# Speech Recognition Performance After Long-Term Hearing Aid Use

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- 108 participants

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- Hearing decreased an average of 10 dB re:  original study

# METHODS

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- CST in quiet and in multitalker babble (sound field)

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- Unaided (n = 108) and aided at use gain (n = 95)

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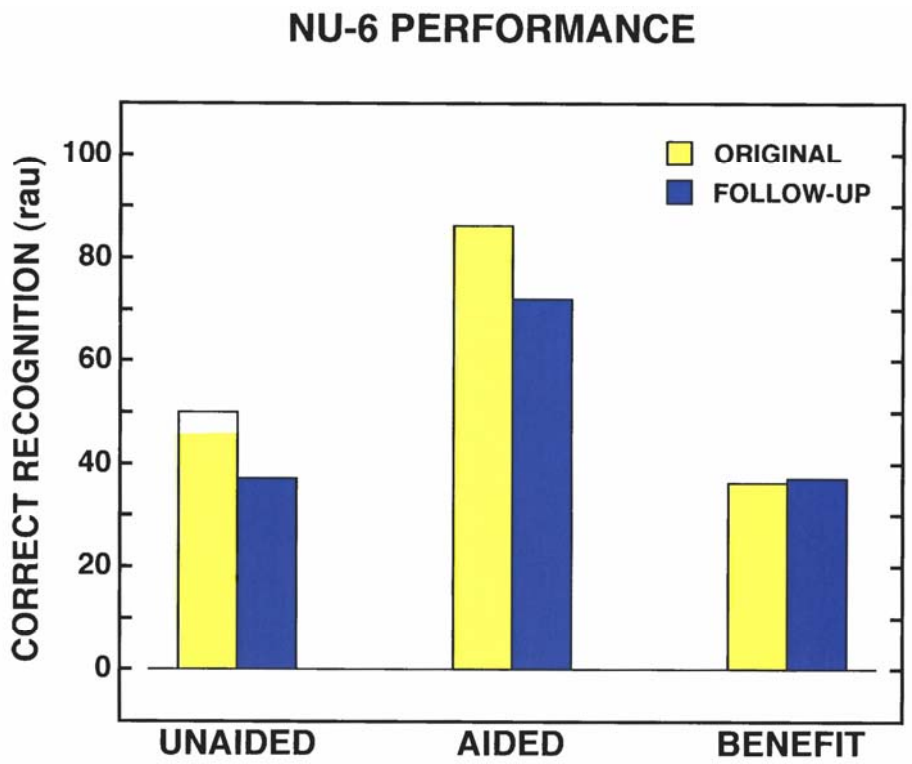
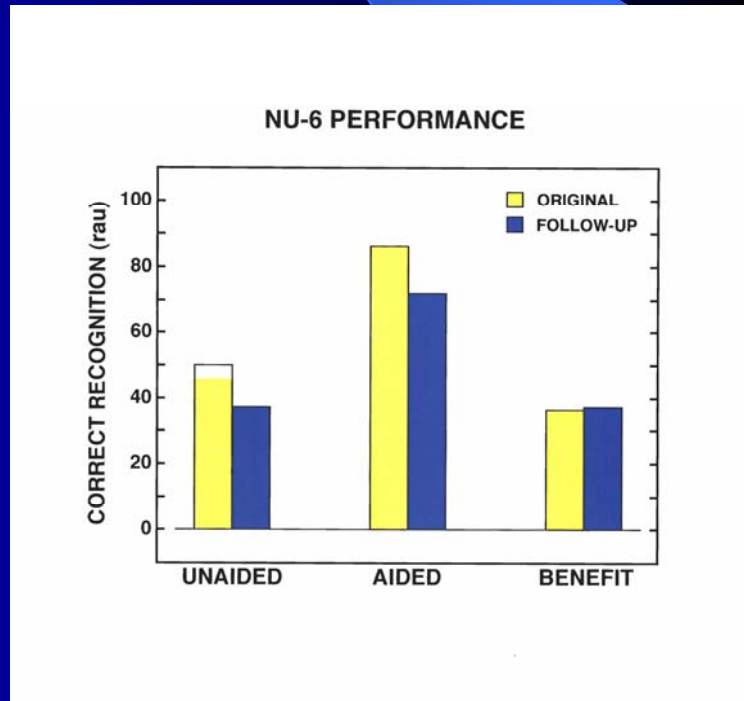
- Unaided (n = 107) and aided (n = 91)

# RESULTS: NU-6


NU-6 PERFORMANCE
CORRECT RECOGNITION (rau)
100
80
60
40
20
0
ORIGINAL
FOLLOW-UP
UNAIDED
AIDED
BENEFIT

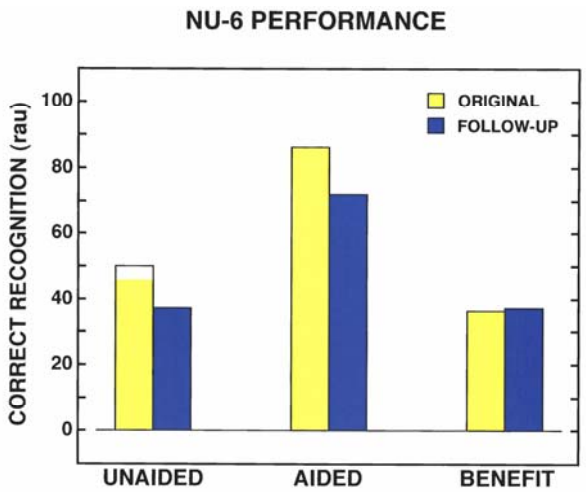
# RESULTS: NU-6

- In the follow-up study, both aided and unaided performance decreased by an average of 12% in comparison with the original study.



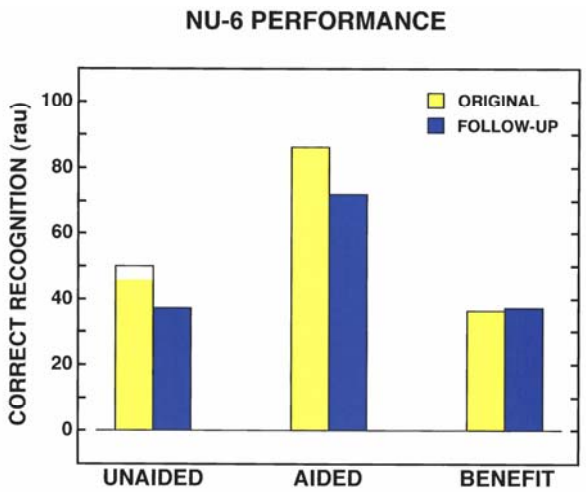
# RESULTS: NU-6

- Aided word recognition on the NU-6 improved by an average of 33% for the 95 subjects tested in both aided and unaided conditions. Three of the subjects, however, had poorer performance aided than unaided.



# RESULTS: NU-6

- Hearing aid benefit (aided-unaided performance) was the same in both studies.



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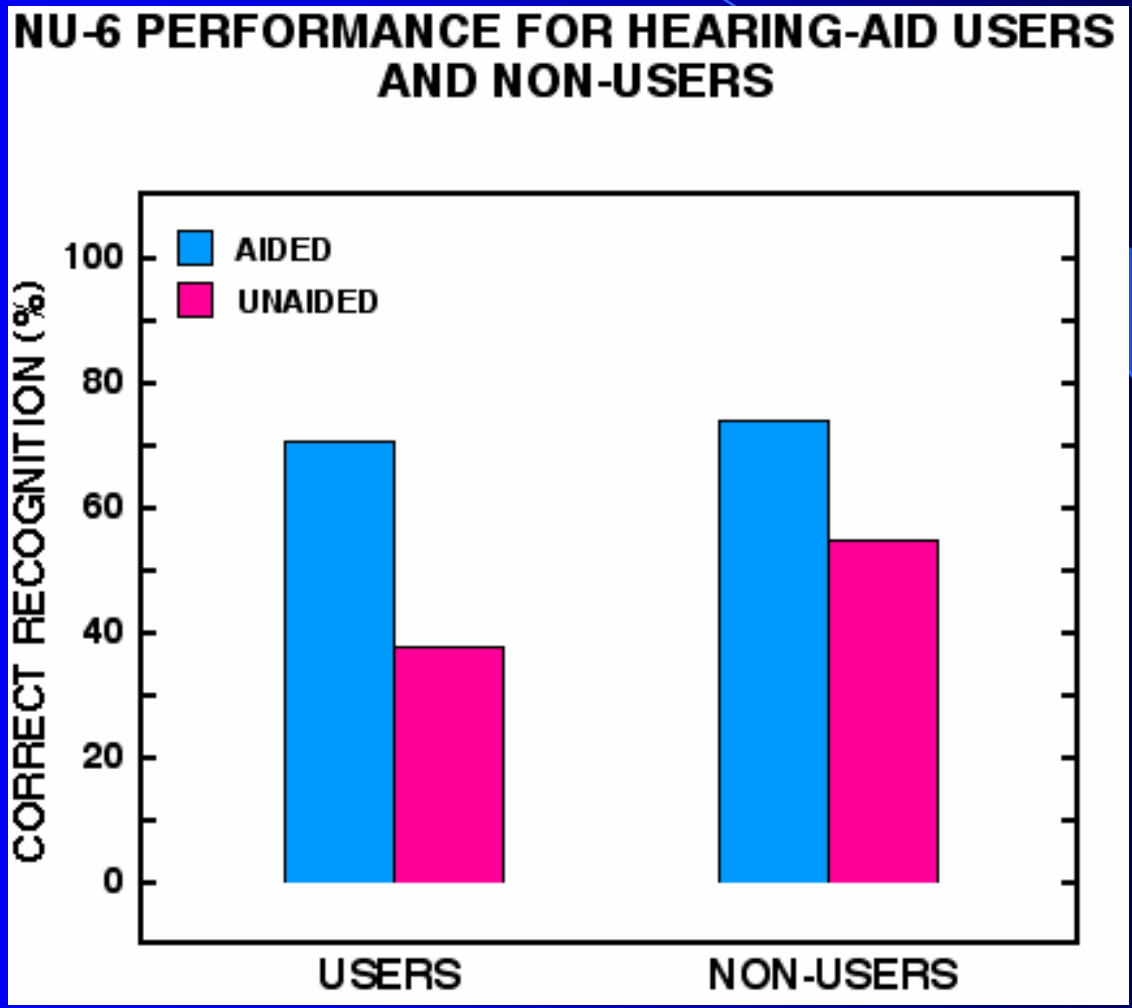
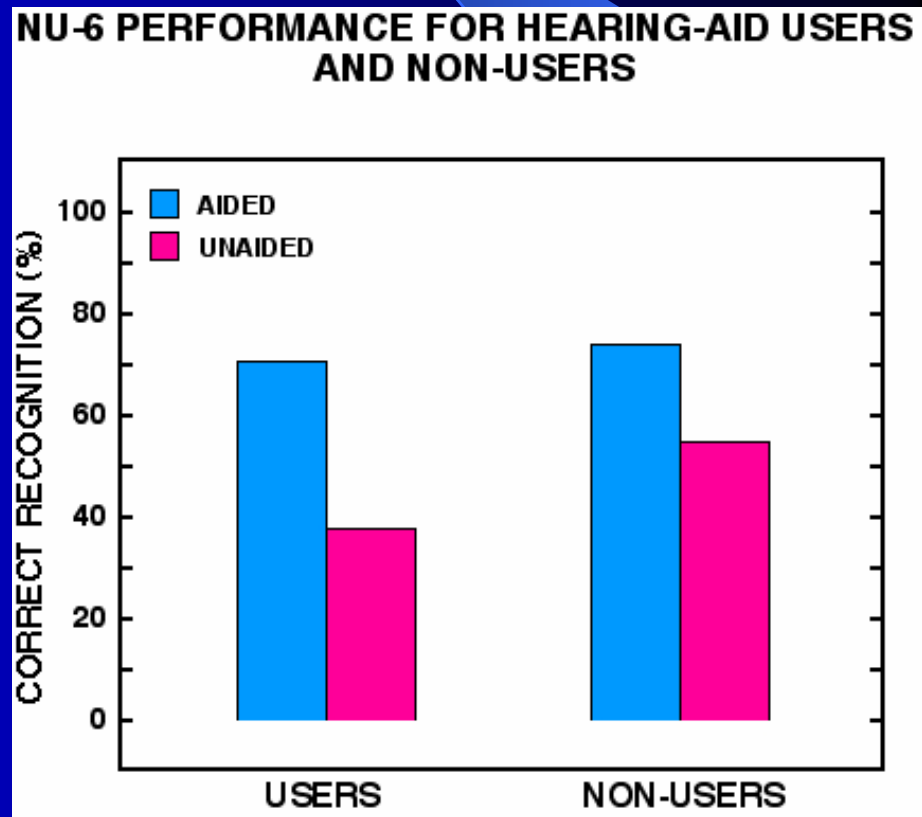

NU-6 PERFORMANCE FOR HEARING-AID USERS AND NON-USERS
AIDED
UNAIDED
CORRECT RECOGNITION (%)
100
80
60
40
20
0
USERS
NON-USERS

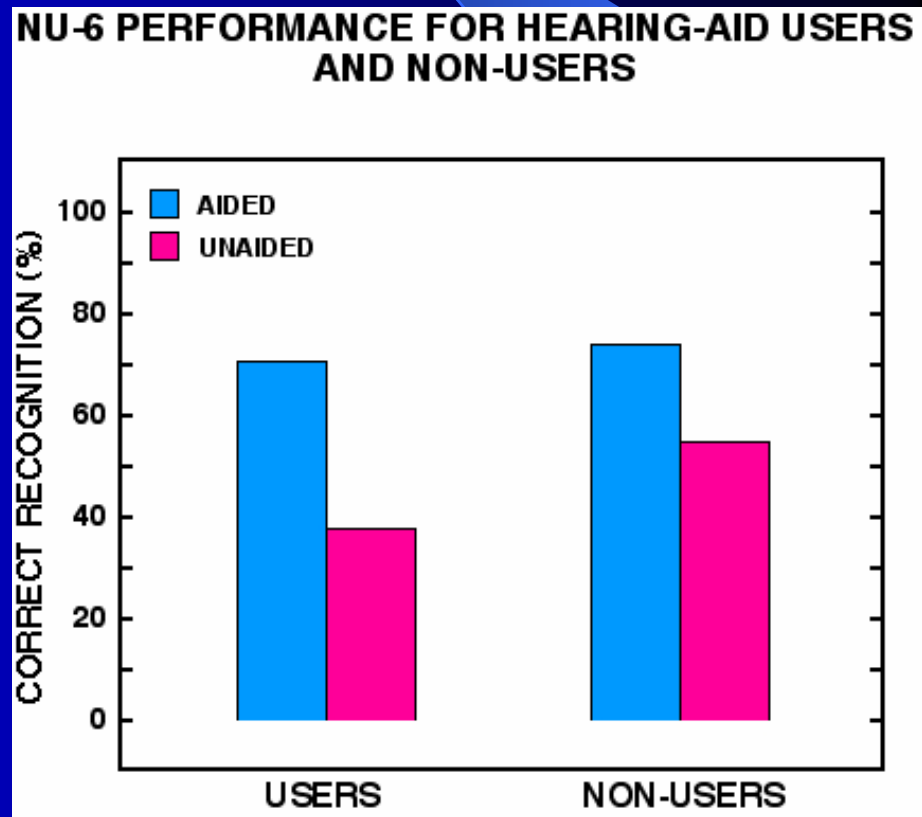
# RESULTS: NU-6

- On the aided condition, word-recognition performance by the hearing aid users was not significantly different from the performance by the non-hearing aid users.

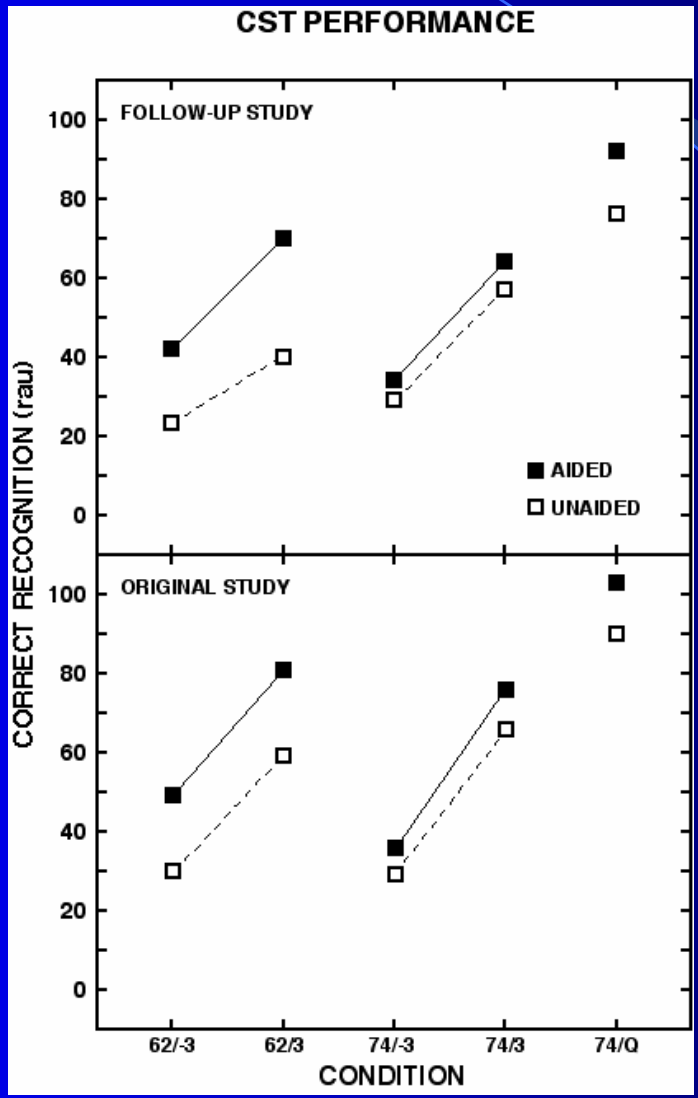


# RESULTS: NU-6

- On the unaided condition, word-recognition performance by the hearing aid users was significantly poorer than the performance by the non-hearing aid users.

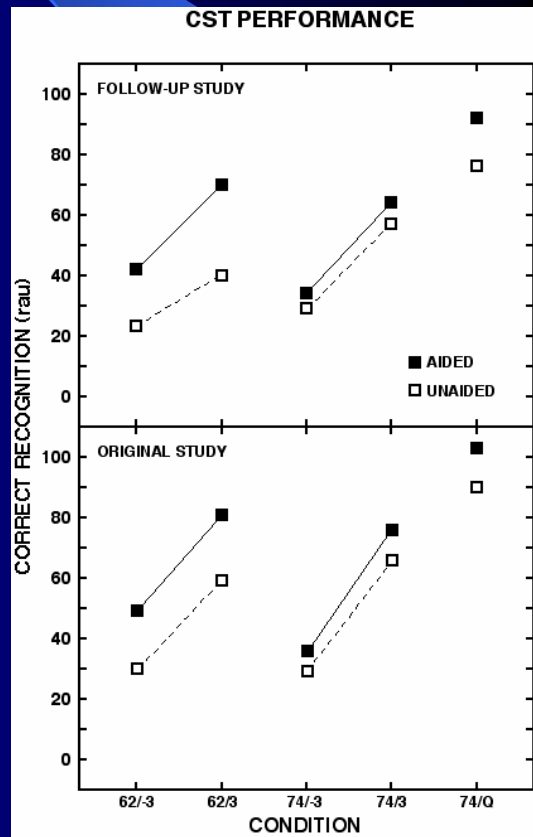


# RESULTS: CST


CST PERFORMANCE
FOLLOW-UP STUDY
ORIGINAL STUDY
AIDED
UNAIDED
CORRECT RECOGNITION (raw)
100
80
60
40
20
0
62/-3
62/3
74/-3
74/3
74/Q
CONDITION

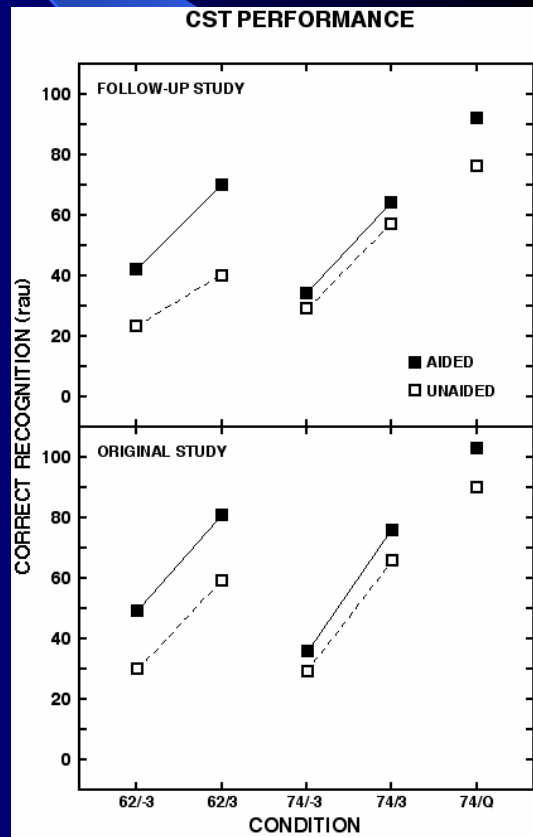
# RESULTS: CST

- Speech recognition was better in quiet than in background noise for both aided and unaided conditions.



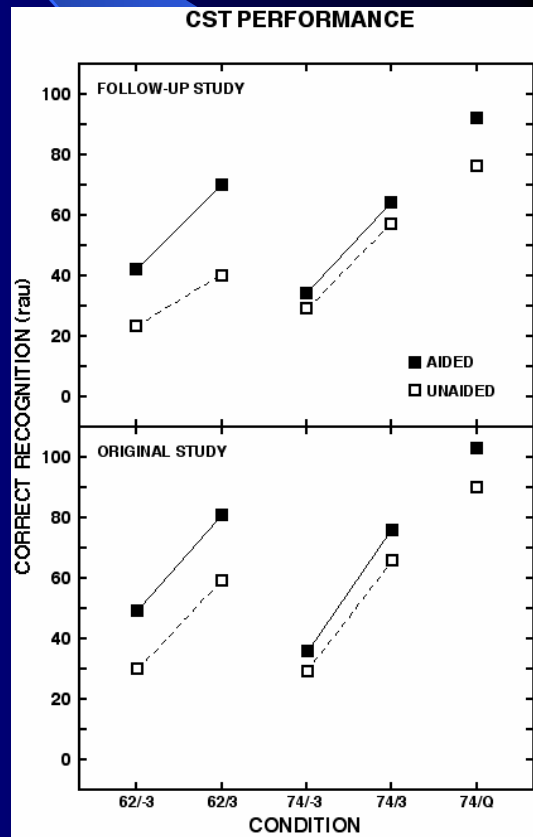
# RESULTS: CST

- Hearing aids provided benefit both in quiet and in background noise



# RESULTS: CST

- Performance decreased over the past 5 years, particularly for the more favorable 3-dB S/B



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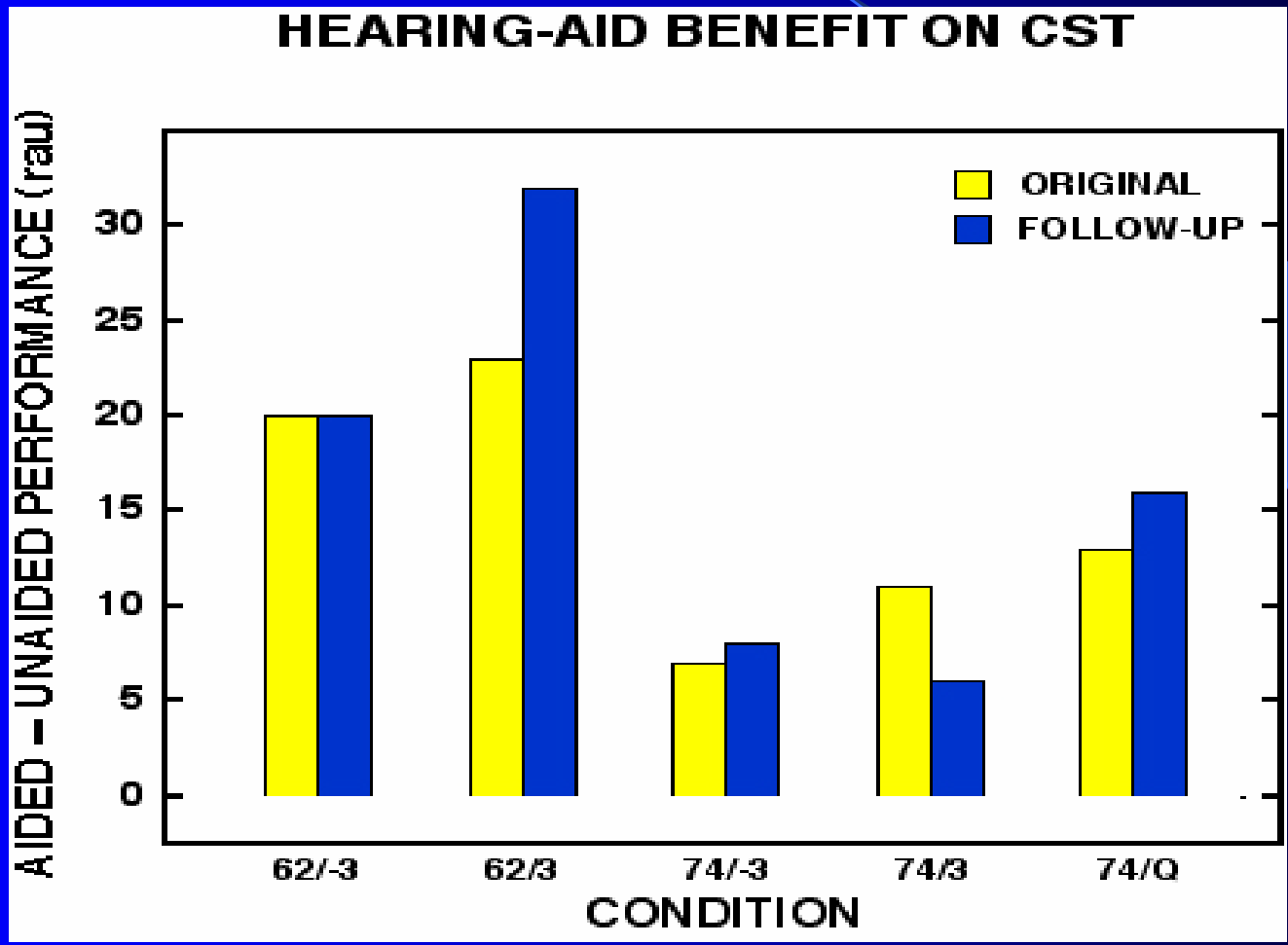
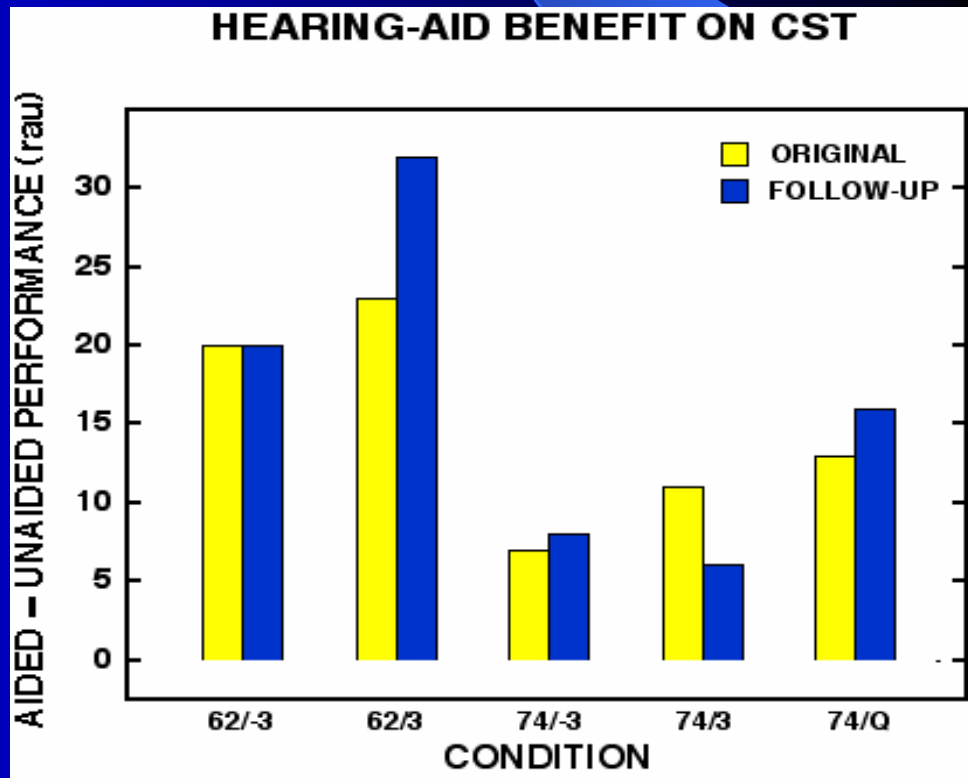

HEARING-AID BENEFIT ON CST
AIDED – UNAIDED PERFORMANCE (raw)
30
25
20
15
10
5
0
ORIGINAL
FOLLOW-UP
62/-3
62/3
74/-3
74/3
74/Q
CONDITION

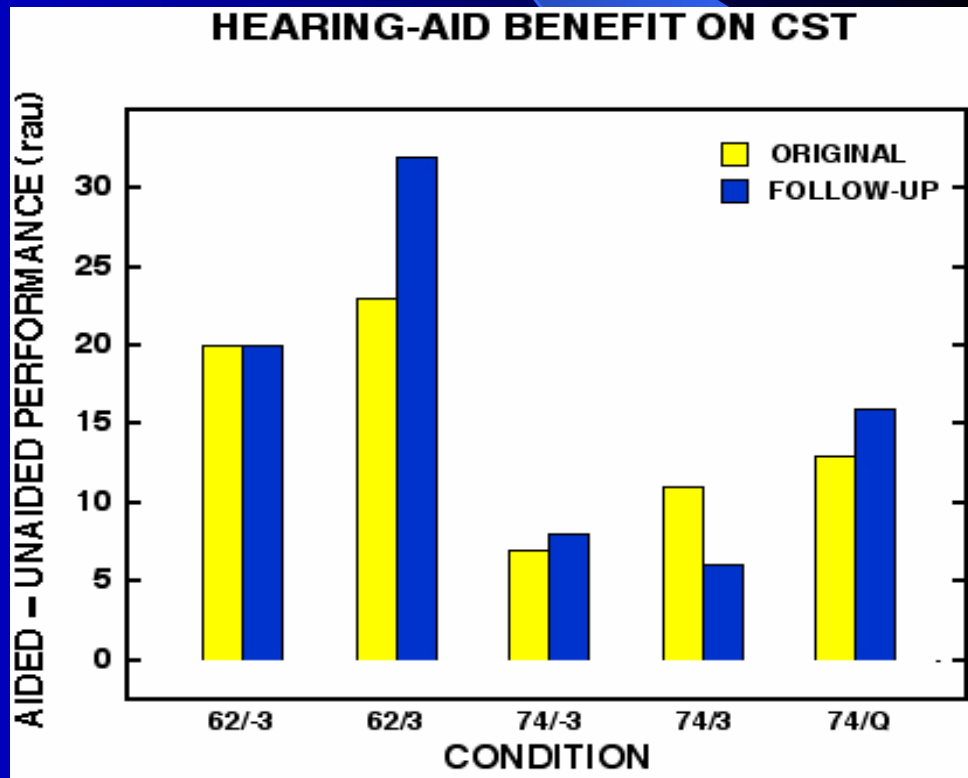
# RESULTS: CST

- Hearing aid benefit is greater at the lower presentation level than at the higher presentation level.



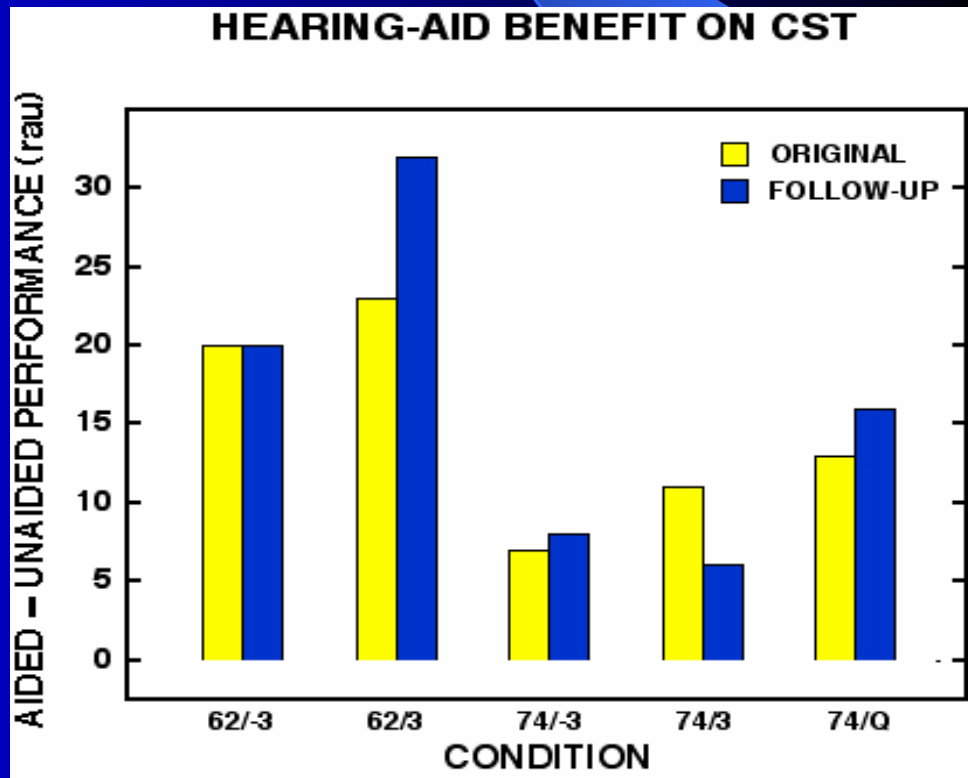
# RESULTS: CST

- Aided and unaided performances were not significantly different at the higher presentation level.



# RESULTS: CST

- For the 74/3 condition, 42% of the subjects performed poorer in the aided than in the unaided condition.



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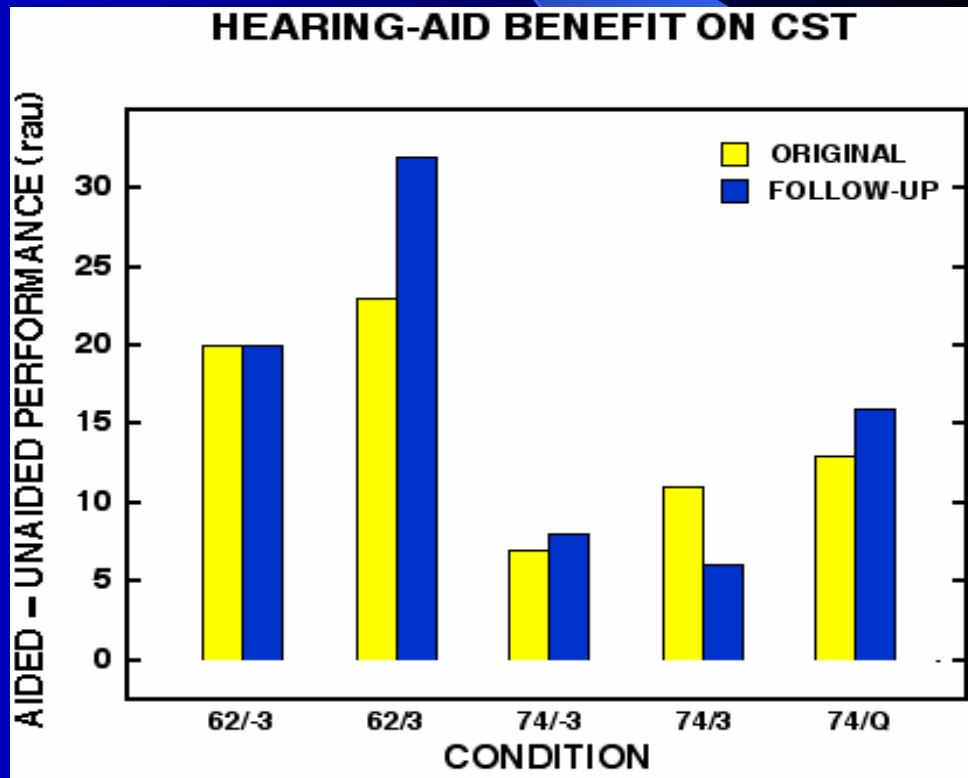
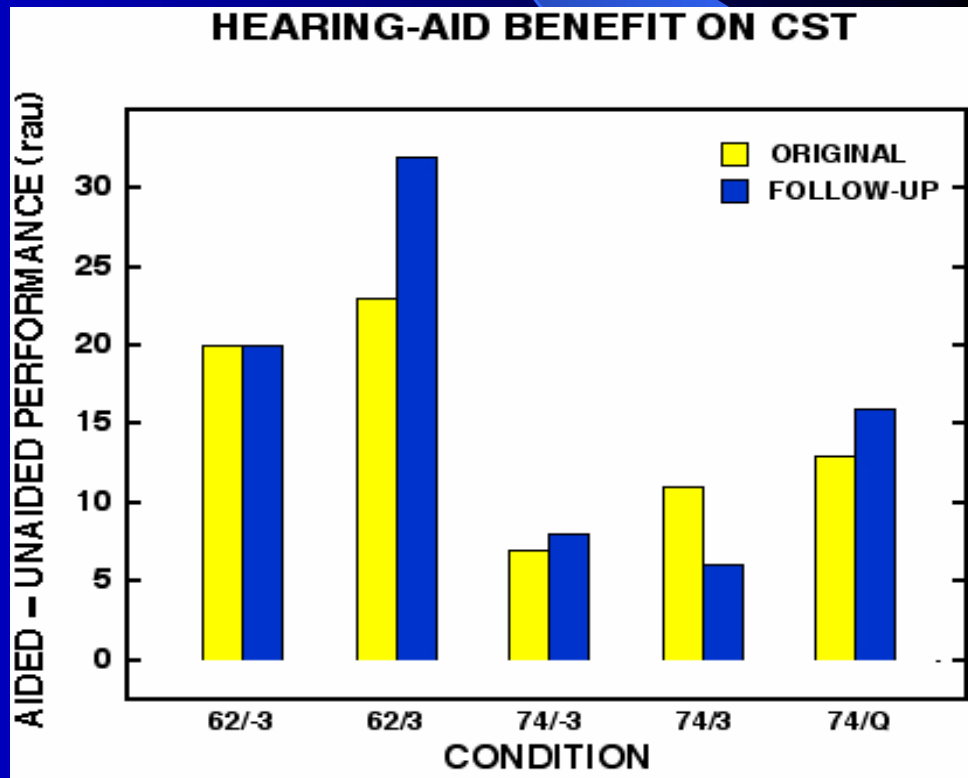
- For the 74/-3 condition, 24% of the subjects performed poorer in the aided than in the unaided condition.



# RESULTS: CST

- The greater hearing-aid benefit in the follow-up study for the 62/3 and 74/Q conditions probably reflects the 10 dB decrease in hearing sensitivity by the subjects since the original study.



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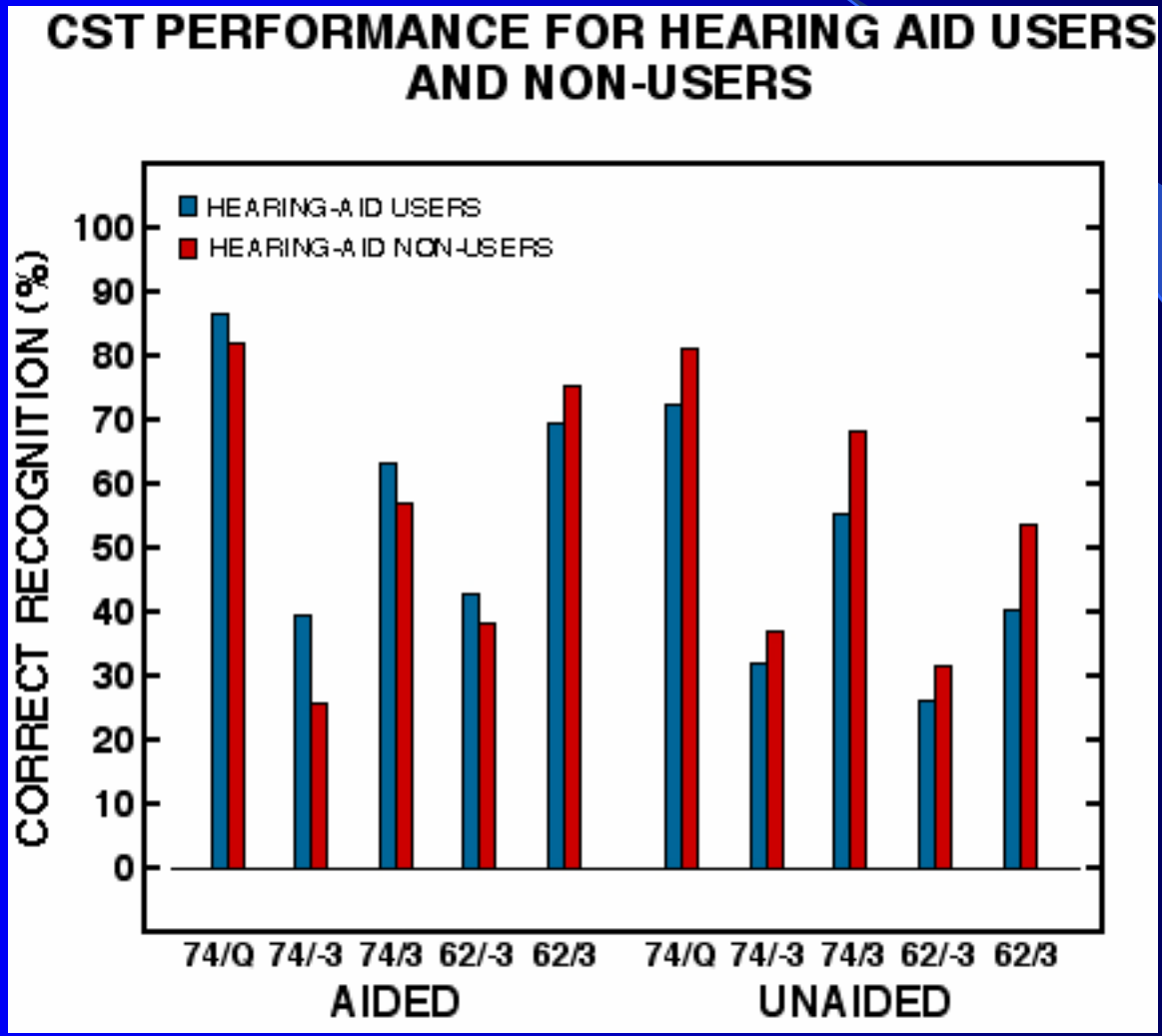
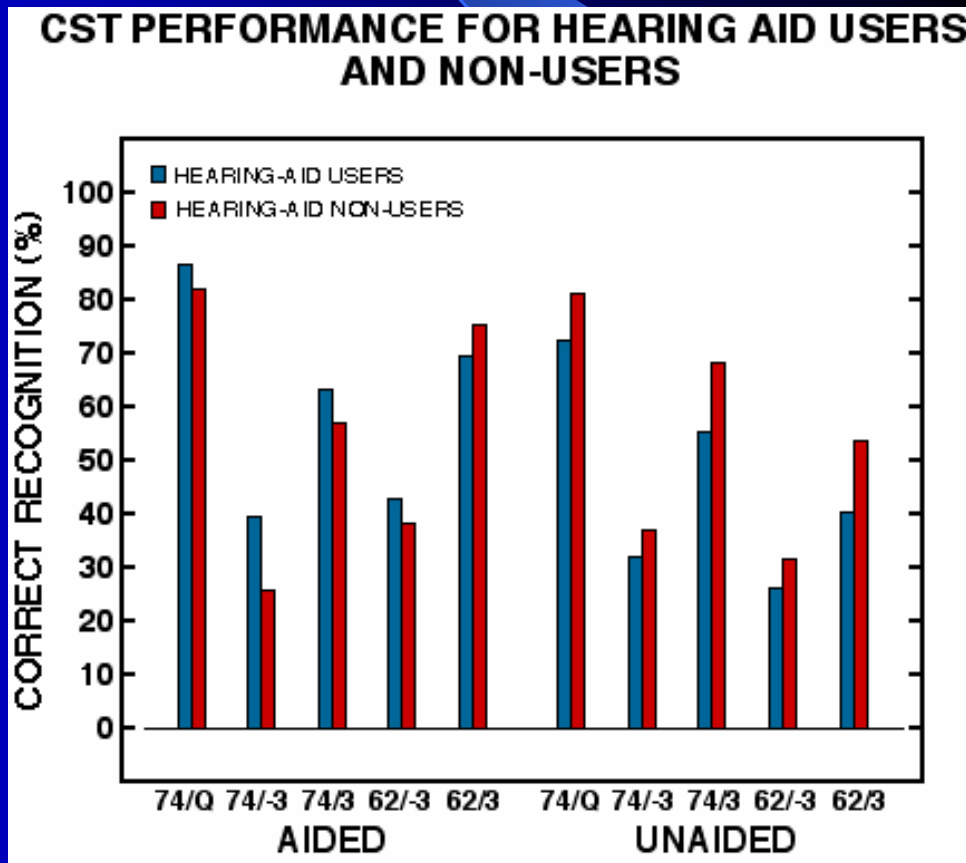

CST PERFORMANCE FOR HEARING AID USERS AND NON-USERS
HEARING-AID USERS
HEARING-AID NON-USERS
CORRECT RECOGNITION (%)
100
90
80
70
60
50
40
30
20
10
0
74/Q 74/-3 74/3 62/-3 62/3
74/Q 74/-3 74/3 62/-3 62/3
AIDED
UNAIDED

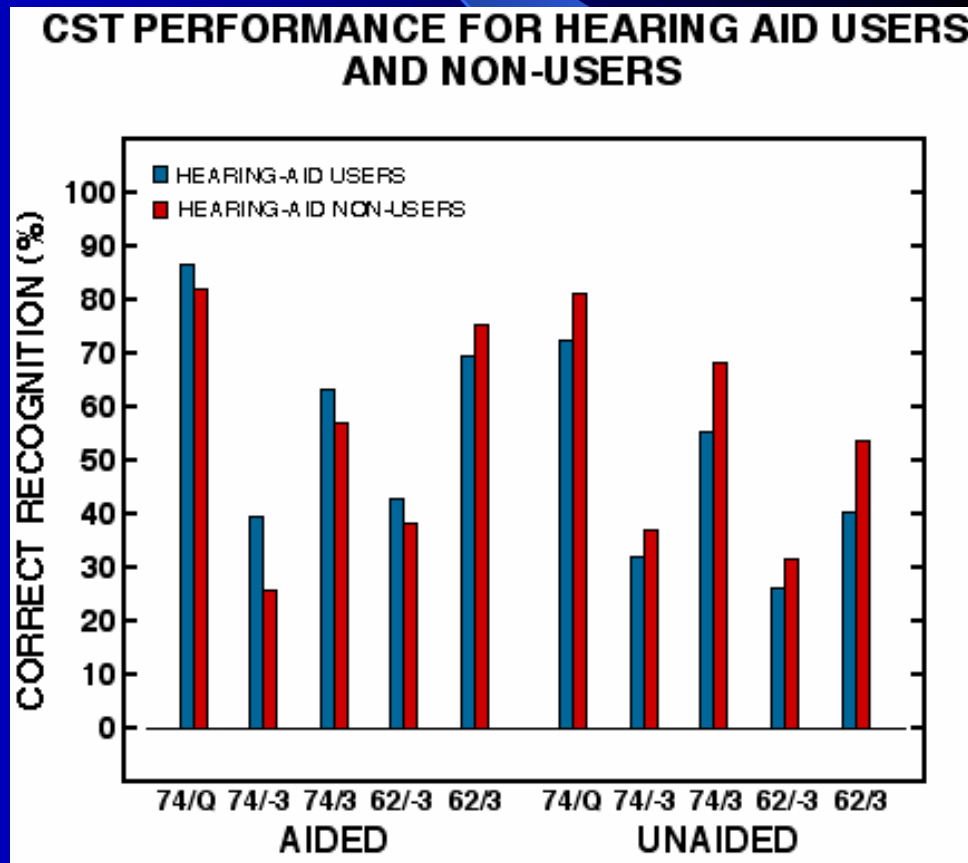
# RESULTS: CST

- Unaided performance (right half) was better for non-users than for hearing aid users.



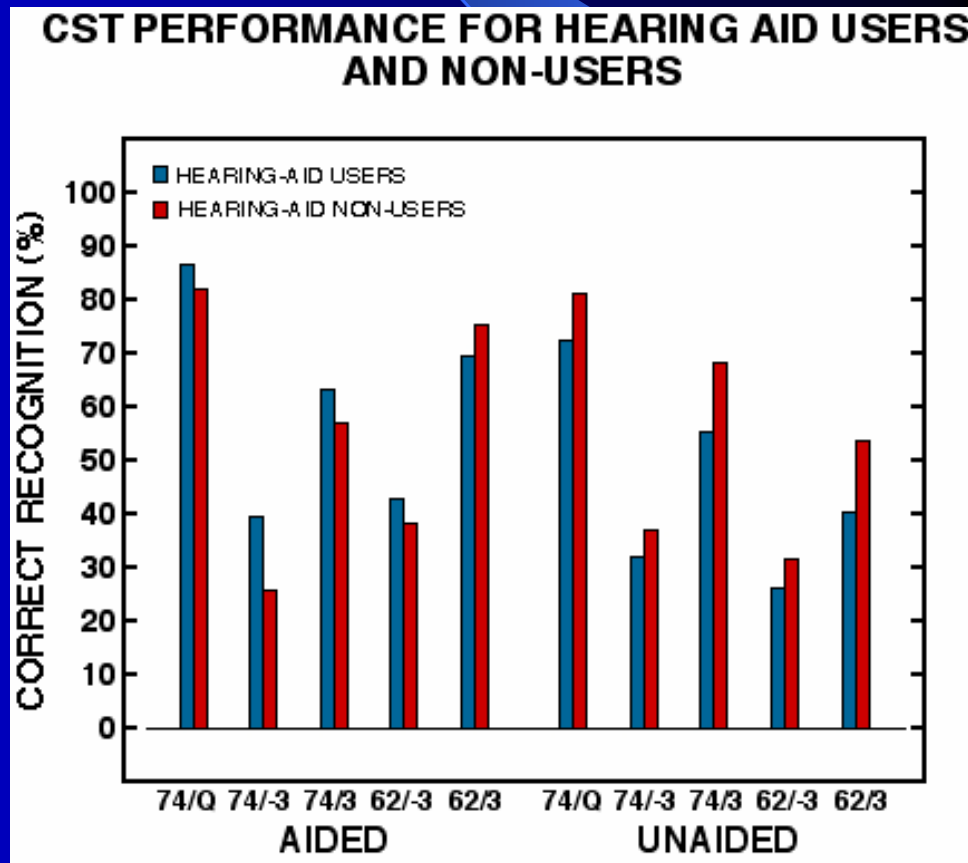
# RESULTS: CST

- Aided performance (left half), however, was better for hearing aid users than for non-users.



# RESULTS: CST

- None of the differences were significant.



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- As in the original study, aided recognition performance in noise decreased as presentation level increased
- Non-users tended to perform better unaided than users
- Performance on both NU6 and CST decreased since the original study
  - The average hearing sensitivity decreased 10 dB
  - The hearing aid gain was below target