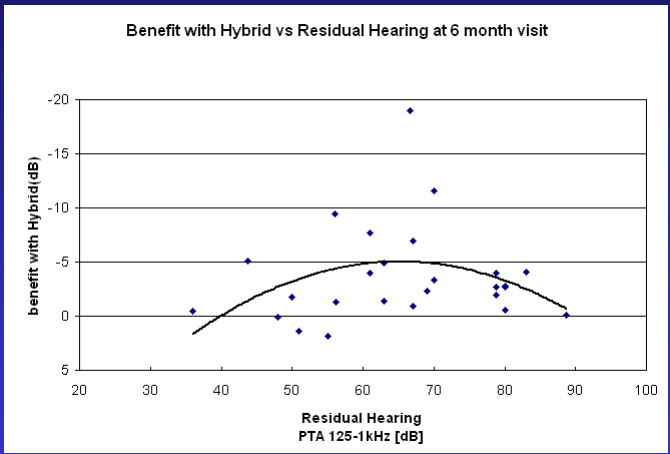


Test setup
Low frequency hearing and voice tracking
Competing talker test



Büchner et al. (2009)

Wieviel Restgehör ist für „Hybrid Effekt“ notwendig?

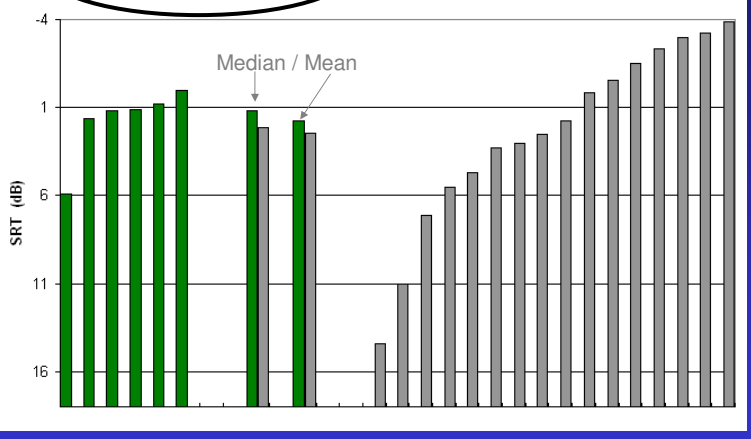


Benefit with Hybrid: Improvement with Hybrid vs best performance (6 months post op) with either HA ipsi or CI (6 months post op)

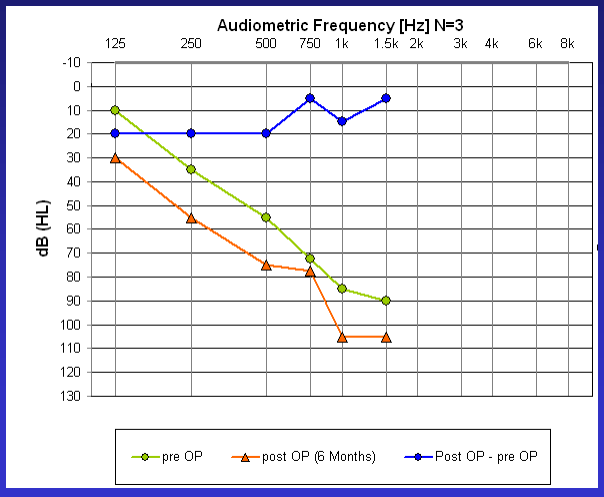
Speech recognition in noise (OLSA)
Hybrid-L24 CI vs Freedom

H-L 24 "CI alone" condition (N=6)
(extended criteria group)

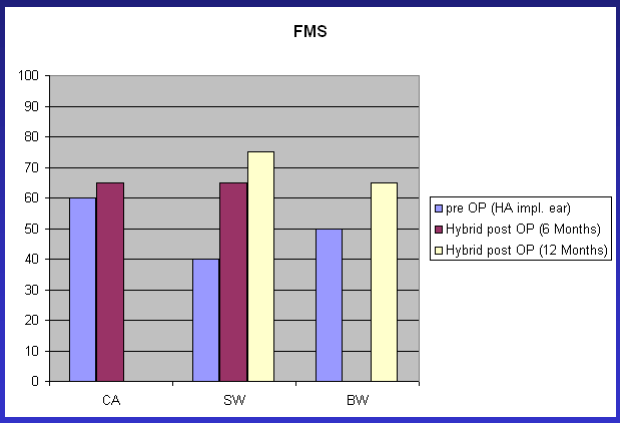
Freedom group3 (N=16)



Audiogramm-Schwellen
bei 9 Kindern (10/2009)



Sprachtest Freiburger Einsilber Test (65dB) (3 Kinder)



Summary

- High percentage of hearing conservation (93%)
- Results are comparable to the results with the Hybrid-S electrode [Gantz et al. 2003]
- Standard tests results for Hybrid-L recipients are comparable to results with Freedom CI.
- The additional benefits of conserved ipsilateral (binaural) acoustic low frequency hearing are confirmed by music perception tests and tests with spatially separated sources.
- A Hybrid-effect can already be seen with limited low frequency bandwidth (<300Hz).
- Future orientated concept in bilat implantaiton in children : “Standard+Hybrid”

Thank you

Hannover Ear Institute