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Welcome to the new PATH MEDICAL NEWSLETTER. This publication is intended to highlight features of our products, tips on best practices, and how-to's. We hope that you find the information valuable and would love to have your feedback and suggestions for topics. Please write to us at academy@pathme.de.

Pressurized Otoacoustic Emission Testing

The integrity of the middle ear is paramount in facilitating successful Otoacoustic Emission (OAE) testing. A healthy middle ear serves as a crucial conduit for sound transmission, as sound stimuli must traverse this region to reach the cochlea's outer hair cells, and subsequently, emissions must travel back through the middle ear for detection in the ear canal. Minute alterations in middle ear pressure can significantly impede the efficacy of emission recording, affecting the bidirectional transmission of sound waves (Lonsbury-Martin, Martin, McCoy & Whitehead, 1994; Owens, McCoy, Lonsbury-Martin & Martin, 1993). Zebian, Schirkonyer, Hensel, Volbort, Fedtke & Janssen (2013) quantified the amplitude changes with changes in pressure. They found that the highest amplitude of the emission was when the ear was at maximum admittance and amplitude decreased by 2.3 dB for every 50 daPa pressure change.

Aligning the pressure within the ear canal to the positive or negative pressure of the middle ear enhances the probability of detecting OAEs (Hof, Anteunis, Chenault, van Dijk, 2005; Sun and Shaver, 2009). Thus, measuring OAEs under pressurized conditions to match maximum admittance and capturing valid responses under such circumstances aids in mitigating false positives for Sensorineural Hearing Loss (SNHL). Analogous to middle ear muscle testing, pressurizing the ear canal to match middle ear pressure augments the likelihood of detecting a reflex, comparable to OAE testing. That is, conduct a tympanogram to determine the status of the middle ear. If the middle ear pressure is not 0 daPa, pressurize the ear canal to match the pressure of the middle ear and then conduct the OAE testing. This will maximize the ability to obtain an OAE response.

SENTIERO DESKTOP// DIAGNOSTIC from PATH MEDICAL GmbH integrates tympanometry and OAE testing into a single device, affording the capability to assess middle ear condition and conduct OAE testing under pressurized conditions.

References

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