

Bone Conduction Hearing devices compared

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Title of Study	<i>Bone Conduction Hearing: Device Auditory Capability to Aid in Device Selection</i>	
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Objective	<ul style="list-style-type: none"> ■ To obtain identical laboratory measures of 8 (surgical and nonsurgical) bone conduction devices and relate them to clinical function. 	
Subjects and Methods	<ul style="list-style-type: none"> ■ Seven surgical devices (Intenso, BP110, BP100, and Cordelle [Cochlear, Denver, Colorado]; Ponto Pro and Ponto Pro Power [Oticon Medical, Somerset, New Jersey]; and Alpha 2 [Sophono, Inc, Boulder, Colorado]) and 1 non-surgical dental device (SoundBite; Sonitus Medical, Inc, San Mateo, California) constituted the independent variables. Measured maximum output and gain parameters were the dependent variables. 	
Evaluations	Maximum output force (dB re 1 μ N) for 90 dB sound pressure level input <hr/> Maximum output of each device displayed in an audiogram format.	Maximum acousto-mechanical gain for each device in dB (difference between force in dB re 1 μ N and 60 dB sound pressure level [SPL] input sound pressure) averaged over the standard clinical pure-tone average (PTA) frequency range (solid bars, 500-3000 Hz) and the higher frequency range above the PTA (hashed bars, 4000-8000 Hz).
Other Parameters	<ul style="list-style-type: none"> ■ Laboratory setting 	
Clinical Results	<ul style="list-style-type: none"> ■ Maximum output varied across devices in the pure-tone average (PTA; 500-3000 Hz) frequency range (mean, 109.7 dB re 1 μN; range, 98.8-119.2 dB) and in the above PTA (4000-8000 Hz) frequency range (mean, 102.6 dB re 1 μN; range, 88.99-119.6 dB). Maximum gain varied in the PTA frequency range (mean, 40 dB; range, 29.1-49.1 dB) and was higher in the frequency range above the PTA (mean, 32.0 dB; range, 20.8-46.0 dB). 	
Conclusion	<ul style="list-style-type: none"> ■ All devices have sufficient maximum output and gain for the PTA frequency range for single-sided deafness (SSD). The devices differed in maximum output and gain for the frequency range above the PTA, a consideration for accommodating presbycusis and optimizing auditory function for SSD. The surgical devices have less maximum output and gain in the above PTA range than in the PTA range. The non-surgical dental device had the highest output (up to 30 dB higher) and gain (up to 26 dB higher) in the above PTA range. 	