

## **Is there evidence to show that older adults with hearing loss who use hearing aids and participate in an information-based aural rehabilitation group will experience increased hearing aid benefits?**

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This critical review examines if increased hearing aid benefits are experienced by older adult hearing users after participation in an information-based aural rehabilitation group. Study designs include: randomized controlled trial, retrospective study and cohort designs. Overall, there is some evidence to support the idea that older adult hearing aid users experience increase hearing aid benefits after participation in information-based group aural rehabilitation. Issues such as research design and the content of the aural rehabilitation program may have impacts of the measurement outcome of hearing aid benefit.

### ***Introduction***

The percentage of elderly Canadians is expected to increase rapidly within the coming years when the oldest baby boomers reach the age of sixty-five. Many of these baby boomers will have significant hearing impairments which will directly impact the profession of audiology. Clinical audiologists will continue to play an important role in delivering services to this population. This will include implementing effective counseling methods into the rehabilitative process. Offering information based approach via a group aural rehabilitative program for older adults with hearing who are hearing aid users and their families can provide information about hearing loss, hearing aids, and effective communication strategies. It will be important for audiologists to continue to educate these patients about how to manage their hearing losses as providing amplification alone will not be sufficient. For Audiologists who incorporate information-based group aural rehabilitation into their practice with focus on hearing aid use and orientation, it is important to determine the effectiveness of such a program in meeting the needs of their clients with successful hearing aid benefit.

In the literature, there have been many discrepancies between the definitions of hearing aid benefit. Hearing aid benefit will be defined as any positive hearing aid outcome subjectively reported by the new hearing aid user after intervention, through means of information based group aural rehabilitation. Upon further examination of hearing aid benefit within the literature, there are two ways to measure benefit: through objective and subjective measures. Objective measures of hearing aid benefit can be

obtained clinically through measures of functional gain, real ear gain or improvements in speech intelligibility (McCarthy, 1997). Subjective measures of hearing aid benefit can employ standardized and non-standardized self-assessment inventories. Inventories have been documented in several studies as a way of measuring hearing aid benefit. Researchers including Humes (1999) have concluded that hearing aid outcomes are a multidimensional construct involving an ongoing evaluation of subjective and objective measures such as aided speech recognition, speech recognition benefit, subjective sound quality and subjective benefit, satisfaction and hearing aid use.

### ***Objectives***

The primary objective of this paper is to critically evaluate previous literature regarding the impact of group aural rehabilitation on hearing aid benefit for older adults with acquired hearing loss who wear hearing aids.

### ***Methods***

#### ***Search Strategy***

Computerized databases, including CINAHL, PubMed, and ComDisDome, were searched using the following search strategy:  
((Group aural rehabilitation)  
OR (group audiologic  
rehabilitation) OR (group  
counseling) AND (hearing aid  
benefit) OR (benefit)

The search was limited to articles written in English between 1990 and 2006.

### Selection Criteria

Studies selected for inclusion in this critical review paper were required to investigate the impact of group aural rehabilitation programs on increasing hearing aid benefits for older adult hearing aid users with hearing loss. A limit on the demographics of the research participants was restricted to older adults over the age of fifty-five years. No limits were set on subjective outcome measures.

### Data Collection

Results of the literature search yielded the following types of articles: randomized controlled trial (2), retrospective study (1), and cohort study (2).

### **Results**

In regards to the literature review, most studies concluded that participation in an aural rehabilitation group showed no significant hearing aid benefits for older adult hearing aid user.

### Randomized Controlled Trials

The Hearing Handicap Inventory for the Elderly (HHIE) appears to be an outcome measurement that is most extensively used when assessing hearing aid benefit in general (McCarthy, 1996). To measure outcome with the HHIE, researcher can compare the degree of disability and handicap across various administrations of the inventory. With the HHIE, hearing aid benefit or positive outcomes occur when there is a decrease in the person's perceived hearing handicap and disability after hearing aid use. A study which employed the HHIE as a measurement of hearing aid benefit was Abrams, Hnath-Chisholm, Guerreiro & Ritterman (1992). Participants included thirty-one veterans who were new hearing aid users and were divided into two groups. Group one received amplification and participated in a communication course and group two received hearing aids only. The control group received neither amplification nor aural rehabilitation. The effect on self-perceived handicap was measured by the change in the HHIE both pre- and post-intervention. For both experimental groups, reductions were seen in hearing handicap, with group I showing significant reductions after participation in group aural rehabilitation.

Benyon, Thornton, & Poole's (1997) randomized controlled study evaluated the efficacy of a communication course for forty-

seven first time hearing aid users. Participants were randomized into either a treatment group or a control group. After the individuals wore hearing aids for six weeks, those in the treatment group participated in a four week information-based communication course. The outcome measure used was the Quantified Denver Scale (QDS) and was administered at the initial fitting and thirteen weeks post-fitting. Results revealed a reduction in handicap that was significantly greater for the treatment group as compared to the control group.

A limitation of these studies is the sample population was restricted to the veteran population for Abrams et al (1992) study and restricted to those under the age of 80 with a mild to moderate hearing loss for the Benyon et al (1997) study. Also, 5 participants dropped out of the treatment group for unknown reasons. Therefore, results cannot be generalized outside of these populations. A second limitation was the possibility of the first administration of the HHIE questionnaire was completed at the clinic where the second administration was completed at home which may have contributed to differences in results.

### Retrospective Study

Brickley, Cleaver, & Bailey (1996) evaluated the efficacy of group follow up sessions as compared to individual follow up sessions for elderly adults who were new hearing aid users. An experimental group received a group follow up sessions whereas the control group received no group aural rehabilitation. A non-standardized questionnaire based that explored hours of use, satisfaction and self-rated performance with hearing aids was used. Results revealed that group participants reported high self-rated performance scores and claimed increased positive feelings about their hearing aids. There also required fewer additional follow up appointments and reported increased benefit in various listening situations.

Several limitations were seen with this study and its experimental design. The questionnaire was non-standardized and based on a questionnaire by Brooks with minor modifications. The authors did not provide details of the modifications they made to the questionnaire. The two administrations of the questionnaire were completed at home and the clinic which may also have an effect on the results. It should also be noted that there was poor attendance rates (52%) for those who participated in group follow up and researchers

did question the non-attendees. Greater attendance rates may have resulted in findings that were more significant.

#### Cohort Design

Norman, George, Downie, & Milligan (1995) examined the effects of a communication course for older adult new hearing aid users. An experimental group participated in a three week communication course where as the control group and matched control group were not offered the course. Four outcome tools were used included a pre- and post-fitting non-standardized questionnaire and a diary for all participants as well as a communication course questionnaire for those who participated in the group AR. Results revealed that ratings of hearing aid benefit and usage did not differ dramatically from participants who did not take part in the AR group. Overall, the group participants were more satisfied with their hearing aids.

A limitation of this study is the diary that was used as an outcome measure to assess levels of handicap and disability could have been more efficiently used as a large proportion of subjects failed to fill them in completely and correctly. Group attendance rates were also poor and a high dropout rate was noted.

Hnath-Chisholm, Abrams, & McArdle (2004) examined the short and long term benefits of offering group AR to older adult new hearing aid users. The experimental group participated in a three week information-based AR program where as the control group received no AR program. The Communication Profile for the Hearing Impaired (CPHI) was administered pre-fitting and 6 months and one year post-fitting. Results revealed better short term treatment outcomes for those in the AR program which authors stated may have an impact on the individual's decision to keep their hearing aid and in terms of self-perceived communication strategy usage and possible personal adjustment to hearing loss.

A limitation of this study can be made regarding the outcome measurement used and its length which contains 145 questions and 25 subscales and its practicality for use in the clinical realm. Although the CPHI can have benefits for use in research as it examines a large variety of specific parameters of perceived communication handicap, the time it takes to administer such a lengthy questionnaire is not practical especially when dealing with an elderly population. Results from this study can also not be generalized outside the veteran population.

#### ***Conclusions & Recommendations***

Research has shown that there is some evidence to prove that older adults who participate in an information-based aural rehabilitation group experience increased hearing aid benefits. Overall, the studies have failed to directly assess hearing aid benefit alone. Further research is needed to define and measure hearing aid benefits. Some of the research did provide evidence of other positive outcomes experienced by the new hearing aid users that did participate in the information-based group AR showed: reductions in self-perceived handicap (Abrams et al, 1992; Benyon et al, 1997), increased self-rated performance and increased positive feelings about hearing aids (Brickley et al, 1996), increased satisfaction with hearing aids (Norman et al, 1995) and better short term outcomes which may affect an individual's decision to keep their hearing aid (Hnath-Chisholm et al, 2004).

There was no large variability in the AR programs seen across the literature. Each program was information based and ranged from 3-4 sessions of 1-2 hours in length with 4 to 8 participants in each group. The content of the courses were similar with topics including: anatomy and physiology of the ear, communication and coping strategies and information on hearing aids and assistive listening devices. Issues such as course content and length of courses may have an impact on the benefits. Further research is needed in this area. The following recommendations can be made for application in clinical practice.

One recommendation is an increase of the use of self-report inventories directly assessing hearing aid benefit, such as the Abbreviated Profile of Hearing Aid Benefit (APHAB) or the Glasgow Hearing Aid Benefit Profile (GHABP) for those who participate in an information based group AR program, as it has not been well documented. Further research is needed in this area.

A second recommendation is directed towards clinicians and including the use of both subjective and objective measures of hearing aid benefit within their clinical practice, as it has been shown that hearing aid benefit is a multidimensional construct.

A final recommendation is for clinicians who provide group AR programs, to employ an information-based format of at least 4 sessions at 2 hours in length and include a wide variety of

topics to suit all of their client's needs and to ensure some sort of benefit is derived from participation in such a group, through using the appropriate outcome measurements.

Overall, it is important for clinicians to continue to include aural rehabilitation in the audiological process, whether by an individual or group means.

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