

University of Maryland

Neuroscience and Cognitive Science Seminar *Tracking the Influence of Music Training on Cognitive Aging*

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Age-related declines in cognitive and hearing functions are well-documented in the laboratory and are also obvious in the real world, manifesting in older adults having difficulties understanding what someone is saying in the presence of other competing sounds (e.g., television, music, other people talking). Contributing factors likely include not only difficulty registering sound by the ear itself (i.e., hearing acuity or sensitivity), but a degradation of information when the auditory signal travels from the ear to the brain areas responsible for processing and remembering sounds. To date, ameliorating age-related declines in speech in noise comprehension have been largely unsuccessful yet are an essential challenge for hearing science, psychology and medicine to overcome because of their widespread prevalence. Since hearing aid technologies have so far been unable to effectively alleviate this problem, scientific interest has shifted toward identifying modifiable behaviors that may affect/alter cognitive hearing. I will present studies from my research group and others that have investigated the role of musical training as a means to mitigate age-related decline in auditory perception and cognition. Behavioral and neuroimaging studies in young adults provide converging evidence that musicians exhibit exceptional auditory skills that allow them to cope with age-related hearing loss better than non-musicians. I will describe evidence that shows that continuous engagement in musical activities throughout adulthood is associated with slower age-related decline in understanding speech in noise. This research has shown that musical training can promote changes in central auditory processing, and this in turn can compensate for peripheral hearing loss. The benefit of musical training on the aging auditory brain is exciting because it opens new avenues for developing innovative remediation programs and improving current rehabilitation protocols aimed at enhancing older adults' verbal communication abilities/functioning in both quiet and noisy environments.

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10:15am, Room 1103 Bioscience Research Building

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