Formatted: Width: 21 cm, Height: 29.69 cm
Formatted: Line spacing: single

The Fluency Plus Program: An Integration of Fluency Shaping and Cognitive Restructuring Procedures for Adolescents and Adults who Stutter

Authors: Robert M. Kroll, Ph.D. Stuttering Centre, Speech Foundation of Ontario, University of Toronto
Lori Scott-Sulsky, M.Sc. Stuttering Centre, Speech Foundation of Ontario

Introduction

Formatted: Line spacing: single

This chapter represents our attempt at outlining the Fluency Plus Program, our current intensive treatment program for people who stutter. The stuttering treatment program that we describe has evolved over a period of more than twenty-five years and has been administered to both adolescents and adults. During this period, we have continuously subjected our treatment methodology to laboratory experimentation in an attempt to determine both efficacy and efficiency. We have studied our clients' responses to treatment, listened to their feedback, and have modified the program based upon our observations and clinical discussions. We have followed the literature and engaged in countless dialogues with our colleagues at conferences and coffee shops in our quest to develop what we consider to be the most comprehensive stuttering treatment program.

To be sure, the picture seemed to be much clearer when we set about to do this work as young and eager clinician/scientists. The first author of this chapter completed his graduate studies in the mid 1970s just at the time when several stuttering programs were being developed and disseminated to the professional community as well written, structured and fairly easy-to-follow clinical procedures. All that was needed was the supplies budget to purchase the "package" and the clinician would be armed with clinician and client manuals, forms, handbooks and a set of procedures to follow to administer the program. It all seemed so crystal clear back then.

As we began to administer these programs, we soon discovered the many "unwritten parts of the manual." Issues arose during the program that did not seem to be included in the program materials. So began the process of refining and modifying and supplementing the original program. This process is dynamic and ongoing, and what is summarized here will no doubt be further modified as our research and clinical efforts continue to enlighten us with additional information regarding the most effective treatments. Thus, we write this chapter with the following proviso: The procedures we describe here are the most practical and effective we have found for a large number of the clients seen at the Stuttering Centre in Toronto. However, this type of treatment is not suitable for many clients, who will be discussed later in the chapter. Some clients, whom we think are good candidates for this procedure, will not respond to the treatment as we would have expected for a variety of reasons. These too will be discussed throughout the chapter. In short, we are attempting to provide the reader with a realistic synopsis of what these procedures can and cannot do for people who stutter. Having said that, we will try to provide enough information for the reader to be able to apply the treatment methodology of the Fluency Plus Program in his/her own practice or agency.

Our task is indeed daunting. It is very difficult to cover all of the issues that arise during a program of treatment given the space limitations of a book chapter. Describing a treatment program for stuttering is almost like writing a complete book about the subject. Indeed, if every contributor to this text were to fully discuss each

and every detail of the program rationale, methodology and procedures, we would need an empty bookcase for the series of volumes that would result.

We have come to view the Fluency Plus Program as being unique for a number of reasons. First, the program is based upon a strong connection between empirical research and clinical observation. We have been fortunate to attract many talented clinician/scientists over the years who have contributed immensely to the continuing refinement of the program. Our research team has consistently investigated both client and program variables and their relationships to treatment outcome. Being affiliated with major hospitals and universities has allowed us to use the most current technology to peer into the cortical structures of our clients in order to observe changes during and after treatment. We will summarize this work later in the chapter.

Another identifying feature of the Fluency Plus Program is the way it is presented to the client. Both client and clinician roles are clearly outlined during a rigorous assessment procedure. Clients are informed about the intensive nature of the program and the many hours of drill and practice that are required. The success of the program is based in large part on the decisions made by the client and clinician during the assessment. Clients who seem likely likely to benefit from Fluency Plus are encouraged to begin the program as soon as feasible. For those clients who do not appear to fit the criteria for inclusion, we search for alternatives. Again, these criteria will be further elaborated upon later in this chapter.

Another one of the most valuable aspects of the Fluency Plus Program is the maintenance component. We will outline the evolution of the program and illustrate the importance of maintenance following intensive treatment. This is one of the most challenging areas to address. Having a structured maintenance program has prevented countless individuals from experiencing partial or total regression of stuttering and has further allowed us to examine long-term treatment effects.

Fluency Plus deals with both the stuttering behavior as well as the many psychological factors that impact on the individual who stutters. We have attempted to provide as comprehensive a program as possible in order to address much of what the person who stutters is experiencing. Perhaps the most distinctive part of this program relates to the honest messages that are received by the client as to what the program can and cannot provide. In essence, Fluency Plus demonstrates to the individual that he has a choice of how he communicates. By learning and applying a predetermined set of fluency skills and by approaching speech situations with a healthy mental set, high levels of fluency can be achieved. This of course requires a great deal of commitment and a lot of intensive training. In short, the client learns that the benefits derived from this behavioral treatment are directly related to his adherence to program elements and active involvement with it.

Key Terms

Formatted: Line spacing: single

1. **Establishment**: The acquisition of new speech motor behaviors and attitudes through the systematic application of practice regimes based on proven principles of learning.
2. **Transfer**: The voluntary or conscious application of learned or acquired behaviors outside of the clinic situation.
3. **Maintenance**: The continuation of the therapy program as the involvement of the clinician is gradually decreased involving a long, gradual process of consolidation and stabilization of skills, and maturing of expectations by both the client and the clinician.

4. **Cognitive Restructuring**: The alteration of attitudes, feelings, belief systems and emotions associated with the act of speech communication. This is accomplished by replacing faulty or irrational thought processes with more accurate and beneficial ones through supported self-realization and counseling.
5. **Covert Practice**: The silent, mental rehearsal of targets providing a positive mental preparatory set with which to enter a speaking situation.
6. **Communication Mentality**: The attitude or position of empowerment to speak to anyone, at any time, in any environment, efficiently and effectively, and with little more than a normal amount of negative emotion.

Deleted: ¶
¶

Theoretical Basis for Treatment Approach

The Nature of Stuttering and its Treatment

Many definitions and descriptions of stuttering can be found in the literature. Most reflect the author's particular bias or theoretical perspective. For the purposes of our discussion we have selected one formal definition and one less formal description of stuttering.

One definition of stuttering characterizes the disorder as a complex multidimensional condition in which the flow of speech, or fluency, is disrupted by involuntary speech motor events (Bloodstein, 1995). There are two key words in this definition that deserve our attention. First, the term "multidimensional" implies that stuttering is the result of a number of coexisting factors which, when combined in the specific manner, result in the disfluent speech of the person who stutters. These multiple factors may include genetic, personality, psychosocial, physiological and emotional factors. It is not the purpose of this chapter to delve into the many theories and experimental studies that have addressed these dimensions of stuttering. Suffice it to say that the practicing clinician should be continually looking for clues in these areas to explain the onset, development and perpetuation of the speech pattern.

The second key word in this definition, "involuntary", can be interpreted in a number of ways with regard to the speech motor events of stuttering. While much has been written about the feelings of helplessness and sheer lack of speech control in stuttered speech, it is important to note that the purpose of the current program is to bring speech to the level of conscious control. Thus, although the act of stuttering may seem and feel totally involuntary to the untreated individual, the successful participant of our intensive treatment program will acquire the skills necessary to produce a conscious, volitional form of smooth, free-flowing speech.

Let us now turn to our less formal description of stuttering. This description acknowledges two fundamental aspects of the disorder: (a) The stuttering problem and (b) the stuttering behavior. The stuttering problem refers to stuttering as a life issue. Here we are looking at issues such as self esteem and self concept, confidence, peer interaction, attitudes, emotions, psychological factors and quality of life. The stuttering behavior, on the other hand, refers to those maladaptive speech behaviors commonly referred to as stuttering. These specific behaviors, or disfluency types, include silent blocks; sound, syllable and word repetitions; sound prolongations; and dysrhythmic phonations. Here again, the literature is replete with a myriad of classification systems for types of disfluency (Conture, 1990; Cordes, 2000; Johnson, 1959; Sander, 1961; Silverman, 1974; Young, 1961). An additional component of the stuttering behavior involves the secondary, accessory or contingent behaviors associated with stuttering. These behaviors include mannerisms such as head jerking, eye blinking, foot stamping, facial grimacing and a variety of other subtle and, at times, not so subtle struggle behaviors. The third aspect of the stuttering problem is avoidance. Avoidance occurs when the individual anticipates stuttering and engages

in behaviors designed to disguise or avoid overt stuttering. Avoidance behaviors include word substitution, phrase revision, and the use of starters or fillers, such as automatic phrases at the beginnings of sentences.

Stuttering has been associated with numerous theoretical constructs and a myriad of clinical strategies designed to assess and treat it. North American speech-language pathologists have traditionally found themselves in one of two clinical camps with regard to the treatment of confirmed stuttering in adolescents and adults. The first of these groups views stuttering as representing patterns of avoidance and struggle behavior that have been learned as responses to motor breakdowns in speech. Treatment procedures focus on reduction of negative emotion in order to decrease struggle, avoidance and anxiety. Moreover, specific techniques are taught to assist the individual in modifying the tension, blockage and fragmentation of stuttered speech to achieve less effortful, tension-free and more free flowing speech patterns (Guitar, 2006).

The second group approaches the modification of the stuttering response to fluent speech by the systematic application of behavioral principles. In this framework, certain aspects of stuttering are viewed as essentially learned behaviors that can be altered through appropriate response-contingent stimulation (Brutten & Shoemaker, 1967; Flanagan, Goldiamond & Azrin, 1958; Shames & Sherrick, 1963). More recent explorations of the stuttered speech response have begun to uncover some of the neural substrates of stuttering, explaining the disorder as neurologically based with consequent motor aberrations in speech output (Braun et al., 1997; De Nil & Kroll, 2001; Fox et al., 1996; Ingham, 2001; Kroll & De Nil, 1998; Wu et al., 1995). Given the neurological substrates and the conditioned responses of the individual toward speaking as an explanation of stuttering, therapy procedures attempt to reconstruct the respiratory, phonatory and articulatory gestures used in fluent speech production (Boberg & Kully, 1985; Kroll & Beitchman, 2005; Kroll & De Nil, 1995; Webster, 1974).

For many years, members of our discipline argued their respective positions concerning the treatment of stuttering. Those clinicians who were more oriented toward the psychodynamics of stuttering accused the pure behaviorists of being too superficial in their view of the disorder. They argued that the behaviorists were not getting to the "deeper" issues and that their therapy approaches were too simplistic and superficial. In a similar fashion, behaviorists accused their counterparts of not adhering to the rigors of scientific enquiry and methodology.

Given these two views of the nature of stuttering, it is safe to say that most traditional speech therapy programs for stuttering fall within two major categories. The first of these is stuttering modification and the second is fluency shaping (Guitar, 1998). Stuttering modification deals more with the disorder as a problem. It deals with the psychological aspects and addresses the attitudes, feelings and emotions resulting from stuttering. Related areas that are worked on include self acceptance, avoidance and anxiety reduction and attitude change. Reducing fear is a major goal of stuttering modification therapy. This type of therapy attempts to teach the individual to modify his moments of stuttering by eliminating the tension and struggle associated with the disfluent moment. Specific techniques include cancellations, pull outs and preparatory sets, all techniques first advocated by Van Riper (1973). The ultimate goal for the individual with advanced stuttering is to change the stuttering pattern to speech that is more relaxed, easy and open. It is important to note that the goal here is to stutter more fluently, not to speak with perfectly normal fluency.

Comment [RJM1]: We think these terms should be defined briefly.

Fluency shaping therapy techniques generally differ from stuttering modification mainly in terms of the end products or desired goals for the client. Whereas stuttering modification therapy attempts to modify the moment of stuttering to achieve easier, less effortful stuttered speech, the goal of fluency shaping is to replace stuttering with stutter-free speech. In this therapy, fluency is reinforced and gradually shaped to approximate normal sounding speech. Therapy procedures attempt to reconstruct stuttered speech by training fluency skills at the respiratory, phonatory and articulatory levels. There is little, if any attention paid to fear and avoidance reduction or other psychological factors associated with stuttering. Strict adherents to fluency-shaping therapy restrict their efforts to only those observable, "measurable" speech behaviors. It is thus considered essentially of no use to deal with such immeasurable phenomena as fears or emotional states. Once the new speech patterns are established within the clinic setting, fluency shaping programs address beyond-clinic transfer and generalization of skills.

The 1980's ushered in an era of intense activity of clinical research aimed at identifying key components of clinical procedures deemed to be effective at reducing or completely eliminating stuttering behavior (Boberg, 1976; Cooper, 1976; Ryan, 1979; Shames & Florance, 1980; Shine, 1981; Webster, 1979). Specific clinical procedures were subjected to empirical validation. Those deemed to be effective were maintained and incorporated into many published clinical programs and those that were deemed ineffective were discarded. Research in stuttering began to emphasize the notions of accountability and treatment effectiveness as the literature began to be filled with early if somewhat flawed outcome studies (Gregory, 1979; Ingham, 1984a). Indeed, questions pertaining to treatment validity are still the major topics of current books and chapters as we have learned to more fully scrutinize our clinical treatment procedures for people who stutter (Cordes & Ingham, 1998; Ingham & Cordes, 1999).

Treatment Efficacy and Effectivenss

Even as advances in treatment efficacy in controlled, laboratory derived treatments were being documented and reported, treatment effectiveness – successful treatment in typical clinical settings—lagged behind. In our experience, the format and scheduling of therapy in traditional programs for stuttering emerged as one of the factors precluding substantial gains in clinical treatment. Clients were most often seen for once a week for hour long sessions or, at most, twice weekly. This spaced learning resulted in protracted therapy durations, lasting in many instances for two to three years or even longer. This therapy format would inevitably lead to situations that would supplant the therapy process. In some instances, the client would become extremely dependent on the clinician for advice concerning many aspects of his life. Issues pertaining to vocational, social, marital or other concerns unrelated to the presenting stuttering problem would begin to be the predominant focus during therapy. Eventually the therapist would begin to question the client's commitment to speech improvement. Indeed a very common therapy scenario would pair a male client, aged 25 to 35 years with a female clinician of the same age or slightly younger. It is little wonder that in so many instances, this therapy process was extended!

Another major issue with older treatment formats involved the minimal demands they placed on the client. Issues of self-reliance and ownership of the therapy process were not built into the treatment programs. Most of the teaching and practice took place within the confines of the clinic. All too often the client would leave the session having been instructed to "think about what we discussed today" or else to engage in a minimal amount of home practice.

This in-clinic therapy approach logically caused serious problems pertaining to transfer or generalization of speech skills. Nonetheless, after several months of therapy, speech fluency would inevitably increase as the client/clinician relationship grew more comfortable and secure. Unfortunately for the client, however, this increased fluency was primarily due to decreased communicative stress and familiarity with the listeners rather than to conscious and deliberate production of a type of fluency that would endure increased communicative stress in real-world situations. Clients would then agonize over why their speech differed so greatly between the clinic and "out there". Difficulty with generalization of speech skills to beyond-clinic settings would often prompt the client to question his progress in therapy. Here again, due to the protracted nature of the therapy, as well as to those above-mentioned interfering factors, accurate and complete assessment of speech gain was often impossible. Clinicians would encourage their clients at this point, noting attitudinal and adjustment gains despite the absence of any observed changes in speech fluency.

Thus, a growing disconnection was observed between results reported from treatment studies and results observed within clinics. Empirical evidence from laboratory derived experimentation was suggesting that stuttered speech could be effectively modified to more normal sounding forms, yet clinical practitioners continued to engage in therapy programs and formats that were highly inefficient and often comprised of vague instruction sets and inadequately defined objectives. The need to intensify treatment as well as to assign greater responsibility to the client for the therapy process was built into many of the intensive programs first reported in the mid to late 1970's (Boberg, 1976; Webster, 1979).

At this point in our evolution as a profession, it is comforting to note that the largely non-productive arguments and polarization among professionals regarding the most effective ways of treating stuttering are slowly giving way to programs that address both the stuttering problem and stuttering behaviors. More and more treatment programs describe themselves as comprehensive, inclusive or integrative as clinical researchers demonstrate the benefits of multi-dimensional approaches. Clinicians and researchers who at one time expressed very strong and somewhat rigid views regarding their treatments are gradually incorporating new elements as they identify critical variables that had gone unaddressed in earlier versions. Indeed, the popular text, "Stuttering An Integrated Approach to Its Nature and Treatment" (Guitar, 2006) reflects this trend (Kroll, Cook, De Nil & Ratner, 2006). It is with such an integrative treatment model in mind that we present what we hope is a thorough outline of our treatment, the Fluency Plus Program at the Stuttering Centre, a program of the Speech Foundation of Ontario in Toronto, Canada.

Empirical Basis for Treatment Approach

The purpose of the present chapter is an attempt to summarize our efforts at (a) resolving the discrepancy between laboratory derived procedures and clinical work with stuttering and (b) establishing an integrated treatment program addressing fluency establishment, skill transfer and fluency maintenance while also addressing the critical psychological barriers to fluency attainment. Our model has evolved over a thirty year period and what follows is a chronology of specific program phases and modifications.

Early Studies

One of the first Canadian intensive treatment program for adults who stutter was introduced at the Clarke Institute of Psychiatry in Toronto in the late 1970's by the first author of this chapter. The treatment was based on the Precision Fluency Shaping

Program developed by Webster (1974) and was designed initially to be used in an intensive, daily format by adolescents and adults. Its basic premise was that the person who stutters inadvertently violates fundamental rules of speech mechanics and must be taught to replace stuttered speech with normal sounding fluency. The program was administered during a three week intensive period wherein clients were seen daily for up to five hours of group and individual therapy. The establishment phase trained fluency skills related to speech rate, respiratory, voice and articulatory control. The generalization phase involved practice of these skills in natural settings. The program was appealing to us for a number of reasons. First, the highly structured and organized nature of the program materials allowed for a logical and well planned sequence of clinical activities. Second, the program techniques and procedures had been derived from laboratory experimentation and third, the program was intensive in nature, requiring a full time commitment from the clients for a three week period. These factors, combined with the fact that basic principles of human learning were carefully incorporated throughout the approach, convinced us to introduce the program to our clinic.

Leibovitz and Kroll (1980) conducted an initial retrospective study on 100 randomly selected clients who participated in the Precision Fluency Shaping Program in Toronto. They conducted a molar analysis of stuttering frequencies from pretreatment and posttreatment videotapes from their randomly selected sample of 78 males and 22 females ranging in age from 12 to 60 years. Additional pre- and posttreatment data were obtained using the Perceptions of Stuttering Inventory (Woolf, 1967), an instrument designed to provide self report data on struggle, avoidance and expectancy behavior. This early study reported that greater than 90% of the subjects participating in the intensive program demonstrated significantly improved fluency counts in addition to positive attitudinal shifts, as reflected by reduced PSI scores. (See Tables 1 and 2). The authors cautioned however, that these data represented only pre- and posttreatment scores and anticipated that many clients would be unable to adequately maintain these gains without supplemental counseling, support and follow-up. The authors reported that the transition from participant's functioning in the highly structured and rigorous intensive treatment program to functioning essentially on their own often resulted in either partial or total regression of speech skills. Thus began the modification of the original program with an additional maintenance component consisting of in clinic group sessions designed to assist clients with fluency issues in the post treatment environment.

Comment [RJM2]: Perhaps you can explain a little more what you mean by this. I think you mean total number of stutters for each tape as a whole rather than on a per minute basis, fight?

Insert Tables 1 and 2 about here

Follow-up Studies

In order to further assess treatment effectiveness, Kroll, Gaulin and Tammsalu (1981) reported on pre, post and follow-up data obtained from 23 former program participants attending a self-help meeting. The subjects for the study consisted of 21 males and 2 females, ranging in age from 15 to 59 years. The amount of time post-treatment ranged from 1 month to 5 years, 11 months with a mean of 2 years and 5 months. Results of this study again demonstrated significant improvement in speech fluency immediately following treatment. Follow-up data reported some regression from post-treatment levels, notably in conversation, but still well above pretreatment levels. Mean percentage dysfluency scores in conversation were 28.5% pretreatment;

3.7% post treatment and 7.8% follow-up. Maximal regression was found to occur six months to one year post treatment, followed by gradual further improvement which soon leveled off, resulting in fluency scores well above pretreatment levels. (See Table 3.)

The authors of this study also collected self report ratings of daily functioning from their subjects. Only 20% of the subjects reported satisfactory performance in everyday speech situations before treatment. By contrast, after various intervals post treatment, 86% of the subjects reported either little or no difficulty with daily speaking experiences.

Insert Table 3 about here

In addition to the requirement for a formal maintenance component following intensive stuttering treatment, we identified many areas that needed to be addressed during the program that were not specifically targeted as goals in the original program. We discovered that we needed to devote many hours to a number of issues related to feelings of negativity concerning stuttering, acceptance of modified speech patterns, learning to cope with anxiety, establishing realistic expectations and goals, analysis of specific beliefs and attitudes, and a variety of other areas that will be discussed later in this chapter. We began to see the need to incorporate strategies designed to assist clients in altering their self-perceptions, attitudes and overall belief systems. In other words, cognitive restructuring evolved as an integral part of our intensive therapy program. Indeed, the current literature contains several endorsements of supplementing behavioral techniques with cognitive or affective restructuring (Blood, 1995; DiLollo, Neimeyer & Manning, 2002; Ladouceur, C. Caron & G. Caron, 1989; Neilson, 1999). Very early on in our clinical efforts, we came to realize that behavioral change alone without modifications of attitude and other areas of cognition would inevitably lead to problems during treatment and, most certainly in the post treatment environment. These realizations were later confirmed by others administering intensive adult stuttering treatment programs (Andrews & Craig, 1988).

Our program was then modified to include specific cognitive restructuring goals in addition to the behavioral goals pertaining to the overt speech behavior. Moreover, we increased our efforts at strengthening our formalized maintenance phase. Following the intensive program, clients were enrolled for a maintenance program consisting of follow-up group sessions scheduled on a progressively fading basis and lasting for one year. Fluency maintenance: A guide for ongoing practice (Kroll, 1991) was written to assist program participants in developing a systematic home practice program and to establish both short and long term goals for fluency. Indeed, in the months and years following the establishment of intensive programs, fluency maintenance was identified as one of the most critical challenges facing clients in the post treatment environment (Boberg, Howie & Woods, 1979; Ingham, 1984b). We also established a number of support systems for past clients in addition to formal maintenance programs. These included refresher courses and focused self-help groups, both of which will be discussed later in this chapter. And so the Fluency Plus Program evolved to include the above components.

Subsequent follow-up studies of our intensive program confirmed the results of our early studies and shed additional light on the long term speech performance of clients in the post treatment environment. In general, these studies indicated that the

majority of clients demonstrated an initial dramatic decrease in stuttering immediately post treatment with regression rates ranging from five to 20 percent one or two years following intensive treatment (De Nil & Kroll, 1995; De Nil, Kroll, Lafaille & Houle, 2003; Kroll, De Nil, Kapur & Houle, 1997).

Measuring treatment effects using neuroimaging

Our seminal research using neuroimaging techniques added confirming data as to the speech processing of individuals who stutter and brain activation before and after treatment and one year following a maintenance program (De Nil, Kroll, Lafaille & Houle, 2003; Kroll & De Nil, 2000; Kroll, De Nil & Houle, 1999). Thirteen adults diagnosed with developmental stuttering, aged 20-40 years and 10 nonstuttering adults, aged 19-34 years, completed silent and oral reading tasks and a verb generation task while functional images of their brain activation patterns were obtained using Positron Emission Tomography (PET). The stuttering subjects were scanned at three separate times: before intensive therapy with Fluency Plus; immediately following the three week intensive portion; and one year later. Fluency counts and Stuttering Severity (SSI) scores (Riley, 1972) were obtained at the pre-, post-intensive and follow-up times. PSI scores were also obtained at these times. (See Table 4).

Insert Table 4 about here

In addition to other findings, we have demonstrated that people who stutter, in general, demonstrate increased cortical activity when performing oral speaking tasks. This increased activity is observed before treatment and is thought to reflect increased effort during speech production. Interestingly, the subjects demonstrated a persistent pattern of cortical over-activation immediately following treatment although this over-activation was more left lateralized. We interpreted this over-activation, even in light of very high levels of fluency immediately post-treatment, as the result of the cognitive demand associated with the deliberate monitoring of fluency skills as per the Fluency Plus Program. What is most compelling is the pattern observed following a year of successful maintenance, where the cortical activity seen in the stuttering subjects begins to approximate those patterns seen in nonstuttering speakers although not completely. We have interpreted this finding as suggesting that speech is becoming more automatic for the speaker following a consistent program of fluency practice. This series of neuroimaging studies has confirmed the necessity of fluency maintenance programs following intensive treatment. Major changes in cortical activity from post-treatment to follow up suggest that the formalized practice routine consisting of skill training and cognitive restructuring (Kroll, 1991) plays an important role in establishing speech patterns that are more easily accessed by the successful client. (See figure 1). Of course, additional studies will shed even more light on brain activation changes after treatment, thus allowing us to further tease out those critical elements of the maintenance program that are most responsible for the observed effects. Moreover, investigations of those clients who relapse during the maintenance period could potentially provide us with useful predictive information.

Insert Figure 1 about here

Following more than twenty-five years of clinical and research experience with stuttering treatment for adolescents and adults, we can say with confidence that there are specific and fundamental principles that must be included for effective therapy. First and foremost, the program must be based on empirically tested procedures. This statement reflects the growing awareness of the importance of evidence-based practice that is discussed so frequently in our discipline (Cordes & Ingham, 1998). Secondly, the program must be comprehensive, and include establishment, transfer and maintenance stages of treatment. Third, while the program may deal initially with observable behaviors, attention must be paid to the attitudes, feelings, emotions and other cognitive factors that could potentially impact an individual's response to any of the treatment phases. Fourth, the program must be administered on an intensive schedule. This schedule could take an in-clinic format, where the client is seen on a daily basis for a period of time, or the intensification may refer to the amount of home practice that the client is to carry out between therapy sessions that are spaced, say on a weekly basis. Finally, effective behavioral programs for stuttering must incorporate several fundamental principles of learning.
The following list of points reflect what we have found to be crucial in providing

effective and complete treatment programs for individuals who stutter.

Formatted: Line spacing: single

Speech represents complex behavior
There are no simple solutions to stuttering, even in what appear to be milder cases. It is unlikely that simply teaching easy breathing or slow speech will be sufficient to modify the gamut of maladaptive speech behaviors that we see as stuttering.
Treatment techniques focus primarily on observable behaviors
The primary focus of treatment must be to modify the physical aspects of the speech production process. This will involve working on the distorted respiratory, phonatory and articulatory behaviors. The aim is to modify these speech behaviors via a series of exercises designed to retrain movement patterns for speech.
Fluency skill training is supplemented by cognitive restructuring
Attitudinal and emotional factors must be addressed during treatment. Most individuals presenting with confirmed, chronic stuttering often develop coping strategies that impact therapy progress. Comprehensive treatment programs will deal with self talk strategies, coping with fear and anxiety, and eliminating avoidance behavior.
Treatment must be intensive
Intensity of treatment may refer to the format of therapy (i.e., daily programs consisting of several hours of in-clinic sessions); intensification can also refer to the performance expectations placed on the clients' home practice between sessions. For example, it is not sufficient to provide vague, non-goal oriented instructions such as "try this for a few minutes when you get home tonight". We have found that the client must be given specific instructional guidelines for home practice which are supplemented by printed materials at the end of each session. It is not uncommon to request several hours of home practice between clinic sessions.
Fluency skills must be over-learned and exaggerated
During the initial stages of treatment, fluency skills are taught in a much exaggerated way to increase the client's awareness of the details of speech. These behaviors are taught individually and are practiced at each level until over-learning or ease of

production is achieved. Then, they are transferred from simple speech responses to ongoing conversation.

Reduction of response variability

It is essential to provide the client with specific definitions of desired behaviors as well as ranges of acceptable speech responses. It is inappropriate to tell a client to "breathe easier" or "talk slower" without adequately specifying performance expectations for specific fluency skills. Home assignments should be assessed in a similar fashion using analysis of recorded practice sessions. During clinic time, the client should be provided with immediate feedback pertaining to the accuracy of his speech responses. This feedback may be provided by instrumentation such as timing devices, biofeedback units, or analysis of recorded speech and clinician feedback.

Fading and Client Self-Reliance

Therapy techniques, materials and equipment (e.g., stopwatches) are introduced at critical times during treatment then withdrawn as the client achieves performance criteria at each program step. In this fashion, the tendency for the client to become overly dependent on an intermediary program step or piece of instrumentation is avoided. The goal throughout the program is to achieve self-reliance for all aspects of both behavioral and cognitive aspects of the speech process.

Transfer of fluency skills must be addressed

The therapy program cannot take place solely in the clinical environment. Specific transfer activities must constitute an integral part of the overall treatment program. The timing and type of transfer activities must be scheduled to accommodate the client's needs and preparedness to incorporate newly learned fluency skills in the natural environment. The sequence of transfer activities must follow the same structured and logical progression as that utilized during initial training.

Maintenance programs must be incorporated

In order to complete all phases of comprehensive treatment, the client must be provided with a set of guidelines and procedures to follow independently in the post-treatment environment. These guidelines must be specific and provide the client with detailed instructions as to how to develop effective practice schedules in order to maintain fluency gains. Maintenance or follow-up sessions constitute part of the treatment program and should be conducted on a progressively fading basis.

Post-treatment support groups provide a bridge

These post-treatment groups represent a bridge between the structured program offered during the clinical program and the client's independent home practice routines. It is to be noted that these post-treatment groups have been established as work meetings where former program participants gather on a regular schedule to focus on the original therapy skills acquired during the intensive program. Client feedback, dialogue and problem solving are encouraged during these meetings. For the most part, they are run independent of professional intervention and the group adheres to a formal organizational structure including a slate of elected officers.

Refresher programs must be offered.

Past program participants are never formally discharged from the program. Refresher programs are conducted twice yearly to allow individuals to reacquaint themselves with the details of the original program and to attend a two-day seminar during which they can receive professional feedback and face the challenges of communication in large groups. Clients participate in these refresher programs voluntarily. We have found that these programs are especially beneficial for those clients residing at great distances from the clinic, precluding them from attending the series of follow-up maintenance sessions.

Practical Requirements for Treatment

Level of Training Required

The Fluency Plus Intensive Adult Program should only be administered by qualified speech-language pathologists. While we have attempted to include here sufficient detail to ensure replicability of the program, it is recommended that the clinician have significant background and experience treating and counseling people who stutter. Ideally, the clinician will have spent a number of clinic hours shadowing Stuttering Centre staff and developing accurate production of the eight target behaviors and familiarity with the program equipment and manuals.

Time Requirements of Treatment

The Fluency Plus Intensive Adult Program consists of a three-week intensive phase and an eleven-month maintenance phase. The intensive phase consists of daily 4.5-hour sessions, Monday to Friday, with 2-4 hours of home assignments to be completed after clinic each day and on weekends. It is recommended that clients be free of work or school responsibilities for the duration of the intensive phase. During the maintenance phase, clients are required to dedicate approximately one hour per day to practice activities and record keeping. Clients are also required to attend seventeen 1-hour maintenance sessions, scheduled on a weekly, bimonthly, and monthly basis to complete 12 months of treatment. Clients who are unable to attend maintenance meetings in person are required to prepare and mail or email recorded samples of their speech and schedules of practice on or before each scheduled maintenance meeting.

Equipment Required

Equipment required by the clinician to replicate the Fluency Plus Program includes treatment manuals, analog stopwatch, video camera, videotapes, video monitor, audio recorder, and audiotapes. It is also required that each client have access to a voice onset biofeedback device throughout the duration of the intensive phase for in-clinic and out-of-clinic use. At the Stuttering Centre, we use two forms of voice onset biofeedback. The first is the electronic "voice monitor" which provides feedback with the lighting of a green indicator light if voice onset is performed within defined parameters of loudness and loudness changes (Smith & Kroll, 1979). The second is the Dr. Fluency computer software program which provides a graphic representation of the loudness and loudness changes of the voice onset across time (Friedman, 1992). Sufficient physical space is required to accommodate group lecture sessions and paired practice sessions. Clients are required to have an analog stopwatch, an audio recorder, and two audiotapes for use during and following treatment.

Cost of Treatment

The cost of administering the Fluency Plus Program is a reflection of the required clinical hours and available material resources. Accordingly, this cost will vary with region and health care setting. Practically speaking, one should allow for a minimum of 77 direct clinical hours, 12 clinical preparation hours, 16 clinical analysis hours, and 10 administrative consultation hours. Depending on group size and schedule flexibility, a co-clinician may be required to provide remedial sessions and clinical feedback in outside transfer activities. Materials costs include the reproduction of manuals and forms and equipment costs include biofeedback devices and computer software. Space requirements should also be taken into account.

Formatted: Line spacing: single

Key Components of the Approach

Treatment Goals

Ultimately, the treatment objective of the Fluency Plus Program is the achievement of the **Communication Mentality**. That is, the ability to speak to anyone, at any time, in any place, effectively and efficiently, and with little more than a normal amount of negative emotion. In order to meet this objective, three basic treatment goals must be achieved:

(1) Clients must gain control over speech muscle movement patterns through the **establishment** of fluency facilitating target behaviors

(2) Clients must gain the ability to produce controlled speech in all relevant speaking contexts through the acquisition of **transfer** skills and the **cognitive restructuring** of attitudes, beliefs, and feelings

(3) Clients must acquire a skill set to support the long-term **maintenance** of treatment gains

Stages of Intervention

The Fluency Plus Program is comprised of three overlapping stages of intervention:

1. Establishment of Fluency Facilitating Targets. The motor-speech system is restructured through the establishment of eight fluency facilitating speech behaviors called targets. A target may be defined as a specific muscle movement pattern performed within defined parameters. The establishment phase is supported by providing the client with a practical and relevant education about the anatomy and physiology of speech and stuttering.

2. Transfer and Cognitive Restructuring. Alongside the establishment of the physical mastery of target behaviors, the processes of transfer and cognitive restructuring are achieved. Transfer may be defined as the use of the newly acquired speech pattern outside of the clinical setting and in various speaking activities; and cognitive restructuring may be thought of as changes in the way a client thinks and feels about stuttering and communication as well as changes in the mental set with which he enters into speaking situations. Clients are introduced to critical concepts to facilitate successful transfer throughout the program. Each of these concepts is supported by specific cognitive restructuring goals. In this way, transfer and cognitive restructuring may be considered to be co-dependent and are achieved simultaneously.

3. Maintenance and Staying Connected. Clients are introduced to critical concepts that are instrumental to the maintenance of long-term fluency gains. A detailed program of daily practice activities is introduced along with record keeping and goal-setting strategies. Clients are scheduled to attend a year-long series of follow-up sessions to support practice, assess skill maintenance, problem-solve, and to address ongoing attitudinal goals. Clients are also encouraged to become members of the Demosthenes Society, a volunteer-run support group of alumni of the program, and to participate in yearly refresher seminars.

Program Progression

In the following description of the Fluency Plus Program progression, we have attempted to outline the procedures and activities we use to establish the behavioral skill requirements of the program. In addition, we have indicated in bolded italics those sections addressing cognitive restructuring goals. Please refer to Figure 7 for a summary of the program sequence and clinical goals.

Intensive Phase

Day 1

Pretreatment measures. Each client participates in a videotaped interview and is asked to provide a videotaped reading sample as measures of speech fluency. For each of these measures, words spoken per minute and percent words stuttered is calculated, stuttering form type and frequency is analyzed, and secondary behaviors are noted.

Each client also completes two pen and paper attitude scales to measure perceived communication competency, perceived presence of struggle and avoidance behaviors, and perceived awareness of expectancy of stuttering. The attitude scales used at the Stuttering Centre include The Perceptions of Stuttering Instrument (Woolf, 1967) and the Modified Erickson Scale of Communication Attitudes - S24 (Andrews & Cutler, 1974).

Introductions. After a brief overview is provided regarding speech, stuttering, and the philosophy and format of the Fluency Plus program, an informal group introduction activity is completed. ***For many participants in the program, meeting and speaking with other people who stutter is a rare experience. One of the profound advantages of the group treatment model is the opportunity to achieve a most critical cognitive restructuring goal. By virtue of acceptance and positive regard for other group members who stutter, each participant's process of self-acceptance is begun. A mental shift from negative self-perception to positive acceptance is forged. Many clients express feelings of relief upon learning that others share their experiences and feelings. Comfort is found in the knowledge that they are not alone.***

Counseling. A portion of each clinic day is devoted to group counseling through a variety of activities. Each activity serves as an opportunity to introduce and explore concepts critical to achieving specific cognitive restructuring goals. Clients are always encouraged to ask questions and bring forward points for discussion as it is recognized that the most teachable moments are often those which arise from spontaneous inquiry. For this reason, the program must remain flexible enough to accommodate counseling needs as they arise.

Establishment of the Stretched Syllable Target. The Stretched Syllable Target (SS) is introduced at the 2-second stretch rate. Four rules defining the target are provided:

1. Each syllable is prolonged (or "stretched") for two seconds as measured by an analog stopwatch.
2. The first "stretchable sound" (vowel or voiced continuant) is prolonged for one second.
3. The remaining sounds of the syllable are prolonged for the remaining second.
4. A one-second pause is inserted between syllables for inhalation.

This target is established using single-syllable words initiated with stretchable sounds (e.g., ON, IN). Next, stretchable multi-syllable words are introduced (e.g., NOR MAL, RE VERT) with close attention to accurate timing durations and awareness of the stable positions and movements of the articulators. Next, two "unstretchable" categories of sounds are defined. The voiceless fricatives (/h/, /f/, /s/, /ʃ/, /tʃ/, /θ/) and the plosives (/p/, /b/, /t/, /d/, /k/, /g/). When producing syllables beginning with these sounds, the unstretchable sound is produced briefly and the subsequent stretchable sound is stretched for one second. Clients are best able to benefit from this stage of treatment if they are helped to understand the rationale for the extreme and unusual durations of the 2-second stretch. It is explained that the Stretched Syllable target is required to decrease the force and acceleration characteristic of stuttered speech. It provides an opportunity to feel and notice the details of speech movements and make modifications to these details. The Stretched Syllable target is the foundation for the establishment of each of the other targets. Furthermore, clients must understand that the extreme stretching of the 2-second stretch will be short lived and shaped towards a natural rate of speech through a progression to the 1-second stretch, the one-half-second stretch, and ultimately a New Normal rate of speech within a range considered typical for natural and functional communication.

Home Assignments. Home assignments are provided at the end of each clinic visit to reinforce skills and concepts acquired in clinic. The completion of home assignments begins the process of transfer of targets to the out-of-clinic environment and thus, an over-dependence on the clinic environment is avoided.
Self-evaluation. Clients are instructed to audio record their home assignments each day and to review these recordings for target accuracy. Clients are instructed to self-evaluate consistently by monitoring accurate timing durations by stopwatch, feeling stable articulatory positioning and movements, and listening back to audio recordings.
Day 2
Feedback. Audio recordings of home assignments are reviewed at the beginning of each clinic visit and feedback is provided regarding target accuracy. Clinical feedback is gradually faded out as clients become increasingly able to self-evaluate and receive feedback from their fellow group members. Clients are encouraged to give one another objective and supportive feedback by commenting on the accuracy of target parameters.
In the case of poor client performance or compliance, individual meetings are scheduled to address client needs.
Self-Correction. Clients are introduced to a method of responding to target errors called Self-Correction:
1. Stop as soon as any missed detail of a target is noted and exhale any stored air
2. Take a new breath
3. Repeat the syllable on which the error was noted correctly and move on to the next syllable

There are three significant benefits to performing Self-Corrections: (1) clients have the opportunity to independently evaluate and repair their own target errors without over-reliance on clinical feedback; (2) inaccurate practice trials are replaced with accurate ones; and (3) the unproductive habits of forcing through blocks or restarting entire phrases following a moment of stuttering are replaced.
2-second stretch in continuous reading. When applying the 2-second stretch to continuous reading exercises, a short portion of text must be memorized and then produced aloud using the stopwatch to monitor accurate timing durations. Clients are instructed to audio record their reading assignments, listen to their recordings, and note errors. If greater than 6 errors per 50-word paragraph are noted, clients are encouraged to redo the assignment with greater accuracy.
Introduction to Transfer. Transfer is defined for the client as taking the fluency skills learned in the clinic and applying them outside the clinic in a variety of speaking activities. It is explained that the transfer process actually began when home assignments were completed out of clinic.
Transfer Assignment on the Telephone. To further the transfer process, clients are required to complete a reading assignment over the telephone. This assignment is initially completed with a fellow group member who is able to offer objective feedback. As treatment progresses, clients are encouraged to complete subsequent assignments with various group and non-group members over the phone. ***In this way, clients begin to address the critical cognitive restructuring goal of reducing the fear associated with speaking on the telephone. Many clients enter treatment with great difficulties and significant anxiety about using the telephone. Participating in successful transfer of clinical skills on the telephone begins the process of a mental shift in perception. The telephone becomes associated with control and success rather than tension and struggle.***
Day 3

Speech Physiology. A detailed description of the physiology of speech and stuttering is given. ***An understanding of the speech mechanism supports the acquisition of targets and also addresses a critical cognitive restructuring goal. Stuttering ceases to be viewed as a character flaw or failing. Instead, stuttering is viewed as a predictable result of faulty movement patterns of speech which can be corrected and controlled through the conscious application of targets***. Clients are also taught to classify speech sounds as vowels (Class I), voiced continuants (Class II), voiceless fricatives (Class III), or plosives (Class IV). Regardless of language, sounds may be classified in this way and categorized as stretchable or unstretchable. The sound class also determines the target sequence that must be applied (see Table – Sound Classes). Multilingual clients are encouraged to complete a portion of each home assignment in each of the languages they speak.

Transfer to conversation level. Simple questions and answers are modeled initially by the clinician. With gradual fading of the model, clients are required to produce longer and more spontaneous utterances while applying the stretched syllable target accurately. At this stage, clients are encouraged to maintain constant adherence to the 2-second stretch during all in-clinic speech. Gradually, this requirement is extended to all speech activities in- and out-of-clinic. ***We observe that when clients are required to consistently use targets in clinic from an early stage, they are more easily able to achieve transfer later in the program because a critical cognitive restructuring goal is addressed. Ultimately, clients must understand that the modified speech pattern must be applied in all speaking activities, not just those designated as practice, or those perceived to be "difficult"***. Without full-time adherence to monitored fluency, clients fail to fully consolidate the new muscle movement patterns and run the risk of post-treatment regression.

Establishment of the Full Breath Target. The Full Breath Target (FB) is introduced following a review of the anatomy and physiology of the respiration system and requires the establishment of the co-ordination of speech with diaphragmatic breathing. The introduction of the Full Breath Target is reserved until sufficient mastery of the Stretched Syllable Target is achieved. Without the establishment of the Stretched Syllable Target, many clients exhibit insufficient control over voice initiation to accurately practice the Full Breath Target with speech.

Three Steps of the Full Breath Target:

1. *Take a slow, comfortably full breath in by feeling the abdomen move out*. Clients should monitor abdominal movements with their hand. Movements of the chest and shoulders should be limited.
2. *Consciously eliminate any pause or breath-holding following inhalation*. This assures that the vocal folds are kept open prior to voicing to prevent hard glottal attack and laryngeal blocking.
3. *Passively exhale without force, feeling the abdomen return to rest*. Voicing is initiated on the exhaled breath stream. The Full Breath Target is established at the 2-second stretch rate at the word, sentence, paragraph, and conversation levels and maintained through the introduction of all other targets.

Day 4

Speech Making. Clients present a prepared three-minute speech at the 2-second stretch rate, monitoring the accuracy of the SS and FB targets to the other members of the group and the clinicians. Midway through the speech, clients are asked for a self-evaluation of target accuracy. Peer and clinician feedback is also provided. Throughout treatment, external feedback is faded and a greater emphasis is placed on self-evaluation in order to foster greater self-reliance. ***There is often significant***

anxiety leading up to the first in-clinic speeches, yet performance is typically successful in the clinical setting. Clients are provided with an opportunity to reflect on their perceptions of the relationship between anxiety and stuttering and to comment on how anxiety was managed during their public speaking assignment. Consistently, clients are able to gain the insight that while they felt a level of anxiety, they were able to control their speech movements through active monitoring of targets. In this way, clients are able to achieve the cognitive restructuring goal of understanding that while anxiety can certainly impact their speech, it is not the cause of their stuttering. Stuttering can be managed through diligent adherence to target accuracy regardless of anxiety level.

Establishment of the Gentle Onset target. At this stage, clients are prepared to accurately acquire control over voice initiation through the Gentle Onset target (GO). They have achieved the necessary decrease in the force and acceleration of their speech through the Stretched Syllable target and have acquired skillful diaphragmatic breathing through the Full Breath target which will now serve as the first step of the Gentle Onset target. The Gentle Onset target is introduced following a review of the physiology of the voicing system. It is explained that the controlled initiation of voicing without hard glottal attack or laryngeal blocking requires a gentle initiation of vocal fold vibrations and a gradual increase in the strength of these vibrations. A graphic representation of loudness changes over time is provided in the form of a smooth, bell-shaped curve and five steps of the Gentle Onset target are introduced:

1. Take a slow, comfortably full breath
2. Initiate voicing very quietly and gently
3. Increased loudness gradually
4. Reach full conversational loudness
5. Decrease loudness again in a gradual fashion.

The Gentle Onset target is introduced at the syllable level for Class I sounds and a series of exercises are completed to establish the Gentle Onset muscle movement pattern for controlled voice initiation. In addition to clinician feedback, a biofeedback device called a voice monitor is provided for use in- and out-of-clinic for the duration of the intensive phase of the program. The voice monitor is used to provide clients with information about the accuracy of their productions. Clients also use the Dr. Fluency computer software program which provides a graphic representation of loudness changes over time. The Gentle Onset target is established at the 2-second stretch rate at the syllable, word, sentence, paragraph, and conversation levels and maintained throughout the program.

Establishing Covert Practice. Covert Practice is defined as the silent, mental rehearsal of target patterns. This skill is introduced and practiced on isolated Class I sounds. The objective is for the client to be able to invoke a mental image of the FB, SS, and GO target patterns on demand. ***This skill will become an essential component of a critical cognitive restructuring goal. Clients will establish a constructive rather than destructive mental set with which to enter into outside transfer situations. The client will become able to occupy the mind with a mental image of what the target production sounds like, feels like, or would look like on a graph in order to block out distracting negative thoughts as they enter speaking situations.***

Transfer on the Telephone. Following a discussion of the importance of openness and acceptance of stuttering in the treatment process, clients are instructed to complete a reading assignment over the phone with a non-group member. It is explained that this will necessitate a short introduction to the goals of the program and will provide an opportunity to include this member of their social circle in the therapy process. ***This***

assignment is repeated throughout the program in order to facilitate the achievement of a critical cognitive restructuring goal. Clients achieve an increased openness with regard to their stuttering and speech therapy and broaden their circle of supporters. A freedom to actively demonstrate controlled speech replaces the pressure to hide the new speech pattern.

Day 5

The GO target is extended to syllables beginning with Class II, and Class III sounds.

Establishment of the Slow Change Target with GO Class II. The Slow Change Target (SC) is introduced together with the GO Target for Class II syllables and requires the controlled movement of the articulators between stretchable sounds within syllables without the rapid or jerky movements characteristic of stuttered speech. The SC target is established at the 2-second stretch rate at the syllable, word, sentence, paragraph, and conversation levels.

Establishment of the Reduced Air Pressure Target with GO for Class III. The Reduced Air Pressure Target (RAP 1) is introduced together with the GO for Class III syllables and requires production of voiceless fricatives without excessive air flow such that the subsequent voiced sound can be initiated with an accurate gentle onset. The voiceless fricative is not stretched but produced such that it is audible but does not prevent controlled voice initiation on the subsequent stretchable sound. The RAP 1 target is established at the 2-second stretch rate at the syllable, word, sentence, paragraph, and conversation levels.

Day 6

Establishment of the Reduced Articulatory Pressure Target. The Reduced Articulatory Pressure Target (RAP 2) is applied to Class IV syllables and requires production of plosive sounds without excessive pressure at the point of contact between the lips and tongue such that the continuation (as with /b/, /d/, /g/) or initiation (as with /p/, /t/, /k/) of voicing on the subsequent stretchable sound can be controlled with an accurate gentle onset. The RAP 2 Target is established at the 2-second stretch rate at the syllable, word, sentence, paragraph, and conversation levels.

Establishment of the 1-second Stretch. At this stage in the program, the rate of speech is increased and syllables are joined for the first time. Each syllable is now prolonged for one second and two syllables are produced in succession without stopping before the one-second pause. Thus, the Stretched Syllable timing pattern of two seconds of speech, and one second of breathing is maintained. At the 1-second stretch rate, the first stretchable sound of each syllable is prolonged for one-half second and the remainder of the syllable is prolonged for the other one-half second. The 1-second stretch rate is introduced at the syllable level and established at the word, sentence, paragraph, and conversation levels through a series of practice activities.

Establishment of the Amplitude Contour Target. Upon progression to the 1-second stretch rate, the Amplitude Contour Target (AC) is introduced. The Amplitude Contour target requires that constant voicing is maintained between joined syllables and that each syllable is produced with an accurate gentle onset curve. Thus, an amplitude contour, or "loudness curve" is produced for each syllable pair. The first syllable is initiated quietly; loudness is increased gradually to full loudness and then decreased gradually to a suitable starting point for the next syllable to begin with control. The Amplitude Contour target allows voicing to continue between syllables without stopping or blocking. The Amplitude Contour target is established at the 1-second stretch rate at the word, sentence, and paragraph levels.

Day 7

*Establishment of the Full Articulatory Movement Target***.** The Full Articulatory Movement Target (FAM) requires the full and deliberate movement of the articulators from one sound to the next within syllables. Clients are cued to monitor their production of this target in a mirror to avoid the restricted or "clenched" articulatory movements characteristic of many people attempting to avoid or disguise overt stuttering. The accurate production of the FAM target results in a normal pattern of relaxed and free-flowing movements as words are formed and allows the client to more reliably monitor each of the other targets. The FAM target is established at the word and sentence levels.

1-second stretch – conversational level. At this stage, clients participate in conversational activities in clinic at the 1-second stretch rate and incorporating all eight targets. These activities provide opportunities to reinforce target skills under more naturalistic speaking demand and in a more social context. ***Engaging in social communication practice activities is critical to the achievement of the cognitive restructuring goal of habituating the modified pattern and being able to formulate language and apply targets simultaneously.***

Quiz. Clients are given a short pencil and paper quiz on the skills and concepts covered. Clients who do not pass the quiz are scheduled for individual sessions to reinforce concepts.

Transfer to out-of-clinic dialogue. Clients are instructed to record a face-to-face dialogue out of clinic with a friend or family member using the 1 second stretch rate. This form of transfer activity promotes the cognitive restructuring goal of desensitization to the awkwardness associated with using a modified speech pattern. With experience, reactivity to the situation is decreased and clients become able to focus more exclusively on the accuracy of their targets. This activity is repeated throughout the duration of the program and clients are encouraged to vary their partners as much as possible to achieve a level of comfort with a greater circle of supporters.

Day 8

Speech Making – 1-second Stretch. Clients give a prepared 3 minute speech to the group at the 1-second stretch rate. ***Ongoing desensitization to public speaking is achieved and anxiety management through the conscious application of targets is discussed. For many clients, public speaking is often avoided and thus experience may be significantly lacking. It often comes as a surprise for clients to learn that virtually all people, even people who do not stutter, experience a heightened level of anxiety in public speaking situations. A critical cognitive restructuring goal for these clients is to gain confidence in their ability to manage anxiety through conscious application of covert practice and targets. This goal is typically best addressed through repeated and supported opportunities to speak before an audience.*** In-clinic speeches are regularly audio or video-recorded in order to provide clients with an opportunity to objectively analyze their performance.

Establishment of Self-monitoring. Self-monitoring is defined as independently attending to the accuracy of target behaviors. One way to effectively self-monitor is to choose two targets to attend to, or "monitor", prior to speaking. Clients are encouraged to vary the target pair chosen in order to gain accuracy on all targets. Even though clients are attempting to accurately perform all targets, they will evaluate two targets in particular. ***In this way, clients are cued to engage in covert practice prior to beginning to speak and the cognitive restructuring goal of habituating this preparatory mental set is advanced.*** Self-monitoring promotes the development of critical self-awareness and evaluation skills and fosters an independence from clinical

reinforcement. Additional peer and clinician feedback is provided as needed and gradually faded out.

Videotape Analysis. At this stage of treatment, we conduct a group counseling session around the viewing of a portion of each client's pre-treatment videotape. The assignment is to identify the targets that are missing from the pre-treatment speech sample. In this way, clients are encouraged to analyze their own particular patterns of stuttering and be able to identify how each target is related to the control of the speech mechanism. ***This exercise facilitates the achievement of a number of cognitive restructuring goals. First, clients are able to view their stuttering from a scientific rather than emotional perspective. Moments of stuttering cease to be painful experiences of failure and become a logical set of muscle movement patterns to be analyzed and learned from. Second, clients are exposed to an objective view of their pre-treatment speech pattern and rate. For many, it is this exposure that generates the acceptance and motivation needed for success in treatment. Finally, clients are given the opportunity to recognize the non-overt elements of their particular pattern of stuttering. Awareness is achieved with regard to avoidance behaviors such as word switching, circumlocution, the use of starters and fillers, and limited elaboration.***

Day 9

Establishment of the one-half Second Stretch. The rate of speech is increased to the one-half second stretch. Each syllable is now prolonged for one-half second and four syllables are produced in succession without stopping before the one-second pause. Again, the Stretched Syllable timing pattern of two seconds of speech, and one second of breathing is maintained. At the one-half second stretch rate, the first stretchable sound of each syllable is prolonged for one-quarter second and the remainder of the syllable is prolonged for the other one-quarter second. As one-quarter second is difficult to accurately monitor on the stopwatch, clients are counseled to ensure that they are able to feel the stable position of the first stretchable sound in each syllable. The One-half Second Stretch rate, integrating all targets, is established at the word level with voice monitor reinforcement, and generalized to the sentence, paragraph, and conversation levels.

Day 10

Speech Making at the ½-Second Stretch Rate. Clients present a 3 minute prepared speech at the ½ Second Stretch rate. Emphasized is the accurate and deliberate application of targets, covert practice, self-monitoring, and self-correction.

Consolidation of the ½-Second Stretch. Clients participate in a variety of reading and speaking activities to consolidate and integrate each of the eight targets at the ½-second stretch rate.

Introduction to New Normal. The final speech rate introduced is termed New Normal (NN). At this stage, the client is no longer required to time and count syllables. Instead, rate of speech is now defined as the amount of stretch that allows the client to feel each of the targets being completed accurately, yet is natural enough to be transferred to all outside speaking situations. At New Normal, the natural pattern of syllable stress and vocal intonation is re-established while maintaining accurate production of each of the targets. New Normal is introduced through a series of contrast exercises at the word level. The word is produced at the ½-second stretch rate until all targets can be felt and performed accurately. Next, the client is cued to reassign natural stress by lengthening the appropriate syllable. Modifications to tone, rhythm, expression, and naturalness are discussed, modeled, and refined. The New Normal speech pattern is then generalized to the phrase level with a discussion of how

word stress influences the expression of meaning. A series of audio recorded exercises are used to provide feedback with regard to target accuracy and naturalness. ***Clients are encouraged to constantly listen back to audio recorded samples of their New Normal speech pattern in order to achieve and reinforce the critical cognitive restructuring goal of acceptance of the modified speech pattern. Listening to recordings promotes desensitization to the newness of the pattern and provides a more objective interpretation of how the pattern may be perceived by listeners. By listening to their recorded speech samples, clients are reassured that in contrast to internal perceptions, their New Normal pattern is quite acceptable to listeners and preferable to the fragmentation, struggle, fear, or avoidance characterizing their pre-treatment pattern.*** The New Normal speech pattern needs to be established as the client's full-time pattern of speech regardless of situation or listener through a thorough process of transfer. It is understood at this stage that the degree of prolongation defining New Normal is individual to each client and that this pattern changes and develops over time as accuracy and consistency of target production advances.

Day 11

Monitored vs. Lucky Fluency. At this stage, deliberate use of targets at the NN rate is required in all in-clinic speaking activities. With practice, many clients have achieved a NN pattern that is characterized by a speech naturalness that is virtually indistinguishable from their spontaneously fluent pre-treatment speech. Clients are cautioned not to fall into the trap of mistaking spontaneous or "lucky" fluency for accurately monitored targets. Throughout treatment, many clients report an increased frequency of spontaneous fluency. ***We are able to address a central cognitive restructuring goal by counseling clients to avoid relying on lucky fluency as it tends to be unstable and can often deteriorate just when it is needed the most. By contrast, an emphasis is placed on Monitored Fluency which is fluency that is earned and stabilized through conscious and deliberate application of targets.*** During break times, clients are encouraged to continue to monitor their targets and report a rating of their consistency on a ten point scale (1=very minimal monitoring of targets, 10=extremely consistent monitoring of targets). ***Successful completion of these transfer trials is based on the consistent application of targets and not speech fluency. In this way, we are able to address two important cognitive restructuring goals. First, clients must accept that fluency must be earned through conscious application of targets. Second, speech success is best evaluated in terms of the application of targets regardless of fluency.***

Maintenance. Clients are introduced to the concept of Maintenance. Fluency maintenance is a long, gradual process of consolidation and stabilization of skills, and maturing of expectations by both the client and the clinician. Maintenance is viewed as a continuation of the therapy program as the involvement of the clinician is gradually decreased. The Maintenance period is supported by a defined schedule of ongoing practice designed to promote lasting fluency and involves four types of practice introduced as (a) shaping, (b) structured practice, (c) spontaneous practice, and (d) review.

Introduction to Shaping. The first form of Maintenance practice is called shaping and involves reading at increasing rates, starting with the 2-second stretch rate and ending with New Normal. This type of practice is best done at the beginning of the day, to "set the stage" for speaking over the rest of the day. Shaping should be followed by a somewhat less structured activity in the form of a short monitored conversation to allow

for transfer of the skills practiced. Shaping is completed with clinician feedback on each morning of the final week of the intensive phase of the program.

Day 12

Introduction to Structured Transfer. At this stage, clients are given the opportunity to transfer their New Normal speech through the process of Structured Transfer. Structured Transfer is defined as transfer speaking activities that are done for the primary purpose of practicing fluency targets. Examples include making taped and evaluated telephone calls to businesses to ask for their hours of operation, and going into stores to ask for the location of certain products. Clients are taught a step-by-step process to facilitate successful transfer exercises. There are three steps to transfer:

1. *Covert Practice* is defined as the silent, mental rehearsal of targets. In preparation for a transfer, the client selects two targets and brings to mind a mental image of their accurate production. Recall that Covert Practice was introduced early in the establishment phase and developed through structured assignments. Covert Practice is instrumental in creating a positive mental set with which to enter into transfer speaking situations. Any negative thoughts (e.g., "I can't do this" or "I will stutter for sure") are replaced so that the client is prepared to apply targets.
2. *Active monitoring of targets* is required during a speaking activity to constitute a successful transfer. Clients are encouraged not to rely on spontaneous or "lucky" fluency but to actively and deliberately produce speech within target parameters.
3. *Evaluation of target accuracy* is the final step of transfer wherein the client is asked to identify those targets which were produced accurately and those that require more attention or refinement. Clients are advised not to frame their evaluations in terms of fluency or stuttering and a critical cognitive restructuring goal is addressed. It is unhelpful for clients to continue to judge the quality of their speaking solely on fluency because a transfer evaluated as "fluent" may result from spontaneous fluency and be unrelated to target accuracy. Similarly, a transfer evaluated as "stuttered" provides no basis for improvements in subsequent trials. Conversely, transfers evaluated in terms of target accuracy promote positive opportunities for learning and skill development. Clients are provided with a Transfer Record template (see figure 2) to promote consistent adherence to the three steps to transfer.

___ Figure 2 about here (Transfer Record Sheet)

Once established, Structured Transfer becomes the second form of daily Maintenance practice.

Telephone Transfer Practice. Clients participate in supervised and supported telephone transfers. They are asked to choose two targets for Covert Practice, to evaluate their level of anxiety, and to exaggerate targets accordingly. In this way, clients are able to enter the speaking situation with a positive preparatory mental set. Clients are counseled to dial in a calm and controlled way and to breathe normally while the phone is ringing. The error many clients make is to anticipate their speaking turn and take their Full Breath too early, resulting in breath holding and blocking. Instead, clients are counseled to wait and breathe normally until the person on the other end of the line has answered and completed their greeting before initiating their speaking turn. Clients begin by completing transfers involving one short question. Following the completion of the call, clients are asked to evaluate their target accuracy. Any target that is identified for improvement is selected for covert practice in subsequent calls. Gradually, clients graduate to longer and more complex calls

while maintaining a high level of target accuracy. ***The process of completing this hierarchy of telephone transfers in-clinic and with supervision provides an irreplaceable opportunity for a number of cognitive restructuring goals to be addressed. First, desensitization to speaking on the phone with unfamiliar listeners is achieved as transfers become associated with control and success rather than tension and struggle. Second, ongoing familiarity with the new feeling of using the modified speech pattern is achieved. Third, transfer success is evaluated based on willingness to try and attention to targets rather than amount of stuttering. In this way, every transfer can be viewed as a success even when difficulties arise. This new perspective of success becomes a critical hallmark of successful long-term maintenance. Telephone transfers are regularly audio recorded and reviewed for target accuracy and speech naturalness.***

Day 13

Speech Making in New Normal. Clients present short prepared speeches in New Normal on each of the final three days of the intensive treatment phase. ***These opportunities serve to reinforce many of the behavioral and cognitive elements of the program. Clients are encouraged to make audio recordings of their speeches. Not only is audio recording a key evaluation tool, but it also provides ongoing opportunities for the client to become accustomed to the newly acquired speech pattern.***

Outside Transfer. Clients participate in two sessions of outside transfer at a local shopping mall. The objective of these outside transfer sessions is to gain skill and experience transferring targets to face-to-face speaking situations with unfamiliar listeners under the guidance of the clinician. The same three steps outlined for telephone transfers are followed.

Negative Self-Talk. Prior to undertaking face-to-face transfers, clients are introduced to the concept of **negative self-talk** messages, how they are generated in the brain, and how they impact speech in a negative way. Negative self-talk messages take the form of "the little voice inside your head" anticipating failure, recalling past failures, and predicting negative reactions from the listener (see Figure 3).

Insert Figure 3 about here (Negative Self-Talk)

Negative self-talk promotes tension and nervousness. As a result, it becomes very difficult to use targets, or even to remember that there are targets to be used. The concept of demands and capacities is introduced and related to how negative self-talk competes with the function of the motor speech and language centers and impacts on the accurate performance of targets. ***A group counseling session is conducted in which each client contributes what they perceive to be their particular negative self-talk messages and the impact of those messages on their speech. To successfully transfer targets from clinic to everyday use, clients must achieve the cognitive restructuring goal of replacing negative self-talk with Covert Practice. In this way, clients achieve a positive mental set with which to enter into speaking situations by engaging in strict mental focus on target behaviors to the exclusion of distracting negative self-talk (see Figure 4).***

Insert Figure 4 about here (Covert Practice)

Day 14
Introduction to Spontaneous Transfer. **Spontaneous transfer** is defined as the conscious use of targets in naturally occurring exchanges and conversations throughout the day. In the third week of the program, clients are asked to carefully monitor targets during all speaking in clinic and during defined periods out-of-clinic. Clients are encouraged to rate their performance on a 10 point scale in terms of accuracy. In the Maintenance phase, together with Shaping and Structured Transfer, Spontaneous Transfer becomes the third form of daily Maintenance practice.
Mini Program. During the final days of the intensive portion of the program, clients are instructed on how to produce a recorded sample of their speech demonstrating the targets at the syllable, word, sentence, and paragraph levels and at each rate of speech. This recorded sample is saved and reviewed frequently as a reference throughout the maintenance period.
Day 15
Introduction to Review. The fourth form of Maintenance practice is **Review**. Initially following the intensive phase of treatment, Review consists of redoing each manual exercise to reinforce skills and concepts. During the intensive program, many details are discussed in a short period of time. It is to the client's advantage to review these details within the first two-to-three months following treatment. Following this initial review of the program manuals, Maintenance Review consists of reflection activities to assess performance and set goals.
Record Keeping. Clients are provided with a chart to use to track their plans and evaluations for each of the four forms of Maintenance practice on each day of the week. This Weekly Record serves as a reference for review and for reporting practice at maintenance follow-up meetings (see Figure 5). Clients are counseled that they will need to have available approximately one hour per day for the completion of Maintenance activities and record keeping.

Insert Figure 5 about here (Weekly Record)

Follow-up Meetings. Clients are provided with a year long schedule of follow-up maintenance meetings.
Alumni Support Group. Clients are encouraged to become members of our Alumni Support Group called the Demosthenes Society. This volunteer-run self-help group was founded almost 30 years ago and provides a unique avenue through which clients are able to maintain contact with other graduates of the program with a similar desire to maintain their speech gains. The Demosthenes Society meets once per month and is led by an executive committee. Meetings typically begin with a group shaping session and involve a number of transfer opportunities. Members who live far away from Toronto receive the Blockbuster newsletter and are encouraged to become members of a telephone contact list in order to participate in phone transfers.
Post-Treatment Measures. On the last day of the intensive portion of the program, clients are interviewed and asked to provide a reading sample on videotape as a

measure of speech fluency. Each client also completes two pen and paper attitude scales, the PSI (reference) and the S24 (reference).
How to measure post-intensive progress. Clients are counseled to view post-intensive progress differently from the rapid, easily measurable changes in their speech fluency over the intensive period. It is important to understand that maintaining these initial gains is now the challenge and progress is defined by consistent adherence to NN pattern and speech practice over a period of weeks and months.
Guest Speaker. A past participant of the program is invited to share their thoughts and experiences with the graduating group.

Post-intensive Maintenance Sessions
In the year following intensive treatment, clients are scheduled to participate in weekly, bimonthly, and monthly maintenance sessions. Maintenance sessions provide ongoing tracking of skill maintenance and progress, opportunities for practice, clinical feedback and guidance, and emotional support. Clients who attend follow-up sessions regularly demonstrate sustained motivation and commitment, develop a mature approach to longterm maintenance, and evolve successfully as their own best clinicians. A great many behavioral and cognitive goals are addressed in the maintenance year. Many of these goals are summarized in the third program manual, The manual of fluency maintenance (Kroll, 1991) and many others will arise. Each clinician will need to develop a range of counseling skills through time, experience, and a passionate interest in the treatment process. Additionally, it is important that clinician's demonstrate a shared commitment to the maintenance process. Consistent records of client progress should be maintained and goals must be continually set and evaluated. Maintenance sessions should not be considered optional but instead promoted as an essential phase of the therapy process.
Weekly Maintenance (4 Sessions)
- Clients report on four forms of practice and record keeping
- Clinician supports the individualization of practice schedules to fit client lifestyle and time demands
- Clinician charts and provides feedback on in-clinic observations of target accuracy, client reports of target accuracy and situational speech fluency, consistency of target monitoring, and speech satisfaction
- Clinician leads group discussions regarding reasonable fluency expectations, acceptance of the new speech pattern, and consistency
- Clients are supported in generating realistic long-tem goals to be achieved within 2-3 months (e.g., monitor FB and GO on all phone calls at work) and the corresponding short-term goals to be achieved within 1-2 weeks (e.g., make 3 taped and evaluated telephone calls each day at work)
- Clinician identifies clients in need of additional support due to poor skill development or regression and schedules individual treatment sessions

Bimonthly Maintenance (4 Sessions)
- Clinician continues to chart and provide feedback on speech performance and practice
- Long-term goals are reviewed and revised
- Post-treatment videos are reviewed and compared to present speech pattern
- Attitude scales are reviewed and ongoing attitude goals are identified (e.g., negative perceptions, situational avoidances)

Monthly Maintenance (9 Sessions)

- In-clinic observations and client report of speech fluency are gathered
- Regression is addressed through modifications to the practice schedule and individual sessions if needed
- Suggestions for problem solving are shared or generated independently
- Long-term and short-term goals are reviewed and revised independently
- Individual practice schedules are tailored through a process of supervised trial and error such that clients become able to independently manage post-Maintenance practice

Post-Maintenance

- Clients are instructed to continue with their modified schedule of practice and to contact the clinic to schedule individual sessions if regression is unmanageable
- Clients are advised to continue to attend Demosthenes meetings
- Clients receive information regarding yearly refresher seminars offered by the Stuttering Centre. Refresher Seminars are held over 2 days and provide a review of the program basics as well as opportunities for supervised practice and transfer
- In some cases, poor practice and extended periods of lack of contact with the clinic results in full regression. These clients are eligible to re-take the intensive program
- For most clients, a mature approach to long-term maintenance is achieved and refined over time. Clients are encouraged to stay in contact with the clinic and to stay mindful of the tools they have acquired to sustain skill maintenance (see figure 6)

Insert Figure 6 about here – Successful Maintenance

Insert Figure 7 about here – Summary of the Fluency Plus program

Formatted: Line spacing: single

Assessment Methods to Support Ongoing Decision Making

Pretreatment Assessment Considerations

Clients wishing to participate in the Fluency Plus Program are seen for an initial assessment to determine their suitability for daily, intensive treatment. We will not deal with traditional fluency assessment strategies because much has been written on this topic (Guitar, 2006). The reader is referred to the summary of the first day of the program when specific speech and attitudinal measures are collected. We will discuss some of the critical client variables that ultimately will be used in determining candidacy for Fluency Plus. At the outset, it should be stated that the frequency of

overt stuttering should not be considered a determining factor determining candidacy for treatment.

Obviously, the individual willing to participate in a full-time, fifteen day intensive therapy program must have valid and legitimate reasons for seeking treatment. We like to refer to these as "bread and butter" issues. Often these are vocational issues and may refer to the potential participant's ability to gain employment in a chosen field or to advance in a career path. Younger clients may express the need for improved communication skills so they can pursue specific courses in college or university. Furthermore, some clients express the need to become more active socially with friends or with community organizations. These clients relate feelings of isolation and, in many instances, frustration at not being able to participate fully in social activities.

The client wishing to participate in the program for "cosmetic" reasons is a puzzling one. These clients are not necessarily held back by the stuttering except for the fact that they view the condition as a blemish or negative mark that is embarrassing socially and affects their self image. One could argue that the client who sees his or her stuttering in this way may be willing to work very hard at improving communication skills. On the other hand, such clients may not have spent adequate time at developing their self-perceptions through introspection and discussion with family and friends. These clients may in fact require some additional form of therapy to modify or adjust self-perceptions.

Finally, the client who is brought to therapy by a spouse, parent or significant other who is distressed by the stuttering may in fact be resistant to the notion of therapy. We see this often with adolescents who vehemently resist therapy either because they deny that their stuttering is a problem, or because they are reluctant to relinquish a good chunk of free time to sit in a therapy group. These clients are typically counseled as to the inner motivation required to benefit from Fluency Plus or any other treatment for that matter.

The client's perceptions and expectations of the therapy program are probed during the initial assessment. Our program has received a fair amount of attention by the media and in the professional community due to its unique and specialized nature. While one would assume that this attention is beneficial to both the providers and recipients of the program, the lay public is often left with a rather simplistic view of what the therapy can and cannot accomplish depending on the nature of the print or electronic story. As a result, clients often come to our Centre with preconceived notions of what we can do for stuttering. We spend much time providing the client with a realistic synopsis of the therapy and try to determine if, after the discussion, the client is still seeking the magic bullet to eliminate the stuttering completely. We also assess whether the client has in fact grasped the concentrated effort required by the program and whether he is fully cognizant about his own roles and responsibilities during the program as well of those of the clinician. During the interview we try to check for indicators of self-reliance and the ability to work independently. Moreover, we look for clinical signs indicating that the client possesses the ability and drive to change or modify his behavior. For example, during the assessment, the client may report on a specific self-development course or challenge that has successfully been completed.

It must be stated here that all of these indicators are those that we have determined to have clinical relevance but that aside from one of our studies examining performance variables associated with treatment outcomes (Kroll & De Nil, 1995; Ulrich, Pepe, Kroll & De Nil, 1992) there is little empirical evidence to corroborate

the importance of these indicators. Even with our years of clinical experience with intensive programs, we continue to be positively or negatively surprised by client behavior during treatment.

Another area of concern pertains to the emotional stability and objectivity displayed by the client during the assessment. We discourage individuals from participating in our program if they are currently undergoing major life stresses or changes because we would predict that the communication issue may not be the priority at this point in time. Finally, we try to ascertain whether there are any reading or learning challenges that may interfere with participation in a rather fast-paced group environment. If we are uncertain as to the individual's potential to benefit from this treatment, we will devote a portion of the initial assessment to performing some trial probes. During these probes, we provide clients with some of the written program materials and observe him working independently for a short period of time to determine comprehension, ability to grasp the concept being introduced and overall accuracy of verbal and written responses to the presented instructional material.

Advancement Criteria During Treatment

Given the structured format of the Fluency Plus Program, it is anticipated that most clients will progress through the sequence of therapy phases at a similar pace. It is for this reason that clients are carefully screened before they are considered for treatment in the intensive program (see above). Client progress is assessed on a daily basis via clinician analysis of recorded home assignments, and clinician and peer evaluation during large and small group sessions. At each stage during the program, the clinician checks for skill mastery of target behaviors. Skill mastery is operationally defined as the ability to produce a given target behavior with 80% accuracy and without cueing or modeling by the clinician. Clinically, it is important to determine whether the client has cognitively incorporated the skill and is able to accurately produce the desired behavior with ease.

For those cases when a client is unable to reach satisfactory performance criteria for a given target or speech related activity, supplementary individual sessions are provided until the client is able to satisfy the program requirements. In most cases, these supplementary sessions can be carried out with an additional therapist during the program hours or after normal clinic hours. Again, most individuals can reach a satisfactory performance level with a minimum of supplementary sessions. In extraordinary cases, clinical decisions regarding reducing or modifying performance goals may have to be made in order to provide the client with at least some experience of goal achievement.

Termination (Post-Intensive Considerations)

It is difficult to use the terms "termination" or "discharge" when we are dealing with chronic adult stuttering. Through evidence based clinical programs, such as Fluency Plus, we are providing clients with management strategies that we believe are the most likely to result in more fluent sounding speech and healthier cognitive attitudes regarding communication. The vast majority of our clients will require an ongoing, self-administered program of fluency maintenance, as well as potentially benefiting from our structured refresher courses and self-help group. We have seen individuals develop both improved speech skills and healthier attitudes in the months following intensive treatment. In some cases, these positive gains may not be fully realized for years, when they come to our attention during the refresher courses.

Having more or less discarded the notion of termination, let us turn to some of the post intensive issues that can serve to alert the clinician to areas that may have to be addressed during maintenance. Perhaps the single most frequently observed challenge facing post intensive program participants is the ongoing requirement that they continually and actively monitor speech targets while talking. Those clients who exit the intensive program unwilling to incorporate the target skills on a more or less full time basis will inevitably experience difficulties with the maintenance phase. Another very common challenge for post intensive clients pertains to acceptance of their modified speech pattern and concern with listeners' reactions to this speech. Those who show high levels of concern with what the newly acquired speech pattern sounds like and whether or not these patterns are accepted by listeners will likely resist using newly acquired fluency skills on a full time basis. These clients will need much additional guidance and direction during the maintenance sessions immediately following intensive treatment.

There are many other factors that need to be addressed during the post-intensive phase before clients can be considered as possessing complete sets of speech management skills—in other words, before they are considered as having successfully completed a comprehensive treatment program. Clients must be able to constructively and objectively analyze speech patterns in the natural environment; they must demonstrate a willingness to continually and actively monitor their own speech performance, thereby accepting the cognitive challenge of focusing not only on what they are saying, but how they are saying it. This is especially relevant during communicatively stressful situations. Behavioral change brings on new challenges. Clients must accept new roles and responsibilities that accompany more fluent speech as well as attitudinal and psychological changes that arise from dramatic treatment effects. Many of these changes occur in a very short period of time, given the intensive nature of the treatment. Clients most often need a period of time to adjust to the change, set realistic long and short term goals, and learn to cope with the rather rocky road that lies ahead during the maintenance phase. These and many other issues preclude the clinician from prematurely "terminating" treatment.

Tailoring the Treatment to the Individual Client

Clearly, the first question that arises for many clients following their initial assessment pertains to the schedule and format of Fluency Plus. Many clients cannot immediately arrange to attend clinic sessions for the intensive three week block. Clients are given adequate time to prepare and, if deemed appropriate for the program, are given the schedule for the upcoming year of programming. If arrangements are made to commence treatment six months from the time of the assessment, clients will often to be able to arrange leaves from their employment settings. Students can opt for programs conducted during the summer months when many are not in class.

Regardless of the efforts made to accommodate individual client schedules, there are still those whose work situation or other commitments simply preclude the opportunity to attend a daily treatment program. We are also fully aware that most clinicians may not be able to administer the Fluency Plus Program in its intensive format. Intensive programs are usually conducted in the relatively few specialized centers for stuttering scattered around the world. The vast majority of speech-language pathologists do not have the resources or time allocation necessary to implement daily, intensive treatment programs for stuttering. For these reasons, we have developed a version of the program that can be implemented on a non-intensive basis. Clients are seen for one to two hour group sessions once per week. It is

important to note that the principle of intensification is still applied to this format. Rather than doing the practice drills in clinic, clients are requested to complete between one and two hours of home practice assignments per day between clinic sessions. These assignments are once again recorded and reviewed by the clinician at the beginning of each weekly session. We have determined that clients are able to complete Fluency Plus in 28 weeks before entering the maintenance phase of treatment. It should be noted that all of the program details and procedures are retained and, other than scheduling alterations, no additional modifications are implemented.

It should also be stressed that the severity of stuttering, as determined by behavioral measures and additional assessment techniques, is not an indicator for program modification. Clinically, however, one might be tempted to administer a scaled down version of the program to the person exhibiting milder forms of stuttering. For these clients, it may seem reasonable to pick one or two key fluency skills rather than administering the entire program. Indeed we have attempted this strategy on occasion but it has been largely ineffective.

The Fluency Plus Program for Children (Kroll & Scott-Sulsky, 2006) has been developed for use with school aged children, aged 8 through 12. While the program again retains all of the learning principles; the therapy material, language level, and terminology has been modified to accommodate a younger population. We have been administering this program on a non-intensive group format and have conducted a series of training workshops for clinicians who wish to implement this approach. We are currently in the process of collecting data on these programs.

For those clients with challenges or special needs, further modification of the program is necessary. Some clients do not have the requisite language skills to fully comprehend either the written materials or verbal instructions provided by the clinicians. Other clients exhibit specific learning or reading challenges requiring special or supplementary instruction. Program modifications for these cases include altering performance expectations regarding the specifics of target behavior production. Such modifications include simplification of target details and replacing some of the information provided in the manual with concise verbal explanations by the clinician. When appropriate, small groups are formed if clients present with more or less similar profiles. In other instances, these clients are scheduled for one-on-one sessions.

Application to an Individual Client

Formatted: Line spacing: single

Susan B. is a 28 year-old bilingual speaker of English and Bengali who was assessed at the Stuttering Centre on May 2, 2006. At the time of her assessment, her speech was characterized by hard glottal attacks, sound prolongations, and laryngeal blocks. Secondary behaviors observed included eye blinks and lip tremor. Her stuttering was rated as severe with regard to frequency, and moderate with regard to duration and struggle. She reported that she regularly used avoidance strategies such as starters, fillers, and word switching to avoid stuttering whenever possible in public. Susan also reported that she avoided speaking with unfamiliar listeners, speaking into microphones or tape recorders, and speaking in group situations. Susan reported that she had participated in treatment at the ages of eight and ten with some success in structured settings but that her gains had been difficult to maintain. She reported that her goal was to be able to apply fluency enhancing techniques consistently across settings and to be able to explore new career options.

Based on her assessment, it was recommended that she participate in the adult group intensive Fluency Plus program in January of 2007. Susan was judged to be an excellent candidate for this model of treatment based on the following criteria. First, she demonstrated through her assessment interview and reading sample that she possessed the intellectual capacity to manage the rigorous demands of the intensive nature of the program. Second, she demonstrated through her oral mechanical examination and trial therapy probe that she was capable of managing the physical demands of altering her motor movement patterns. Third, she evidenced the emotional readiness to benefit from group therapy and to address the cognitive restructuring requirements of the program. Specifically, Susan demonstrated insight with regards to her avoidance behaviors, she described a manageable level of concern regarding listeners' reactions to her speech, and reported realistic outcome goals of treatment. Fourth, she evidenced a high level of motivation to successfully complete treatment and participate in a long-term maintenance program. Finally, she was able to accommodate the logistical requirements of freeing herself from work, school, and social obligations for the three-week duration of the intensive phase of the program.

Susan began her treatment program on January 15, 2007 with seven other group members. For three weeks, she attended daily clinic sessions and dedicated between two and four hours to the completion of home assignments each evening. For a detailed description of the program, please see the Key Components section of this chapter.

Susan proved to be a dynamic and supportive member of the group. Because she had participated in speech therapy as a child, she was able to share with the group two critical insights. The first was that she had experienced significant relief by using fluency enhancing techniques in clinical settings in the past. She could attest to the fact that targets could be effective tools to produce fluent speech. The second insight was that without diligent practice and maintenance, it had not been possible for her to effectively control her speech in out-of-clinic settings in the long term. Susan's experiences proved to be very valuable in putting a real face on the philosophy of the Fluency Plus Program: real and lasting changes in both speech behaviors and speech attitude are possible only through a rigorous reconstruction of the speech system together with a systematic restructuring of the cognitive set, a thorough and supported period of transfer, and a long-term program of maintenance.

Throughout the establishment phase of treatment, Susan worked diligently and acquired the target behaviours successfully. Of particular strength was her ability to self-evaluate. She was committed to tape recording and reviewing all of her assignments and to learning from errors. She developed a keen awareness for target accuracy and offered helpful feedback to other group members.

A second strength was Susan's sincere follow through with regard to a critical cognitive restructuring goal of the program. She took to heart the suggestion that optimal success in treatment can not be achieved without a genuine acceptance of one's self as a person who stutters. She gained a level of comfort and openness about stuttering by completing a number of assignments which required her to practice with a variety of partners outside of the group. This afforded her the opportunity to discuss her speech condition and therapy program with a number family members, friends, and co-workers. She gained the ability to move confidently into the transfer phase of the program without feeling self conscious about using her modified pattern of speech. In essence, she was able to avoid a common pitfall experienced by many clients. She felt no pressure to conceal the fact that she was using a modified speech

pattern and was able to recruit friends and family to help her to remember to monitor her speech consistently.

As the group moved into the transfer phase of the program, Susan successfully completed many assignments requiring her to use targets in a variety of speaking situations. Susan's success can be attributed to a number of factors. First, Susan consistently followed the systematic approach to transfer outlined in the Fluency Plus program. She was very diligent about preparing herself mentally for transfer situations using covert practice. She consistently used her modified speech pattern across all transfer situations regardless of perceived difficulty in order to avoid relying on spontaneous fluency. She evaluated her performance in transfer situations consistently and often used a tape recorder to maximize her evaluation accuracy. Susan also worked very hard to consistently evaluate the success of her transfers based on her *target accuracy* and not on the fluency of her speech. In this way, she was able to see each transfer situation as successful, with opportunities to learn and improve. She was also able to avoid the pitfall of misjudging spontaneous or "lucky" fluency for target accuracy.

Susan is currently in the maintenance phase of her treatment program. She has taken many positive steps to creating a lifestyle which supports her goal of long-term fluency maintenance. Susan carefully completes her daily schedule of maintenance practice. When she neglects her practice, she realizes the negative effect on her speech but manages these ups and downs with a positive attitude. She thoughtfully selects short term goals at each follow up meeting that will support her long-term goal of successful maintenance. She does a portion of her practice in Bengali to support full time monitored fluency when speaking with her family. Susan began to participate in activities that support the maintenance of her new speech pattern including joining the Demosthenes Society and volunteering at the Stuttering Centre. Most recently, she revealed that she has been accepted to a Master's Program in Speech-language pathology to commence this coming fall.

Future directions

It is truly exciting to have witnessed the dramatic changes in stuttering treatment since we implemented our first treatment programs for people who stutter. Through our research and clinical observations we have consistently sought to refine and adjust our programs in order to provide the most effective and efficient treatment programs. The dramatic improvements in speech fluency and communication attitudes that so many of our clients have been able to achieve motivate and inspire us to continually scrutinize and improve our programs.

Fluency maintenance remains a central issue, especially for clients residing at great distance from our Centre. These clients are unable to attend scheduled Maintenance sessions, and, as mentioned, will correspond with the clinician via email or telephone. With advances in technology, we are working at developing easier and more effective ways of communicating with the clinic. Future work in this area will undoubtedly see the increased application of web cams, audio files of speech and other forms of digitally transmitted communication.

We also need to collect efficacy data for our non-intensive programs. Although we have observed substantial clinical gains with these treatment formats, we do not yet have treatment efficacy data. It will be interesting to perform empirical comparisons between intensive and non-intensive programs and to ultimately determine the relative benefits of each of these formats.

Our current efforts are geared toward training speech-language pathologists to administer the Fluency Plus Program for Children. We have published a series of

studies examining the academic and clinical preparation of clinicians treating individuals who stutter (Klassen & Kroll, 2005; Kroll & Klassen, in press; Kroll & O'Keefe, 1990) Our Canadian data tend to confirm those obtained in other parts of the world (Kroll, Cook, De Nil & Ratner, 2006; St. Louis & Durrenberger, 1993; Yaruss & Quesal, 2002) and confirm that a high proportion of practicing speech-language pathologists do not rate their competencies or comfort levels very highly when called upon to treat stuttering. In many cases, these studies point to serious deficiencies in the number of formal practicum hours received during classroom training and during clinical placement opportunities. We have identified the need for postgraduate continuing education in stuttering treatment. We are presently testing a workshop model in which clinicians attend for a three day training period to learn the principles, techniques and therapy strategies incorporated in Fluency Plus for Children. We look forward to measuring the effectiveness of this training and to see whether we are ultimately reaching more clients through these efforts. As we strengthen and expand our techniques that assist clients in modifying their cognitive and attitudinal approaches to communication, we look forward to developing even more valid and reliable instruments to measure such change. Indeed, preliminary work in this area has already begun focusing on quality of life and its changes as a result of treatment for stuttering (Yaruss & Quesal, 2004, 2006). We plan to continue this work so that we can more fully measure the impact of treatment as we define progress from behavioral as well as affective and overall quality of life indicators.

Chapter Summary

- Fluency Plus is a comprehensive treatment program for stuttering in adults. It combines fluency shaping techniques with cognitive restructuring strategies.
- The program is based upon empirical research and clinical observation amassed over a thirty year period.
- The following essential principles are integral to the Fluency Plus Program: clinical procedures must address both behavioral and psychological aspects of stuttering; therapy must be intensive; fluency skills must be over-learned and exaggerated; response variability must be reduced; transfer must be addressed; maintenance must be incorporated; post-intensive support strategies must be offered.
- Fluency Plus is typically administered in a group treatment format consisting of a 15 day intensive schedule followed by a year-long series of post-intensive maintenance meetings. The program can also be administered using alternate treatment schedules.
- Long-term maintenance is supplemented by such support opportunities as refresher seminars and program specific self-help groups.

Case Study

Formatted: Line spacing: single

John G., aged 25 years, was referred by his family physician for a speech assessment for stuttering. Analysis of his intake interview revealed stuttering on 4% of words spoken, characterized by brief silent laryngeal blocks and prolongations. His verbal responses were characterized as brief with reduced eye contact. His utterances were characterized by revisions, fillers, inappropriate pauses, and circumlocution. When asked if he was aware of using any avoidance strategies he stated that he "didn't think so". He rated his speech problem at 10 on a scale from 1 to 10 (1 = minor influence and 10 = major concern). When asked to complete a reading sample, he refused.

Question #1

What additional case history information would you, the clinician, need to determine this client's candidacy for an intensive, group treatment program?
Question #2
What are the counseling needs of this client? How may these needs affect this client's ability to benefit from treatment?
After appropriate counseling, it was determined that John would be an appropriate candidate for a group, intensive treatment program.
Question #3
What information will John need about the intensive, group treatment program to make an informed decision to consent to and benefit from treatment?
With the appropriate information, John agreed to participate in the next available program. John excelled in establishing the fluency facilitating targets and demonstrated excellent motivation and compliance with the in-clinic and out-of-clinic assignments with the exception of those assignments requiring him to recruit listeners from outside of the treatment group to participate in recorded dialogue assignments at the various stretch rates. Initially, John made excuses for not completing these assignments but eventually admitted that it was "just too difficult to tackle".
Question #4
What cognitive restructuring goals might you, the clinician, define for this client at this stage? How could these goals be addressed?
With the appropriate intervention, John was able to complete the requirements of the establishment phase of the program and was successful in adhering to the New Normal speech pattern consistently in clinic and with a small group of his close family members and friends. John demonstrated accurate adherence to the three steps of transfer and successfully completed many telephone transfers in and out of clinic. When faced with outside face-to-face transfers however, John reverted to his pre-treatment speech pattern of blocking and using avoidance strategies.
Question #5
What behavioral and cognitive restructuring goals would you, the clinician, identify for this client? How could these goals be addressed?
With supplementary support, John was successfully able to transfer his New Normal pattern to a number of face-to-face speaking environments. John evidenced motivation to adhere to the prescribed schedule of Maintenance practice but was unable to commit to attending follow-up meetings due to his work schedule.
Question #6
What alternative plan would you, the clinician, develop in order to support John throughout the Maintenance phase of the program?
Chapter Review Questions

- List the identifying features of the Fluency Plus program.
- What does cognitive restructuring refer to? Provide an example of a cognitive restructuring goal.
- How would you differentiate between the stuttering behavior and the stuttering problem?
- What two treatment approaches are integrated in the Fluency Plus program?
- What is the communication mentality? Why is this concept important to treatment?
- Why is it important to include a prolonged speech technique like stretched syllable?
- What is the rationale for teaching Full Articulatory Movement?
- Explain the steps of the transfer process.

- Clients are asked to recruit family or friends as practice partners. What cognitive restructuring goals does this activity address?
- How is the evaluation process carried out during transfer? How should a successful transfer be defined?
- What is the relationship between anxiety and stuttering?
- What are the 4 forms of maintenance practice?

Suggested Readings

De Nil, L.F., Kroll, R.M., Lafaille, S.J., & Houle, S. (2003). A positron emission tomography study of short and long term treatment effects on functional brain activation in adults who stutter. *Journal of Fluency Disorders, 28,* 357-380.

Guitar, B. (2006). *Stuttering: An integrated approach to its nature and treatment* (3rd ed.). Baltimore, MD: Lippincott Williams & Wilkins.

Kroll, R.M., & De Nil, L.F. (2000). Research using PET scans identifies neural bases of stuttering and its treatment. *Stuttering Foundation of America Newsletter, Summer edition,* 1-3.

Neilson, M.D. (1999). Cognitive-behavioral treatment of adults who stutter: The process and the art. In R.F. Curlee (Ed.), *Stuttering and related disorders of fluency* (pp. 181-199). New York: Thieme Medical Publishers, Inc.

Webster, R.L. (1979). Empirical considerations regarding stuttering therapy. In H.H. Gregory (Ed.), *Controversies about stuttering therapy.* (please insert page nos.) Baltimore: University Park Press.

Please refer to the three other files for the Tables and Figures.

Formatted: Line spacing: single

References*Please check that you have page nos. for all chapters.*

Andrews, G., & Craig, A. (1988). Prediction of outcome after treatment for stuttering. *The British Journal of Psychiatry, 153,* 236-240.

Andrews, G., & Cutler, J. (1974). Stuttering therapy: The relation between changes in symptom level and attitudes. *Journal of Speech and Hearing Disorders, 39,* 312-319.

Blood, G.W. (1995). A behavioral-cognitive therapy program for adults who stutter: Computers and counseling. *Journal of Communication Disorders, 28,* 165-180.

Bloodstein, O. (1995). *A handbook on stuttering* (5th ed.). San Diego, CA: Singular Publishing Group, Inc.

Boberg, E. (1976). Intensive group therapy program for stutterers. *Human Communication, 1,* 29-42.

Boberg, E., Howie, P., & Woods, L. (1979). Maintenance of fluency: A review. *Journal of Fluency Disorders, 4,* 93-116.

Boberg, E., & Kully, D. (1985). *Comprehensive stuttering program.* San Diego, CA: College-Hill Press.

Braun, A.R., Varga, M., Stager, S., Schulz, G., Selbie, S., Maisog, J.M., et al. (1997). Altered patterns of cerebral activity during speech and language production in developmental stuttering: An $H_2{}^{15}O$ positron emission tomography study. *Brain, 120,* 761-784.

Brutten, E.J., & Shoemaker, D.J. (1967). *The modification of stuttering.* Englewood Cliffs, N.J.: Prentice-Hall.

Conture, E.G. (1990). *Stuttering* (2nd ed.). Englewood Cliffs, NJ: Prentice Hall.

Cooper, E.B. (1976). *Personalized fluency control therapy.* Boston: Teaching Resources.

Cordes, A.K. (2000). Individual and consensus judgments of disfluency types in the speech of persons who stutter. *Journal of Speech, Language, and Hearing Research, 43,* 951-964.

Cordes, A.K., & Ingham, R.J. (1998). *Treatment efficacy for stuttering: A search for empirical bases.* San Diego, CA: Singular Publishing Group, Inc.

De Nil, L.F., & Kroll, R.M. (1995). The relationship between locus of control and long term treatment outcome in adults who stutter. *Journal of Fluency Disorders, 20,* 345-364.

De Nil, L.F., & Kroll, R.M. (2001). Understanding the neural basis of treatment using positron emission tomography. In H.G. Bosshardt, J.S. Yaruss, & H.F.M. Peters (Eds.), *Stuttering: Research, therapy, and self-help. Proceedings of the third world congress on fluency disorders* (pp. 41-42). Nijmegen University Press.

De Nil, L.F., Kroll, R.M., Lafaille, S.J., & Houle, S. (2003). A positron emission tomography study of short and long term treatment effects on functional brain activation in adults who stutter. *Journal of Fluency Disorders, 28,* 357-380.

DiLollo, A., Neimeyer, R.A., & Manning, W.H. (2002). A personal construct psychology view of relapse: Indications for a narrative therapy component to stuttering treatment. *Journal of Fluency Disorders, 27,* 19-40.

Fox, P.T., Ingham, R.J., Ingham, J.C., Hirsch, T.B., Downs, J.H., Martin, C., et al. (1996). A PET study of the neural systems of stuttering. *Nature, 382,* 158-162.

Flanagan, B., Goldiamond, I., & Azrin, N. (1958). Operant stuttering: The control of stuttering behaviour through response-contingent consequences. *Journal of the Experimental Analysis of Behavior, 1,* 173-177.

Friedman, A. (1992). *Let the words flow with Dr. Fluency.* Retrieved May 28, 2007, from http://www.dfluency.com.

Gregory, H.H. (1979). The controversies: Analysis and current status. In H.H. Gregory (Ed.), *Controversies about stuttering therapy.* Baltimore: University Park Press.

Guitar, B. (1998). *Stuttering: An integrated approach to its nature and treatment* (2nd ed.). Baltimore, MD: Lippincott Williams & Wilkins.

Guitar, B. (2006). *Stuttering: An integrated approach to its nature and treatment* (3rd ed.). Baltimore, MD: Lippincott Williams & Wilkins.

Ingham, R.J. (1984a). *Stuttering and behavior therapy: Current status and experimental foundations.* San Diego, CA: College-Hill Press.

Ingham, R.J. (1984b). Generalization and maintenance of treatment. In R.F Curlee, & W.H. Perkins (Eds.), *Nature and treatment of stuttering: New directions.* San Diego, CA: College-Hill Press.

Ingham, R.J. (2001). Brain imaging studies of developmental stuttering. *Journal of Communication Disorders, 34,* 493-516.

Ingham, R.J., & Cordes, A.K. (1999). On watching a discipline shoot itself in the foot: Some observations on current trends in stuttering treatment research. In N.B. Ratner & E.C. Healey (Eds.), *Stuttering research and practice: Bridging the gap* (pp. 211-230. Mahwah, NJ: Lawrence Erlbaum Associates, Inc., Publishers.

Johnson, W. & Associates. (1959). *The onset of stuttering.* University of Minneapolis Press.

Klassen, T.R., & Kroll, R.M. (2005). Opinions on stuttering and its treatment: A follow-up survey and cross-cultural comparison. *Journal of Speech-Language Pathology and Audiology, 29,* 73-82.

Kroll, R. (1991). *Manual of fluency maintenance: A guide for ongoing practice.* Toronto: Clarke Institute of Psychiatry.

Kroll, R.., & Beitchman, J.H. (2005). 37.4: Stuttering. In B.J. Sadock, & V.A. Sadock (Eds.), *Comprehensive textbook of psychiatry* (pp. 3154-3159). Philadelphia: Lippincott Williams & Wilkins.

Kroll, R., Cook, F., De Nil, L., & Ratner, N.B. (2006, July). *Preparing clinicians to treat stuttering effectively: An interactive panel discussion.* Paper presented at the 5th World Congress on Fluency Disorders, Dublin, Ireland.

Kroll, R.M., & De Nil, L.F. (1995). Locus of control and client performance variables as predictors of stuttering treatment outcome. In C.W. Starkweather, & H.M.F. Peters (Eds.), *Proceedings of the first world congress on stuttering: Vol. 1.* (pp. 375-379). Munich: International Fluency Association.

Kroll, R.M., & De Nil, L.F. (1998). Positron emission tomography studies of stuttering: Their relationship to our theoretical and clinical understanding of the disorder. *Journal of Speech Language Pathology and Audiology, 22*, 261-270.

Kroll, R.M., & De Nil, L.F. (2000). Research using PET scans identifies neural bases of stuttering and its treatment. *Stuttering Foundation of America Newsletter, Summer edition,* 1-3.

Kroll, R.M., De Nil, L.F., & Houle, S. (1999, November). *Toward a scientific understanding of stuttering & treatment: PET-scan studies.* Paper presented at the Annual Convention of the American Speech-Language-Hearing Association, San Francisco, CA.

Kroll, R.M., De Nil, L.F., Kapur, S., & Houle, S. (1997). A positron emission tomography investigation of post-treatment brain activation in stutterers. In W. Hulstijn, H.M.F. Peters, & P.H.H.M. van Lieshout (Eds.), *Speech production: Motor control, brain research and fluency disorders* (pp. 307-320). Nijmegen, The Netherlands: Elsevier.

Kroll, R.M., Gaulin,B., & Tammsalu, A. (1981). Fluency maintenance: Follow-up data on a model for post-treatment. Paper presented at the Annual Convention of the American Speech-Language-Hearing Association, Los Angeles, CA.

Kroll, R.M., & Klassen, T.R. (in press). Perspectives on the academic and clinical education in stuttering. *Canadian Journal of Speech-Language Pathology and Audiology, 31,* 92-100.

Kroll, R.M., & O'Keefe, B.M. (1990). Opinions on stuttering therapy: A survey of CASLPA members. *Journal of Speech-Language Pathology & Audiology, 14,* 59-63.

Kroll, R., & Scott-Sulsky, L. (2006). *Fluency plus program: A comprehensive treatment program for school aged children who stutter.* Toronto: Speech Foundation of Ontario.

Ladouceur, R., Caron, C., & Caron, G. (1989). Stuttering severity and treatment outcome. *Journal of Behavior Therapy and Experimental Psychiatry, 20,* 49-56.

Leibovitz, S., & Kroll, R.M. (1980). Intensive stuttering therapy: Retrospective data and current maintenance considerations. Paper presented at the Annual Convention of the American Speech-Language-Hearing Association, Detroit, MI.

Neilson, M.D. (1999). Cognitive-behavioral treatment of adults who stutter: The process and the art. In R.F. Curlee (Ed.), *Stuttering and related disorders of fluency* (pp. 181-199). New York: Thieme Medical Publishers, Inc.

Riley, G.D. (1972). A stuttering severity instrument for children and adults. *Journal of Speech and Hearing Disorders, 37,* 314-320.

Ryan, B. (1979). Stuttering therapy in a framework of operant conditioning and programmed learning. In H.H. Gregory (Ed.), *Controversies about stuttering therapy.* Baltimore: University Park Press.

Sander, E.K. (1961). Reliability of the Iowa speech disfluency test. *Journal of Speech and Hearing Disorders, Monograph Supplement, 7,* 21-30.

Shames, G.H., & Florance, C.L. (1980). *Stutter-free speech: A goal for therapy.* Columbus, OH: Merrill.

Shames, G.H., & Sherrick, C.E., Jr. (1963). A discussion of nonfluency and stuttering as operant behaviour. *Journal of Speech and Hearing Disorders, 28,* 3-18.

Shine, R.E. (1981). *Systematic fluency training for young children.* Tigarad, OR: C.C. Publications.

Silverman, F.H. (1974). Disfluency behavior of elementary-school stutterers and nonstutterers. *Language, Speech, and Hearing Services in Schools, 5,* 32-37.

Smith, B. & Kroll, R. (1979). *A precision fluency shaping feedback system*. Paper presented at the 32nd Annual Conference on Engineering in Medicine and Biology, Denver, CO.

St. Louis, K.O., & Durrenberger, C.H. (1993). What communication disorders do experienced clinicians prefer to manage? *American Speech-Language-Hearing Association, 35,* 23-31.

Ulrich, L., Pepe, E., Kroll, R., & De Nil, L. (1992). *Client performance variables affecting stuttering treatment.* Paper presented at the American Speech-language-Hearing Association, San Antonio, TX.

Van Riper, C. (1973). *The treatment of stuttering.* Englewood Cliffs, N.J.: Prentice-Hall.

Webster, R.L. (1974). *The precision fluency shaping program: Speech reconstruction for stutterers.* Roanoke, VA: Communications Development Corporation.

Webster, R.L. (1979). Empirical considerations regarding stuttering therapy. In H.H. Gregory (Ed.), *Controversies about stuttering therapy.* Baltimore: University Park Press.

Woolf, G. (1967). The assessment of stuttering as struggle, avoidance and expectancy. *The British Journal of Disorders of Communication, 2,* 158-171.

Wu, J.C., Maguire, G., Riley, G., Fallon, J., LaCasse, L., Chin, S., et al. (1995). A positron emission tomography [18F]deoxyglucose study of developmental stuttering. *Neuroreport, 6,* 501-505.

Yaruss, J.S., & Quesal, R.W. (2002). Academic and clinical education in fluency disorders: An update. *Journal of Fluency Disorders, 27,* 43-63.

Yaruss, J.S., & Quesal, R.W. (2004). Stuttering and the international classification of functioning, disability, and health: An update. *Journal of Communication Disorders, 37,* 35-52.

Yaruss, J.S., & Quesal, R.W. (2006). Overall assessment of the speaker's experience of stuttering (OASES): Documenting multiple outcomes in stuttering treatment. *Journal of Fluency Disorders, 31,* 90-115.

Young, M.A. (1961). Predicting ratings of severity of stuttering. *Journal of Speech and Hearing Disorders, Monograph Supplement, 7,* 31-54.

Acknowledgements

We wish to acknowledge the many talented speech-language pathologists, research colleagues, and students who have helped us in developing and refining our program since its inception. We have also learned a great amount from the insightful comments and suggestions offered to us by our clients and for this we are especially grateful. We also wish to thank Ms. Lauren Greenwood for her superb editorial skills and her invaluable assistance in preparing this chapter.

Comment [rjm3]: These should go at the end.

Formatted: Line spacing: single

Key Terms

1. **Establishment**: The acquisition of new speech motor behaviors and attitudes through the systematic application of practice regimes based on proven principles of learning.
2. **Transfer**: The voluntary or conscious application of learned or acquired behaviors outside of the clinic situation.
3. **Maintenance**: The continuation of the therapy program as the involvement of the clinician is gradually decreased involving a long, gradual process of consolidation and stabilization of skills, and maturing of expectations by both the client and the clinician.
4. **Cognitive Restructuring**: The alteration of attitudes, feelings, belief systems and emotions associated with the act of speech communication. This is accomplished by replacing faulty or irrational thought processes with more accurate and beneficial ones through supported self-realization and counseling.
5. **Covert Practice**: The silent, mental rehearsal of targets providing a positive mental preparatory set with which to enter a speaking situation.
6. **Communication Mentality**: The attitude or position of empowerment to speak to anyone, at any time, in any environment, efficiently and effectively, and with little more than a normal amount of negative emotion.