

Neural Prosthesis Live Webinar

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MRI-Induced Vertigo

Dizziness around MRI machines has been reported for decades, and is occurring with increased prevalence around stronger magnetic fields. We have found that strong static magnetic fields such as those in 7 Tesla MRI machines induce nystagmus (and often vertigo) in all healthy humans studied thus far. The mechanism is thought to be a Lorentz force, generated in the inner ear by the interaction of the normal ionic current entering into the hair cells of the inner ear and the strong static magnetic field of the MRI machine. This Lorentz force displaces the cupulae of the semicircular canals, causing nystagmus and a sensation of vertigo. This magnetic vestibular stimulation has implications for studies of vestibular physiology and adaptation, the interpretation of functional MRI studies, and for human safety when undergoing diagnostic imaging studies. This talk will discuss the science leading to the current hypothesis and its subsequent applications.

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