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### **Tinnitus research funded by the U.S. Department of Defense (DoD)**

For the second consecutive year, tinnitus is ranked the **number-one** service-connected disability for returning military personnel from the Global War on Terror. Additionally since 2001, there has been an average increase of 18% per year in the number of veterans receiving service-connected disability compensation for tinnitus. Economically speaking, this currently translates to close to \$800 million dollars annually just for tinnitus disability payments to veterans and will continue to grow at 18% a year or more, if there is no intervention.

Because of recent advances in medical imaging technologies, the scientific community has been able to measure and quantify neuronal changes in the brain when tinnitus is present, particularly following noise-trauma. This breakthrough has allowed them to “see” and isolate tinnitus in the auditory pathways of the brain. This isolation has allowed researchers to conclude that tinnitus can be cured, but historically, public and private research funding dollars have been woefully inadequate at around \$3.5 million a year.

Congress responded to this urgency by adding tinnitus to the list of researchable conditions under the DoD’s Peer Reviewed Medical Research Program. This program, established in 1999, was specifically created to address research needs impacting military health and readiness. Two tinnitus investigators have been awarded grants totaling nearly \$2 million dollars to continue investigations on tinnitus – an overview of their work is provided below:

#### **Dr. Didier Depireux – University of Maryland, Baltimore - \$672,000 over three years**

*The American Tinnitus Association funded Dr. Depireux’s pilot grant to begin his investigations on this topic area in 2007. We provided \$50,000 and are extremely pleased to see that the Department of Defense sees the importance and application of his work to advance the knowledge of tinnitus and progress toward a cure. Their decision-making indicates that they see the importance of researching tinnitus just as our Scientific Advisory Committee (SAC) and Board of Directors do.*

Dr. Depireux’s study will attempt to target and reduce noise induced tinnitus by determining the efficacy of administering both antioxidants as a preventative measure (prior to noise trauma) for hearing loss and tinnitus and steroidal intervention following noise trauma. This will help to determine why tinnitus can be mitigated with certain steroids. In 3 years, they hope to have sufficient data to analyze the best course of prevention using antioxidants, and the relative benefits of intratympanic (in the ear) vs. intravenous administration of steroids, as well as the rapidity of intervention following acute acoustic trauma. This will guide the immediate “in-theater” care.

#### **Dr. Hinrich Staecker – University of Kansas - \$1,274,636 over three years**

*Note: Dr. Staecker is a highly regarded tinnitus researcher and a current member of ATA’s Scientific Advisory Committee – a volunteer professional committee that performs the peer review of grant proposals at ATA and makes recommendations for funding to the ATA Board of Directors.*

Dr. Staecker will attempt to regenerate sensory hair cells inside the ear. These hair cells die after noise trauma, thus causing hearing loss and triggering tinnitus. Current data suggests that the loss of sensory cells in the inner ear lead to the abnormal brain activity associated with tinnitus. By replacing the hair cells, restoration of normal brain activity and reduction of tinnitus may occur. This study will determine if hair cell replacement mitigates tinnitus and if it restores normal brain activity to the hearing centers of the brain. This study will represent the first investigation of the effects of hair cell regeneration in the brain.