

Music and Language and Ears, Oh My!

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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.
- Marin (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!

Vocal Flexercizes

- Slide whistle
- Balls
- Yo-yo
- Sphere
- John Feierabend pitch exploration drawings

TuneUps Tip #2

Don't reserve singing only for "music time"

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

Age	Music	Language
Birth-3 months	Alerts and calms to music; prefers infant directed singing; coos/cries	Moves to the sound of a familiar voice; looks at speaker’s mouth; coos/cries
3 - 6 months	Musical babbling; repetitive movements in response to music; turns to the source of music; prefers higher pitched voices	Babbles; laughs; smiles; vocalizes pleasure and displeasure
6 - 9 months	Occasionally matches pitch; larger repetitive movements; recognizes familiar melodies; uses descending vocalizations	Smiles at speaker; uses voice and gestures to show displeasure; responds to own name
9-12 months	“Sings” spontaneously; recognizes and attempts to sing along with familiar songs;	Recognizes names of family members; waves bye-bye; says one-two words; responds to “no”; babbles with inflection
12 -18 months	Dances to music; pays attention to lyrics; sings snippets of learned songs; more pitch matching; starting to match movements to music	Jargon-like utterances with some words included; follows one step directions; 20-100 words

Music and Language Milestones

Age	Music	Language
18 -24 months	Looks for dance partners; spins, marches to music; spontaneous songs have steady rhythm; able to imitate songs; lyrics more accurate than pitch	Two word phrases; uses question intonation; repeats overheard words; starts using pronouns; understands “where?” and “what’s that?”; >200 words
2-3 years	Learns singing vs. speaking voices; sings in different keys and meters; matches pitches consistently; some instrument discrimination	Three word phrases; refers to self as “me”; starts to use verb endings; answers questions with yes or no; follows two step command; >900 words
3-4 years	Begins to discriminate between familiar instruments; uses rhythm instruments to accompany their songs; melodic contour is intact; makes up songs	Uses many more pronouns; names colors; sentences 5-6 words; tells stories; expresses feelings; enjoys poems; sense of humor starts to develop; >1500 words
4-5 years	Larger purposeful movements; imaginative songs and stories; beginning to recognize familiar melodies without lyrics; match beat to others	Asks what, who, where, why questions; answers why and how questions; uses future tense; tells name and address; uses longer sentences; >2500 words

Music and Language Milestones

Age	Music	Language
5-6 years	Maintains steady beat while moving to music; sings melody with pitch accuracy; plays melodies on simple instruments; can remember songs in head; begins to read and write rhythmic notation	Uses past tense verbs, pronouns, prepositions correctly; sentences much longer; begins to read and write; knows time sequences; likes rhymes; >2800 words
6-7 years	Develops tonal center; starts to sing harmony and rounds; vocal range focused around 5-6 notes; expands rhythmic and melodic written notation	Uses many more verb tenses; can tell right from left; makes comparisons; tells well crafted, imaginative stories; > 13,000 words
7-9 years	Vocal range expands; uses more complex meters and harmonies; demonstrates music preferences	Exaggerates; explains ideas in detail; likes vocabulary and word play; understands jokes, riddles and idioms;>20,000 words

Language milestones adapted from ASHA (2010c), CDC (2010), First YEARS (2010c), NIDCD (2010), & Sindrey, (1997).

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

HOTS: Deeper meaning - Reading Between the Lines and Inference

The father paced the floor that rainy night. His 16-year-old son was driving home from a basketball game at a country school.

HOTS in Music for SASIs

“White Horse” by Taylor Swift

I'm not a princess, this ain't a fairy tale,
I'm not the one you sweep off her feet, lead her up the stairwell.
This ain't Hollywood; This is a small town
I was a dreamer for you and you let me down -
Now it's too late for you and your white horse to come around.

Music Milestones and Activities

Age	Music	Music Experience
Birth-3 months	Alerts and calms to music; prefers infant directed singing; coos/cries	Sing lullabies; gently rock and pat to music
3 - 6 months	Musical babbling; repetitive movements in response to music; turns to the source of music; prefers higher pitched voices	Imitate baby's babbling; provide shakers, bells and simple rhythm toys, bounce gently to music
6 - 9 months	Occasionally matches pitch; larger repetitive movements; recognizes familiar melodies; uses descending vocalizations	Imitate spontaneous songs; play pitch matching games using "la-la" or "loo-loo"; easy finger play songs; nursery rhymes with movement
9-12 months	"Sings" spontaneously; recognizes and attempts to sing along with familiar songs;	Provide songs for different activities like wake-up/bath time/bedtime, etc.; variety of recorded music; drums and xylophones;

Music Milestones and Activities

Age	Music	Music Experience
12 -18 months	Dances to music; pays attention to lyrics; sings snippets of learned songs; more pitch matching; starting to match movements to music	Dance baby on your feet; sing simple songs/chants/nursery rhymes; songs with repetitive chorus like E-I-E-I-O and B-I-N-G-O.
18 -24 months	Looks for dance partners; spins, marches to music; spontaneous songs have steady rhythm; able to imitate songs; lyrics more accurate than pitch	Experiment with different voices (big/little/high/low); Make sounds with voice to encourage vocal range (sirens, birds, animal noises)
2-3 years	Learns singing vs. speaking voices; sings in different keys and meters; matches pitches consistently; some instrument discrimination	Play guessing games with familiar songs and instruments; repetitive rhythmic accompaniment to singing; sequential songs like "If You're Happy and You Know it"
3-4 years	Begins to discrimination between familiar instruments; uses rhythm instruments to accompany their songs; melodic contour is intact; makes up songs	Marching band with rhythm instruments; high/low up/down; play/stop; fast/slow; loud/soft; nonsense songs; read books based on familiar songs

Music Milestones and Activities

Age	Music	Music Experience
4-5 years	Larger purposeful movements; imaginative songs and stories; beginning to recognize familiar melodies without lyrics; match beat to others	Rhythm stick games; movement songs using scarves, ribbons, etc.; story songs; group music experiences; xylophones, tone bars
5-6 years	Maintains steady beat while moving to music; sings melody with pitch accuracy; plays melodies on simple instruments; can remember songs in head; begins to read and write rhythmic notation	Sing rounds like "Row your boat"; practice singing; provide diverse genres and styles of music recordings/songs/games;
6-7 years	Develops tonal center; starts to sing harmony and rounds; vocal range focused around 5-6 notes; expands rhythmic and melodic written notation	Build a repertoire of familiar songs. Provide opportunities for music improvisation, reading and writing notation. Music lessons.
7-9 years	Vocal range expands; uses more complex meters and harmonies; demonstrates music preferences	Offer individual and group music experiences; provide music games (computer, board) that focus on music terminology, notation and discrimination

Music milestones adapted from Campbell & Scott-Kassner (1995), Gordon (2003), McDonald (1979), MENC (2010), Moog (1976), and Schwartz (2008).

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



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*

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://128.255.56.99/~music/bios/THPYgfeller.htm>
- Isabelle Peretz
 - <http://www.brams.umontreal.ca/plab>

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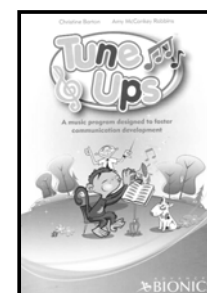
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TuneUps CD

- 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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