

Spatially Enhanced Guidelines 空间强化指南

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.

在自然的环境里录制自然的声音是一种很强大的方法，可以增强对空间的觉察和感知。空间强化CD的制作是通过将声谱的高频段略微增强，同时弱化背景音，以此来进一步感知空间的广阔和立体。这种锐化的对比界定了我们所处空间的大小和形状，并使我们更渴望去探索那遥不可及的未知。它为我们打开通向周围世界的大门，让我们能够通往头顶、脚下、背后和身侧。声音的质量是它的重点，能够在自然而然中激发我们的专注力。由此，我们可以以适应性良好的方式自发地导向我们在空间中的位置，同时我们的的好奇心得到激发，引领我们去和自己周围跳跃的声音、时间、人还有物体互动。

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

家庭和学校方案:

- 每次聆听15-30分钟
- 每天1-2次，持续2周
 - 开始时每天1次，每次15分钟。之后按需增加时间和频率来支持治疗目标
- 两次聆听之间至少间隔3个小时
- 强度水平取决于声音来源：
 - 耳机会带来更大的强度，因为耳机可以保持更高的频率内容和空间环境
 - 外放会弱化输入的影响，因为声波很快就会消散

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

临床使用:

- 每次聆听15-30分钟
- 每天1-2次
- 在诊所中使用，来支持治疗结果—空间理解，增强姿势活化，眼动运动组织。

Equipment:

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

设备:

- 养育者/治疗师需要在每次聆听开始之前自己戴上耳机，检查耳机和CD机的功能、音量和播放设置。

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

CD机

- 使用随机播放模式能够使音乐保持新奇
- 不应该制造背景噪声—不要有嘶嘶声或砰砰声
- 关掉低音增强和/或防震保护
- 音量控制应该两耳相等
- 在聆听过程中使用“锁定”键来保持所有设置
- 在CD机中使用电池供电以避免电反馈
- 数字音量控制可以使音量设置更精确

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

耳机 (声海 HD500A, 或Pro-50)

- 频率范围为20赫兹—23000赫兹
- 电阻抗为150欧姆
- 开放耳系统
- 耳罩式 (没有耳塞)
- 标注右/左侧；线在左边

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