New Art Development of Stable Eyes Rehabilitation Device

Published date: Oct. 17, 2016

Technology description

Device for Treatment of Gaze Stability
Invention novelty: This technology is a medical device to improve vertigo, which results from a patient’ s damaged inner ear (vestibular system) on one side. This technology can improve the gaze stability.
Value Proposition: Researchers have been developing treatment methods for the gaze stability problem. Gaze stability is the problem that a patient cannot see clearly during head motion because of damage to the vestibular system. Current treatment for gaze stability involves rehabilitation that can improve the behavioral output from the vestibular system with non-specific behavioral exercises; however, there is no current means to treat gaze stability for one-sided vestibular damage. The new device can solve this problem.
Technical Details: Johns Hopkins researchers combined a customized 3D sensor with a 2D laser projection unit, and developed software to make combination work. The customized 3D sensor can measure the instantaneous head orientation (left/right, up/down, CW/CCW). The patient wears a lightweight headband comprising 3D head orientation sensor and 2D laser projection unit. The subject is seated in a darkened room facing a wall 1m in front of them. Their task will be to track the laser dot projected onto the wall by the device during self-generated horizontal or vertical head rotations. With this combined head and eye motion, the vestibular physiologic response is increased, which results in improvement in gaze stability. The Johns Hopkins developers believe this will also translate into improved balance and reduced fall risk. This device improves the vestibular response three times more than current best practice after a single 15 minute session, during horizontal and vertical head rotations, tracks compliance and integrates video eye movement recording to provide functional testing as well as rehabilitation.
Categories: medical device, treatment
Keywords: gaze stability, vestibular system, treatment, head rotation

Advantages

- A treatment for gaze stability for one-sided vestibular damage

- Easy patient-device interface
- Remote patient monitoring and remote clinician feedback
- Rehabilitation during all (3D) head rotations in space, i.e., no longer limited to just improving the balance response during horizontal (1D) head rotations.

Institution

Johns Hopkins University

Inventors

Americo Migliaccio
Assistant Professor
Outside
Michael Schubert
Associate Professor
Otolaryngology-Head & Neck Surgery SOM

联系我们

叶先生

电 话：021-65679356

手 机：13414935137

邮 箱：yeyingsheng@zf-ym.com