Anthem

Medical Policy

Subject: Altered Auditory Feedback Devices for Fluency Disorders
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Description/Scope

This document addresses the use of altered auditory feedback (AAF) devices for the treatment of fluency disorders.

Position Statement

Investigational and Not Medically Necessary:

Altered auditory feedback (AAF) devices are considered **investigational and not medically necessary** for the treatment of fluency disorders.

Rationale

Fluency disorders include stuttering, the most common fluency disorder, and cluttering. Traditional treatments for developmental fluency disorder have involved various speech therapy techniques. In some cases, pharmacologic therapy has been used. AAF has been investigated as a potential therapy. The rationale for AAF rests in the observation that individuals who stutter or clutter tend to become more fluent when speaking in unison with others – the so-called "choral effect." AAF attempts to emulate the choral effect by allowing the user to hear one's own voice with a slight time delay or a pitch shift which is said to create the illusion of another individual speaking at the same time.

The published literature on the clinical use and effectiveness of these devices for the treatment of stuttering consists of a few reports with small numbers of individuals. Lincoln and colleagues (2010) reported on 11 adults who used an AAF device to participate in speaking sessions with an investigator. The speaking sessions included conversational speech and reading aloud. Results were highly individualized depending on the condition. All participants responded differently under differing conditions to different AAF settings. The authors of this study concluded that it is not possible to predict who would benefit from AAF devices nor is it possible to predict the extent of any proposed benefit. The results are somewhat mixed and there is minimal data on its effect on everyday social fluency.

Gallop and colleagues (2012) reported on 7 individuals who stutter and used an AAF device. The study was designed to examine the long-term effectiveness of the device. The length of follow-up was 13 to 59 months. All participants were interviewed via telephone for approximately 30 minutes (15 minutes wearing the device and 15 minutes without the device). The authors found that time did not have a significant effect on stuttering frequency. This study is limited by the lack of a control group and the small sample size.

A study by Foundas and colleagues (2013) reported on 14 individuals who stutter and used the SpeechEasy® (Janus Development Group, Greenville, NC) device, and compared them to a control group of 10 individuals. For those who used the device, device settings, ear placement, speaking task and cognitive variables were examined. When compared to the control group, the intervention group of individuals showed a greater reduction in stuttering compared to baseline while using the device with custom settings. Study groups remain small and there is little if any data on the long-term use of these devices, and no data to support that fluency would persist following discontinuation of the device. Larger prospective randomized controlled studies are required to demonstrate the effectiveness of AAF for everyday communication and fluency compared both to no treatment and to other forms of established therapy.

Ritto and colleagues (2016) conducted a randomized clinical trial that compared the effectiveness of an AAF device, SpeechEasy, versus behavioral techniques in the treatment of stuttering. A total of 18 adults without hearing problems and who stutter were separated into two groups. Group 1 included 11 adults aged 21-42 years (mean=30.0). Group 2 consisted of 7 adults aged 20-50 years (mean=35.6). Both groups completed a baseline testing prior to treatment. The individuals in Group 1 were instructed to use the SpeechEasy device for 6 months without any training of fluency enhancing techniques. The participants in Group 2 were provided a 12-week fluency treatment protocol. Both groups demonstrated approximately 40% reduction in the number of stuttered syllables compared to baseline measures. The 3- and 6-month test times showed no significant differences between stuttered syllables ($p>0.05$). The authors concluded the following:

> The results obtained with this study pointed future directions for our research, emphasizing the need to assess naturalness of speech and quality of life after both treatments modalities and, finally, provide a treatment combining AAF and therapy and compare the results obtained in this group with the results in this paper.

The impact of AAF devices for the treatment of cluttering has not been described in the published medical literature in the form of a clinical study. Without such data it is unclear if the use of AAF devices provide any health outcomes benefit for individuals who clutter, and such use should be considered unproven.

Background/Overview

Fluency disorder is defined as a disturbance in the normal fluency and time patterning of speech that is inappropriate for the person's age. Fluency disorders are comprised of stuttering, the most common fluency disorder, and cluttering.

Stuttering is characterized by an interruption in the flow of speaking. Developmental stuttering is the most common form, with an onset prior to the age of 12, and generally between the ages of 2 and 5 years. Preschool children normally undergo a transient period of disfluency, and it is estimated that 50%-80% of children with developmental stuttering will recover with or without therapy and generally before puberty. Persistent developmental stuttering is developmental stuttering that has not undergone spontaneous or therapy-related remission. Proposed etiologies include abnormal cerebral dominance with differences in regional brain activation patterns in regions of the brain that modulate verbalization. A genetic component has also been observed. Acquired neurogenic and psychiatric stuttering in a previously fluent individual is much rarer than developmental stuttering, and may be neurogenic resulting from brain damage associated with conditions such as traumatic brain injury, Alzheimer's disease, and Parkinson's disease, among others. Psychogenic stuttering is also recognized following emotional trauma.

Cluttering is characterized by a wider range of associated issues, including perceived rapid and/or irregular speech rate, atypical pauses, maze behaviors, decreased awareness of fluency problems or moments of disfluency, excessive disfluencies, collapsing or omitting syllables, and language formulation issues. These issues, either alone or in combination, result in a breakdown in speech clarity and/or fluency and impaired social interactions. The age of onset is not well studied, but some data indicates that it is similar to stuttering and diagnosis typically occurs at approximately 8 years of age. Some reports have indicated that cluttering may co-occur with other conditions, including stuttering, learning disabilities, auditory processing disorders, Tourette's syndrome, autism, word-finding/language organization difficulties, and attention-deficit/hyperactivity disorder. For some individuals with cluttering, speech clarity and fluency has been shown to temporarily improve when the asked to slow down or pay attention to their speech, which maybe be used as a part of the diagnostic process.

AAF devices use auditory feedback via an earpiece worn in or behind the ear, and utilize, alone or in combination, the following techniques: Delayed Auditory Feedback (DAF), delaying the user's voice to his ears a fraction of a second (this delay is adjustable) and frequency shifting auditory feedback or Frequency Altered Feedback (FAF) which shifts the pitch of the user's voice in his ears.

Definitions

Fluency disorder: A communication disorder involving the interruption in the flow of speaking, characterized by atypical rate, rhythm, and disfluencies (e.g., repetitions of sounds, syllables, words, and phrases; sound prolongations; and blocks). May also be accompanied by secondary behaviors including excessive tension, speaking avoidance, struggle behaviors, and others.

Cluttering: A fluency disorder characterized by multiple issues, including rapid and/or irregular speech rate, atypical pauses, maze behaviors, pragmatic issues, decreased awareness of fluency problems or moments of disfluency, excessive disfluencies, collapsing or omitting syllables, and language formulation issues. Taken in part or together, these issues result in breakdowns in speech clarity and/or fluency.

Stuttering: An interruption in the flow of speaking characterized by specific types of disfluencies, including repetition of sounds, syllables, and monosyllabic words; inappropriate prolongation of consonants; and inaudible or silent fixation or inability to initiate sounds. This the most common form of fluency disorder.

Coding

The following codes for treatments and procedures applicable to this document are included below for informational purposes. Inclusion or exclusion of a procedure, diagnosis or device code(s) does not constitute or imply member coverage or provider reimbursement policy. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

When Services are Investigational and Not Medically Necessary:
When the code describes a procedure indicated in the Position Statement section as investigational and not medically necessary.

HCPCS	
E1399	Durable medical equipment, miscellaneous [specified as altered auditory feedback device]

ICD-10 Diagnosis	
F80.81	Childhood onset fluency disorder
F98.5	Adult onset fluency disorder
I69.023	Fluency disorder following nontraumatic subarachnoid hemorrhage
I69.123	Fluency disorder following nontraumatic intracerebral hemorrhage
I69.223	Fluency disorder following other nontraumatic intracranial hemorrhage
I69.323	Fluency disorder following cerebral infarction
I69.823	Fluency disorder following other cerebrovascular disease
I69.923	Fluency disorder following unspecified cerebrovascular disease
R47.82	Fluency disorder in conditions classified elsewhere

References

Peer Reviewed Publications:

1. Armson, J, Stuart A. Effect of extended exposure to frequency altered feedback on stuttering during reading and monologue. Journal of Speech Language Hearing Research 1998; 41(3):479-490.
2. Costa D, Kroll R. Stuttering: An update for physicians. CMAJ. 2000; 162(13):1849-1855.
3. Foundas AL, Mock JR, Corey DM, et al. The SpeechEasy device in stuttering and nonstuttering adults: fluency effects while speaking and reading. Brain Lang. 2013; 126(2):141-150.
4. Gallop RF, Runyan CM. Long-term effectiveness of the SpeechEasy fluency-enhancement device. J Fluency Disord. 2012; 37(4):334-343.
5. Hargrave S, Kalinowski J, Stuart A, et al. Effect of frequency-altered feedback on stuttering frequency at normal and fast speech rates. J Speech Hear Res. 1994; 37(6):1313-1319.
6. Lincoln M, Packman A, Onslow M, Jones M. An experimental investigation of the effect of altered auditory feedback on the conversational speech of adults who stutter. J Speech Lang Hear Res. 2010; 53(5):1122-1131.
7. Ritto AP, Juste FS, Stuart A, et al. Randomized clinical trial: the use of SpeechEasy® in stuttering treatment. Int J Lang Commun Disord. 2016; 51(6):769-774.
8. Stuart A. Investigations of the impact of altered auditory feedback in-the-ear devices on the speech of people who stutter: initial fitting and four month follow up. Int J Lang Communication Dis. 2004; 39(1):93-113.
9. Van Borsel J. Delayed auditory feedback in the treatment of stuttering: clients as consumers. Int J Lang Communication Dis. 2003; 38(2):119-129.

Websites for Additional Information

1. American Speech-Language-Hearing Association (ASHA). Fluency disorders. Available at:https://www.asha.org/practice-portal/clinical-topics/fluency-disorders/#collapse_6. Accessed on March 6, 2023.
2. American Speech-Language-Hearing Association (ASHA). Stuttering. Available at: http://www.asha.org/public/speech/disorders/stuttering/. Accessed on March 6, 2023.
3. National Institutes for Health. National Institute on Deafness and Other Communication Disorders (NIDCD). Stuttering. 2017.

Available at: https://www.nidcd.nih.gov/health/stuttering. Accessed on March 6, 2023.
4. National Library of Medicine. Medical Encyclopedia. Stuttering. 2018. Available at: http://www.nlm.nih.gov/medlineplus/ency/article/001427.htm. Accessed on March 6, 2023.

Index

Basic Fluency System
Cluttering
Disfluency
Fluency disorders
SmallTalk
SpeechEasy®
Stuttering

The use of specific product names is illustrative only. It is not intended to be a recommendation of one product over another, and is not intended to represent a complete listing of all products available.

Document History

Status	Date	Action
Reviewed	05/11/2023	Medical Policy & Technology Assessment Committee (MPTAC) review. Updated Websites for Additional Information section.
Revised	05/12/2022	MPTAC review. Replaced the term 'stuttering' with" fluency disorders" in title and position statement. Updated Scope, Rationale, Background, Definitions, Websites, Index, and References sections.
Reviewed	05/13/2021	MPTAC review.
Reviewed	05/14/2020	MPTAC review. Updated Websites section.
Reviewed	06/06/2019	MPTAC review. Updated References and Websites sections.
Reviewed	07/26/2018	MPTAC review. Title changed to Altered Auditory Feedback Devices For The Treatment Of Stuttering. Updated Description/Scope, Rationale, References, and Websites sections.
	05/15/2018	The document header wording updated from "Current Effective Date" to "Publish Date."
Reviewed	08/03/2017	MPTAC review. Updated Rationale, References and Websites sections.
Reviewed	08/04/2016	MPTAC review. Websites updated. Removed ICD-9 codes from Coding section.
Reviewed	08/06/2015	MPTAC review. Updated References.
Reviewed	08/14/2014	MPTAC review. Updated Rationale and References.
Reviewed	08/08/2013	MPTAC review. Updated Rationale, References, and Index.
Reviewed	08/09/2012	MPTAC review. Updated Index.
Reviewed	08/18/2011	MPTAC review. Updated Rationale and References.
Reviewed	08/19/2010	MPTAC review. Updated Rationale. Updated Coding section with 10/01/2010 ICD-9-CM changes.
Reviewed	08/27/2009	MPTAC review.
Reviewed	08/28/2008	MPTAC review.
	02/21/2008	The phrase "investigational/not medically necessary" was clarified to read "investigational and not medically necessary." This change was approved at the November 29, 2007 MPTAC meeting.
Reviewed	08/23/2007	MPTAC review. Updated Index section statement.
Reviewed	09/14/2006	MPTAC review.
Revised	09/22/2005	MPTAC review. Revisions based on Pre-merger Anthem and Pre-merger WellPoint Harmonization.

Pre-Merger Organizations	Last Review Date	Document Number	Title
Anthem, Inc.		None	
WellPoint Health Networks, Inc.	06/29/2004	9.03.04	Altered Auditory Feedback (AAF) Devices for the Treatment of Stuttering

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Applicable to Commercial HMO members in California: When a medical policy states a procedure or treatment is investigational, PMGs should not approve or deny the request. Instead, please fax the request to Anthem Blue Cross Grievance and Appeals at fax # 818-234-2767 or 818-234-3824. For questions, call G&A at 1-800-365-0609 and ask to speak with the Investigational Review Nurse.

Federal and State law, as well as contract language, including definitions and specific contract provisions/exclusions, take precedence over Medical Policy and must be considered first in determining eligibility for coverage. The member's contract benefits in effect on the date that services are rendered must be used. Medical Policy, which addresses medical efficacy, should be considered before utilizing medical opinion in adjudication. Medical technology is constantly evolving, and we reserve the right to review and update Medical Policy periodically.