

Using the Ling 7 sounds

Introduction

The Ling 7 sounds are useful for checking hearing aids and in the early stages of auditory training because they cover the entire range of frequencies that are used in English speech.

The Ling 7 sounds, from lowest to highest, are:

- /m/ (as in mouth)
- /ah/ (as in car)
- /ee/ (as in key)
- /oo/ (as in boot)
- /or/ (as in door)
- /sh/ (as in shoe)
- /s/ (as in seven)

The Ling 7 sounds can be used in various ways to assess a deaf/hearing impaired child's listening abilities.

When used as a **detection task**, the teacher can compare the results with the child's aided audiogram to determine which frequencies are available through the hearing aids.

When used as an **identification task**, the teacher is able to gain some information about the child's ability to use spectral cues in speech perception.

Finally, **consonant babble** provides a higher degree of difficulty by presenting smaller spectral differences.

Ling 7 sounds: detection task

In this task, the teacher instructs the child to respond when a sound is heard. The response mode should be one that is familiar to the child and should reflect the age and developmental level of the child.

- Children can usually perform a detection type task from about 18 months of age (given six months experience with these activities).
- Children will often perform these tasks well at school or at home but still not be able to perform a pure tone audiogram. The detection task is possible because it has become a familiar task, uses speech stimuli and the stimuli are usually presented well above threshold.

It is certainly appropriate to begin training the child for a stimulus response task from 12 months of age sometimes even earlier. It is extremely important, however, to make sure the response mode is developmentally appropriate.

Response modes for very young children should involve a gross physical response such as:

- placing rings onto a tower
- placing large colourful blocks into a box

Older children's responses to a detection task are limited only by the teacher's imagination. Responses which the children can give include:

- pressing buttons
- building towers
- putting marbles into a race
- saying 'yes'
- tapping the table
- adding parts to a face
- colouring-in sections of a picture
- stamping smiley faces on the windows of a house

The most commonly used responses for older children are the hand clap, the finger raise or a 'yes'.

When performing detection tasks it is usual to present each sound twice in random order. It is important to have at least two trials with no sound to ensure that the children are not simply waiting a certain time and then responding or responding to eye, eyebrow or chin movements. The no-sound trials should be given with an articulation posture but no voice.

Results of the tasks should be consistent with the results of the child's aided audiogram which is provided to the teacher by the Australian Hearing audiologist.

Relationship between the Ling 7 sounds and aided thresholds

- If children have aided hearing to 4000 Hz, they should be able to detect all seven sounds.
- If children have aided hearing to 2000 Hz, they should be able to detect all sounds but /s/.
- If children have aided hearing to 1000 Hz, they should be able to detect /ah/ /ee/ /oo/ /or/ and /m/, but not /sh/ and /s/.
- If children have aided hearing to 500 Hz, they should be able to detect /ee/ /oo/ and /m/.
- If children have aided hearing to 250 Hz, they should be able to detect /m/.

Ling 7 sounds: identification task

When using identification tasks, the teacher asks the child to repeat the sounds that are heard. The Ling 7 sounds form a small, closed set that children readily learn, so that even profoundly deafened children can gain some success on the task. When performing identification tasks it is usual to present each sound twice in random order. If a child can detect sounds in the detection task but is not identifying them correctly, an auditory visual presentation of the sounds can be given to facilitate the learning of the sounds.

Children's abilities to identify the sounds on the Ling 7 sound task correlate very strongly with their responses on aided audiometry and their exposure to auditory training activities. Teachers must bear this in mind when using the Ling 7 sounds as an identification task. Children whose speech skills have not developed enough for them to repeat the sounds clearly can make their response by pointing to the appropriate picture. Every attempt should be made to encourage correct articulation of the sounds.

Consonant Babble

In this task, syllables are presented in groups of three and the child is asked to repeat them. Children who have good listening skills often find the Ling 7 sound tasks too easy and thus they do not provide enough information to discriminate between a functional and a non-functional hearing aid.

A more difficult task that still does not require words is the consonant babble task. In this task, vowels and consonants are both used to broaden the range of spectral cues used and to present stimuli that vary in only one formant. The teacher must choose consonants and vowels that the child can articulate. For this task to be an accurate one, teachers also need to be familiar with the child's usual response, their aided audiogram and the frequency composition of the consonants and vowels chosen.

A typical task would consist of 10 to 15 syllables. It is important to use a good range of voiced and voiceless consonants as well as long vowels, diphthongs and short vowels. A typical set of syllables is listed below:

- /bah/
- /tee/
- /ork/
- /uhs/
- /shoo/
- /may/
- /no/
- /lah/
- /choy/
- /dow/

If children are unable to perform the task at their typical level the hearing aid should be listened to by the teacher and if necessary sent to the audiologist for repair.

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