Stuttering Treatment for Adults: An Update on Contemporary Approaches

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ABSTRACT

This article provides a brief overview of historical and current approaches to stuttering treatment for adults. Treatment is discussed in terms of stuttering management approaches, fluency-shaping approaches, and combined approaches. The evidence base for these various approaches is outlined. Fluency-shaping approaches have the most robust outcome evidence. Stuttering management approaches are based more on theoretical models of stuttering, and the evidence base tends to be inferred from work using the approaches of cognitive behavior therapy and desensitization with other disorders such as anxiety. Finally, comprehensive approaches to treating stuttering are discussed, and several clinical methods are outlined. Comprehensive approaches target both improved speech fluency and stuttering management. Although it is presented that a comprehensive approach to stuttering treatment will provide the best results, no single approach to stuttering treatment can claim universal success with all adults who stutter.

KEYWORDS: Stuttering, treatment outcomes, stuttering management, fluency shaping, cognitive restructuring

Learning Outcomes: As a result of this activity, the reader will be able to (1) explain the nature of stuttering management techniques, (2) explain the nature of fluency-shaping techniques, and (3) explain the rationale and basic procedures for providing comprehensive stuttering therapy to adults.

Stuttering is a multidimensional disorder.[1,2] Stuttering includes core, or "surface," elements as well as elements that exist "below the surface." Surface elements include aspects of the core behaviors of stuttering—the repeated articulatory movements, the fixed articulatory postures, and any nonverbal- or verbal-associated stuttering behaviors such as facial grimaces,

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interjections, and circumlocutions. Elements that exist below the surface include covert or affective aspects of stuttering, such as speaking avoidance, reduced social and occupational participation, and negative affective functioning in areas like locus of control, mood, and anxiety.[3] Therefore, it appears that stuttering would be best treated using a multifaceted approached that includes addressing both the core, or surface, elements as well as elements of stuttering that exist below the surface.

However, there is often disagreement regarding the essential components of stuttering treatment.[4–8] This disagreement is exemplified by the wide variety of stuttering treatment options. Historically, many heterogeneous approaches have been used to treat stuttering; however, many of these approaches may be categorized into two broad groups. These categories may be viewed as either (1) primarily cognitive/anxiolytic (anxiety reducing) or (2) focused primarily on speech fluency. These divisions are often referred to as *stuttering management* or *fluency shaping*, respectively. Stuttering management approaches have typically focused on teaching the individual to stutter less severely, and fluency-shaping approaches have focused on teaching the individual to speak more fluently.[9]

In the past 10 to 20 years, there has been an increasing attempt to combine fluency-shaping approaches with stuttering management approaches. For instance, well-known intensive stuttering programs such as the Comprehensive Stuttering Program at the University of Alberta,[10,11] the Intensive Treatment Program at the American Institute of Stuttering,[12] and the Fluency Plus Program[13] have all somewhat recently added substantial cognitive-restructuring and/or stuttering management components to their traditional fluency-shaping emphasis. This article aims to summarize some of the currently available stuttering treatment approaches. The summary will include historical elements as well as an overview of currently available treatments. The overarching goal of this review is to present stuttering as a multidimensional problem that will ultimately be best treated in a comprehensive way.

STUTTERING MANAGEMENT AND COGNITIVE-RESTRUCTURING APPROACHES

Many individuals who continue to stutter into adolescence and adulthood develop a series of negative reactions to their stuttering. For some people who stutter, these negative reactions may lead to additional struggle behavior and debilitating anxieties and fears related to stuttering and speaking. Stuttering management therapies are based on combinations of procedures directed at desensitization to stuttering, increasing acceptance of one's stuttering, and motoric techniques directed at decreasing the tension associated with stuttering moments. One of the hallmarks of cognitive-restructuring or stuttering management therapies is that they tend to be primarily anxiolytic (i.e., anxiety reducing) in emphasis, but they also include techniques targeted at changing the nature of stuttering events. The early foundations of stuttering management were laid down by Wendell Johnson and his student Dean Williams[14–16] at the University of Iowa. For this reason, stuttering management therapy has been referred to as the "Iowa approach."

The Iowa approach focused on reducing "undesirable behaviors" that interfere with fluent speech. In 1957, Dean Williams published one of the first articles on "cognitive-behavioral therapy" approaches to stuttering. The focus of this therapy was to teach the individual who stutters to feel and monitor his or her speech processes to improve speech fluency. Additionally, Williams[15] believed that many stutterers consider their stuttering to be an 'it' that they carry around with them. They feel that it has an entity of its own. As long as he retains this 'it' he cannot see his behavior. The belief that stuttering happens to you creates a feeling of helplessness and being trapped (p. 392)." The goal of therapy was for the individual not to view stuttering as who he or she is, but to view stuttering as simply something he or she does.

Later, Charles Van Riper,[17] another Iowa graduate, further operationalized many specific stuttering management techniques. Van Riper encouraged working on eye contact, self-disclosure of stuttering, pseudostuttering (faking stuttering moments), freezing (holding a moment of stuttering to analyze it), ceasing

avoidance behaviors, and tolerating frustration. Most of these strategies focused on reducing the tension, anxiety, and avoidance associated with stuttering. In an effort to decrease these anxieties, Van Riper[18] encouraged "a bath of stuttering" to produce desensitization to stuttering. A bath of stuttering could be accomplished through "real" stuttering or through pseudostuttering. The goal of stuttering desensitization was to reduce the individual's fears, frustration, and shame.

The problem with cognitive-restructuring or stuttering management approaches is that very little treatment outcomes research exists to support their efficacy.[4,19] Most of the research that does exist is dated and tends to be based on unidimensional assessments.[20–25] The justification for stuttering management approaches comes primarily from two-component models of stuttering.[26] That is, the first component of stuttering (the actual stutter events) leads to the second component (the anxiety and affective components). Proponents of stuttering management therapy believe that it is the second component of stuttering that is the appropriate objective of treatment. These approaches, although not strongly evidence-based, are rooted in the cognitive learning literature.[27–30]

It has often been argued that evaluating such cognitive approaches is difficult because the outcomes are often challenging to quantify and the exact treatment methodologies have historically been poorly documented. Ryan[8] has asserted that for any treatment to be trusted, the treatment procedures must be adequately described so as to permit replication. Most stuttering management approaches would appear to be less structured than most operant-based fluency-shaping treatments. Still, stuttering management approaches continue to be popular as evidenced by their continued support in recent stuttering texts.[1,9,31–37] Therefore, careful evaluation of stuttering management treatment outcomes is essential to understand their benefits and limitations.

A recent attempt was made to evaluate the treatment outcomes of an intensive stuttering management program.[4] Blomgren et al[4] assessed 19 adults who stutter in a 3-week intensive stuttering management treatment program, the Successful Stuttering Management Program (SSMP).[31] The SSMP is based on the classic treatment approaches of Van Riper.[17] The aims of the SSMP are to reduce avoidance behavior, anticipation of stuttering, and social and cognitive anxiety through desensitization to stuttering. The overarching rationale of the SSMP treatment approach is to teach the person who stutters "to manage his stuttering and his speech so that he can communicate as a stutterer in any situation without undue stress and strain to himself or his listener (p. 5)."[31] A series of 14 fluency- and affective-based measures were used to assess treatment immediately after and 6 months after treatment. The results indicated that no durable reductions were identified in (1) decreasing overt stuttering frequency, (2) decreasing stuttering severity (measured as composite of stuttering frequency, stuttering moment durations, and secondary behaviors [Stuttering Severity Instrument 3]),[38] (3) self-assessed stuttering severity, (4) self-assessed perception of struggle to speak, (5) self-assessed amount of muscular tension, (6) self-assessed improvements in mood, (7) self-assessed improvements in locus of control, or (8) self-assessed improvements in state or trait anxiety. However, the SSMP did appear to reduce certain anxiety-related features of stuttering such as self-perceived avoidance and expectancy of stuttering and self-reported psychic and somatic anxiety. In this respect, the SSMP was deemed to be an ineffective treatment for decreasing stuttering and related struggle behaviors, but it was an effective treatment in decreasing some of the anxiolytic sequelae of stuttering.

Two broader conclusions may be extrapolated from the Blomgren et al[4] findings. First, stuttering frequency does not appear to automatically decrease in concert with decreases in self-reported anxiety. In other words, decreasing anxiety alone is not sufficient to decrease stuttering frequency. Second, and inversely, it does appear possible to decrease anxiety related to stuttering in the absence of any corollary decrease in stuttering frequency. In summary, the anxiolytic sequelae of stuttering do appear to be treatable, even in the absence of related decreases in stuttering frequency and severity.

SPEECH-RESTRUCTURING/ FLUENCY-SHAPING APPROACHES

Speech restructuring refers to any treatment approach that teaches a person who stutters to use a new speech pattern. It may be argued that the first speech-restructuring therapy goes back as far as the great Greek orator Demosthenes (384 to 322 BC). It has often been reported that Demosthenes stuttered and apparently treated his stuttering by placing pebbles under his tongue.[39] It is conceivable that speech-motor movements needed to compensate for a mouth full of pebbles—such as slower speech and decreased movement trajectories—would be fluency facilitating in various ways.

It may be better argued that modern fluency-shaping therapy began during the mid to late 1800s. One of the first published texts on fluency shaping was written by Oskar Guttmann.[40] Guttmann's therapy regimen consisted of speech-motor restructuring through a series of exercises for breathing and speech prolongation. The exercises were taught in a hierarchy of speech tasks—the process now referred to as *fluency shaping*. First, clients were instructed to take a comfortable breath prior to every syllable in an utterance. Syllables were to be spoken in a monotone and prolonged manner. This prolonged speech technique was then practiced producing two syllables per breath and progressed to full, semantically complete, utterances. Finally Guttmann had clients speak "the whole line not syllabically (monotone), but rhetorically (with normal intonation), without any force, guided only by feeling" (p. 214). This process is remarkably similar to the basis of many "modern" speech reconstruction therapies.

Guttmann further understood the importance of coordinating breathing, voice, and articulation, a notion that would not be revisited until nearly 100 years later.[41–43] Guttmann acknowledged that "breathing, voice and speech are, from the start, simultaneously active" and that "treating the various parts as parts mechanically [is] a practice which never, or seldom, leads to a favorable result; for the human organ of voice and speech acts from childhood as a whole, and should be treated as such in the [speech] exercises" (p. 216). Although Guttmann's work is little known by most contemporary writers, his techniques were early precursors of prolonged speech and other programmed instruction/fluency-shaping therapies.

Somewhat remarkably, there was little written on speech prolongation techniques again until the 1960s when Goldiamond[44] showed that stuttering speakers could remain stutter-free while using a prolonged speech pattern. By 1980, there were enough studies on the treatment effects of prolonged speech to conduct a meta-analysis of a variety of treatment approaches, including prolonged speech. Andrews, Guitar, and Howie[45] concluded that the most effective technique for decreasing stuttering was prolonged speech. Since that time, several stuttering treatment programs have emerged that are based on variations of the prolonged speech technique.

The goal of fluency-shaping therapy is to apply techniques that facilitate a new speech production pattern. This new pattern would better operate within the speaker's speech motor control abilities, resulting in less stuttering. Some fluency approaches focus only on speech rate modification using prolonged speech techniques.[46–49] Frequently, these prolonged speech techniques are referred to as *stretched syllables*, *controlled rate*, *slow speech*, or *smooth speech*. Other fluency-shaping approaches address speech rate in combination with one or more other fluency-facilitating techniques.[10,13,43,50]

The Camperdown Program[48] is an example of a treatment approach that is primarily based on prolonged speech. The Camperdown Program is a speech-restructuring treatment that was developed at the University of Sydney. In the Camperdown Program, clients are trained to imitate a video recording of an individual modeling prolonged speech. No explicit instruction is given in terms of exact speech timing or any other fluency-facilitating techniques such as gentle vocal onsets or soft articulatory contacts. The program is comprised of four stages: (1) introduction to the prolonged speech technique, (2) within-clinic practice of the prolonged speech technique so that speech is fluent and "natural sounding," (3) generalization of the prolonged speech technique to out-of-clinic speaking environments, and (4)

maintenance of stutter-free speech on an ongoing basis in everyday speaking situations.

Several published studies suggest that the Camperdown Program is effective in reducing stuttering frequency to a normal range.[51,52] The average time for participants to reach a normal fluency level (less than 1% stuttered syllables) was 20 hours. This level of normal fluency was reported to be durable for at least 12 months after treatment. Speech naturalness ratings were also reported to be improved, although not to the degree of stuttering frequency. Although initial reports of success with the Camperdown Program are intriguing, additional, independent replication of these findings are warranted. The Camperdown Program does not target negative feelings, attitudes, or anxiety related to stuttering. O'Brian et al[48] acknowledge that although many adults may be able to exhibit control over their stuttering using prolonged speech, maintaining consistent control in everyday speaking situations is challenging. Further, stuttering is a relapse-prone disorder,[53] so long-term stuttering management skills will likely be important for dealing with the disorder over a lifetime. Combined with the fact that many people who stutter may also be affected by social anxiety,[54,55] cognitive-restructuring therapy may also be warranted.

COMPREHENSIVE APPROACHES

As stated previously, most researchers acknowledge that stuttering is a multidimensional disorder. It can, therefore, be argued that any complete treatment of stuttering should require a comprehensive approach. Comprehensive approaches are also known as *combined approaches*, *inclusive approaches*, *integrative approaches*, or *whole-person approaches*.[13] A comprehensive approach typically includes dealing with both the surface elements of stuttering as well as the deeper attributes of stuttering such as anxiety, fear of stuttering, approach-avoidance issues, self-confidence issues, and self-perception issues.[3]

Additionally, the World Health Organization (WHO; 2001) advocates a multidimensional construct of human health conditions. The WHO replaced earlier concepts of "disability" and "handicap" with the concepts of "impairment," "activity limitation," and "participation restrictions." The WHO model has been widely adopted as a vehicle for assessing both surface stuttering and the undesirable consequences of stuttering.[56–59] Based on the WHO model, one can argue that a stuttering treatment should only be considered effective and successful if it reduces stuttering frequency (impairment level) and additionally provides meaningful change in "participation restrictions or activity limitations." Any treatment that would be considered "successful" should be able to prove that the intervention decreases both the impairment level and decreases participation restrictions/activity limitations.

There are multiple intensive programs for stuttering that may be considered "comprehensive." It is typically believed that stuttering treatment is best accomplished in an intensive manner.[43] This opinion is based on the immersion principal, similar to the view that learning a new language is best accomplished in an intensive, or immersive, manner. Most intensive programs are 2 to 4 weeks in duration and may range from 30 to 100 hours of treatment. The majority of treatment outcomes studies evaluating comprehensive approaches have been conducted on intensive programs, so we do not know the effectiveness of shorter or more extended treatments. Acquiring outcomes data on nonintensive treatments is a needed area as most hospital or private clinic stuttering treatments occur on a more traditional schedule ranging from 1 to 4 hours per week over a period of several weeks to many months.

Although there are numerous differences among intensive programs, the hallmark of these programs is that they treat stuttering from both a speech-restructuring perspective and a stuttering acceptance/management perspective. The goals of these programs are to both decrease stuttering and also decrease the undesirable consequences of stuttering. The Comprehensive Stuttering Program[10] is one of the original examples of a combined approach. The Boberg-Kully Comprehensive Stuttering Program was created in 1972 and continues to be offered through the Institute for Stuttering Treatment and Research at the University of Alberta. The program is typically offered as a 3-week, intensive

stuttering intervention. The core of the program involves prolonged speech. Syllable rate is gradually increased form a "slow prolongation" of ~40 syllables per minute (spm) to a close to normal rate of 190 spm. Additional fluency-facilitating techniques include easy vocal onsets, soft articulatory contacts, appropriate phrasing, and continuous airflow/blending. In addition to speech restructuring, the program also addresses self-management strategies, decreasing avoidance behavior, improving positive attitude and self-confidence related to speaking, and improving overall social communication skills. These cognitive-restructuring objectives are accomplished through one-to-one counseling, group discussions, and various social-communication speaking experiences.

Other examples of comprehensive programs include the American Institute for Stuttering[12] and the Fluency Plus Program at The Speech and Stuttering Institute in Toronto Ontario.[13] Both of these programs are also 3 weeks in duration and involve ~70 to 100 hours of treatment. These programs were originally based on the Precision Fluency Shaping Program developed by Webster.[43,60] Over the years, however, the directors of these programs realized that although stuttering frequency could be reliably reduced, the perceived handicap of living with a stutter and the associated speaking-related anxiety did not always decrease in tandem with the achieved decreases in stuttering frequency. Cognitive restructuring was also needed. *Cognitive restructuring* refers to changing the attitudes, feelings, belief systems, and emotions associated with speaking and stuttering.[13] Unhelpful or irrational thought processes are replaced with more accurate and beneficial thought patterns through counseling, role-play, and desensitization. Comprehensive approaches may also include drawing upon diverse fields such as cognitive and sports psychology, performance, motivation, and human potential, self-acceptance.

THE UNIVERSITY OF UTAH INTENSIVE STUTTERING CLINIC

The University of Utah Intensive Stuttering Clinic (UUISC) is a comprehensive therapeutic approach to treating stuttering. The UUISC is based on the fluency-shaping techniques developed by Webster,[43,60] Boberg and Kully,[10] and Kroll[61] as well as stuttering management and cognitive-behavioral/desensitization approaches influenced by Van Riper[17] and Breitenfeldt and Lorenz.[31] The underlying philosophy of the UUISC is that, at its core, stuttering is a disorder of speech motor control. But the disorder of stuttering is more than just the stuttering; it also involves a lifetime of dealing with the anxiety and avoidances associated with the stuttering. The UUISC targets both improved speech production and stuttering management. The goals of the UUISC are for clients to:

- Learn new speaking skills that facilitate fluent speech
- Reduce the number and severity of stuttering moments
- Foster a proactive attitude toward improving speech production
- Practice learned techniques in real-life situations
- Foster a good understanding and healthy acceptance of stuttering
- Manage stress and anxiety related to stuttering and speaking
- Increase self-confidence related to speaking

The UUISC involves ~60 hours of direct treatment. Therapy is conducted between 9:00 AM and 4:00 PM on weekdays for 2 weeks. Therapy includes a combination of individual and group sessions. Typically 5 to 10 clients participate in each group session. Approximately 50 clients have participated in the treatment since 2004 with significant decreases in stuttering frequency and duration, improved perceptions of stuttering, decreased avoidance behavior, and improved mood. Furthermore, decreases in stuttering were accomplished with no decrease in speech naturalness.[62] A detailed therapy manual is available.[50]

The first clinical target is for clients to maintain appropriate eye contact during all conversations, especially during any moments of stuttering. Maintaining eye contact with a conversational partner lets the partner know that the client (1) is in control of the conversation, (2) is not embarrassed by any stuttering that may be present, and (3) values the commu-

nication that is taking place.[31,63] Appropriate eye contact as a treatment target is introduced on the first morning of the clinic and is reinforced during all treatment speaking tasks.

There are three core fluency-facilitating techniques utilized in the UUISC: (1) the stretched syllable target, (2) the gentle phonatory onset target, and (3) the reduced articulatory pressure target. The stretched syllable target is a prolonged speech technique. Prolonged speech has been found to be the most efficacious fluency-facilitating technique[45] and is the primary fluency technique in the UUISC. Initially all syllables are stretched for 2 seconds in duration. Clients use an analog stopwatch to monitor their syllable timing, but stopwatch use is quickly phased out. Over the course of the first week of therapy, speech rate progresses from 2-second syllable stretch, to 1-second stretch, half-second stretch, and finally to "controlled normal" rate. The second week of the intensive clinic is spent at "controlled normal" rate. This sequence is similar to that used in the Precision Fluency Shaping Program,[43] but the transition from one target rate to the next is significantly accelerated to accommodate a 2-week rather than a 3-week clinic.

The gentle onset technique targets the vocal folds. It provides a way for stuttering speakers to start vocal fold vibration in a controlled and relaxed manner. The gentle onset technique is used for all words that begin with vowels and most voiced consonants (except stop consonants).[43] The reduced articulatory pressure technique targets the articulators—the tongue and lips primarily. It provides a way for speakers to reduce articulatory pressure and successfully transition from consonant to vowel and vowel to consonant in running speech. The reduced pressure technique is used for fricatives (e.g., *s*, *sh*, *f*, *h*) and stops consonants (*p*, *b*, *t*, *d*, *k*, *g*).[43] The gentle onset and reduced pressure techniques are also introduced during the first week of the clinic. The second week of clinic is primarily spent transferring these newly learned skills to speaking activities of daily life.

Four supplemental fluency techniques (targets) are "held in reserve" in the UUISC. The supplemental techniques are (1) the full breath target, (2) the smooth articulatory change target, (3) the continuous phonation target, and (4) the full articulatory movement target. These techniques are termed *supplemental* because not every stuttering speaker is asked to practice and use these techniques. For most of our clients, the three core targets of the UUISC are sufficient to promote substantially improved speech fluency. One or more supplemental techniques may be prescribed if they are considered necessary or beneficial for facilitating fluent speech for a particular speaker.

The clinical decision to supplement the three core fluency-facilitating techniques for any individual client is based on multiple factors. These factors include the client's motor abilities with the three core techniques, the client's stuttering severity, the client's motivation, the client's ability to attend to multiple targets, and individual speaking and stuttering patterns.

In addition to the speech-restructuring techniques, stuttering management techniques are applied throughout the clinic. In addition to eye contact discussed previously, four additional stuttering management techniques are taught. Stuttering management techniques are used to (1) decrease the likelihood of a severe stuttering moment from occurring in the first place, and (2) to lessen the severity of stuttering moments when they do occur. In this respect, some stuttering management techniques are proactive and others are reactive.

The proactive techniques include (1) openly disclosing that one stutters and (2) pseudostuttering. Disclosing, or advertising, that one stutters and pseudostuttering are proactive because these techniques allow the individual to minimize the impact of stuttering early in a conversation. Reactive techniques include (1) purposefully terminating a stuttering moment and (2) canceling a stuttered word by repeating it fluently. Purposefully terminating a stuttering moment (also called a *pull out*) and canceling a stuttered word are reactive because the speaker uses the techniques to react to a moment of stuttering after it has already begun. Canceling a stuttered word is also referred to as *restabilization* in the UUISC.

The primary stuttering management technique used in the UUISC is disclosure of one's stuttering. Many people who stutter spend enormous effort trying to hide the fact that

they stutter. This can be a stressful, tiring, and anxiety-producing process. It is also rarely successful that an adult can hide their stuttering entirely. Perhaps some stutterers try to hide their stuttering due to fear of embarrassment or social punishment, some perhaps due to poor acceptance of their disorder, or some other out of simple habit. Breitenfeldt and Lorenz[31] list three approaches to disclosing one's stuttering. (1) The direct route is perhaps the simplest. One simply states that they stutter, either at the very beginning of a conversation or immediately after the first stuttering moment. (2) The humor route is another option. After a moment of stuttering, one can make a joke about it. Seeing the humor in stuttering can be hard for many adults who stutter, but putting ones conversational partner at ease ultimately leads to better and more relaxed communication. (3) The pseudostuttering route involves stuttering on purpose, in a controlled and deliberate manner. By stuttering on purpose early in a conversation, one discloses that they stutter in an obvious way. Additionally, pseudostuttering can help many clients become desensitized to their stutter. The idea is that what a person can do deliberately should not be feared. Pseudostuttering also provides a controlled method to practice other stuttering management techniques such as stuttering moment terminations and cancelations in normal conversation.

Finally, cognitive-restructuring therapy is used with individuals experiencing debilitating levels of social anxiety related to stuttering and speaking. It has been reported that ~50% of adults who stutter may have significantly high levels of social anxiety.[64,65] Cognitive-restructuring therapy may well help produce less social avoidance and anxiety.[66,67] The core component of cognitive-restructuring therapy for people who stutter is challenging unhelpful beliefs about fear of negative evaluation by listeners. Cognitive restructuring involves systematically modifying negative thoughts related to stuttering and social interaction. In the UUISC, these issues are addressed through multiple means: (1) Individual counseling involving "reframing" negative thoughts and emotions, (2) group problem-solving discussions related to anxiety management, (3) systematic desensitization of stuttering fears by using disclosure and pseudostuttering in increasingly demanding speaking situations, and finally (4) conducting stuttering surveys in public. The stuttering survey asks basic questions about stuttering knowledge and opinions. Questions include asking strangers whether they feel uncomfortable or embarrassed when they talk to a person who stutters. Because the vast majority of interviewees state they do not view stuttering negatively, this exercise can help reset a stuttering speaker's preconceptions about others opinions. Further, when the occasional negative reaction or comment does occur, it provides an opportunity to deal with it in an open, proactive, and constructive manner.

Although these descriptions of treatment have focused on intensive program, it is important to note that all these approaches can be adapted for nonintensive therapy. Although we do not have treatment outcomes data for nonintensive approaches, the reality is that most stuttering therapy is delivered in a nonintensive manner. Many stuttering individuals simply cannot arrange to attend 2- or 3-week intensive clinics. The significant financial costs involved including treatment fees, travel, and accommodation, combined with time off work or school, often make attending an intensive clinic very challenging. Modifications to the approaches outlined above may include simplifying the targets, reducing the number of targets, and relying more on assigned home practice.

FUTURE DIRECTIONS

Through research and clinical observations, stuttering treatment has advanced significantly over the past decade. The new norm for stuttering treatment is using combinations of treatment approaches that address the surface stuttering as well as the avoidance, affective, self-perceptive, and anxiolytic aspects of the disorder. Still, the need to collect additional outcome and efficacy data for these combined approaches remains imperative. However, determining the correct "mix" of speech restructuring and stuttering management for each stuttering speaker will ultimately depend on the abilities, needs, wants, and motivation of the individual clients

themselves. Exciting new developments in computer-aided biofeedback,[13] pharmacological adjuvants,[68] and self-modeling and self-management[26] and improved maintenance strategies may also add significantly to therapy success. With the continuation and expansion of well-controlled stuttering treatment studies, combined with novel approaches to stuttering treatment based on improved understanding of stuttering etiology, the future of evidence-based treatments for stuttering looks bright.

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