

# ABSTRACTS

KURZ IMPLANTS, PRECISION INSTRUMENTS, VENTILATION TUBES

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MIDDLE EAR SURGERY

## MNP MALLEUS NOTCH PROSTHESIS

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**An Optimal Partial Ossicular Prosthesis Should Connect Both to the Tympanic Membrane and Malleus: A Temporal Bone Study Using Laser Doppler Vibrometry**

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**Objective:** To compare stapes vibrations in different partial ossicular replacement prosthesis (PORP) applications.

**Methods:** Stapedial vibrations were measured on fresh frozen human temporal bones with laser Doppler vibrometry. Eight different types of common ossiculoplasty methods were compared regarding recovery of stapes vibrations in relation with the normal ossicular chain. The PORPs were divided into three groups: 1) PORPs with the lateral contact only with the tympanic membrane, 2) PORPs with lateral contact only to the malleus handle, and 3) PORPs with lateral contact with both the malleus handle and the tympanic membrane.

**Results:** The PORPs with lateral contact only to the malleus handle performed better than the PORPs with lateral contact to the tympanic membrane only at 2 kHz, but the best recovery was found in the group with contact both to the malleus handle and the tympanic membrane.

**Conclusion:** The best sound transmission might be achieved by placing a PORP in contact with both the tympanic membrane and the handle of the malleus.

**Titanium prosthesis with malleus notch: a study of its “user-friendliness”**

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“User-friendliness” is an important factor in the choice of ossicular prosthesis. The current titanium prostheses have a flat, open head plate and are designed to sit under the tympanic membrane. Previously, the author had designed titanium prostheses with a malleus notch extension at the head plate. The present study aimed to assess whether these customised prostheses were user-friendly, compared with conventional prostheses. Fourteen surgeons were recruited to examine the user-friendliness of several ossicular prostheses. They performed ossiculoplasties on temporal bones and rated the user-friendliness of the malleus notch prosthesis against that of some of the more popular conventional ossicular prostheses. For malleus-stapes assembly, eight out of 13 surgeons preferred the malleus notch prosthesis to the Düsseldorf and Goldenberg designs. For malleus-footplate assembly, six out of 10 surgeons preferred the malleus notch prosthesis to the Düsseldorf and Richards designs. Most of the surgeons stated that the reconstruction was more stable using the malleus notch prosthesis.