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Stuttering Assessment and Treatment: A Holistic Approach

Guest Editor: Craig Coleman, MA, CCC-SLP, BCS-F, ASHA-Fellow



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Overview and Assessment of Stuttering: What Every SLP Should Know

Craig Coleman, MA, CCC-SLP, BCS-F, ASHA Fellow

Moderated by:
Amy Natho, MS, CCC-SLP, CE Administrator, SpeechPathology.com





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Stuttering Assessment and Treatment: A Holistic Approach

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continued[®]

Overview and Assessment of Stuttering: What Every SLP Should Know

Craig Coleman, M.A., CCC-SLP, BCS-F, ASHA-F

continued[®]

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- **Presenter Disclosure:** Financial: Craig Coleman was paid an honorarium for this presentation. He is co-owner of the Stuttering Academy, and co-authored and receives royalties for the OASES. Non-financial: Craig is a board-certified specialist in Stuttering, and serves on the ASHA Board of Directors.
- **Content Disclosure:** This learning event does not focus exclusively on any specific product or service.
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Learning Outcomes

After this course, participants will be able to:

- List risk factors associated with chronic stuttering for young children.
- Describe current research trends in the epidemiology of stuttering.
- Describe foundational principles of stuttering assessment and treatment.
- Explain the components of the ICF model.
- List 2-3 examples of specific assessment goals related to the ICF model.
- Develop treatment goals for people who stutter, based on assessment data.

Defining Stuttering

- The public and professionals have difficulty providing a *comprehensive* definition of “stuttering”
- Prior to a face-to-face stuttering training, only 1/24 certified SLPs accurately defined the comprehensive nature of stuttering (Coleman & Weidner, 2014)
- Even though the term emerges in later school age, awareness of stuttering emerges as early as preschool

Defining Stuttering

- **Why does it matter?**
 - **For professionals**, a one-dimensional definition of stuttering will result in one-dimensional therapy
 - **For people who stutter**, defining the various aspects of stuttering can lead to improved understanding and validation of their stuttering experiences
 - **For the public**, defining stuttering is the first step in improving attitudes towards it

continued

Why is Stuttering Difficult to Define?

- Largely because how it has been viewed throughout history:
 - A **structural problem** with the tongue (from 322 B.C. through late 1800s)
 - A **psychological issue**/neurosis (early 1900s)
 - **Cerebral dominance**/handedness (mid 1900s)
 - A **conditioned or learned response** (mid 1900s which perpetuated into the 1980s-90s)
 - **Physiological problem** with coordination and timing (late 1970s – present)

continued

Stuttering is...

A disruption in the flow of speaking characterized by repetitions (sounds, syllables, words, phrases), prolongations, blocks, interjections, and/or revisions.

These disfluencies may be accompanied by physical tension, negative reactions, secondary behaviors, and avoidance of sounds, words, or speaking situations.

(ASHA, 1993; Coleman, 2013; Yaruss, 1998, 2004)

Q1

continued

Stuttering vs. Disfluency

- Stuttering
 - Not typical
 - Characterized by repetitions, blocks, and prolongations
 - Increased physical effort
 - May have negative reactions
- Disfluency
 - Every speaker is disfluent (~3%)
 - Revisions, interjections, easy phrase repetitions

Q2

Stuttering

- Repetitions
 - Repeat a sound or word over and over again
- Prolongations
 - Make a sound longer than it should be
- Blocks
 - Get completely stuck and no sound comes out

continued

Disfluency

- Phrase Repetitions
- Interjections
- Revisions

continued

Classifications of Fluency Disorders

Childhood Onset	<ul style="list-style-type: none"> • Stuttering that began in childhood during one's otherwise normal development • Most of our stuttering cases fall here
Neurogenic	<ul style="list-style-type: none"> • Stuttering that results from damage to the nervous system • Stuttering secondary to stroke or TBI would fall here
Psychogenic	<ul style="list-style-type: none"> • Stuttering that results from an underlying psychological disorder • Conversion reaction disorder would fall here
Cluttering	<ul style="list-style-type: none"> • A fluency disorder in which speech may be perceived as too fast and/or too irregular

Basic Facts

- In general, misconceptions about stuttering exist in all researched cultures, religions, languages, occupations, generations, SES levels, etc. (see St. Louis, 2015)
- Negative public attitudes toward stuttering and people who stutter can have serious social, emotional, relational, and vocational consequences for people who stutter
- For people who stutter, misconceptions about stuttering (held by the others or self) can also lead to self-stigma

Basic Facts

- **Why does it matter?**
 - Helping people who stutter and the public understand basic facts about stuttering can help mitigate negative attitudes and social penalties
 - Advocacy depends on a solid understanding about the disorder

Basic Facts

- Approximately 1% of the adult population stutters (prevalence)
 - Over 3 million in US
 - 60 million worldwide
- Approximately 5% of people stuttered at some point in their lives (incidence)
- Stuttering exists in all cultures and races

Basic Facts

- Peak onset between 2-4 years of age
 - Average age of onset 33 months (2yrs 9 months)
- For adults, the ratio is approximately 3-4 males:1 female
 - At time of onset, the ratio is about 2 males:1 female

Basic Facts

- Stuttering is a disorder of motor coordination and can impact the various systems of speech (i.e., respiration, phonation, articulation)
- In the general population, stuttering is not linked to intelligence
- Stuttering usually decreases or does not occur in the following situations:
 - Choral reading
 - Whispering
 - Singing

Risk Factors

- For young children, risk factors inform the prognosis for recovery or persistence of stuttering
- **Why does it matter?**
 - Understanding risk factors helps the client, parents, and SLP to get their expectations in line with reality

continued

Risk Factors

- Family history of stuttering
- Male gender
- Stable or increasing disfluencies
- Greater than 6 months since onset
- Physical tension/secondary behaviors including subtle ones (pitch/loudness increases)
- Frustration/awareness
- Prolongations/blocks
- Later onset stuttering
- Other speech/language concerns
- Parental concern

Q3

continued

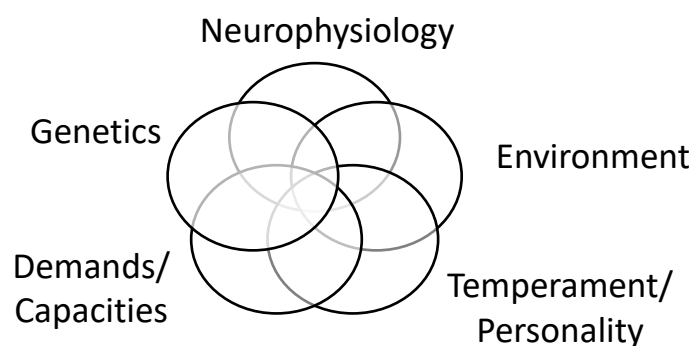
Causes

- The current research tells us that stuttering is likely multifactorial with strong links to genetics and neurophysiology
- There is a definite shift in recognizing stuttering as being **physiological** in nature, *not psychological*

Q4

continued

Causes – Multifactorial



Genetics

- Much of the current work in stuttering and genetics has been carried out by Dennis Drayna and colleagues at the NIH. See Frigerio-Domingues & Drayna (2017) for a review
- Stuttering has been linked to genetic mutations in 4 genes: GNPTAB, GNPTAG, & NAGPA, AP-4
- Mutations in these 4 genes are suggested to explain the cause of stuttering for up to 20% of persistent stuttering cases
- A mutated GNPTAB gene has also been reported to lead to stuttering in mice!

Genetics

- Twin studies and adoption studies provide further evidence that stuttering has strong genetic links
- Concordance of stuttering is much higher in identical twins (~52-57%) than in fraternal twins (~12-31%)
- Adopted children with an *adoptive* parent who stutters are not at higher risk for stuttering; adopted children with a *biological* parent who stutters are more likely to stutter than those with a fluent biological parent

Neurophysiology

- Soo-Eun Chang and colleagues at University of Michigan have contributed a great deal to what we currently know in this area
- Fluent speech depends on well-established connections among brain regions that support auditory processing, motor planning, and motor execution
- These areas are connected through a white matter tract called the superior longitudinal fasciculus
 - People who stutter have been shown to have disruptions to this white matter tract and functional differences with other deep brain structures (e.g. basal ganglia, thalamus, cerebellum)

continued

Multi-factorial

- In young children, stuttering may increase when the demand for speech chronically exceeds the child's capacity to produce speech
- Fluency occurs when capacities exceed demands
- Other factors such as child's temperament, environment, and predisposition also play a role

Q5

continued

What is the ICF?

- The ICF is a model developed by the World Health Organization (WHO) to help guide clinical decisions based on a number of factors, outside of just the surface-level characteristics
- <https://www.asha.org/slp/icf/>
- Four components:
 - Body Function and Structure
 - Activity and Participation
 - Environmental Factors
 - Personal Factors

Q6

Body Function and Structure

- Describes anatomy and physiology/psychology
 - Genetics, neurophysiology, surface-level behavior, tension, etc.

Activity and Participation

- Describes the person's functional status including communication, interactions with others, etc.
 - Avoidance
 - Thought-process

continued

Environmental Factors

- Factors that are not within the person's control, such as family, work setting, laws, cultural beliefs, community, etc.

continued

Personal Factors

- Can include race, gender, age, educational level, temperament, etc.

Q8

Assessment

- Purpose:
 - **For preschool children** – to determine whether or not the child needs treatment
 - **For school-aged children and adults** – to determine whether or not the child is *ready* for therapy and why they are coming for an evaluation now

Q9

Preparing for the Assessment

- For all ages, you'll likely need:
 - **A disfluency count sheet** to count disfluent and fluent words or syllables
 - Access here: www.stutteringacademy.com or
 - **Stuttering Severity Instrument-4** to perform a standardized measure of stuttering
 - **Recorded speech samples** from home or another setting

Preparing for the Assessment

- You may also need:
 - *Overall Assessment of the Speaker's Experience of Stuttering (OASES)*.
 - The OASES assesses the life impact of stuttering relating to a person's: overall knowledge of stuttering, reactions to stuttering, functional communication, and quality of life
 - Versions include:
 - OASES-A (18+ yrs)
 - OASES-T (13-17 yrs)
 - OASES-S (7-12 yrs)

Preparing for the Assessment

- For older children, you may also need:
 - *Community Centered Stuttering Assessment (CCSA)*
 - The CCSAs assesses the impact of stuttering on a child's life as reported by familiar listeners
 - Versions include:
 - Child
 - Parent
 - Teachers
 - SLPs
 - Access here: www.stutteringacademy.com

continued[®]

Conducting the Assessment

- Parent Interview (face-to-face, phone, or written responses)
- Child interview (especially for older children)
- Assessing the observable stuttering in various speaking tasks
- Assessing the attitudes and emotions

continued[®]

Parent Interview

- Is there a family history of stuttering?
- Does the child have any other speech/language issues?
- Are there any other medical concerns?
- How does the child interact with others? Are his interactions impacted on by his stuttering?
- What is the impact on social and educational activities?
- Does stuttering prevent the child from participating?
- Who else is involved in the child's care on a regular basis?

continued

Parent Interview

- How long has child been stuttering?
- Has stuttering changed over time?
- What types of stuttering is the child exhibiting?
- How much is the child stuttering? Is stuttering increasing or decreasing?
- Does the child have any tension when stuttering?
- Does the child seem concerned?
- How are others reacting?

continued

Child Interview (Older Children)

- Child needs to be interviewed to determine:
 - Child's readiness for treatment
 - Any differences in parent/child beliefs and reports
 - Child's previous experiences in treatment
 - Child's emotional response to disfluency
 - Child's ability to use fluency strategies

continued

Assessing the observable stuttering

- Conversation
- Story Retell
- Reading
- Picture Description
- Interaction with Parent
- Interaction with Siblings
- Interaction with Peers

continued

Assessing the observable stuttering

- Want to obtain % stuttered words in a speech sample (~200-300 words) gives us a good representation
- Divide total number of stuttered words by total number of words

Assessing the observable stuttering

- In addition to the amount of stuttering, determine:
 - **Types** of stuttering
 - Average **length** of stuttering events (for blocks, prolongations, and repetitions)
 - Average number of **iterations** (for repetitions)
 - Associated **secondary behaviors** during moments of stuttering (eye blinking, head nods, etc.)
 - Associated **tension** during moments of stuttering (facial grimacing, pitch breaks, etc.)

Assessing the observable stuttering

- *Deja's disfluency rate was 11% in conversational speech and 17% in an oral reading task. She exhibited moderate physical tension in the face and neck during periods of stuttering. She also exhibited secondary behaviors, such as head-nodding and hand-tapping. Deja exhibited repetitions (sound, word, and phrase), prolongations, and blocks. She exhibited repetitions of up to 6 iterations and average length of blocks/prolongations was approximately 3 seconds.*

continued

Assessing the affective component

- Results from the OASES and CCSA can serve as a baseline for the affective/cognitive components
- Children may be initially hesitant to talk about their stuttering emotions/reactions. Other approaches to start those conversations might include:
 - Books about stuttering
 - Videos featuring children who stutter
 - Drawings

continued

Assessing the affective component

- Allow the child to express their feelings about stuttering through art
- *“How does stuttering makes you feel?”*
- *“What does it feel like when you stutter?”*
- *“What do other people do when you stutter?”*

Assessing the affective component

- Use scales or images to assess how a child is feeling about or dealing with their stuttering
 - 1 – 10
 - Likert (e.g., not good to very good)
 - Emojis



Determining if Treatment is Indicated (Preschool)

- Assess all risk factors
- Is stuttering increasing or decreasing?
- Age is not that important!

continued

Determining if Treatment is Indicated (Older Children)

- Does the child want treatment?
- What are the child's expectations for treatment?
- Can the clinician give the child and parents what they want?
- What are the primary goals of the child and parents?
- Is the child ready to make changes?

continued

Developing Goals

- Preschool
 - Parents
 - Children
 - Direct vs. Indirect

Developing Goals

- School-Age/Adolescent/Adults
 - Education
 - Fluency
 - Tension and Secondary Behaviors
 - Overall Communication
 - Thoughts and Feelings

Case Study: Preschool

- 4 year-old boy
- family history of stuttering (father stutters)
- No other speech/language concerns
- Stuttering started over 1 year ago
- Child is aware of his stuttering and starting to exhibit negative reactions: avoidance, decreased utterance length

continued

- Disfluency rate = 15% with repetitions (all types), prolongations, and blocks
- Moderate physical tension; pitch/loudness changes
- Secondary behaviors: eye-blinking; head movement
- SSI-4 rating: moderate-severe

continued

Case Study: Older Children/Adults

- Age (16)
- Stuttering since age 3
- Had previous therapy focusing on improving fluency
- Impacting ability to participate in school; thinking of choosing a career they do not want because of perception of required speaking
- OASES scores in moderate-severe range

continued

- Specific difficulty noted:
 - Talking on the phone
 - Starting conversations
 - Talking in groups
 - Participating at school
 - Job interviews
 - Ordering food
- Disfluency rate is 5.5% with some blocks and prolongations; moderate tension

continued

Questions / Comments

- ccoleman@edinboro.edu
- Web: www.stutteringacademy.com
- Facebook:
<https://www.facebook.com/groups/168290933806220/>

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