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Adaptation and Balance are What Matters

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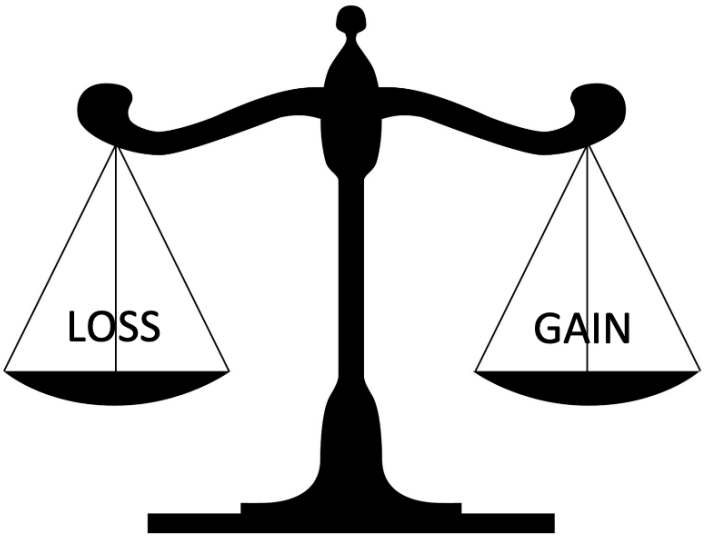

The long-awaited first results of the Aging and Cognitive Health Evaluation in Elders (ACHIEVE; NCT03243422) study (Deal et al., 2018) were released at the Alzheimer's Association

International Conference in Amsterdam on July 18th and in a paper published on the same day in the Lancet (Lin et al., 2023). The paper was accompanied by a commentary (Livingston & Costafreda, 2023) written by two of the authors of the well-known Lancet papers that described hearing loss as the greatest potentially modifiable mid-life risk factor for dementia (Livingston et al., 2017, 2020). An article in this issue of *Canadian Audiologist* (Pichora-Fuller, 2023) provides a description of the ACHIEVE study and an overview of how the findings advance our knowledge regarding auditory-cognitive links and their implications for rehabilitation. From the ACHIEVE study results, we gain some answers to questions about WHO could benefit from hearing care for the purpose of reducing the risk of dementia, WHAT kind of hearing care could be beneficial, and WHEN hearing care could be the most beneficial. Nevertheless, almost as important as the research findings may be the media coverage they received (e.g., CBC 2023a,b,c). This month's *What's New about Getting Older?* column prompts audiologists to reflect on how "*the medium is the message*" (McLuhan, 1964) as we rethink hearing care for older adults.

While the ACHIEVE results answer some basic questions, they raise more questions such as WHERE and HOW hearing care should be provided. Do these new questions signal the impending loss of some old siloed practices as audiologists recognize the imperatives for new inter-professional team education and models of integrated person-centered care for older adults who are at risk for or living with hearing loss and other health challenges and changes? Adapting to change

by re-balancing gains to offset losses is key to healthy aging and perhaps also to healthy professional evolution.

Healthy Aging for Older Adults

Over the course of adult development and aging, changes occur in multiple intersecting health domains: physical, psychological, and social. In 1946, the World Health Organization (WHO) constitution (https://www.who.int/about/governance/constitution) defined *health* as complete physical, mental and social well-being and not merely the absence of disease or infirmity. About four decades later, *successful aging* was defined in terms of high physical, psychological, and social functioning (Rowe & Khan, 1987, 1997). Importantly, age-related changes include gains as well as losses. Some common age-related losses are declines in mobility, hearing, vision, memory, attention, and loneliness. Some common age-related gains are expertise, knowledge, wisdom, leadership, mood regulation, agreeableness, and conscientiousness. Acknowledging the inevitable changes that happen over the life course, Canadian leaders in health promotion refined the definition of *health* as the capacity of people to respond to, adapt to, and control life's challenges and changes (Frankish et al., 1997). Age-related changes and challenges may be inevitable, but health depends on how people adapt to changes to maintain functioning. More recently, the WHO defined *healthy aging* as the process of developing and maintaining the functional ability that enables wellbeing in older age (WHO, 2020), with functioning conceptualized as people being and doing what they have reason to value. Functioning extends beyond meeting basic everyday needs, to many physical (e.g., mobility), psychological (e.g., learning and making decisions), and social (e.g., building and maintaining relationships and contributing to society) aspects of life. Consistent with the focus of health promotion on the importance of adapting to changes, the Selection-Optimization-Compensation (SOC) model (Baltes & Baltes, 1990) promotes a view of successful aging in terms of maximizing the gains and minimizing the losses associated with aging. Applying the SOC model to rehabilitation, older individuals would select goals and person-centered rehabilitation would be designed to support their selected goals by optimizing their best abilities and most intact functions while compensating for declines. In effect, despite age-related losses, rehabilitation focused on optimization and compensation would help older adults to achieve their selected goals and maintain functioning by establishing a new balance in which gains or strengths offset losses or weaknesses. An obvious example would be optimized use of visual information to compensate for hearing loss during communication or the use of hearing to compensate for vision loss during walking.

Age-related declines in hearing, vision, motor and cognitive capacities may each affect functioning in everyday life, but functioning also depends on interactions among multiple capacities (Campos et al., 2022). Hearing loss is unlikely to be isolated from other age-related declines that affect functioning. Integrated person-centered care for older adults will need to be informed by assessments of how co-morbid health conditions interact with hearing loss to affect healthy aging and functioning in everyday life. *Integrated Care for Older People: Guidance for Person-Centered Assessment and Pathways in Primary Care* (ICOPE; WHO, 2017; Thiyagarajan et al., 2019) provides guidelines for integrated care to optimize functioning by addressing six key capacities: hearing, vision, mobility, cognition, depression, and nutrition. These and other comorbid health conditions may interact with hearing to affect risk of dementia. Indeed, aging-related declines across all sensory and motor systems seem to be associated with Alzheimer's disease (Albers et al., 2015). As the ACHIEVE study demonstrates, the effects of hearing care on cognitive health are unlikely to be isolated from other aspects of health care.

Healthy Professional Evolution for Audiologists

The ACHIEVE results were released at a leading international geriatric conference and they were published in a leading international medical journal. The message is that hearing is not isolated from other age-related challenges and changes. Given that age-related changes often manifest in multiple capacities that interact to affect functioning in everyday life, new approaches to hearing care for older adults must become integrated into the broader context of healthy aging. The presentation by Frank Lin and his colleagues sent a strong message to geriatricians and the public that hearing care matters in integrated care for older people.

The medium for the release of the ACHIEVE findings (i.e., the decision to present the first ACHIEVE results to an inter-professional audience working in geriatric health rather than to specialists in hearing health), also sends a strong message to audiologists. The message is that hearing care must become integrated into new inter-professional team collaborations. Given that health relies on how individuals respond to, adapt to, and control challenges and changes, and given that rehabilitation can support older adults to maintain functioning as they rebalance losses by drawing on gains, a new imperative for audiologists will be to reframe hearing care based on a better understanding of how changes in multiple capacities (e.g., vision, mobility, mood, cognition, nutrition) could interact with hearing to affect multiple domains (physical, psychological, social). It seems to be time to rethink hearing care by focusing on how better hearing could be a gain that offsets the deleterious effects on functioning that may results from losses in other capacities, including but not limited to cognitive abilities (Blustein et al., 2023). Importantly, future results from the ACHIEVE study will look at the possible benefits of hearing care on physical, mental, and social health (https://www.achievestudy.org/). The message for today is that reducing the risk of dementia for people who are already at higher risk is only the first of the ACHIEVE results that may have profound implications for how audiologists work to ‘achieve’ healthy aging for the increasingly large population of older adults. How will audiologists respond to, adapt to and control the challenges and changes in practice that will be needed to function effectively with other health professionals to promote healthy aging?

References

1. Albers, M. W., Gilmore, G. C., Kaye, J., Murphy, C., Wingfield, A., Bennett, D. A., et al. (2015). At the interface of sensory and motor dysfunctions and Alzheimer’s disease. *Alzheimer’s and Dementia, 11(1)*, 70–98. http://dx.doi.org/10.1016/j.jalz.2014.04.514

2. Baltes, P. B., & Baltes, M. M. (1990). Psychological perspectives on successful aging: The Model of Selective Optimization with Compensation.’’ In *Successful Aging: Perspectives from the Behavioral Sciences* (pp 1-34). Edited by P. B. Baltes and M. M. Baltes. Cambridge University Press, U.K.

3. Blustein, J., Weinstein, B. E., & Chodosh, J. (2023). It is time to change our message about hearing loss and dementia. *Journal of the American Geriatrics Society*, DOI: 10.1111/jgs.18323.

4. Campos, J. L., Marusic, U., & Mahoney, J. R. (2022). Editorial: The intersection of cognitive, motor, and sensory processing in aging: Links to functional outcomes, Volume 1. *Front Aging Neurosci.* https://www.frontiersin.org/articles/10.3389/fnagi.2022.1009532/full.

5. CBC (2023a). https://www.cbc.ca/news/health/hearing-aids-cognitive-decline-dementia-1.6909911

6. CBC (2023b). https://www.cbc.ca/player/play/2246854723894#:~:text=Hearing%20loss%20has%20been%20strongly%20linked%20with%20cognitive%20decline

7. CBC (2023c). https://www.cbc.ca/listen/live-radio/1-13-cross-country-checkup/clip/15999209-ask-me-anything-alzheimers-disease-treatments

8. Deal, J. A., Goman, A. M., Albert, M. S., Arnold, M. L., Burgard, S., Chisolm, T. et al. (2018) Hearing treatment for reducing cognitive decline: design and methods of the Aging and Cognitive Health Evaluation in Elders randomized controlled trial. *Alzheimer's Dementia Transl Res Clin Interv, 4*, 499–507. https://doi.org/10.1016/j.trci.2018.08.007

9. Frankish, C. J., Green, L. W., Ratner, P.A., Chomik, T., & Larsen, C. (2001). Health impact assessment as a tool for population health. *World Health Organization Reg Publ Eur Ser., 92*, 405-37.

10. Lin, F. R., Pike, J. R., Albert, M. S., Arnold, M., Burgard, S., Chisolm, T., Couper, D., Deal, J. A., Goman, A. M., Glynn, N. W., Gmelin, T., Gravens-Mueller, L., Hayden, K. M., Huang, A. R., Knopman, D., Mitchell, C. M., Mosley, T., Pankow, J. S., Reed, N. S., … Coresh, J. (2023). Hearing intervention versus health education control to reduce cognitive decline in older adults with hearing loss in the USA (ACHIEVE): a multicentre, randomised controlled trial. *The Lancet (British Edition)*. https://doi.org/10.1016/S0140-6736(23)01406-X

11. Livingston, G., & Costafreda, S. G. (2023). Interventions to prevent dementia should target those at high risk. *The Lancet (British Edition)*. https://doi.org/10.1016/S0140-6736(23)01472-1

12. Livingston, G., Sommerlad, A., Orgeta, V., Costafreda, S. G., Huntley, J., Ames, D. et al. (2017). Dementia prevention, intervention, and care. *The Lancet*, *390*(10113), 2673-2734. https://doi.org/10.1016/S0140-6736(17)31363-6

13. Livingston, G., Huntley, J., Sommerlad, A., Ames, D., Ballard, C., Banerjee, S. et al. (2020). Dementia prevention, intervention, and care: 2020 report of the Lancet Commission. *The Lancet*, *396*(10248), 413-446. https://doi.org/10.1016/S0140-6736(20)30367-6

14. McLuhan, M. (1964). The medium is the message. Chapter 1 in Understanding Media: The Extensions of Man. MIT Press, Cambridge, MA.

15. Pichora-Fuller, M. K. (2023). Findings from the ACHIEVE RCT: Does hearing care modify dementia risk? *Canadian Audiologist, 10(4).*

16. Rowe, J. W., & Kahn, R. L. (1987). Human aging: usual and successful. *Science, 237*,143–149. doi: 10.1126/science.3299702.

17. Rowe, J. W., & Kahn, R. L. (1997). Successful aging. *The Gerontologist, 37*, 433–440. doi: 10.1093/geront/37.4.433.

18. Thiyagarajan, J. A., Araujo de Carvalho, I., Peña-Rosas, J. P., Chadha, S., Mariotti, S. P., Dua, T., et al. (2019). Redesigning care for older people to preserve physical and mental capacity: WHO guidelines on community-level interventions in integrated care. *PLoS Medicine*, *16*(10), e1002948. https://doi.org/10.1371/journal.pmed.1002948

19. World Health Organization. (2020). *Healthy ageing and functional ability*. Geneva, Switzerland. https://www.who.int/news-room/questions-and-answers/item/healthy-ageing-and-functional-ability

20. World Health Organization. (?2017)?. *Integrated care for older people (ICOPE): guidelines on community-level interventions to manage declines in intrinsic capacity*. Geneva, Switzerland. https://apps.who.int/iris/handle/10665/258981