Music and Language and Ears, Oh My!
AG Bell, 2010
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Christine Barton, MM, MT-BC

Music is like language. We hear the sound of the voice first, then we give meaning to the sounds we hear by dividing it into words, phrases and sentences. The difference is that music uses tonal and rhythmic patterns as language uses words.

- Edwin Gordon

Agenda
1. Ten Premises of our work
2. Identify key elements in the TuneUps Approach (Barton & Robbins, 2007)
3. Strategies for integrating music into traditional intervention activities with HH/D children
4. Video illustration samples
5. Create a musical activity
6. Practice “musicing!” (Nordoff & Robbins, 2007)

Ten Premises
1. Children are born with the ability to learn spoken language and music; it defines us as human
2. A current explosion in the research on music, hearing loss, and the brain is optimistic
3. Caution is needed when extrapolating from adult research data to children
4. Music must be experienced. You must “do” music!
5. Music should be integrated into habilitation and incorporated into a child’s everyday life.

Ten Premises
6. Music and language have commonalities as well as differences
7. Music holds promise for special populations
8. Language is confrontational; Music is invitational
9. Certain junctures occur where the intersection of music and language intervention is most beneficial
10. The caregiver’s attitude toward music is conveyed to the children

Music and Hearing Loss
- HA and CI children perceive rhythm nearly as well as their hearing peers (Gfeller, 2000)
- CI users less accurate than hearing peers in song recognition (Stordahl, 2002)
- Pitch perception and production more of a challenge
- For some, music may not be as enjoyable, but for others it is very motivating and desirable
Music and Hearing Loss

A handful of studies have shown that music training for individuals with hearing loss can have positive effects in cognitive, linguistic, memory, and music perception domains.

(Abdi, Kahlessi, Khorsandi, & Gholami, 2001; Galvin, Fu, & Nogaki, 2007; Peterson, Mortenson, Gjedde, & Vuust, 2009; Yuba, Itoh, & Kaga, 2007).

Music Training Studies

- Chan, Ho, and Cheung (1998) found that music training in childhood may have long-term positive effects on verbal memory.
- Martin (2009) discovered that children with musical training demonstrated enhanced language abilities and increased phonological working and sentence memory.
- Schellenberg (2004) found that music lessons enhanced general IQ.
- Moreno et al. (2008) showed that after music training, children had enhanced reading skills and better pitch discrimination in speech.
- Wong et al. (2007) found that neurologic development is affected by music training and has a positive affect on the way a person encodes sound.

TuneUps Approach

An improvisatory method integrating music, spoken language and listening activities within the therapeutic setting

Chris Barton & Amy Robbins

TuneUps Tip # 1

Your voice is the most important instrument you can own!

TuneUps Tip #2

Don’t reserve singing only for “music time”

Vocal Flexercizes

- Slide whistle
- Balls
- Yo-yo
- Sphere
- John Feierabend pitch exploration drawings
Music Experience
• Highchair
• Wee wee
• Sparkle Little Twink
• Take two sticks

TuneUps Tip #3
Use music purposefully and not as “background”

Music Experience
• Bilaterally-implanted kids
• Bilingual/Monolingual
• Multiply-involved

TuneUps Tip #4
Always introduce the CD player and any other electronic device before you use it

Music Experience
• Steady Beat
• Phyllis Weikart’s Key Experiences
  • www.highscope.org

TuneUps Tip #5
Experiment with using different voices/registers
Spoken Language and Music Experience

- Spoken Language
  - Indexical features are important for HH/D children
    - Fairy Tales - Three Bears, Little Red Riding Hood, Henny Penny
  - Characters in books for kids of different ages
    - Are you my mother?
    - Mr. Man books
    - Jaime O'Rourke and the Big Potato
- Music
  - Itsy Bitsy Spider
  - Snap, Gulp

TuneUps Tip #6

Turn taking is essential

Music Experience

Echo Songs

- Charlie over the ocean
- My Aunt Came Back
- Bean Bag Balance

TuneUps Tip #7

Turn any important phrase into a song

Music Experience

- Open the door
- What's in the bag?
- Knock, knock, knock
- Zippity-zip
- It's Time to Say "Good bye"
- Pick, pick, pick your nose........(with thanks to Mary M-S!)

Create a Music Experience

- Think of a situation where you use a phrase or need compliance in therapy
- Put the phrase to music with rhythm, melody or both
- As a start, try the “ma-ma” interval
- KEEP IT SIMPLE!
TuneUps Tip # 8

Rhythm is a powerful cue for spoken language

Music/Language Differences

- Music encompasses a greater spectral range
- Music can exist without language
- Language can be altered in music without changing the music itself
- Spoken language surrounds most children whereas music may not

Music/Language Similarities

- Share terminology
  - Pitch, timbre, timing, intensity
- Both have melodic contour
- Similar strategies used when listening to music or language
- Early exposure is critical for acquisition of both
- Both follow a time-ordered sequence of skills or milestones

Children learn their native language by hearing it, then speaking it, and finally reading and writing it. Music learning follows the same sequence.

Musical Nature of Speech to Babies

- Motherese
- Melodic intonation and repetitiveness
- Rhythmic motion – Rocking, Swaying, Patting
- Signature Tunes in maternal speech (Bergeson & Trehub, 2007)

Use of Music with D/HH Infants and Toddlers

- FULL-TIME device use!
- Put Your Ears On (C. Barton)
- Specific song associated with specific activity
- Baby’s recognition of music as a separate class of sounds
Use of Music with D/HH Infants and Toddlers

- Motor movement to music – first, parents do; then baby does spontaneously when hears music
- Emergence of “musical babble”
- Turn-taking and supplying last word/sound
- Add melody and rhythm to everyday activities, like parallel talking, “Mommy’s fixing lunch now.”

Music and Language Milestones

<table>
<thead>
<tr>
<th>Age</th>
<th>Music</th>
<th>Language</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Birth-3 months</td>
<td>Alerts and calms to music; prefers infant directed singing; sings/stares</td>
</tr>
<tr>
<td>2-4 months</td>
<td>Musical babbling: repertoire movements in response to music; name to the source of music; prefers higher pitched voices</td>
<td></td>
</tr>
<tr>
<td>4-6 months</td>
<td>Occasionally matches pitch; larger repertoire movements; recognition familiar melodies; uses descending vocalizations</td>
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</tr>
<tr>
<td>6-9 months</td>
<td>Occasionally matches pitch; larger repertoire movements; recognition familiar melodies; uses descending vocalizations</td>
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</tr>
<tr>
<td>9-12 months</td>
<td>Occasionally matches pitch; larger repertoire movements; recognition familiar melodies; uses descending vocalizations</td>
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</tr>
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<td>12-18 months</td>
<td>Occasionally matches pitch; larger repertoire movements; recognition familiar melodies; uses descending vocalizations</td>
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<td>1-2 years</td>
<td>Matches steady beat while moving to music; songs melody with pitch accuracy; plays instruments</td>
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<tr>
<td>2-3 years</td>
<td>Develops total motor skills to sing harmony and melody; vocal range focused around 5-6 notes; expands rhythmic and melodic written notation</td>
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<tr>
<td>3-4 years</td>
<td>Vocals range expands; uses more complex notes and harmonies; demonstrates music configuration</td>
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Don’t forget to include music and rhythm cues when working with sequentially implanted bilateral children after the second implant!

Five Points of Intersection between Language Intervention and Music

- Auditory Awareness & Communication Turn-taking
- Phrase Imitation & Anticipatory Comprehension
- Increase in Lexical Depth & Range of Syntactic Patterns
- Mastery of Rote Academic Information
- HOTS: Metaphor, Inference, Hypothesis
1. Auditory Awareness & Communication Turn-taking
   - Spontaneous alerting to sound important early CI milestone
   - NH babies respond to music in unique way; recognize as a class of sounds

2. Phrase Imitation & Anticipatory Comprehension
   - Phrases contain more salient cues than single words
   - Anticipation of what is coming next

3. Lexical Depth & Syntactic Patterns
   - Vocabulary Depth (synonyms = hop, leap, jump)
   - Grammatical Expansion

4. Mastery of Rote Academic Information
   - Child’s address/phone number
   - Parts of Speech
   - Times Tables
   - State capitals
   - Preamble to the U.S. Constitution

5. HOTS – Higher Order Thinking Skills
   - Metaphor; Reading between lines
   - Poetry & Music = Cousins
   - Applies musical structure to poem: Strong rhythm, repeats lines

More Music for School Aged Students
   - Cultural Identity and Integration
   - “Hit Parade” game (AM Robbins, in Estabrooks, 1998)
     - Deeper meaning in lyric
     - “I thank God for unanswered Prayers”
     - “Live like you were Dyin”
   - HOTS (Higher Order Thinking Skills)
     Reading between the lines
Music Milestones and Activities

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<td>Birth - 3 months</td>
<td>Alert and active to music, prefers initial aural input; begins to discriminate pitch and play simple instruments</td>
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<td>3 - 6 months</td>
<td>Musical babbling; repetitive movements in response to music; starts to match movements to music</td>
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<tr>
<td>6 - 9 months</td>
<td>Occasionally matches pitch to repetitive movements; recognizes familiar melodies; spontaneous singing; play pitch</td>
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<td>9 - 12 months</td>
<td>&quot;Sings&quot; spontaneously; recognizes and attempts to sing along with familiar songs;</td>
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<td>Alertness, social responses, beginning to recognize familiar melodies without lyrics, match heartbeats</td>
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<td>3 - 6 months</td>
<td>Musical babbling; repetitive movements in response to music; starts to match movements to music</td>
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<td>4-5 years</td>
<td>Larger purposeful movements; imaginative songs and stories; begins to recognize familiar melodies without lyrics, matches heartbeats</td>
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<tr>
<td>5-6 years</td>
<td>Matching steady beat while moving to music; begins to recognize familiar melodies; play melodies on simple instruments; can discriminate songs in key. Begins to read and write rhythmic notation</td>
</tr>
<tr>
<td>6-7 years</td>
<td>Playing simple tunes; more complex rhythms and melodies; voice begins to imitate instrument melody</td>
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<tr>
<td>7-8 years</td>
<td>Vocal range expands; more complex rhythms and harmonies; demonstrates music proficiency</td>
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<td>12-18 months</td>
<td>Vocal range expands; imaginative songs and stories; begins to recognize familiar melodies without lyrics, matches heartbeats</td>
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<tr>
<td>18-24 months</td>
<td>Matching steady beat while moving to music; begins to recognize familiar melodies; play melodies on simple instruments; can discriminate songs in key. Begins to read and write rhythmic notation</td>
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<tr>
<td>2-3 years</td>
<td>Learning to discriminate between familiar instruments; uses rhythmic instruments to accompany their range; melodic content is strict; makes up songs</td>
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<tr>
<td>3-4 years</td>
<td>Learning to discriminate between familiar instruments; uses rhythmic instruments to accompany their range; melodic content is strict; makes up songs</td>
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By the time a NH child heads to school, he/she should be able to sing a song with correct pitch, rhythm and lyrics!
Who teaches them?

*I taught myself!*

Strategies

- Reinforce presence and absence of music
- Singing vs. speaking voice
- Focus on the voice
- Add visuals (put it back to audition)
- Slow it down

Strategies

- Use solfege
- Pitch it lower
- Use echo songs
- Introduce one instrument at a time

Resources

- www.westmusic.com
- The best instruments
- www.hearthsong.com
- Wonderful, well-made toys
- www.elderlymusic.com
- Instruments, CDs, teaching helps
- www.musictherapy.org
- Home of the American Music Therapy Association
- www.cbmt.org
- To locate a board certified music therapist

Music, D/HH, Brain Research

- Nina Kraus  
  http://www.soc.northwestern.edu/brainvolts/
- Tonya Bergeson  
  http://www.iupui.edu/~babytalk/publications.html
- Robert Zatorre  
  http://www.zlab.mcgill.ca/home.html
- Kate Gfeller  
  http://csd.unc.edu/~music/bios/THPYgfeller.htm
- Isabelle Peretz  
  http://www.brams.umontreal.ca/plab

This parent friendly, therapist helpful site will provide a steady stream of activities and other resources to help children develop their speech, language and listening.

- Dave Sindrey, M.Cl.Sc. Cert AVT creates and illustrates hundreds of games and ideas to share.
- Chris Barton, MM, MT-BC creates music experiences to accompany the activities
References


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TuneUps CD

- www.bionicear.com
- Advanced Bionics Booth
“Is it really possible that we can sing when we don’t feel like singing, that the singing itself lifts us up from the dark mood of overwork, disappointments and worries?”

Amy McConkey Robbins
from Whirlwinds and Small Voices

Available at:
www.amymcconkeyrobbins.com

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