SpeechEasy® Five-Year Follow-up Study

ASHA 2010, Philadelphia, PA

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Disclosure Statement

• I, Dr. Gallop, have no financial or nonfinancial interest in any organization whose products or services are described, reviewed, evaluated or compared in the presentation.
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- I, Dr. Runyan, have a financial interest in an organization whose products or services are described, reviewed, evaluated or compared in the presentation, in that I am a SpeechEasy® provider.
Learning Objectives

- Identify and briefly describe two combined types of auditory feedback alteration which comprise the SpeechEasy® device
- Describe a major finding of this study and its possible implications
- Identify two methods discussed in the presentation (one the “gold standard”) that can shed light on device effectiveness
This presentation:

• SpeechEasy® background information
• Purpose of study
• Methods
• Findings
• Implications, limitations, and future research
• Summary
Altered Auditory Feedback

• **Delayed Auditory Feedback**
  – (Vanryckeghem, Glessing, Brutten, & McAlindon, 1999; Wingate, 1976)
  – (Kalinowski, 1995; Kalinowski, Armson, Roland-Mieszkowski, Stuart & Graco, 1993; Kalinowski, Stuart, Sark & Armson, 1996)

• **Frequency Altered Feedback**
  – (Howell, El-Yaniv & Powell, 1987; Kalinowski et al., 1993)

• **Choral Speaking**
  – (Freeman & Armson, 1998; Ingham, 2001)
SpeechEasy®

- Altered Auditory Feedback (AAF)
- Invented by Stuart and Kalinowski
- Widely available since 2003
- Several versions
  - In-the-canal, $4,500
  - Comfort fit, $4,700

Photos: www.speacheasy.com
SpeechEasy®

- DAF
  - 50ms to 250ms
- FAF
  - 500Hz increments

Photos: www.speacheasy.com
SpeechEasy® Effectiveness

• **Initial efficacy studies**
  - 90% ↓ reading; 67% ↓ monolog
    • 4 month follow-up
      (Stuart, Kalinowski, Rastatter, Saltuklaroglu, & Dayalu, 2004)
  - 85% ↓ reading; 75% ↓ monolog
    • 12-month follow-up
      (Stuart, Kalinowski, Saltuklaroglu, & Guntupalli, 2006)

• **More studies**
  - (Stuart, Jiang, Jiang, Kalinowski, & Rastatter, 2003) [post-fitting]
  - (Kalinowski, Guntupalli, Stuart, & Saltuklaroglu, 2004) [6 months]
  - (Stuart et al., 2004) [4 months]
  - (Armson, Kiefte, Mason, & De Croos, 2006) [post-fitting]
  - (Stuart et al., 2006) [1 year]
Purpose of study

• Long-term clinical effectiveness of SpeechEasy® device as measured by:
  – Maintenance of stuttering reduction
  – Customer satisfaction
Methodology

• Eleven SpeechEasy® wearers using device from 13 months to ~5 years
• Telephone interviews of participants with/without device
• Transcribed and counted stuttering frequency
  – Repetition, prolongation, block
• Survey questions examining satisfaction
Findings
Research Question 1

- Has the reduction in stuttering frequency of SpeechEasy® users obtained at diagnosis been maintained over several years?
  - Two time frames:
    - (1) Post-fitting to today with device
      - ($t = -.202; p = .846$)
    - (2) Pre-fitting to today without device
      - ($t = 2.965; p = .014$)
Time Frame 1:
Post-fitting/Current with Device

(t = -.202; p = .846)
Time Frame 2:
Pre-fitting/Current without Device

(t = 2.965; p = .014)
Research Question 2

- Are SpeechEasy® users satisfied with their device?
Research Question 3

- Is there a relationship between user satisfaction with the SpeechEasy® and change in stuttering frequency?

\( r_s = .792; \ p = .004 \)
Implications

- Long-term effectiveness likelihood
- Users generally satisfied with the device
- Effectiveness measurements
  - Frequency
  - Satisfaction
Limitations

- Small N
- New architecture
- Telephone
- Uncontrollable variables
Future Research

• Larger N
  – Divide by gender, severity, etc.
• New architecture
• Therapy
• OASES
• Secondary features
• Explanation of carry-over effect
Summary

- Long-term study
- Significant carry-over effect of device over time
- Significant relationship between user satisfaction and device effectiveness

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References


References


