Researchers at the University of South Florida have developed a method for treating patients who suffer from an intolerance to the loudness of everyday sound (hyperacusis).

Hyperacusis is a debilitating condition presents a unique treatment challenge to clinicians, despite the fact that patients with hyperacusis frequently seek treatment from many different professionals. It is common for patients with hyperacusis to wear earplugs or earmuffs as “protection” from bothersome sounds. However, the attenuation from such devices impacts sounds of all levels, limits healthy sound exposures, and exacerbates the condition.

Our researchers have developed a novel device and formal protocol that effectively transitions the debilitated patient out of sound-attenuating hearing protection devices and into a sound-enriching therapy to promote normal sound tolerance.

The novel device combines several innovative features together to achieve an effective treatment. (1) An earmold with a heat-activated stint provides “protection” from offending sounds. (2) The device includes a highly configurable amplifier that can overcome the attenuation of the earmold, allowing natural sound exposure when needed. (3) Fast-acting loudness suppression (LS) circuitry effectively attenuates sound levels known to be intolerable to the wearer. (4) An onboard noise generator (NG) delivers custom, therapeutic sound that can markedly increase sound tolerance over time. (5) The formal treatment protocol yokes all of these features together.

During treatment, the device attenuates uncomfortable but not comfortable sounds and over time prescribes progressively less output limiting as the therapeutic effect of the noise generator increases the sound tolerance of the wearer.

The treatment protocol combines patient counseling with the required loudness suppression (LS) and noise generator (NG) treatment. Together, this can transition the hyperacusic patient from EPs towards normal audition and possibly helpful amplification. This technology is applicable to medical research fields involved in auditory research and to hearing aid-companies.

Advantages:

- Habituation to sounds
- Transition from earplugs to normal exposure
- Sustain comfort while gradually reducing occlusion
- Include loudness suppression (protection from loud sounds) and sound generator for the treatment

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