Reaching for the STARs: Speech Therapy and Research Working Together

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The Jane and Richard Thomas
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“Excuse me, miss. Do you realize that everything you’re doing with that baby is totally wrong?”
Speech Disorders and DS

- Isn’t it just “Down syndrome speech?”
- What’s the difference between each disorder?
- Why do some children have very clear speech?
- Does the type of speech disorder even matter?
Speech Influences in DS

- Smaller than average oral cavity (giving the impression of a larger tongue)
- Hypotonia of the muscles around the mouth
- Fusion of the lip muscles
- Extra lip musculature
- Neurological differences contributing to reduced speed and range of movement
- Phonological errors
Articulation Disorder: Diagnosis

- Diagnosis:
  - One or a few sound errors
  - A child may substitute the “y” in the word “yes” with a /w/ changing the word to “wes”
  - Even a few errors may make it hard for people to understand your child
Articulation Disorder: Cause

• Largely unknown

• In children with Down syndrome this may be related to:
  – Structural differences in the mouth
  – Persistent ear infections or fluid-filled ears
  – Other health problems that interrupt development

• Is different from dysarthria (muscle weakness), apraxia (muscle coordination), or phonological disorder
Articulation Disorder: Treatment

- Treatment:
  - Show how to produce the sound correctly
  - Teach the child to recognize correct and incorrect sound productions
  - Practice sounds

Link: Articulation Disorders and Treatment
Phonological Disorders: Diagnosis

- This disorder is related to the *rules of speech production*
- Children naturally simplify speech as they are learning to talk – this is called using *phonological processes*
- Eventual replacement of this child-like form in typical development
- Continued use of processes may lead to a phonological disorder diagnosis
Phonological Disorders in DS

• A language disorder in speech’s clothing
Phonological Disorders in DS

- Not related muscle weakness or poor coordination
- Difficulty organizing sounds and understanding the *rules* that govern their production
- Ultimately a *language* problem
- Techniques that focus on strength or coordination often prove ineffective when trying to improve speech accuracy
Phonological Disorders: Treatment

- Therapy targets each process or class of sounds
- Starts with group of sounds that mature or are established first
Apraxia in DS: Diagnosis

• Motor speech disorder
• It is not due to muscle weakness
• Brain has difficulty planning the movements of the muscles that create speech
• Other signs of apraxia include:
  – Limited consonant and vowels
  – An appearance of ‘groping’ movements
  – Inconsistent sound errors that are not the result of immaturity or other speech disorder
Apraxia in DS

“The possibility of dyspraxia as a diagnosis in DS has been little investigated.”
“…Impaired motor function is not due to cognitive delay, but is a syndrome-specific impairment, which may lead to speech disorder. …the speech disorder in DS is not related to cognitive or language level.” Cleland, et all, 2009

Link: Apraxia
Stuttering/Cluttering: Diagnosis

- Characterized by disruptions in the production of speech sounds, also called "disfluencies"
- Most people produce brief disfluencies from time to time
- Number and types of speech disfluencies produced in various situations
- Other assessments may be completed
- Information analyzed to determine whether a fluency disorder exists
Stuttering/Cluttering: Treatment

- Teach specific skills or behaviors that lead to improved oral communication
- Control and/or monitor the rate at which they speak
- Learn to start saying words in a slightly slower and less physically tense manner
- Transition to different situations
- Follow-up for “maintenance” sessions

Link: Stuttering
“Speech disorder in DS not wholly accounted for by phonological delays/disorders or hypotonicity… the children do present with difficulties in motor planning and programming.”

Cleland et al, 2010
Speech All-Stars

- Video
  (Removed)
How does research help us treat a child’s speech disorder?

How do we know a certain treatment is best?

How do I know if my therapist is choosing the right intervention methods?
“Post-treatment, all participants showed qualitative and quantifiable differences in EPG patterns and improvements in DEAP percentage consonants correct.”
Looks Can Be Deceiving

- Why aren’t we using this therapy in the US???
- EPG - provides visual feedback for tongue placement and timing of speech sounds
- Only targets lingual-palatal sounds (sounds made by the tongue on the roof of the mouth)
- EPG patterns only represent tongue-palate contact
- A total of 6 children with DS between 10 and 18 years (average 12 years) none of whom ever had speech therapy!
• Do you know Rachel, Alex, & Leah?

• Dual modality (sign and speech)↑recognition of vocab words

  Raining Bird, 2000

• Sign is an unaided system and involves direct communication with turn taking and eye contact

  Clibbens, 2001
How old is too old for therapy?

• Considerations
  – Hearing status
  – **Motivation**
  – **Motivation**
  – Stimulability
  – Working on communication strategies
  – **Motivation**
  – Family support
  – Frequency and duration of therapy
Oral Motor and DS
Oral Motor and DS

• What can it hurt?

• Aren’t I waking up muscles needed to talk?

• What if I use oral motor along with more traditional therapies?
Oral Motor Update

• Negative affect reported when using a combination approach including oral motor treatment and traditional approaches

• Had therapy only focused on speech sound development, these children probably would have shown progress much sooner.

   (In research with cleft palate)
“In our quest to help … we are always looking for the newest and best treatments… Although many of these treatments are valid and have potential use, many others advertised may not live up to their promised result.”

ASHA Leader, July 5, 2011
What if my child *still* doesn’t talk?

- Augmentative Communication (AC)
- Will AAC *prevent* speech from developing?
- Benefits of AC or other forms of assistive technology (AT)
• How do I address plateaus in my child’s speech?
Talking is fun!

- Practical ideas for carry-over of speech therapy at home
  - Car time
  - Daily routines
  - Tokens
  - Game time
  - Containers
  - Phone
  - Echo Micrphone
“Clearly more research is needed to clarify the exact nature and origin of the speech disorder in DS in order to design appropriate interventions.”

Cleland, et al 2009
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