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Vestibular implants: The first steps in humans

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Currently there is no efficient treatment for patients with severe bilateral vestibular function impairment. Presence of oscillopsia is their main complaint. It has a significant negative impact on their quality of life. Recently it has been shown that angular vestibulo-ocular reflex can be partially restored in animals. In humans it is possible to elicit a nystagmic response by electric stimulation of ampullary parts of the vestibular nerve. Controlled eye movements can be generated by frequency and intensity modulation of the restored baseline firing rate of the vestibular nerve. During adaptation phase to the electric stimulus, patients experience nystagmus with associated inconveniences. By repetition of “on/off periods” the duration of the adaptation phase can be significantly decreased. Results show that permanent electric stimulation is necessary to maintain this “optimal” adaptation state.

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