



Do-It-Yourself Hearing Aids

CLINICAL QUESTION

Do self-fitted hearing aids improve hearing for adults with mild to moderate-severe hearing loss?

BOTTOM LINE

Some, but not all, direct-to-consumer self-fitted hearing aids are likely comparable to conventional hearing aids fitted via audiogram, at a much lower cost. Access and guidance/regulations on direct-to-consumer self-fitted hearing aids is limited in Canada. See suggestions below.

EVIDENCE

- Conventional hearing aids: adjusted to the patient's specific hearing characteristics using an audiogram ("audiogram-fitted"). Direct-to-consumer hearing aids: adjusted by patients themselves using smartphones/pre-programmed settings ("self-fitted").
- Self-fitted direct-to-consumer devices versus audiogram-fitted conventional hearing-aids:
 - Four systematic reviews.¹⁻⁴ Most recent/relevant: Five randomized controlled trials (RCT) or cross-over studies (124 patients, mild-moderate hearing loss) testing direct-to-consumer devices (PS2500amp™, CS50+ Sound World Solution™, FocusEar RS2™, Tweak Focus™, Etymotic BEAN™, Olive SmartEar™):¹
 - Speech intelligibility: No difference.
 - Additional cross-over study: 23 patients, moderate-severe hearing loss.⁵ Percentage words recognized (60% baseline) changed to:

- Conventional hearing aids: 76-88%.
 - Direct-to-consumer devices: CS50+ Sound World Solution™ 68%; Etymotic BEAN™ 80%.
 - No statistical analysis.
- Same hearing aids: Audiogram-fitted versus self-fitted.
 - One systematic review: Five randomized, quasi-randomized, or cross-over studies (176 patients).⁶
 - Speech intelligibility: No difference.
 - Additional RCT, 64 patients, mild-moderate hearing loss (Lexie Lumen™), 6-weeks:⁷
 - Self-assessed communication difficulties scale (ranges 1-99; lower=fewer difficulties): Baseline 34-37, improved to 19 self-fitted versus 24 audiogram-fitted (not statistically different).
 - Speech intelligibility, quality of life: No difference.
- Audiogram-fitted: Direct-to-consumer devices versus conventional hearing aids.
 - Cross-over RCT, 42 patients, mild-moderate hearing loss.⁸ Percentage words recognized (76% baseline) changed to:
 - Conventional hearing aid: 88%.
 - Direct-to-consumer devices:
 - CS50+ Sound World Solution™, Soundhawk™: 87% (no difference).
 - Etymotic BEAN™ (84%), Tweak Focus™ (81%), MSA Pro 30X Sound Amplifier™ (65%): All inferior to conventional hearing aids.
- Limitations: Randomization/blinding sometimes unclear; artificial setting (sound booth) often used; little quality of life information; unclear which patients would benefit from an audiogram; Canadian availability limited.

CONTEXT

- Examples, direct-to-consumer devices available in Canada:
 - CS50+ Sound World Solution™ (~\$300).⁹
 - Etymotic BEAN™ (\$300).¹⁰
- Mild-moderate hearing loss (26-60dB): managed with hearing aids. Severe: managed with cochlear implants/alternative communication techniques.¹¹
- Hearing aids ~\$3,000; most provincial plans minimal coverage (example \$500).¹²

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