Treating Articulation Disorders with Speech Buddies

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Speech Buddies use Tactile Feedback to train correct tongue placement
Therapy with Speech Buddies achieves superior results compared to therapy alone.

Speech Buddies should be considered as a first method of treatment for mild, moderate, and severe speech sound disorders.
Agenda

• Part 1: Tactile Feedback: Proven method in need of a new approach

• Part 2: The Speech Buddies Solution

• Part 3: Measuring Effectiveness: Our Clinical Research Programs

• Part 4: Using Speech Buddies in your Practice

• Part 5: Conclusion
Part 1:
Tactile Feedback:
Proven method in need of a new approach
The Tactile Feedback Methodology

• What is the Tactile Feedback Methodology?
  – Auditory, visual and now…tactile learning
  – Tactile Feedback within the mouth trains correct tongue placement and coordination

• Why tactile feedback works:
  – Integrating the sense of feeling greatly expedites learning
  – Enhances muscle motor memory
  – Emphasizes coordination and placement NOT strength
  – Endorsed by research and clinical leaders

• SLPs use tactile feedback already!
  – Coffee stirrers, tongue depressors, peanut butter
Speech therapists deserve a better Tactile Feedback solution

• Improvements needed:
  – Precise control of tongue placement for a wide variety of sounds
  – Easy to use & professional
  – Specially engineered for the needs of SLPs

• Other medical therapy specialties have successfully incorporated medical devices into practice

Physical Therapy  Audiology  Dysphagia  Dentistry
Part 2:
The Speech Buddies Solution
The Speech Buddies Story

• Founders: SLPs and MIT biomedical engineers
• Interdisciplinary team of more than 20 professionals
• 1000s of ideas, 100s of prototypes, dozens of children
Speech Buddies – the optimal solution for Tactile Feedback

- Handheld tools that get inside the mouth during speech
- Teach correct and consistent tongue placement
- Target the hardest to learn sounds: R, L, CH, S, SH
- Minimally impede co-articulation and airflow
- FDA listed
- Supported by Speech Buddies University online training program
The R Speech Buddy

- Ridges guide initial tongue position
- Coil guides retroflection
- Easy for students to feel correct and incorrect R productions
- Works for vocalic R (bird, car) and consonantional R (rabbit, rise)
How to Use the Rabbit Buddy

For the R Buddy, position the curve on the back of the top front teeth.
The S and SH Speech Buddies

Dental stop and centering ridge are placed on upper dentition and ensure correct placement.

Tip design enables clear sound production.

Correct tongue depth and height within mouth help fix both frontal and lateral errors.
Videos
The CH and L Speech Buddies

Two-pronged target cues “spreading” affrication and tongue tip and blade contact with palate

Contoured target fits around upper front teeth to enable coarticulation
Part 3: Measuring Effectiveness: Our Clinical Research Programs
Research strategy aims to prove evidence of Speech Buddies effectiveness

• **Goal:**
  
  – Prove Tactile Feedback with Speech Buddies is the “gold standard” and best treatment methodology for numerous types and severities of speech disorders

• **Strategy:**
  
  – Randomized controlled trials and case studies to evaluate efficacy in multiple patient populations:
    
    – Naïve to therapy, hearing impaired, craniofacial abnormalities, developmental & acquired apraxia, treatment resistant, accent modification
  
  – Collaboration with universities and hospitals
Research Studies Completed or Underway

• INTACT trial: randomized, controlled, single blind efficacy study
  – Speech Buddies enabled faster and more consistent gains – statistically significant result
  – Poster session ASHA 2011, Submitted to LSHSS journal

• R treatment techniques (ASHA 2010)
  – Significantly faster treatment time vs. industry standards
  – 90% accuracy achieved in eight 30 minute sessions

• Parent-driven therapy (ASHA 2011)
  – Significantly faster treatment time vs. industry standards
  – Provides evidence that parents can be an effective therapy adjunct
  – 98% accuracy after 8 hours of parent-led intervention

• Effectiveness study in school-based therapy (planned ASHA 2012)
  – Studies mass adoption in 8 NYC charter schools
Efficacy Trial for /S/: Study design

- IRB Approved, Controlled, Single-Blind, Randomized Efficacy Study
- Inclusion Criteria
  - 20 Subjects Aged 5:0 - 8:11
  - Randomized group assignment: 10 control, 10 experimental
  - /s/ distortion – less than 20% accuracy at baseline, lateral or frontal
  - No history of congenital or acquired neurological, structural, or physiological deficits
  - Hearing and language function within normal limits
  - Less than 10 hrs. of therapy (all enrolled had none)
- Method
  - Baseline Evaluation:
    - 50 word test battery by a blinded Ph.D. evaluator
  - Eight therapy sessions
    - 45 stimulus items, approximately 25 minutes each
    - Stimulus included: “warm-up” in isolation and syllables, therapy training with /s/ in all word positions and in diverse phonemic contexts
    - Experimental group used Speech Buddies every other cue
  - Final evaluation:
    - 50 word test battery by blinded Ph.D. evaluators
Study results prove efficacy

- Results show that the Speech Buddies group learned faster and more consistently than control group.
- Speech Buddy group showed a statistically significant ($p<.05$) treatment response whereas the control group did not.
- One way repeated measures ANCOVA analysis ($f(3,25)=5.46$, $p=.004$)

Response profile using Van-Riper’s 70-80% accuracy threshold.
Speech Buddies should be considered as a first therapy method for mild, moderate or severe articulation disorders
Part 4:

Using Speech Buddies in your Practice
How do I use Speech Buddies?

• Speech Buddies are designed to be used by SLPs, parents and students

• Parent involvement enhances learning process and your results.

• Scenarios of use:
  1. In therapy and at home (preferred)
  2. In therapy only
  3. At home only

• Individual or group therapy

• Recommend one Buddy per child
What types of patients can benefit from Speech Buddies?

Observed benefit:

- Speech and articulation disorders of all severities
  - No known cause
  - Hearing impairment
  - Autism spectrum disorder or other cognitive disorder
- Apraxia of speech (developmental or acquired)
- Accent modification / English language learning
- Post surgery cleft palate

Benefit under evaluation:

- Speech and articulation disorders tied to neuromuscular weakness, cerebral palsy, paralysis, and Down Syndrome

Not recommended:

- Language disorders, stuttering, voice disorders, nonverbal
Speech Buddies University is an online social speech therapy platform!

- Customize lesson plans
- Assign homework to meet your students’ needs and level
- Monitor students’ progress online with easy to read dashboard
- Connect with parents
- Completely free and designed for you!
Speech Buddies adopted by private clinics

• Each SLP in clinic owns a Professional Set of all 5 Speech Buddies
• Your clients purchase Speech Buddies for their child
  – Based on your recommendation
  – Students take Buddy to and from therapy
  – Send home with recommended exercises from Speech Buddies University

• Get referrals through Speech Buddies Provider program
Speech Buddies adopted as first treatment method in schools

• Adopted by large school districts:
  – Districts purchase Speech Buddies for SLPs to use with caseload
  – Speech Buddies Advantage program in NYC

• Public, private and contract SLPs:
  – School therapists own sets
  – Use in individual or group therapy

• Parent outreach:
  – Speech Buddies University is partner for homework and monitoring results
  – Parents “get it,” similar to purchasing a musical instrument or sports equipment

"In this era of serious budget constraints, it is rewarding to be able to offer something that is expected to both produce better results and save money."

- Dixon Deutsch, Executive Director, NYC Special Education Collaborative
Part 5: Conclusion
Conclusions

• Speech Buddies should be considered as a first method of treatment for mild, moderate and severe speech sound disorders

• Proven method, proven product
  • Rigorous clinical studies support application for a variety of patient populations
  • How many of the products you buy have direct evidence to support their use in clinical practice?

• Join the thousands of SLPs using Speech Buddies today
  • Take advantage of ASHA Special!
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R Case Study: Reduced treatment time vs. industry norms (Presented at ASHA, 2010)

- 90% accuracy achieved in eight 30 minute sessions
- 1/4 to 1/8 treatment time vs. industry norms
- Study design basics:
  - Mild to moderate articulation disorder, age 9
  - Pre and Post treatment test of 50 stimulus items
  - 8 therapy sessions each with 55 stimulus items
    - Warm up cues (6): R Speech Buddy used for every cue
    - Remaining cues (49): Every other cue in 1st session; every 8th cue for 8th session

![Graph showing treatment time in hours vs. industry norms]

90% accuracy after 4 hours

- Post Therapy Accuracy: 90%
- Pre Therapy Accuracy: 20%
Parent Driven Case Study:
Parents using Speech Buddies are an effective therapy adjunct (Presented at ASHA, 2011)

98% accuracy achieved in 8 hours of parent intervention and 1.5 hours of SLP acting as a consulting clinician (over 12 weeks)

Study design basics:
- Mild to moderate articulation disorder, /s/, age 7:4
- Assessments performed pre-treatment, midpoint and post treatment
- 32 parent therapy blocks each with 40 stimulus items
  - Items used traditional hierarchy of complexity
  - Specific instructions of when to use and when not to use the Speech Buddy
Effectiveness Study in NYC Charter School Network (In Progress)

- 8 SLPs across 8 NYC charter schools for 2011-2012 school year
- Target enrollment of 30 school-age children
- Pre-treatment, interim and final assessments are quantitative data points
  - Goldman-Fristoe Test of Articulation
  - Khan-Lewis Phonological Analysis
  - Phoneme-specific probes (Secord Contextual Articulation Test)
- Each SLP given professional set
- Each child given Speech Buddies to practice with at home according to goals
- Parent involvement supported by online exercises at Speech Buddies University
Cleaning Details

• FDA listed for single patient use
• Several cleaning options
  • Clean with mild soap
  • Submerge in 70% isopropyl alcohol
  • Submerge in 5% bleach solution
• Not dishwasher safe
Manufacturing Details

• Made in USA at FDA registered medical device manufacturing facility
• California Medical Device Manufacturing License
• Inspected and audited quality and manufacturing processes
• All vendors located in USA, key vendors are ISO 9001 certified
Material Details

- All vendors located in USA
- Plastics and colorants selected for oral use
- Speech Buddies incorporate a USP Class 6 material, the highest class available for medical devices
- Final product tested to the highest standards for cytotoxicity as per FDA and ISO 10993-1 biocompatibility guidance