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The National Center for Rehabilitative Auditory Research

About the Center

The National Center for Rehabilitative Auditory Research (NCRAR) is a multi-disciplinary consortium of professionals dedicated to improving rehabilitation to optimize hearing health care for veterans and, by extension, the nation. Established at the Portland VA Medical Center, in Portland, Oregon, in October 1997, it is housed in state-of-the-art facilities, which were officially opened in June 2006.*

The NCRAR conducts research, trains new scientists, and disseminates information to clinicians who assess and treat veterans with hearing disabilities. In addition, staff at the Center work to educate and inform the public about hearing conservation, hearing loss prevention, auditory rehabilitative strategies, and tinnitus coping mechanisms.

The National Center for Rehabilitative Auditory Research strives to be the national leader in rehabilitative auditory research and a national resource for veterans, their families, auditory scientists worldwide, and the community at large.

NCRAR Goals

To improve the quality of life of hearing-impaired veterans by providing practical solutions to fundamental problems associated with chronic impairments of the auditory system.

- To foster and expand partnerships with community institutions, for education, dissemination of information, and training of auditory researchers and clinical professionals.

*See the NCRAR facilities fact sheet for more information.

- To continue the development of shared core center facilities and equipment resources with collaborating programs and institutions to deliver effective rehabilitative therapeutics in the most efficient manner.
- To develop useful innovative research and rehabilitation technologies that directly influence and contribute toward establishing best practices clinical standards.

Collaboration with the Department of Defense

Because it is committed to providing the best health care possible to our nation's veterans, the NCRAR collaborates with the Department of Defense (DoD) to help promote seamless transitions of auditory care for military active duty personnel who are separating from military service. In conjunction with that goal, the Center is involved in several hearing-health education and research programs to provide information and support to new veterans.

One of those programs is NCRAR's new role as the "repository of records" for the Department of Defense Hearing Conservation Program. This means the Center securely maintains all of the hearing-ability related records for U.S. military personnel. In addition to using this information for its own research, the Center disseminates data to be used by researchers around the world, as needed, and in accordance with informed consent and patient information regulations.

Another joint initiative being planned – to synchronize NCRAR's hearing loss prevention programs with the DoD's hearing conservation programs – is designed to provide better education and preventative measures to protect the hearing of military personnel both while they are actively serving our country and once they have re-entered civilian life. This program is designed to emphasize the benefits and strengths of ongoing audiology programs within both the VA and the DoD.

Other joint research projects, including one related to hearing loss and traumatic brain injury, are in the planning stages.

Research

The NCRAR is the largest (veteran or non-veteran) audiology research center of its kind in the country. Research at the Center focuses on all aspects of auditory rehabilitation. Projects also involve diagnosis and prevention of hearing loss in order to optimize clinical rehabilitative care. Research studies include veteran and non-veteran participants.

There are three major research areas at the NCRAR:

- Prevention of hearing loss.
- Diagnosis and assessment.
- Rehabilitation.

Areas of research within those categories include:

- Ototoxicity (e.g., evaluating devices and other methods of early detection)
- Auditory function related to diseases (e.g., diabetes, multiple sclerosis)
- Relationships between damage to hearing by noise and speech perception
- Improvements in speech recognition in noise by hearing-impaired people
- Combined effects of aging and noise damage on hearing loss
- Effects of dual-sensory loss (hearing and vision) on speech recognition
- Tinnitus measurement and treatment
- Psychosocial aspects of hearing (including hearing aid use)
- Improvement of hearing systems (e.g., implants, amplification of hearing aids)

Engineering Expertise

As part of its research work, the NCRAR is developing several technology-based devices related to the understanding and evaluation of hearing loss and tinnitus. One of these, the Programmable Auditory Laboratory (PAL) 3000 for assessment of tinnitus, was based on an original design by Stephen Fausti, Ph.D., the Center's Director. The PAL 3000 is currently being evaluated at several VA medical centers as an automated protocol for measuring tinnitus. Other technologies under development include devices designed for compatibility with portable PC platforms to enhance a clinician's ability to provide early identification and monitoring of ototoxicity, and signal processing techniques and algorithms for improvement of hearing aids.

The National Research Picture

The NCRAR is one of 13 Centers of Excellence within the VA's Rehabilitation Research and Development Service, an intramural program for improving the quality of life of impaired and disabled veterans through a full spectrum of research – from approved rehabilitation research projects, through evaluation and technology transfer to final clinical application. The NCRAR is the only VA Research Center dedicated to addressing the needs of veterans with hearing impairment and tinnitus.

The Rehabilitation R & D Service is part of VA's even larger national Office of Research and Development, which organizes its efforts around diseases and health conditions that are prevalent among veterans.

Funding

The NCRAR's budget is nearly $4 million per year. Funding comes from the U.S. Department of Veteran Affairs Rehabilitation Research and Development Service in Washington D.C. The NCRAR also has developed and nurtured mutually beneficial collaborative partnerships and secured funding through a network of academic institutions, other federal agencies such as the U.S. Department of Defense, the

Department of Health & Human Services Office on Disability, the National Institutes of Health, and commercial industries and private foundations who pursue specific education research and development objectives consistent with the vision, mission and guiding principles of the Center.

Leadership

The NCRAR was founded by Stephen A. Fausti, Ph.D. who developed it to its current position as a recognized National Center of Excellence in rehabilitative auditory research. As its director, Fausti is responsible for providing oversight of all its clinical, education, training, and research activities. He is a highly productive clinical scientist as well, having gained international recognition for his pioneering research and clinical expertise in assessing high-frequency auditory sensitivity and using high-frequency testing for early identification of hearing loss caused by ototoxicity. In addition to many other scientific and clinical awards, in 2004 Fausti received the Magnuson Award, the VA's highest award for rehabilitation investigators.

Other NCRAR Researchers

There are currently 10 full-time clinical investigators at the NCRAR, all working on research in line with the mission of the Center. Their work is supported primarily by successful competition for research grants from national and private funding sources as described earlier. Investigators also are actively involved in research collaborations with universities, hospitals, and other research entities both locally and worldwide, to expand the scope and reach of their research projects. Each year, NCRAR investigators publish more than 50 peer-reviewed articles in the most prestigious scientific journals, and present their work at national and international scientific conferences. In fact, the *Journal of Rehabilitative Research and Development* has devoted a 2006 issue to the work at the NCRAR.

More information about the Center, its staff and its projects, including information specifically for veterans, can be found at www.ncrar.org.

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