

Spatially Enhanced Guidelines

Recording sounds of nature in their natural habitat is a very powerful way to enhance spatial awareness and perception. Spatially enhanced CDs are created by slightly intensifying the upper end of the sound spectrum and dampening the background to heighten awareness of the vast, three-dimensionality of space. This sharpened contrast defines the size and shape of the spatial envelope that contains us and heightens our drive to explore beyond our reach. It opens us up to the world around us, so as to access what is above, behind, below, and beside us. It highlights the qualities of sound that trigger our attention naturally. Thus we are assisted to be adaptively self-oriented in our place in space while simultaneously having our curiosity sparked to engage and interact with the salient sounds, events, people, and objects around us.

Home and School Protocol:

- 15-30 minutes each listening session
- 1-2 times per day for 2 weeks
 - Start with 15 minutes, 1 time per day and increase time and frequency as needed to support therapeutic goals
- Minimum separation of 3 hours between listening sessions
- Intensity level dependent upon sound source:
 - Headphones will provide greater intensity, due to preservation of higher frequency content and spatial surround
 - Open air dampens impact of the input, as sound waves quickly dissipate

Clinic Use:

- 15-30 minutes each listening session
- 1-2 times per day
- Use in clinic to support therapeutic outcomes of spatial understanding, enhance postural activation, and oculomotor organization

Equipment:

- Caregiver/therapist should place the headphones on self before each listening session to check headphone and CD player function, volume, and play settings

CD Player

- Using random or shuffle mode keeps music novel
- Should not generate background noise– no hisses or pops
- Turn off bass boost and/or shock protection
- Volume control should be equal in both ears
- Use “Hold” button to maintain all settings during listening session
- Use battery operated players to avoid electrical feedback
- Digital volume control allows most precise setting of volume

Headphones (Sennheiser HD500A or Pro-50)

- Frequency range of 20 Hz - 23,000 Hz
- Impedance of 150 Ohms
- Open ear system
- Circumaural (no ear buds)
- Marked with Right/Left sides; cord goes on the left

Tune Belt

- Allows child greater mobility while listening

Volume Control:

- Volume should be set a comfortable level – normal conversation level
- Listener should not have to shout over music
- For exactness, a decibel reader can be used; volume should be in the 45-55 dB range
- Volume may have to be adjusted over the life of the batteries used

Contraindications:

- Schizophrenia
- Auditory-evoked seizures

Children under 2 years of age:

- Use Nature Sounds over open speakers
- Place child at apex of triangle equidistant between 2 speakers, no more than 3-5 feet from each speaker
- Use a small space, such as a bathroom

Children with hearing aides:

- Remove hearing aides prior to listening
- Keep volume at normal conversation level
- Unilateral loss – use a stereo volume control to equalize volume in both ears

Children with cochlear implants:

- Therapist should understand mechanics and frequency range of cochlear implant
- Therapist should work in tandem with cochlear implant team

Children with active ear infections or other illnesses:

- Resume listening after child has been on medication for active ear infection for 24 hours
- Resume listening after flu or temperature symptoms clear up
- Able to continue with listening if cold symptoms present

Activities to be discouraged while listening:

- Activities that make the child unavailable such as TV, videos, computer use, video games, sleeping, and/or toys used in a perseverative way (i.e. lining them up)

Working with headphones:

- Remind yourself that most children have not had experience wearing headphones prior to this, so the initial newness may present as apprehension; often this apprehension is more about the headphones being “new” and “not the child’s idea” rather than an issue with tactile defensiveness.
- This potential apprehension quickly fades away, especially when the therapist/caregiver does not bring any additional hesitation to the situation; be confident in your position and the child will follow your lead
- It may be helpful to integrate some of the child’s favorite toys, snacks, or even a parent when first starting with the headphones to ease the transition