

Stuttering: Its Nature and Management

By
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Contents

	Preface	v
	Introduction	vii
Chapter I	Introduction	1
Chapter II	Stuttering Defined	7
Chapter III	Management of Stuttering	15
Chapter IV	A brief outline of therapy for stutterers	49
Appendix A	Phonetic Alphabet	53
Appendix B	Common intraphonemic disruptions and complicating behaviors in stuttering	55

Preface

Courtney Stromsta (1922-1995) was a professor of Speech and Hearing Science at Western Michigan University in Kalamazoo, Michigan from 1968 to 1987. Along with Dr. Charles Van Riper, he conducted research into the problem of stuttering, looking for ways to improve therapy. In 1986 he published *Elements of Stuttering* which is now available from the Stuttering Foundation.

Several years after his death, his daughter Sveri asked her mother (Rose Stromsta) if there was perhaps a briefcase that Sveri could have. They located one that had belonged to Courtney. Just as they were reaching for it, Sveri said to Rose “what if there is a book manuscript in there?” and indeed there was.

This manuscript was originally edited by Gordon De Young of Key Publishing Services in 1994. It has not been re-edited for more contemporary vocabulary. The term “stutterer” while not used as frequently now, was the norm then, and has been retained for this edition.

Carroll Guitar
Stuttering Foundation

Introduction

In response to requests, the information in this book about the nature and management of stuttering is a condensed version of my more thorough discussion of the disorder: Courtney Stromsta, *Elements of Stuttering* originally published by Atsmorts Publishing in Ostemo, Michigan in 1986.

The original material has been condensed so as to emphasize management of stuttering and concepts basic to its understanding. For the sake of simplicity, this compendium is not referenced. Relevant references can be found in the aforementioned text.

Chapter One points out the need for using phonetic symbols to represent speech sounds. A phonetic alphabet appears in Appendix A. Also included is an introduction to visible speech (sound spectrography) and coarticulation (the effect neighboring speech sounds have on each other), concepts necessary for an objective discussion of speech in general and stuttering in particular.

Chapter Two describes and defines the core behavior of stuttering and differentiates it from reactions to stuttering and nonfluency, the latter being a common commodity in normal speech.

Chapter Three discusses concepts and procedures that collectively serve as an efficient means of alleviating the problem of stuttering.

Chapter Four is a useful clinical outline of Chapter Three.

Many people interested in the alleviation of stuttering have been helped by the material presented here. We trust you will find it helpful also.

CHAPTER I

Introduction

The material in this book is an attempt to help therapists and stutters understand (1) the core behavior of stuttering, (2) different reactions to stuttering, and (3) simple procedures that serve to alleviate stuttering while paying little or no attention to reactions (secondary symptoms) of stuttering. The attempt to help those interested in stuttering is aimed at reducing the overwhelming effects that lack-of-definition or over-inclusive-definitions of stuttering have had on theory, research, and therapy of the disorder. The following chapters will discuss (1) the core behavior of stuttering as a defect in coarticulation, (2) the development of reactions to core stuttering, and (3) the management of stuttering based on procedures that emphasize strengthening motoric patterns of coarticulation.

Before proceeding, we must introduce a standardized set of symbols used to represent the sounds of speech which is needed to describe speech spectrography and coarticulation, two concepts referred to extensively throughout what follows.

Symbols for Speech Sounds

One purpose of this book is to reduce the mystery in the minds of many about speech in general and stuttering in particular. A major point of confusion in discussing speech is that the 26 letters of the English alphabet do not adequately represent the more than 40 basic sounds produced when we speak. Consider the following: The letter *o* has a different sound when we say each of the following words: *do*, *go*, *dove*, *not*, *woman*, *women*. In contrast, the speech sound /I/ is represented by *a* in *courage*, *ay* in *Monday*, *e* in *pretty*, in *ea* in *fear*, *ee* in *been*, *i* in *bit*, *ie* in *sieve*, *u* in *busy*, *o* in *women*, *y* in *cyst*, and so forth.

Learning to identify speech sounds by means of phonetic symbols is important for the analysis and management of stuttering. An abbreviated phonetic alphabet is included as Appendix A. Stutterers should spend time studying it and practice analyzing spoken words.

Learning to identify speech sounds by means of phonetic symbols is important

Sound Spectrography

Just as the microscope revolutionized medical science hundreds of years ago, so visible speech (sound spectrography) revolutionized speech science some forty years ago. It did so by showing how neighboring speech sounds drastically affect each other when they are connected together in running speech. Before this important discovery, speech sounds were assumed to be like separate beads on a string, with any given speech sound being the same, no matter what other speech sounds preceded or followed it.

Figure 1.1 is a sound spectrogram. It displays the two sounds of "T" (the personal pronoun) or "eye" (the organ of vision) blended slowly at the left and normally at the right. The vertical dimension represents frequency of

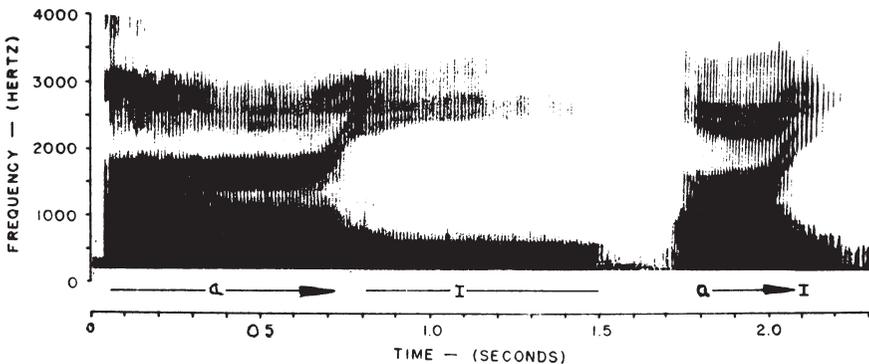


FIGURE 1.1

vibration, from low to high; the horizontal dimension represents passage of time in seconds, and the lightness and darkness of the markings represents softness-to-loudness of the recorded signal. Note the horizontal dark bars. They symbolize bands of frequencies resonated in various cavities of the vocal tract (mouth, throat, and nasal cavity). During speech, shapes of the cavities are changed by movements of the articulators (lips, tongue, etc.) resulting in changes of resonated frequencies. The upward and downward bending of the horizontal bars are called transitions, which indicate changes in the frequency components of the signal caused by movements

of the articulators. Thus, the blending of the two sounds in Figure 1.1 forms a transition. Note also the vertical striations which indicate the opening and closing of the vocal folds during phonation (voice). Thus, a sound spectrogram is a unique and extremely valuable visual display of the frequency and intensity changes caused by the ever-changing vocal-tract shapes in speech generated by movements of the articulators.

Coarticulation

Although rates of speech as high as 18 sounds per second are not uncommon, the average rate of normal speech is about 12.5 sounds per second. But even 12.5 sounds per second seems improbable because none of the articulators can move in excess of about 8 times per second. The explanation for this discrepancy comes from research which suggests that speech is neither neurally programmed nor produced on a sound-by-sound basis.

Speech science has shown that the speech mechanism generates different movement patterns for a given sound, depending on what particular sounds precede and follow it. For example, the articulators anticipate following sounds by moving toward or into vocal-tract shapes necessary for the production of sounds yet to come. Say the words *SCREAM*

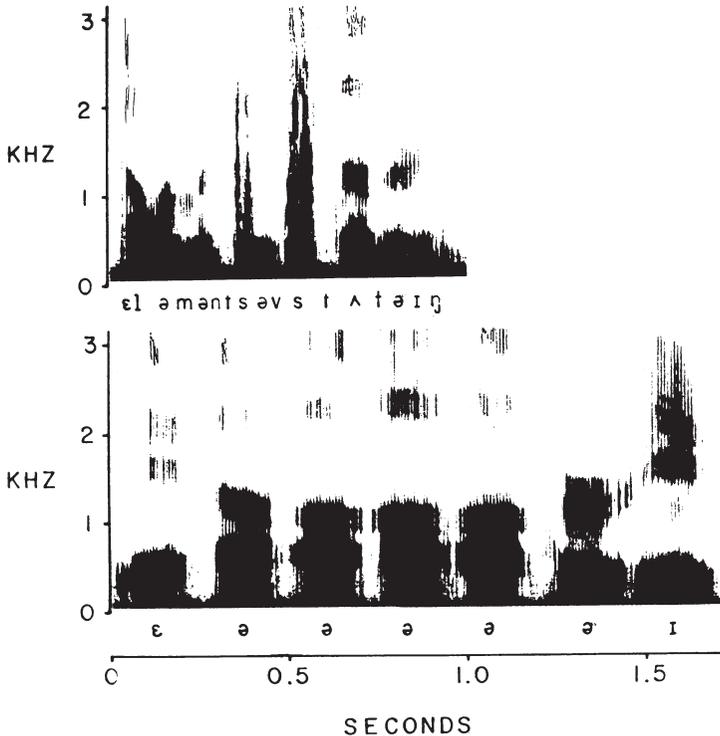


FIGURE 1.2

and *SCREW* in a slow and deliberate manner. This allows you to notice how your lips perform the fourth sound in each sequence—the vowel /i/ in *SCREAM* and the vowel /u/ in *SCREW*, before the first sound, /s/, is initiated. The accompanying spectrograms illustrate the essential feature of normal speech referred to as coarticulation.

The upper part of Figure 1.2 is a visual representation of the 17 sounds of the phrase *elements of stuttering* when said normally, which can be produced in less than one second. The lower part of Figure 1.2 shows that it takes nearly twice as long to say only the 7 vowels in this phrase, when they are said separately and as rapidly as possible by the same speaker after considerable practice.

Figure 1.3 illustrates a less complex example. Note that it takes no longer to say the six sounds of 'behold' than to say only its 2 vowels as rapidly as possible after considerable practice. Figure 1.4 illustrates how the 6 sounds of 'behold' can be said in the same amount of time as it takes to say the 2 vowels separately. In schematic form, Figure 1.4 illustrates the overlapping, or coarticulation, or adjacent sounds.

Spectrographic examples such as the foregoing offer support for view-

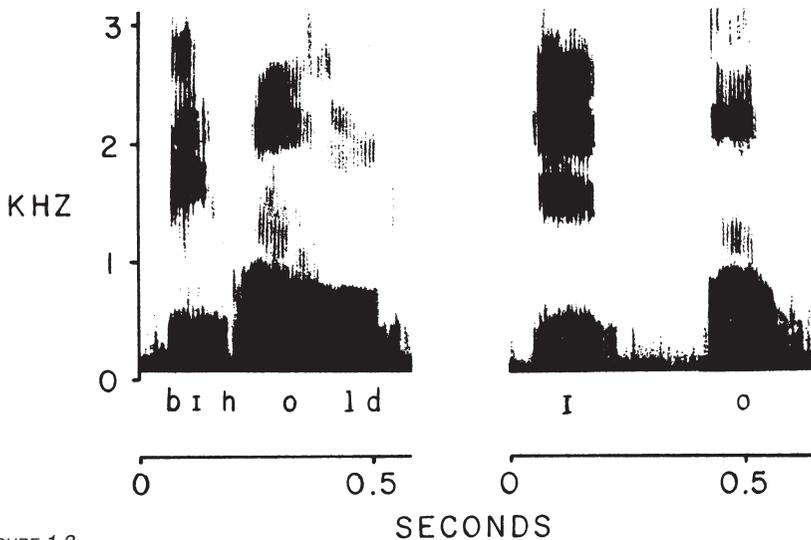


FIGURE 1.3

ing speech as a series of vowel sounds that are initiated, interconnected, and terminated by superimposed or overlapping consonants. Viewing speech in such a manner takes into account the structure and the attachments of the articulators, for example—the tongue—which is in continuous motion during speech. Because of its external and internal muscle systems, the tongue is capable of doing different things simultaneously. The shapes of the tip, blade, and dorsum of the tongue can be individually altered so as to contribute simultaneously to vocal-tract shapes necessary

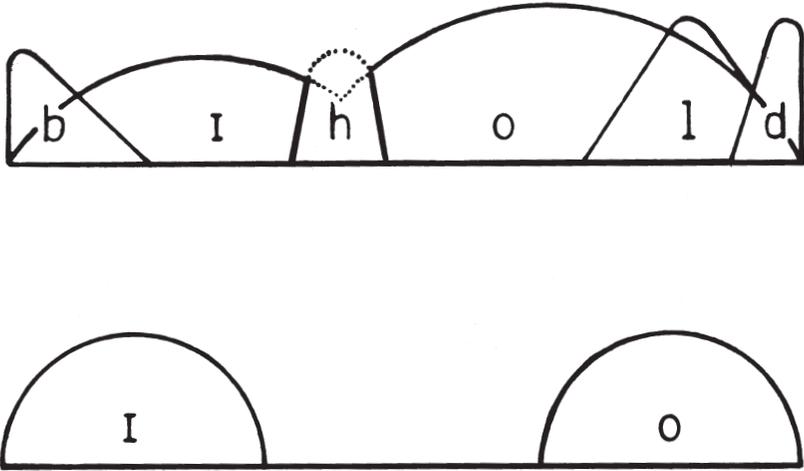


FIGURE 1.4

for producing consonants as well as vowels, a basic factor underlying the coarticulation of speech sounds. Along with other articulators, the structure and attachments of the tongue allow certain parts of it to be involved in producing one sound while, at the same time, other parts either lag behind because of the preceding sounds, or move toward and into vocal-tract shapes for sounds yet to come.



*Courtney Stromsta receiving his Ph.D.
Graduation Day at Ohio State University*



At an IALP Banquet overseas.

CHAPTER II

Stuttering Defined

The availability of visible speech in the early 1950s allowed spectrographic analysis of speech disruptions exhibited for less than six months by preschool children labeled as stutterers by their parents. The analyses were then related to the fluency of the children ten years later.

The results indicated that repetitions marked by (1) within-sound or within-syllable disruptions, and (2) abnormal arrests of adequately initiated phonation (vocal cord production of sounds), both of which were significantly related to stuttering in the same children ten years later. The foregoing repetitions involved sudden disruption of sounds within their normally expected durations. This distinction we call *intrapophonemic disruption*. Such disruptions generally occur within vowels, resulting in *part-sound* or *part-syllable repetitions*.

Intrapophonemic disruption—sudden disruption of sounds within their normally expected durations

Before proceeding, we must make clear the concept of the intraphonemic disruption which we define as the *core of stuttering behavior*.

The sound spectrogram shown in Figure 2.1 illustrates the core behavior of stuttering on the “I” (personal pronoun) or “eye” (visual organ). The initial repetitions involved adequate initiation of phonation (vocal cord activity), as shown by the vertical striations. Note that phonation is arrested within the expected duration of /a/. As a result, the repetitions show an absence of transition, indicating lack of, or faulty, coarticulation, as if the following sound was not anticipated and prepared for.

In contrast, preschool children labeled as stutterers by their parents, whose *whole-sound*, *whole-syllable*, or *whole-word repetitions* did not involve

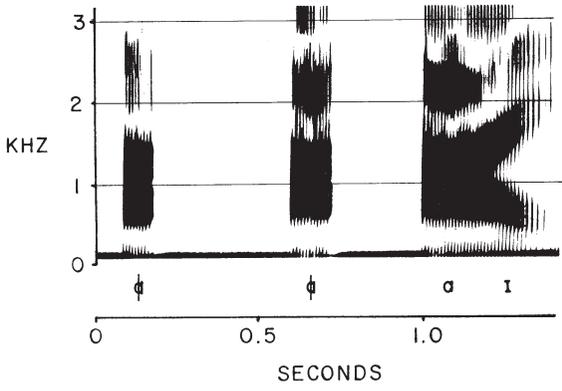


FIGURE 2.1

intraphonemic disruptions were, with high probability, not exhibiting either the core behavior or the complicating behaviors of stuttering ten years later.

Repetitions of this nature represent *nonfluency* in comparison to the part-sound part-syllable repetitions of the core behavior of stuttering. Spectrographic examples of nonfluency, the type of speech disruptions that does not indicate a prognosis of stuttering, follow.

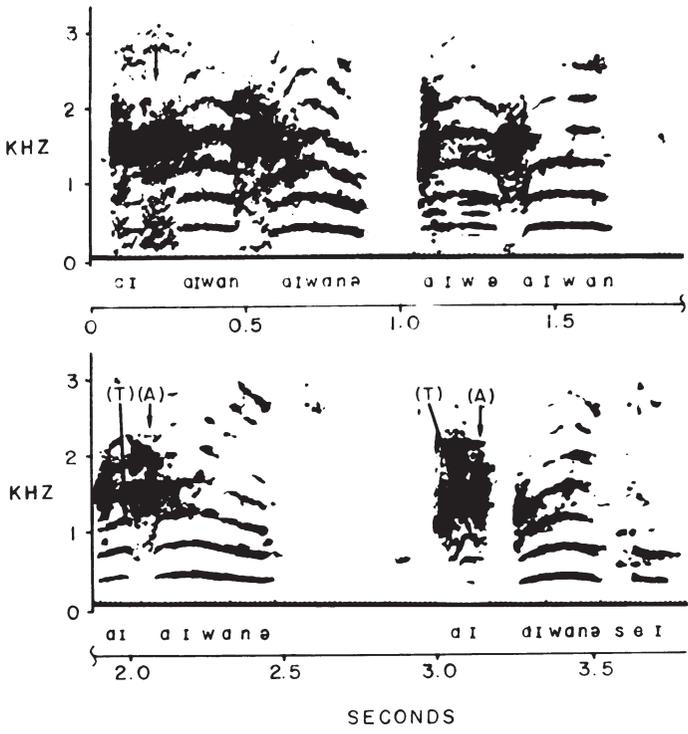


FIGURE 2.2

Examples of Nonfluency

Figure 2.2 is a sound spectrogram of a three year, six month old girl labeled as a stutterer because of excessive repetitions. Here she repeats the word "I" /ai/ three times in attempting to say *I WANNNA SAY*. In each initial "I", frequency shift or transition occurs, as indicated by (T), showing that the repetitions were whole-word utterances. Whereas the initial "I" in each pair of repetitions was an isolated word, the second "I" of each pair was influenced by the following sounds. Evidence of airflow at the termination of repetitions is indicated by (A). Preschool children judged not to be stuttering ten years later showed evidence of airflow through the speech mechanism between their whole-sound, whole-syllable, or whole-word repetitions. Repetitions of this nature indicated normalization of speech, with or without therapy, typically by the age of six years.

The sound spectrogram shown in Figure 2.3 displays whole-sound repetitions of a four year, five month old boy labeled as a stutterer attempting to say *WIN*. Because "W" is actually /u/ blended into the following vowel, transitions shown by (T) in the repetitions indicate they were whole-sound repetitions of the diphthong /u/ preceding the utterance of *WIN*. Evidence of airflow at the termination of the repetitions is indicated by (A). As in

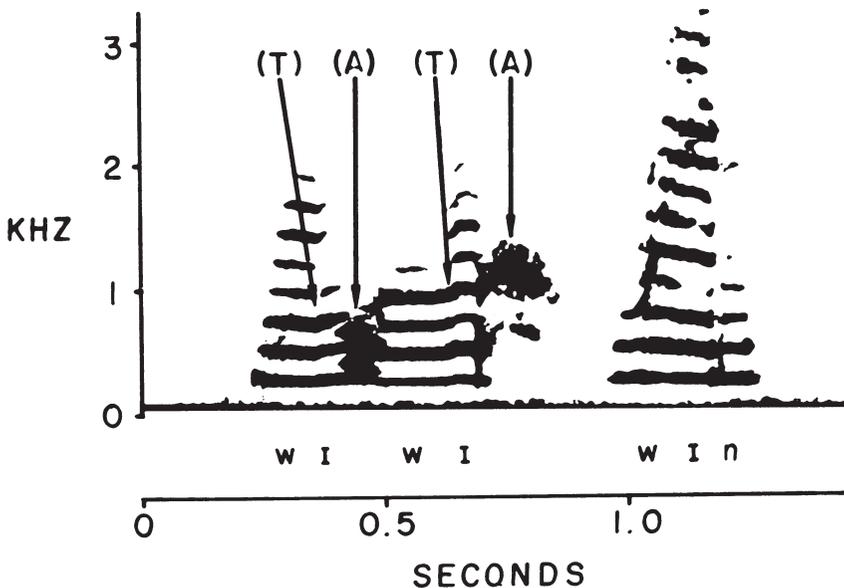


FIGURE 2.3

the previous example, repetitions of this nature indicated normalization of speech, with or without therapy, typically by the age of six years.

Following are spectrographic illustrations of intraphonemic disruptions, the type of speech pattern that indicates a prognosis of stuttering.

Examples of Core Stuttering

Figure 2.4 is a sound spectrogram that displays a four year six month old boy (labeled as a stutterer), attempting to say *APPLE*. His first two attempts resulted in arrests of phonation without evidence of airflow at their termination. Preschool children judged to be stuttering ten years later characteristically did not show evidence of breathstream at the termination of their repetitions. This child's intraphonemic disruptions of /æ/

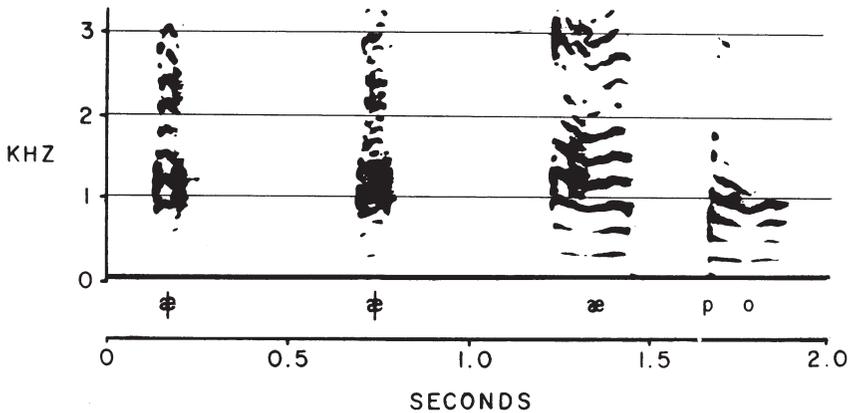


FIGURE 2.4

caused both attempts to be of shorter duration than the third /æa/, which showed a deflection of frequencies as evidence of normal transition to the following /p/. Repetitions of this nature were related to the child being judged as stuttering ten years later, even with therapy.

The attempt of a four year eight month old boy labeled as a stutterer to say *ICE CREAM* is shown in Figure 2.5. His first two attempts to utter the diphthong /aɪ/ of *ICE* were disrupted within the normal duration of /a/. In other words, /a/ did not last long enough for a transition to be made into /ɪ/, giving rise to the intraphonemic disruption symbolized by /a/. Airflow between repetitions was not in evidence. As with the previous example, repetitions of this nature were related to the stuttering of the child ten years later, even with therapy.

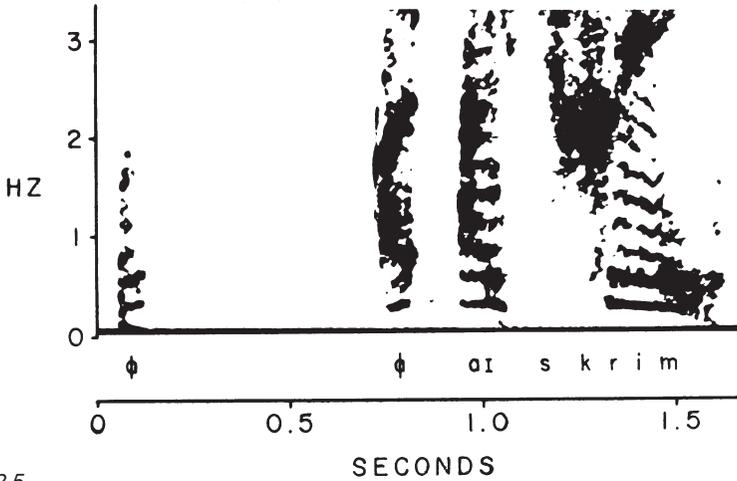


FIGURE 2.5

Reactions to Core Stuttering

During this longitudinal study, preschool children who exhibited intra-phonemic disruptions were observed to initiate a typical progression of reactions—complicating behaviors, secondary symptoms, call them what you may—within about six months after exhibiting their unique repetitions. Along with core repetitions, the progression of reactions involved fixed or static positions of the speech mechanism. The first reaction was prolongations of initial sounds marked by normal initiation of voiced or voiceless breathstream.

As pointed out earlier, the core behavior of stuttering involved disruption of adequately initiated sounds *WITHIN* their usual duration. On the other hand, the progression of reactions to core stuttering involved fixed positions of the speech mechanism that exceeded the usual or normal durations of the involved sounds. In the case of prolonged voiced or voiceless stop plosives /p/, /b/, /t/, /d/, /k/, /g/ and affricatives /tʃ, dʒ/, the vocal tract was not completely blocked, allowing passage of voiced or voiceless breathstream, for example, *B— —OBBY*.

Later, along with increased struggle and force, prolongations of normally initiated voiced stops and affricatives were arrested after about one-third of a second. Such complete arrests were apparently caused by complete blockage of voiced breathstream through the speech mechanism.

Stutterers and nonstutterers can appreciate this effect of complete arrest of phonation (voice) by tightly pressing your lips together, completely pinching off your nostrils, and then trying to maintain phonation as you prolong /b/ or /d/ or /g/. Doing so arrests phonation after about one-third of a second as found in young stutters when articulatory occlu-

sions occurred in association with struggle and force in their development of reactions to core stuttering - intraphonemic disruptions.

Examples of Reactions to Core Stuttering

Figure 2.6 is a display of the same child shown in Figure 2.5 but recorded seven months after originally seen. At this point the child's speech was characterized by prolongations of initial sounds, an example of which is

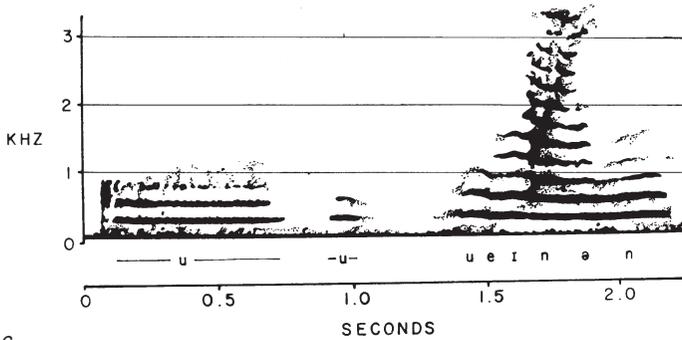


FIGURE 2.6

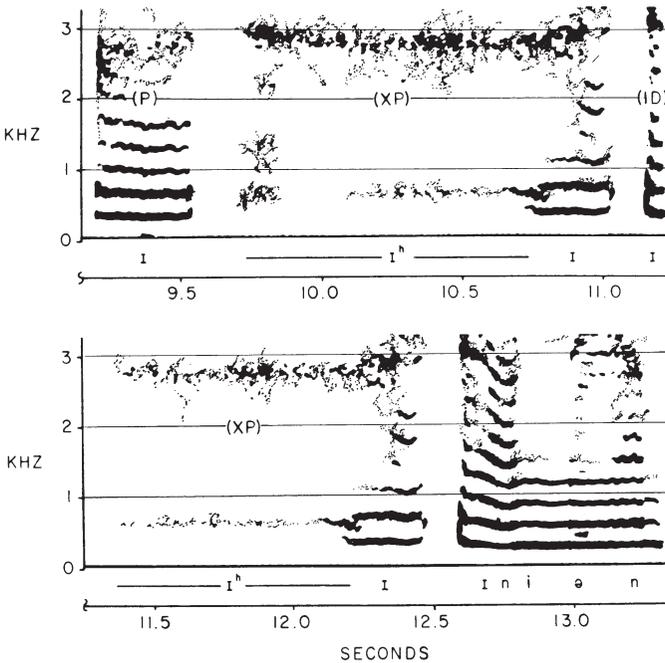


FIGURE 2.7

shown as the child saying *RAINING* as /-----/u/---u- ueInən/. There was no evidence of struggle or force or trouble initiating voiced or voiceless airflow in his speech attempts.

Figure 2.7 shows the same child shown in Figures 2.5 and 2.6, recorded 13 months after originally seen, at which time it took him 13 seconds to say the word *INDIAN*. At this latter time, struggle and force were first in evidence, as were prolongations of initial sounds, marked (P), intraphonemic disruptions—the core behavior of stuttering—marked (ID), and inability to initiate phonation, marked (XP).

The same child recorded 2 years and 10 months after originally seen showed inability to initiate either voiced or voiceless airstream, resulting in tonic blocks, that is, complete stoppages of speech. Release from such static positions took the form of repeated unphonated initial sounds, shown in Figure 2.8 as he said *I LIKE*.

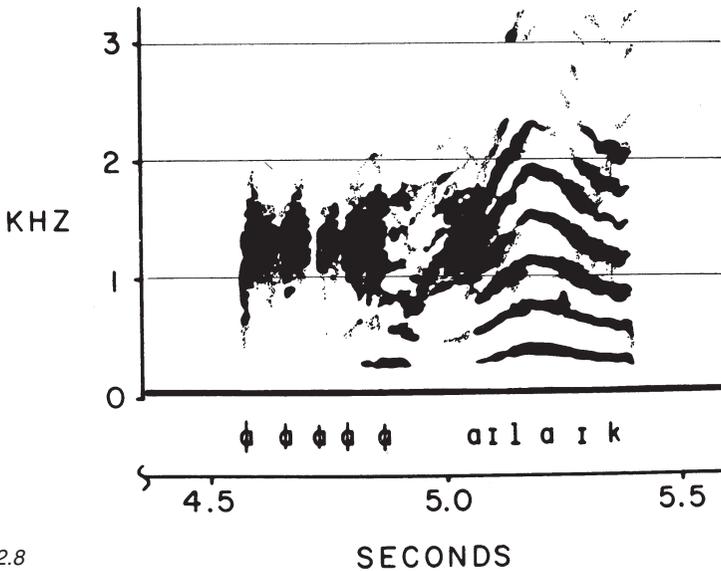


FIGURE 2.8

At the same time, extreme forms of struggle and force were in evidence, as shown by the high-level intensity prolongations of /s/ in Figure 2.9, as the child attempted to say *SCRATCH YOU* as /skaetʃu/.

In their early stage of development, sustained forceful blockages were generally released after one or two seconds and then reformed again one to several times before successful utterance. Later in development, the sustained occlusions for voiced stops and affricatives were maintained for longer durations, sometimes several seconds before successful utterance. It was during this stage of development of reactions to the core behavior of stuttering that prolongations of voiced and voiceless stops and affrica-

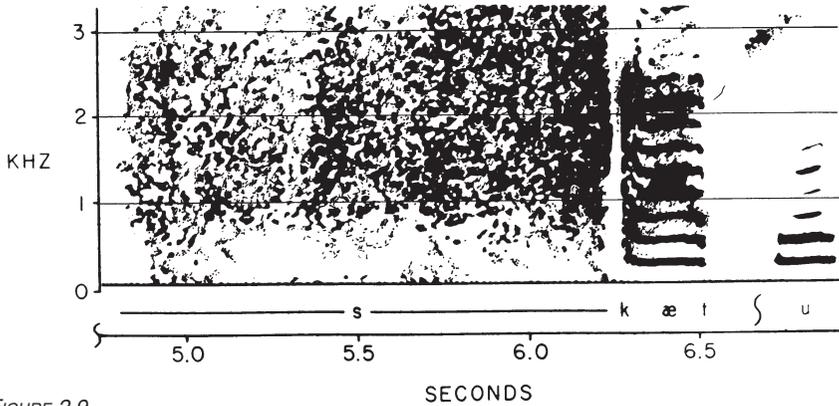


FIGURE 2.9

tives were observed to be arrested by complete blockage of breathstream through the speech mechanism.

Arrests of adequately initiated prolongations of both voiced and voiceless stops and affricatives were followed by the onset of abnormal initiations of voiced and voiceless breathstream for stops and affricatives as well as for phonemes not requiring momentary articulatory occlusion. For the most part, it was only at this stage of development of reactions to core stuttering that analysis of recordings of stuttering and nonstuttering children revealed aberrations of onsets of phonation in stutterers. Intermingled with the advent of difficulty and/or inability in initiating voiced and voiceless breathstream was the onset of the myriad of differing complicating behaviors commonly referred to as secondary symptoms or accessory features of stuttering.



Working at his desk in the 1960's in Columbus, OH.

CHAPTER III

Management of Stuttering

Therapy for stuttering can be simplified. It is accomplished by analyzing what the speaker is doing incorrectly and by strengthening what has to be done to normalize speech production within the limits of each individual. Doing so simplifies the problem and leads to its alleviation among stutterers.

Therapy for stuttering can be simplified

Specifying the core behavior of stuttering as

within-sound or within-syllable disruption leaves little to one's imagination. Realizing that most of what is generally called stuttering are reactions to core stuttering points out the necessity of managing the core behavior. Whereas all who stutter cannot be expected to comprehend the subject matter of this booklet, they can be expected to accomplish what therapy has to offer if organized by those who do understand this material.

Procedures in Therapy

The following procedures have been segmented to emphasize their sequence and to organize their discussion. Doing so does not mean that each phase should be completed before those that follow it. The objective of therapy should be to integrate the various issues into a meaningful and productive end product.

Phase One

A practical first step in therapy is to understand the limitations of our presently held knowledge about speech. Recognizing the limits of information about speech puts to rest many unanswerable questions that plague the minds of stutterers, questions that otherwise often serve as deterrents to progress in therapy. If such a discussion is not practical in this or any other phase of therapy because of age or lack of capacity to intellectualize it, appreciating the limits of information about speech should at least influence the thinking and procedures used by therapists.

Stutterers as well as therapists should realize that no matter how simply one tries to explain and describe the process of speaking, research has shown its unbounded complexity. What must be realized is that the various systems of the body which collectively and synchronously generate speech are in some manner directed, monitored, and controlled by an estimated 140,000 neural events every second and that our presently held information about neurophysiology is still in its infant stage. Whereas meanings of words are reasonably thought to be acquired by associative learning, how humans acquire their competence for speaking cannot be accounted for by presently held learning theories.

Recognition of this dilemma has led to the proposal that the basic competence for speech is a capacity possessed by mankind at birth. Conceivably we possess a predisposition for speech, a genetic endowment for a complex "instinctual" behavior that with subsequent maturation and environmental exposure, generally manifests itself at a certain level of neuromuscular development. Thus speech, as we know it, has been termed an automatism, that is, a motor behavior integrated and controlled at a subconscious level, such as walking, swallowing, and respiration. Whereas such motor behaviors can be modified within certain limits—an important point to be considered in therapy—for the most part they occur without awareness or understanding on our part.

Recognizing that the complexity of speech is not understood has an important implication in therapy. The point is that therapists and stutterers are led to entertain the possibility that we are "programmed" for speech and that whereas most people speak within an acceptable range, some speak better and some less well.

With such information, stutterers eventually perceive that they must accept what they have in terms of a personal speech program and attempt to modify it by using, to their best advantage, factual information that is currently available. Appreciating the complexity of speech and how far we still have to go in terms of understanding it serves to establish realistic limits as to what stutterers can expect of clinical procedures. As a result, stutterers eventually respect and place a premium on clinical procedures that strengthen basic behaviors related to normal speech and which can be expected to alleviate their stuttering as well as the

complicating behaviors that unalleviated stuttering serves to generate. Thus, this initial phase of therapy forms a basis for *informed action* rather than *uninformed reaction* or lack of action that stems from wishful

Informed action rather than
uninformed reaction

thinking and misconceptions about the speech process. Even though it is highly relevant, this initial phase of therapy need not be

over done. Its purpose is to serve as a preface for a discussion of what is known about the elements of normal speech production, something against which stutterers need to compare their own stuttering.

Phase Two

If appropriately based on age and/or capacity to intellectualize it, a discussion of the basic elements of normal speech is of importance for stutterers' eventual understanding of the core behavior of stuttering. Pointing out that speech is a physical event serves to preface the main issues to be stressed in the second phase of therapy: (1) that normal speech production is characterized by continual movement of the speech mechanism, and (2) that the continual movement of the speech mechanism involves anticipation of and actual physical preparation for sounds that follow the initial sounds of syllables or words.

Appreciation of these important features of normal speech can be developed further by using material cited earlier. For example, discussing the production of "I" /aI/ points out the necessity of movement involved in the blending of the two sounds. It also presents an opportunity to introduce the importance of using phonetic symbols to represent sounds of speech in place of the nonproductive use of letter from our written alphabet. Use of examples and sound spectrograms such as Figures 1.2, 1.3 and 1.4 serve to impress upon them the variability of coarticulation in normal speech production. Realizing that the 18 sounds of the phrase *elements of stuttering* can be said in half the time it takes to produce only seven of its sounds in isolation provides unquestionable evidence concerning the necessity of coarticulating sounds in normal speech.

Therapists should emphasize this second phase of therapy during their initial sessions with stutterers. Our experience has been that most stutterers acquire the basic idea about coarticulation and its importance in speech production in less time than would be expected. Nonetheless, this concept, as well as others to be discussed, should be elaborated upon as the need arises throughout the course of therapy.

The purpose and need for this second phase of therapy relates to the fact that many authors, and hence many therapists, stress that stutterers should be "objective" about their stuttering. The fact is that most

stutterers never do figure out what therapists mean by that statement. However, the advice is reasonable, but only if stutterers first become objective about speech in general by knowing something practical about it, and then only if stutterers develop a practical definition of stuttering. The latter topic serves as the focal point in the third phase of therapy.

Phase Three

The degree to which stutterers can recognize the core behavior of stuttering is of prime importance to therapy. The more practical their personally held definition of stuttering and the more logical their expectation of what to do about it, the more probable are their chances of unraveling what to them is the complexity of their problem. Stutterers must recognize and systematize the components of their problem of stuttering if common sense is to prevail.

After initially discussing what is known about speech in general, a practical way to introduce the recognition of the core behavior of stuttering is to wait until an example of it occurs in the client's speech. *While disregarding all complicating behaviors*, when an intraphonemic disruption occurs, the therapist should judiciously interrupt and ask "What just happened in your speech?" Commonplace responses are, "Nothing," or "I don't know." Therapists should prepare the client for further interruptions and repeat the question when other intraphonemic disruptions occur. This simple procedure serves to swing the stutterer's attention away from the myriad of usually involved complicating behaviors and brings into focus the fact that basic features of normal speech production are being violated in the core behavior of stuttering, namely, faulty coarticulation, resulting in abnormal terminations of adequately initiated phonation.

Basic features of normal speech production are being violated in the core behavior of stuttering—faulty coarticulation

Use of examples and spectrograms included in Chapter Two help stutterers understand what to become aware of in their speech, but equally important, what to disregard.

It is at this point in therapy that many therapists use audio and video recorders, yet it has been our experience that analysis is best done in real time, in other words, as the instances of stuttering occur. It is also at this time that use of phonetic symbols to represent speech production can be reinforced again as a potentially useful and productive tool.

An efficient way to begin the identification and analysis of intraphonemic disruptions is to use simple examples as they occur in the stutterer's speech. Most stutterers display such disruptions on the often used

personal pronoun “I” /aɪ/. When such disruptions occur, the therapist should ask the client, “How many sounds are in the word “I”?” The usual answer is, “One,” which is in fact what they are producing—only abbreviated versions of the first sound without anticipation of what follows. Have the client say the word “I” slowly. While so doing, many make the important discovery that “I” actually has two sounds. Have them say the two sounds in isolation. Have them prepare for the second sound prior to blending the two sounds together *deliberately and smoothly*. Show them Figure 1.1 which displays the two sounds blended slowly (left) and normally (right). The procedure serves to emphasize that *letters used to write words* and *sounds used to utter letters* are grossly and importantly different. Those who do not readily recognize this basic difference must be helped in doing so. Whatever the case may be, identifying the core behavior of stuttering early in therapy serves an important function.

For one thing, stutterers quickly realize that, based on correct information, they can utter words successfully even when the words are feared and when they anticipate stuttering. It also provides an initial opportunity to point out the difference between stuttering and the uselessness of reactions to stuttering which take the form of complicating behaviors that make successful utterances improbable if not impossible. To further the stutterer’s appreciating of the uselessness of complicating behaviors, point out that research has shown that such reactions are not present when children first exhibit stuttering; that if basic stuttering persists in children, they eventually develop prolongations of sounds, then complete stoppages of speech, and eventually difficulty in initiating phonation; and that these latter reactions, in turn, give rise to other useless behaviors that further complicate the speech and lives of stutterers.

Discussing complicating behaviors early in therapy is not for the purpose of analyzing them. Why analyze something that serves no useful purpose? In contrast, the purpose is merely to clarify that complicating behaviors develop because basic stuttering is not recognized and that something constructive has not been done about it. This lack of understanding and lack of positive action generates confusion, apprehension, and tensions that instigate *uninformed reactions*. It helps to point out something important: that stutterers as well as therapists make the mistake of regarding as important only the gross and therefore more apparent complicating behaviors that serve to characterize ill-fated speech attempts. In doing so, they fail to realize the importance of the basic and less frequent intraphonemic disruptions that either are not recognized, or, if recognized, are minimized in importance as something not to be concerned about. Point out that *intraphonemic disruptions occur less frequently only because complicating behaviors develop so as to minimize the occurrence of intraphonemic disruptions*.

It follows that stutterers should prepare for the eventuality of an increase in basic stuttering as complicating behaviors are decreased. It should be made logical that such an increase in basic stuttering is to be

expected at this stage of therapy. The increase of basic stuttering provides the material needed for stutterers to identify and systematize their disruptions, an important step toward strengthening behavioral patterns related to the alleviation of stuttering.

Before discussing alleviation of stuttering, it should be pointed out that stutterers differ as to what it takes for them to discriminate and appreciate the difference between their basic stuttering and their reactions to stuttering that take the form of complicating behaviors. Early in therapy, stutterers exhibit a confounding mixture of basic stuttering and reactions to stuttering. Many stutterers require only a minimal amount of analyzing and systematizing their “stuttering” in order to differentiate their intraphonemic disruptions from their complicating behaviors and to realize the role of faulty coarticulation in their basic disruptions. Others find the task more difficult. Whatever the case may be, recognition of numerous and differing examples of intraphonemic disruptions help in planning their systematic alleviation. A practical way of doing this is based on statistics of language. If the minimal unit of speech is taken to be the syllable, surveys have shown that, where C = consonant and V = vowel:

1. about 60% of all we say are syllables in which consonants are used to initiate vowels—CVC, CV, CVCC,
2. about 25% of all we say are syllables in which initial vowels are terminated by consonants—VC, VCC,
3. about 10% of all we say are syllables composed of blended vowels—VV, and,
4. about 5% of all we say are syllables in which vowels are initiated by blends or clusters of consonants—CCVC, CCV, CCVCC.

Since the loci of intraphonemic disruptions vary in different syllables, knowledge of the foregoing statistics provides a basis for instances of intraphonemic disruptions to be at least initially categorized as to the type of syllable in which they occur, this in place of their remaining little more than a disorganized collection of events. It is sufficient for many stutterers that their basic stuttering be only superficially analyzed and systematized, while, at the same time, completely disregarding their complicating behaviors. For those who find the task difficult, Appendix B lists common intraphonemic disruptions (stuttering) and complicating behaviors (reactions to stuttering) associated with various categories of syllables.

The third phase of therapy involves still another factor. If not attended to, the issue of *nonfluency* serves to confound this phase of therapy, which is aimed at answering the question, “What is stuttering?” If left undefined and misunderstood, use of the term *nonfluency* by those interested in stuttering does more to “muddy the waters” of recognizing and understanding stuttering than any other one factor, with the possible exception of those who would place stuttering entirely within the province of psychology and psychiatry.

It is important that stutterers recognize that many of their reactions to their dysfluencies take the form of nonfluencies used to minimize the presence of intraphonemic disruptions. It should be emphasized that whereas

normal speakers attempt to be fluent, few if any attain their goal. In other words, normal impromptu speech is characterized by various degrees of nonfluency. Therefore, the point is not that stutterers should expect their speech to be free of nonfluencies. Rather, stutterers should realize that

Normal impromptu speech is characterized by various degrees of nonfluency

nonfluencies, if unrecognized for what they are and what purpose they actually serve, can confound their ability to isolate and analyze intraphonemic disruptions. Anyone who takes

the time to observe the role of nonfluencies in the everyday impromptu speech of others will soon appreciate how nonfluencies make normal speech as well as stuttering more complex than it has to be.

Phase Four

The fourth phase of therapy is an extension of the third phase. Separating it emphasizes its importance. Being able to discriminate the core behavior of stuttering from complicating behaviors caused by uninformed reactions, leads one to question what can be done about basic stuttering.

Constructive action involves bridging the gap between facts about stuttering and facts about normal motor speech. A practical way of bridging this gap is to establish the percentage of speech in which a stutterer actually stutters, that is, exhibits intraphonemic disruptions. Stutterers have the tendency to exaggerate the percentage. They continue to exaggerate this percentage until they can identify their complicating behavior, among which are nonfluencies, and separate them from their basic stuttering. A way of calculating the percentage of core stuttering is to count the total number of syllables spoken and divide it into the number of syllables in which intraphonemic disruptions occur. Tape recorded samples serve this purpose well. Repeating the procedure in several sessions and under differing conditions provides a reasonable estimate of the percentage of speech in which core stuttering occurs.

Such estimates indicate that stutterers actually stutter in somewhere between 5% and 25% of their speech. Most stutterers fail to realize that their speech falls within the broad limits of normal speech anywhere from 75% to 95% of the time. Such knowledge can serve as proof that in large measure stutterers possess the "program" for normal speech. Meanwhile, having analyzed and systematized their intraphonemic disruptions as they do in their third phase of therapy, stutterers will recognize that their disruptions involve faulty coarticulation of particular syllables and sound combinations more than others. Equally important, the process of

analyzing and systematizing bears out the fact that their intraphonemic disruptions are inconsistent. In other words, the process of separating complicating behaviors from core stuttering shows that stutterers have the program for normal speech even for the percentage of their

Stutterers possess the 'program' for normal speech

speech that is most consistently at fault.

The foregoing issues and procedures serve to simplify the “problem of stuttering.” Isolating and understanding what constitutes the core behavior of stuttering breaks down the complexity of the problem of stuttering into elements that for the first time appear manageable. However, knowing what one *is doing* as compared to what one *should be doing* is not enough. How to manage the difference is the issue taken up in the next phase of therapy.

Phase Five

The fifth phase of therapy is developed from the fact that the core behavior of stuttering is inconsistent. In other words, stutterers have the “program” for normal speech even for the small percentage of their speech that is dysfluent. The inconsistent dysfluencies—intraphonemic disruptions—

When correctly coarticulated, arrests of phonation do not occur.

are due to incorrect coarticulation of speech sounds and arrests of adequately initiated phonation. The same syllables or words when

uttered without dysfluency are correctly coarticulated. When correctly coarticulated, arrests of phonation do not occur.

When asked how someone should go about improving motor behaviors other than speech, many stutterers are capable of figuring out a common sense approach to alleviating the core behavior of their stuttering. In essence, the procedure is simple. What is needed is practice that strengthens the desirable behavior (that which you do acceptably well most of the time) to the point that it competes with and eventually displaces the undesirable behavior (that which you do unacceptably some of the time). Practicing what is correct is so obviously therapeutic that it is generally ignored.

An important part of the therapeutic procedure is to practice and strengthen coarticulation *when not stuttering*. This approach is in contrast to the tendency of stutterers to wait until dysfluency occurs before trying to do something about it, a procedure not in line with common sense. Winning football teams practice much more than they actually play. They

do not wait for actual games to correct errors in fundamental procedures. Rather, they practice so as to strengthen correct and productive behaviors to the point that they are predictable under the stresses inherent in actual games. Professional golfers work out inadequacies of their golf swings on practice ranges by correctly blending or “coarticulating” the segments of their swing during hours of practice rather than waiting for inadequate shots to appear during tournament play. Downhill skiers practice fundamentals so as to perfect complex blending of body movements as they anticipate and prepare for the shifting of weight on their skis before expecting such maneuvers to occur reflexively for the purpose of survival during tortuous downhill runs. So it is with fly-casting, keyboarding, knitting, working a loom, or any other motor behavior that we hope to improve. Waiting for inadequate performance to occur before doing something about it turns out to be an inefficient approach. Knowing what one must do for adequate performance is the basis for intelligence practice, resulting in skillful execution that minimizes inadequacies.

A method that simplifies practice of skills related to alleviating intraphonemic disruptions is based on anticipating and actually preparing for the second sound of the syllable to be uttered. When prepared for the second sound, stutterers should make the first sound as a strong voluntary movement into and through the following sounds. As mentioned previously, even though speech is an automatism, one can voluntarily modify it within certain limits. As it is with one’s attempts to change any motoric behavior, anticipating and preparing for the second sound of each word to be uttered and producing the first sound as a deliberate strong smooth movement into and through the following sounds seems strange and difficult when first attempted. A good way to start is as follows:

1. Prepare for the second sound and say it aloud so both the stuttrer and the therapist can verify that it is the appropriate sound,
2. When verified as correct, say the second sound aloud again and maintain the assumed posture of the speech mechanism,
3. Produce the first sound as a deliberate strong smooth movement into and through the following sounds.

Following the foregoing procedure on the beginning of every word during therapy sessions, as well as in other periods of time each day as material is read aloud, serves to establish the pattern. However, certain things should be kept in mind as one begins this procedure of strengthening coarticulation. Telling stutterers to be deliberate in their early attempts is often misinterpreted as meaning “do it slowly.” Slow speech or “rate control” should not be the object of this procedure. Each individual, as he or she begins this procedure, should do it at a pace that allows mastery of the procedure. It should also be pointed out that deliberateness involved in the initial stage of developing the procedure tends to cause distortion of many speech sounds. This is to be expected. Research has shown that transitions between speech sounds are of relatively equal duration at vari-

ous rates of speech. It should also be appreciated that in producing the first sound, in many instances, one will alter the posture assumed for the second sound. However, in such cases, a plan has been established, and one knows where he or she is going as movement is made from the first sound to those that follow it. As it is in normal speech, which is characterized by coarticulation, anticipation of and preparation for the second sound will also affect how the first sound is produced.

Making the movements deliberate provides the time needed for the voluntary control of the speech process. Making the movements strong and smooth strengthens the motor behavior patterns of coarticulating speech sounds. During the early stages of developing the procedure, concern is

Develop and strengthen the pattern of coarticulation

often expressed by stutterers as to whether or not the procedure will result in their "learning" to habitually speak slowly and forcefully.

Stutterers can rest assured that their speech will speed up reflexively all too soon. Their concern should involve being deliberate in their speech long enough to develop and strengthen the pattern of coarticulation that will eventually alleviate their intraphonemic disruptions.

While continuing to strengthen coarticulation *on every word*, one can sense when the procedure is becoming established. It takes progressively less time as well as less mental and physical effort to do it correctly. One should resist the urge to cut short this initial stage of understanding and deliberate application of the concept of coarticulation to every word. When the procedure is established for the beginning of every word, the routine should be varied. Self-discipline and self control can be developed practicing the procedure on the first of every two words, later, on the first of every three words, later, on the first of every four words, and so on. As the client works through this progression, he or she should continue to make the movement from the first sound into and through the anticipated and prepared-for second sound strong and deliberate, but say what follows as naturally as possible. Again, the objective is not "slow speech" or "rate control." Rather, the objective is to strengthen coarticulation through practice so as to reduce part-sound or part-syllable repetitions characterized by intraphonemic disruptions which, if not alleviated, generate prolongations, tonic blocks, difficulty initiating voiced and voiceless breathstream as well as the myriad of other complicating behaviors exhibited by most advanced stage stutterers.

What and when to practice

What to practice and when to practice are natural concerns of stutterers. As mentioned earlier, clients should begin by using the procedure

extensively in therapy sessions where the correctness of what is being practiced can be monitored by others. Classifying intraphonemic disruptions as discussed in Phase Three allows stutterers to determine on which types of syllables to concentrate their practice. Stutterers should note their failures during practice, so as to identify and analyze the loci of the involved intraphonemic disruptions. At this point, it should be noted that whereas preparing for the second sound is generally sufficient, preparing for correct coarticulation is sometimes more involved. For example, in the word *court* /kɔrt/, preparing for the /ɔ/ can result in its disruption because /r/ is not coarticulated. In such a case, anticipation of and preparation for the third sound is necessary to alleviate the disruption of /ɔ/.

When to practice, other than in therapy sessions, is a decision that must ultimately be made by the client. A minimum of three practice sessions each day are recommended; more sessions are better. Scheduling practice sessions to coincide with routine daily activities such as mealtimes, lunch breaks or going to and from work or school has definite advantages. Unscheduled practice or entertaining the idea that one will practice “most of the day” generally leads to little or no practice. Scheduled practice sessions of reasonable duration are manageable and force the client to assess whether or not practice has actually taken place, and if so, did it accomplish whatever objective was planned. Practice sessions interspersed throughout the day lead to a progressive spread or generalization of the practiced activity into periods that precede and follow the sessions.

As one becomes increasingly familiar with preparing for the second sound and moving into it, the procedure becomes “second nature,” that is, it occurs more spontaneously, with a minimum of conscious effort. This probably stems from the fact that such practice strengthens an innate natural feature of normal speech. Whatever the case may be, the procedure, with practice, adapts itself progressively to use in everyday conversation.

Many stutterers fail to appreciate that they can afford to speak in a deliberate manner so as to emphasize the articulation of their utterances. Stutterers should realize that hesitations or pauses—a common commodity in normal conversational speech—can be used to their advantage in planning and executing coarticulation. It has been shown that most listeners prefer to listen to speakers who speak slowly and use more and longer pauses. The point of the matter is that however

Practice when not stuttering

stutterers finally rationally their way of practicing coarticulation, such practice is the price they must pay for ultimately alleviating their intraphonemic disruptions, the core behavior of stuttering. Let it be emphasized again, stutterers should not wait for stuttering to occur to do something about it, *they should practice when not stuttering.*

Stutterers vary as to the amount of practice necessary before alleviation of intraphonemic disruptions begins to occur in their everyday speech. For some, knowing about, experimenting with, and understanding the importance of coarticulation serves to “trigger” an almost immediate application of it in their everyday speech, along with a drastic reduction of their complicating, or secondary, behaviors. Others need to continue their evaluation and trial use of the procedure in light of additional phases of therapy now to be discussed.

Phase Six

The objective of the sixth phase of therapy is to prepare stutterers for the effects of emotion on their attitude and motivation in doing what it takes to alleviate their stuttering in the rigors of real life. In brief, any set of conditions viewed as critical to our well being serves to generate a set of definable internal bodily changes. Such changes are natural and therefore should be accepted as normal. In effect, such internal bodily changes produce a storehouse of available neuromuscular potential or energy needed for effectively dealing with whatever confronts us as imminently important. What we refer to as *emotion* is our sensory awareness of bodily changes necessary for and by which accomplishment can emerge. How we label our naturally occurring internal bodily changes is an important issue to consider. Unfortunately, labels such as “nervousness,” “fear,” “anxiety,” and “tension” are commonly applied and generally indicate undesirable “feelings.” How stutterers label and react to their awareness of their internal bodily changes is an important matter to evaluate early in therapy.

Inadequate handling of disturbing conditions such as stuttering, due to incorrect information and lack of related skills, predictably leads to dissatisfaction and ultimate demoralization; negative feelings and values are associated with the accompanying bodily changes. On the other hand, adequate handling of disturbing conditions such as stuttering, based on correct information and related know-how, eventually leads to self-satisfaction and confidence; positive feelings and values are associated with the accompanying internal bodily changes that generally decrease as a function of progress. In other words, whereas disturbing conditions arouse predictable internal bodily changes, one’s perspective and attitude about our awareness of such bodily changes depends on whether they respond with inadequate or adequate behavior.

As one would expect, stutterers vary as to their need for evaluating the effects of emotion on their attitude and motivation in doing what it takes to alleviate their stuttering. Many stutterers enter therapy with only a need for valid information about what constitutes stuttering and what in specific terms should be done about it. With such information, they quickly develop related skills and make rapid and stable progress in alleviation of their stuttering—even in the face of emotional arousal. Others enter

therapy with the notion that they should first reduce their nervousness and anxiety as well as their inferiority. Their idea seems to be that with reduction of such feelings, their stuttering will disappear. They fail to realize that not understanding what constitutes stuttering and not being able to cope with it has served to generate emotion to which they have attached very negative feelings and labels. Although all stutterers profit by evaluating the role and value of emotion, it is the latter group that profits most by it. Until they evaluate and appreciate the purpose and positive value of internal bodily changes, attempts to change their behavior are generally ineffective and unstable.

Because they have strong negative feelings to their surges of emotion, some stutterers cannot deal with their stuttering simply by isolating it, evaluating its consequences, and then changing it. Substituting appropriate for inappropriate behavior constitutes a new and untested experience which generates uncertainty and insecurity. The accompanying internal bodily changes are felt as surges of nervousness, anxiety, and so forth, feelings which they mistakenly assume to be their basic problem. For them, the emotion that accompanies each attempt to change behavior becomes a signal that something is wrong, even though to attempt the change seems right. As a result, their emotional feelings drive them back into their old ingrained behaviors. Even though change is desired, the emotional feelings of stutterers have the effect of offering them mainly two alternatives, each of which is threatening or undesirable: (a) their inconsistent inadequate behavior with its undesirable feelings, and (b) their changed behavior with its undesirable feelings. Until the conflict is resolved, the stutterer will vacillate between old and new behaviors; any gain gives rise to relapse. Resolution of this dilemma is best initiated by viewing one of the two alternatives as being of greater long term positive benefit. Stutterers should be helped to realize that assessing one's emotions in negative terms is generally due to lack of knowledge, which predictably leads to confusion, inadequate behavior, failure, and ultimately avoidance, all of which are common debilitating behaviors of stutterers.

When viewed in negative terms, emotion can become excessive and serve to depress productive activity as well as generate complicating behaviors. The dread and demoralization associated with continual avoidance of fulfilling one's basic needs or failure to manage disturbing conditions forms a vicious circle with the surges of emotion that accompany such ineffectual behaviors. Under such conditions the surges of emotion eventually give rise to unwelcome feelings because they serve to signal impending conditions thought of as unmanageable. With regard to stuttering, rather than emotion causing stuttering as is often claimed in the literature, emotion serves to generate and maintain complicating behaviors based on reactions to not understanding what constitutes stuttering and how to manage it. Unfortunately, this describes the plight of too many stutterers. When they display evidence of the foregoing, they should

be helped to understand that certain things serve to reduce or alleviate excessive emotion.

Holding valid information about what confronts us and preparing ourselves in terms of how to deal with it are basic necessities for managing any set of circumstances. It amounts to "having something going for ourselves," a factor shown in wartime studies to reduce the intensity of internal bodily changes under conditions of stress. Using biochemical indicators of stress, it was found that whereas most soldiers displayed strong signs of stress before and during dangerous missions, some displayed such signs to a much lesser degrees. Those with less indications of stress "had something going for themselves." For example, one soldier had been a successful gambler because he knew and played the odds or probabilities of occurrence in games of chance. When confronted with involvement

Holding valid information about any set of disturbing conditions makes them less disturbing.

in a series of dangerous missions, he obtained information concerning the number of soldiers involved in such missions and the number of casualties. His calculations showed that the

odds were against his becoming a casualty. The point of the matter is that holding valid information about any set of disturbing conditions makes them less disturbing and serves to lessen the intensity of the associated internal bodily changes that give rise to what we call emotion.

To view emotion as normal and beneficial when labeled as nervousness, anxiety and so forth, comes as something foreign to most people. Perhaps this kind of assessment is cultural, as could be the lifestyle of those people who spend their lifetimes attempting to avoid their labeled emotions through use of pills and mental mechanisms. Of interest is the fact that the literature concerned with anxiety indicates that for certain people it serves to stimulate elevated performance, while for others it tends to inhibit or depress performance. Such differences are also found among stutterers as they engage themselves in therapy. Some with little more than basic information develop related skills and quickly and successfully alleviate their stuttering, doing so even though experiencing surges of emotion labeled in fretful and anxious terms. With the same information, other stutterers procrastinate over developing related skills. They attain skills and alleviate their stuttering only after evaluation and appreciation of their emotional reactions in a positive rather than a negative manner. When so evaluated, the very thing that impedes can be used to promote progress.

Stutterers must understand that emotion triggered by their concern and preoccupation regarding dysfluencies is normal and in effect prepares them to deal with their inadequacy. Comprehending what must be done to counteract stuttering and doing it effectively, progressively uses up the

neuromuscular potential or energy generated by internal bodily changes and perceived as emotion. As one uses the available potential for doing something effective, following events of a similar nature are perceived as less and less threatening. In other words, as stutterers acquire valid information, develop related skills, and apply them effectively, they become increasingly confident about handling conditions previously evaluated and labeled in negative terms and reacted to in the form of complicated self-defeating behaviors.

By means of the preceding phase of therapy, stutterers attain the point where, having recognized stuttering for what it actually is, practice and strengthening of coarticulation is accepted as one of the more logical approaches to alleviation of stuttering. Using the procedure during therapy

Coarticulation minimized and often eradicates both their stuttering and their complicating or secondary behaviors.

sessions serves to impress upon them that coarticulation minimized and often eradicates both their stuttering and their complicating or secondary behaviors. Most are amazed to find that

doing something relatively simple prevents the diverse behaviors that they previously thought of as stuttering. Such a dramatic change in behavior can and usually does occur early in the course of therapy. However, strengthening the normal process of speech to the point that it occurs spontaneously in everyday speech generally is directly related to (a) the degree to which one is willing to practice the procedure, (b) the degree to which one is accustomed to seeking and applying information in their attempt to resolve difficult conditions other than stuttering, and (c) the degree to which simulated as well as real-life situations are incorporated into the therapeutic procedures. Including a progression of real-life speech situations during the course of therapy provides stutterers with important emotional experiences associated with decreasing instances of failure and increasing instances of success, the sum total of which initiates their needed emotional reeducation.

Although practice in concentrated form takes place during the course of therapy, stutterers must eventually practice deliberate coarticulation in everyday situations as well. Success emerges from working through and analyzing the inevitable failures and partial failures which characterize one's attempts to change ingrained attitudes and behaviors. With the growth of success comes a progressive lessening of the emotional arousal formerly associated with inadequate handling of stuttering and its attendant complicating behaviors. However, additional therapeutic procedures must be implemented to help those stutterers whose attempts to extend their success in therapy to real-life situations are thwarted by excessive emotional arousal, developed because of past experiences involving fear

of failure, anticipated rejection by their listeners, and frustrations generated by postponement and avoidance behaviors. They should be aware that alleviation of stuttering often occurs during appreciable emotional arousal, and that reduction of excessive emotional arousal comes as an end product of managing their problem. Working through hierarchies of easy-to-difficult situations is an important element in procedures aimed at reducing their inhibitions and fears. Having a therapist or fellow stutterers model in real-life conditions what is to be attempted by reluctant stutterers often serves as an impetus for them to attempt the same.

Each stutterer must eventually take it upon him or herself to experience success during the throes of emotional arousal by applying in real-life what they have developed and strengthened through practice and experience in therapy. The eventual buildup of success in the presence of emotional arousal is the root system of emotional adjustment. Without such emotional adjustment, stutterers remain continually susceptible to impasse and relapse.

Phase Seven

The objective of the seventh phase of therapy is to deal with impasse (lack of progress) or relapse (loss of progress) in the attempts of stutterers to alleviate their stuttering. Stutterers to whom it applies must eventually answer the question, "What keeps you from doing what you say you accept as the logical thing to be done if you want to alleviate your stuttering?" This question is asked when there is reason to believe that a given stutterer understands and has accepted as logical the concepts developed in the preceding phases of therapy. At least partial verification of the foregoing is indicated by the occurrence of impasse or relapse after the individual has initiated the procedures and expressed satisfaction regarding having made progress in alleviation of their stuttering.

One factor that can work against using a logical and common-sensical approach is the lingering hope in some stutterers that their stuttering will disappear in some easy way if someone else does something about it, that pills or séances will abolish their nervousness and with it their stuttering, or that someone's instrument will do the trick. In comparison, doing something that involves personal effort and adjustment seems too much to expect of themselves.

Unfortunately, unrealistic hope for easy ways out of stuttering is fostered by claims of cures by those with commercial interests. Claims of cures are generally based on the short-lived periods of fluency that almost any technique can produce. Meanwhile, periods of fluency may relate to nothing more than the fact that the core behavior of stuttering is known to be cyclic in both its occurrence and severity. However, most stutterers are uninformed about these matters and as such are easy prey to those who proclaim easy ways out of stuttering. Stutterers

should appreciate that the cliché “you get nothing for nothing,” also applies to the alleviation of stuttering.

Periods of fluency—with or without therapy—are viewed mistakenly by many stutterers as proof that they are normal speakers, a view that produces and maintains hope that their stuttering will disappear without personal involvement and effort. In place of this, their welfare is better served by viewing the inconsistency of their stuttering as proof only that they have the program for adequate speech, which, if strengthened through understanding and practicing what must be done, will emerge more consistently and alleviate what they inconsistently do wrong in the core behavior of stuttering. However, what some therapists as well as stutterers usually lack are valid and meaningful definitions of normal speech as well as stuttering, and thus what should be done is not understood. Recall the longitudinal study of preschool children mentioned earlier that showed those who exhibit intraphonemic disruptions—the core behavior of stuttering—can expect to continue doing so unless they do something specific to counteract them.

Once stuttering has been alleviated, its predictable re-occurrence should not confuse or demoralize stutterers. Rather, it should serve merely as a signal for them to renew their efforts to counteract stuttering by practicing coarticulation so as to strengthen specific aspects of the normal process of speech violated during stuttering. The point is that unrealistic hope and preoccupation about ridding one's self of stuttering without personal involvement and effort interferes with the application of information about stuttering and results in impasse or relapse. On the other hand, application of information in the form of related skills has its way of transforming hope into action and uses the fuel of emotion to strengthen desired behaviors that counteract stuttering.

Another factor related to impasse or relapse involves how stutterers respond to reactions of their listeners. Listeners can be expected to react to stuttering. This is so because (a) stuttering is uncommon and therefore unexpected behavior, and (b) listeners do not understand what is happening—they have nothing in their own behavior with which to compare it. Stutterers must realize that they themselves react to uncommon experiences they do not understand, including their own stuttering.

How stutterers evaluate listener reactions is an important issue to examine, particularly when impasse or relapse is in evidence. When asked directly how they react to stuttering, listeners give vague answers, the reason being that *they do not know how to react to it* and they therefore react differently as a function of time and conditions. As to be expected, how they react to stuttering causes internal bodily changes in listeners, and, as a natural consequence, listeners experience various emotions. Without information they are prone to react in reflexive and sometimes primitive manners.

Understanding and accepting the fact that they are responsible for the reactions of their listeners is an important insight to be gained by stutterers. Some stutterers acquire and respond to this particular insight quickly by realizing that if they do not want adverse reactions, their task becomes one of alleviating their stuttering. After reasserting their conviction that strengthening patterns of coarticulation is the logical thing to alleviate stuttering, they apply it diligently, and impasse or relapse gives way to progress. Other stutterers require more time to evaluate listener reactions and to appreciate the effect they can have on attempts to alleviate stuttering. In certain cases, stutterers fail to realize that they are projecting their own feelings and thoughts about stuttering onto their listeners. Pointing out that one really never knows what another is thinking serves a

purpose in such instances.

Impasse or relapse gives way to progress.

To think that we know what another is thinking amounts to little more than our own thoughts about what may be involved. When stutter-

ers hold valid information about stuttering and what to do about it, it eventually influences their thinking about and reactions to instances of stuttering. Stutterers become progressively *less* prone to react emotionally about it and as a result progressively *more* prone to realize that emotional reactions of listeners are based on listeners' lack of understanding about stuttering. Ultimately, stutterers appreciate the futility of allowing uninformed reactions of others to control their behaviors, particularly when stutterers know they have within themselves the capacity to do something logical about it. As insights of this nature are supplemented by reaffirmation of their understanding and conviction that strengthening patterns of coarticulation is the logical thing to do, stutterers concentrate on doing what they must do and this becomes progressively less affected by the reactions of others.

Since stutterers, like everyone else, "march to different drummers," they can be expected to and should be allowed to individually resolve the effects of listener reactions on their attempts to alleviate stuttering. One stutterer resolved the issue by realizing that listeners would continue to react as long as her stuttering persisted. On the other hand, she could expect listeners to react to the deliberateness of her speech as she voluntarily strengthened patterns of coarticulation by preparing for the second sound of syllables or words and making the first sound as a deliberate movement into and through what she was already prepared for. The difference, as she noted it, is that listeners react "better" when speech is controlled and that as patterns of coarticulation were strengthened and became more rapid, she observed fewer reactions, ultimately no reactions, on the part of listeners to how she spoke. Another stutterer stated that he

had resolved the issue by thinking, “They don’t know what I’m doing, but I do.” Still another said, “I owe it to myself to do it. Stuttering has balled up my life long enough, so I’m doing the first sensible thing I’ve ever heard about stuttering—no matter what anyone thinks.”

Other stutterers feel that working on their speech in everyday situations is impolite in the sense that they are somehow using the people to whom they speak. In effect, they are applying the “golden rule” to rationalize their inability to do what they know they should be doing. Their rationalization provides an easy way out, at least for the present time. They provide a personally acceptable explanation for maintaining the status quo. To do anything different would arouse internal bodily changes and the attendant emotions which are generally felt, mislabeled, and reacted to in negative terms.

Rationalizations of this nature are resolved as stutterers become aware of the futile conflict between their need for change and their prevailing lack of progress. When common sense prevails, stutterers realize it is better to shape their own behaviors on the basis of valid information than it is for their behavior to be shaped by others who have no understanding of what is going on. The foregoing does not imply that stutterers should be insensitive to the reactions of their listeners. The manner in which one stutterer worded it reflects how many stutterers resolve the issue of listener reactions:

It isn’t that you don’t care what they think—you really do. It takes awhile, but if you have something specific to do and for good reasons, you sort of forget to care or you don’t have time to care. Concentrating on what to do and doing a good job of it sort of blocks out what’s going on around you. It’s like you can think of only one thing at a time. As your skill becomes stronger and more natural, you’re more capable of both doing it and being aware of what’s going on around you. When you get to this point, people pay attention to what you’re saying, not to how you’re saying it. It’s sure different.

Impasse or relapse can be and often is the result of insufficient or faulty practice of coarticulation. If the extent or mode of practice is suspected, the preceding phases of therapy should be reviewed. In many cases, the confusion of stutterers is confounded because they cannot or do not separate basic stuttering from complicating behaviors that develop because basic stuttering is not alleviated. Understanding and being able to recognize instances of basic stuttering is an important first step. When this is achieved, one of the more common mistakes is that stutterers wait for instances of stuttering to occur before doing something about them. This perpetrates preoccupation about stuttering and generates nervousness, fear, and other undesirable “feelings.” In such cases, misinformed stutterers generally attempt to minimize their “emotional load.” It reminds one of motorists whose automobile engines spit and sputter when working against a load, such as going up a hill, who, rather than doing something about their engine, use their time and energy looking at contour maps and

choosing only level road to travel on to keep their cars from not responding smoothly to changes of load. In contrast to waiting for stuttering to occur before doing something about it, alleviation of stuttering is best served by practice and strengthening the important factor of coarticulation, which is violated in intraphonemic disruptions, the core behavior of stuttering. How this is practiced has been discussed in Phase Five.

Essentially, one should return to basic fundamentals. Alleviating one's stuttering is ultimately a matter of self discipline and control. This can be enhanced by developing a habit of doing essential things (other than work on stuttering) that one does not particularly like to do. The proposed therapeutic procedure requires that stutterers budget their time in a fairly rigid manner to do something specific about what they have probably been avoiding

A matter of self discipline and control.

for years. Concentrated practice during scheduled periods interspersed throughout each day is a reasonable and practical way to begin.

Three ten-minute periods amount to only 3% and three 30-minute periods amount to less than 10% of a wakeful 16 hour day. In terms of time and effort, such routines are not high prices to pay for the benefits to be gained. If a practical routine of practice is adhered to, the practiced skill is eventually generalized in a progressive fashion and extended to surrounding periods of time. As the skill becomes strengthened and reflexive, one finds it being used progressively more in everyday speech, without fatigue or interference with the give and take of interpersonal communication. It should be obvious that stutterers should appreciate that they will get something out of something only when they put in, that insufficient practice or lax habits of practice results in less acquired skill and less generalization of skill to their everyday speech. How much to practice involves the ability to recognize the occurrence of basic stuttering in one's speech. Whereas the presence of stuttering can be taken in a negative sense as indicating impasse or relapse, it is more profitable to view it in a positive sense as a signal for the need for additional practice of what one must do if it is to be eliminated.

Faulty practice, however extensive and routine, can be expected to bring inadequate results which could be construed as impasse or relapse. As one begins the proposed therapeutic procedure, identifying and preparing for the second sound of syllables or words is generally a tedious process. Although not absolutely necessary, a working knowledge of phonetics symbolizes the sounds of speech and helps to prevent errors of judgment. Breaking away from thinking of spoken words in terms of the letters of one writing alphabet is of major importance. Approximately 80% of what we say involves identification and preparation for the second sound of syllables and words. For the rest of what we say, the first and second sounds overlap to such an extent that one might as well consider

them as being one sound. In such instances, preparation for the third sound becomes necessary as the place to move into and through—to be coarticulated with the combined effect of the first and second sounds. Failure to recognize such complexities of normal speech can lead to faulty practice and failures that give rise to impasse or relapse.

Impasse or relapse can also result from the urge on the part of the client to prematurely decrease the deliberateness of speech. Strengthening a given behavior to the point it displaces a competing behavior takes time to accomplish, particularly when the undesirable behavior has prevailed over a long period of time. Generally, the urge to decrease the deliberateness of speech can be traced back to how stutterers interpret and respond to reactions or expected reactions of listeners to their deliberate mode of speech. It helps if stutterers recognize that the world of speakers is made up of those whose rate of speaking is somewhere between those who talk slow and others who talk fast and that few, if any, normal speakers attain their goal of being consistently fluent. In other words, normal speech is characterized by numerous pauses and nonfluencies as well as various rates.

Taking the time needed for structuring what one wants to say and pacing one's speech for the purpose of strengthening adequate movement patterns serves several purposes at the same time. Thinking of what is to be said and exercising voluntary control over how it is said preoccupies one's thoughts to the point that thinking about what someone else may be thinking becomes a secondary matter of concern. Doing so weakens the effect of listener reactions as well as the stutterer's habits of circumlocution, word substitution, use of starters, and other distracting behaviors that in effect make adequate speech impossible. Rather than postponement being related to avoidance, postponement can be used constructively in planning how to successively strengthen adequate patterns that will eventually generalize to everyday verbal activities.

Still another issue to be considered when evaluating impasse or relapse is linguistic proficiency, the ability to formulate what one wishes to express. As stuttering is alleviated, the individual generally becomes more verbal and takes part to a greater degree in the give and take or everyday conversations and discussions. At such a time, certain stutterers are prone to think that their stuttering increases, which in certain cases may be true. However, stutterers should scrutinize what is really happening. In many cases, nonfluency rather than dysfluency increases. Becoming frustrated about not being able to formulate a particular point of view generates nonfluency in any speaker, nonstutterer or stutterer. If, in fact, basic stuttering in the form of intraphonemic disruptions is in evidence, it signals the need for additional practice or coarticulation.

On the other hand, if excessive nonfluency prevails, other procedures may serve to reduce it. A direct and rather simple approach is to write a word on each of a stack of cards, words such as *shoes*, *politics*, *steel*, *baseball*, *geography*, and so forth. The client should shuffle the cards, lay them

upside down, pull the top card off and start talking about the topic. He or she should talk as long as possible without groping for words or stalling to determine how to structure the words into meaningful phrases and sentences. When pausing for these or other reasons, the client should penalize him- or herself by taking another card and repeating the procedure for a different topic.

Another factor that helps reduce nonfluency is to increase one's speaking vocabulary, not so much in terms of infrequently used polysyllabic words, but in terms of word forms that allow the client to express him- or herself concisely and unambiguously.

One way of viewing fluency is to recognize that it is based on richness and speed of word associations.

During and after involvement in therapy, stutterers face the decision of not talking, so as to not stutter, or talking and doing something about the fact that they stutter. When they decide to engage in verbal interaction, stutterers characteristically respond too quickly. They fail to realize that a delay of response is needed in order to evaluate questions or remarks of others and to formulate and prepare for appropriate responses. When they respond too quickly, stutterers display what general semanticists describe as *signal reaction*. Because of the cumulative negative effects of stuttering when one does not know what to do about it, stutterers tend to symbolize speech situations with terms such as *fear*, *dread*, *nervousness* or, perhaps, *tension* as noted earlier. In turn, such symbols become signals to react hastily and unconditionally to speech situations as if they were all the same, somewhat as people usually respond to the symbol *FIRE* as a signal for hasty and unconditional retreat. Symbols perceived as signals are responded to with undelayed stereotyped behaviors characterized by excessive tension that goes along with being over-ready to react.

Understanding what constitutes stuttering and having done something practical to counteract it eventually changes one's attitudes toward and perceptions about speech situations. Rather than reacting hastily and unconditionally, stutterers eventually react conditionally, that is, they react differently to differing symbols used in differing contexts or various situations. Doing so is called *symbol reaction*, which requires delayed and variable responses. It follows that a portion of the delay can be used to exercise what stutterers practice to counteract their stuttering. Waiting for stuttering to occur before doing something about it has its way of generating rather than reducing tension. In contrast, having practiced and strengthened patterns of coarticulation to the point that one can predict their generalization serves to eventually reduce excessive tension toward the optimal degree of tension necessary for adequate performance. It eventually allows stutterers to perceive and symbolize speech situations in positive terms as opportunities in which to increase acquaintanceships, exchange opinions, and do what they must in order to eventually alleviate their stuttering.

While attempting to adjust their attitudes, reactions, and responses, stutterers, to be realistic, must bear in mind how long they have spent developing and strengthening the maladaptive behaviors they wish to change. The point of the matter is that it takes both time and effort. "Having something going for one's self" in terms of knowledge and related know-how is a powerful companion during the sometimes difficult process of adjustment. However such adjustments are accomplished, it always comes as a part of the personal price one must pay to alleviate his or her stuttering.

Although other facts could be considered in discussing impasse or relapse, these are some effects of "other problems." Based on the premise that stuttering can be a strong force behind the generation of problems, and unless evidence indicates otherwise, the therapeutic process proposed in this book gives first priority to alleviating basic stuttering and second priority to problems commonly thought to interfere with the process. However, doing so conflicts with the notion of those who believe that stuttering is merely a symptom of psychological problems and that to resolve such problems will solve stuttering. If other problems caused stuttering, everyone would stutter, or at least stuttering would be far more prevalent than it is claimed to be. As it is, only about 1% of the population stutters, which forces one to question such an assumption.

In attempting to simplify therapy for stutterers, it has been found both practical and productive to initiate therapy as indicated in the phase of the therapy described earlier. During the course of alleviating their stuttering, many discover that progress is impeded by behaviors developed earlier, when they did not know what to do about their speech.

Behavior that retards progress often relates to putting things off, including practicing patterns of coarticulation. Procrastination may well be a generalized effect of postponement and avoidance of tendencies developed as a result of unpleasant and demoralizing past experiences in which stuttering and complicating behaviors characterized stutterers' speech. Unfortunately, procrastination generates personally-plausible excuses for not doing what one should be doing. Such rationalizations of stutterers often involve a holdover of a negative-going, give-up attitude generated by confusion, frustration, and demoralization that evolved from many past futile attempts to normalize their speech. In large measure, problem behaviors of the foregoing nature are managed best in group therapy in which members are prone to identify problems in themselves only after first recognizing the futility of similar problems in others. Recognizing the futility of procrastination and rationalization in one's own self often serves as an impetus to do what one has to do to alleviate his or her stuttering. As alleviation progresses, problems and complicating behaviors associated with being a stutterer dissipate and are generally resolved.

Progress in the alleviation of stuttering is sometimes impeded by the effects of seemingly unrelated problems of a personal, educational, or vocational

nature. Differentiating various problems allows internal bodily changes and attendant emotions to be associated with particular problems and can be used for their ultimate solution. The point is not that such problems cause stuttering, rather, that the cumulative effect of emotion that accompanies several unresolved problems becomes excessive and serves to depress performance of any kind, including one's attempts to alleviate stuttering.

Not all stutterers are equally affected by "other problems." Those who can alleviate their stuttering without confounding the issue should be allowed to do so. For those whose progress is impeded by the effects of other problems, it is often sufficient to disentangle their problems by discussing them and sensing the possibility of solutions. When group therapy is available, open discussions generally serve to make problems less unique than individuals assume them to be. Normalizing emotion to the point that it can be used to one's advantage is important in cases of impasse or relapse.

For stutterers whose progress is impeded by other problems, it is important that therapists be able to recognize when referral for solution of problems is indicated. In such cases, the primary obligation of therapists is to aid involved stutterers in recognizing the need for and seeking professional counsel in resolving other problems, using the fact that they sought help for stuttering as an example. In such instances, therapists should have close liaison with other professional workers so that each understands the ultimate goal of the other. Without such understanding, one can work against the other. By whatever process, emotion associated with other problems is normalized, the results are important, not in terms of alleviating the core behavior of stuttering, but in removing emotional barricades to using knowledge to formulate and build skills related to alleviating the core behavior of stuttering.

Phase Eight

Although the present phase of therapy deals with it, use of the phrase "termination of therapy" is ill advised. Doing so can create within therapists and stutterers the impression that stuttering, once alleviated, will not or should not occur. Such an impression is not supported by fact. Rather than thinking of "termination of therapy," all concerned are benefited if a stutterer (a) realizes that future instances of stuttering will occur, and (b) prepares to serve as his or her own therapist. Preparation for the inevitable should be established during the course of therapy. In effect, it takes place as stutterers understand and put into practice the subject matter of the preceding phases of therapy. As therapy progresses, those helping stutterers should not react to instances of stuttering with quick advice as to what the stutterer should be doing. Rather, therapists should allow stutterers time to think and apply what they understand to be appropriate responses to their intraphonemic disruptions. Doing so serves to develop

self-reliance and self-confidence. Only then do many stutterers appreciate that such attributes are not for the asking, but that they are developed as by-products of doing something logically related and effective, which in turn involves self control and discipline.

The procedure by which alleviation is obtained should be kept clearly in mind. Stutterers should occasionally practice the fundamentals of coarticulation in a willful and forthright manner when stuttering is not in evidence. Doing so serves to maintain alleviation of stuttering. When stuttering occurs, they should not be dismayed, but rather they should accept the presence of stuttering as a signal to practice coarticulation so as to strengthen the fundamental element of normal speech production. In the absence of stuttering and for the purpose of maintaining its reduction, use

Practice the fundamentals of coarticulation.

the procedure in any of the following instances: on the first word of phrases, on the first word of sentences, or on the first word spoken

in speech situations. Doing so further strengthens the neuromuscular patterns of normal speech and keeps alive the product of one's efforts to alleviate the core behavior of stuttering and the complicating behaviors that it serves to generate. *The procedure is simple—do not complicate it.*

Group Therapy

Management of stuttering can be accomplished either in individual or group sessions. All things being equal, group work supplemented by individual sessions is thought to be the most efficient and effective approach. Because those interested in helping stutterers generally have other responsibilities, conservation of time is important. Time is conserved for all concerned when basic information about speech in general and stuttering in particular is presented in group sessions. The time saved can then serve other functions, for example, individual sessions, counseling of parents, discussing questions of student therapists, and other related activities.

Adult stutterers generally have been subjected to previous therapy. The fact that many seek additional help suggests that they lack sufficient basic information about stuttering and what specifically must be done about it. In contrast to the dynamic of individual sessions, group work provides definite advantages as stutterers begin to apply information to their personal speech performances. Whereas some apply information before being requested to do so, and most apply it only when directed to do so, the remainder, for unknown reasons, are reluctant to attempt it. At this initial stage, group dynamics play an important role. Many group members seem to feel that their status within the group is elevated by minimizing their stuttering at any cost and in any manner. In effect, they attempt to

be the most “fluent” members of the group. Other members eventually see through the fallaciousness of such behavior and state their opinions. This leads to confrontation of opinions and generates worthwhile discussions. Recognizing and promoting the inherent value of such group interactions are important tasks of therapists.

The value of group interactions is that they lead to the use of a form of sociometrics with groups at various stages of therapy and for various purposes. The objective of the sociometric procedure is to provide a means whereby members of a group can appraise their own self-concepts. It permits each member to become aware of the consensus of the group with respect to his or her own self - characteristic attitudes and behaviors. Contributory opinions cannot be identified with individual group members, yet they are known to originate with peers who share a common background of stuttering. Use of such a procedure promotes change in group structure; group dynamics are altered. For example, group members who previously believed that group status depended on a minimum of stuttering or lack of urgency to work on their stuttering, eventually use the group situation as an experimental station in which to test their change of attitudes as well as to practice skills related to the management of their stuttering.

Unless factors dictate otherwise, therapy from the onset should be structured to be a microcosm of everyday life. Individual therapy does not serve such a purpose, nor does group therapy do so when unrealistic conditions are built into it, such as limiting group members only to stutterers, limiting the size of the group, not allowing people to join the group after several sessions have taken place and other similar restrictions. Doing so has its way of reducing generalization of gains in therapy to everyday life situations. If properly managed, group therapy has its way of generating within stutterers the idea that their problems are not unique, including the fact that they stutter. Providing a situation in which stutterers can recognize the usefulness—equally well the uselessness - of attitudes and behaviors of other group members leads toward stutterers identifying similar attitudes and behaviors in themselves. Realizing that certain attitudes and behavior patterns bring success to those who possess them, whereas contrasting attitudes and behavior patterns result in little or no progress in other group members, is an important factor not realized in individual therapy.

Therapy for Children

For children displaying disturbed fluency of speech, the primary task is to determine if they are nonfluent or dysfluent. Since more children are nonfluent than dysfluent, nonfluency will be discussed briefly.

If not excessive, nonfluency is a characteristic of normal speech. In comparison to dysfluency, which is an involvement of motor speech, nonfluency involves language proficiency and therefore is treated differently. Those who desire to help nonfluent children are probably limited to helping them increase their language proficiency. Increasing a child's experience in associating words with objects, acts, and relationships should enlarge their working vocabulary and eventually contribute to fluency. Since innumerable volumes have been devoted to language development, the present discussion will concentrate on what can be done for children who display dysfluency, a unique characteristic of speech in certain children that leads to dire consequences if not alleviated.

If being dysfluent can be equated to having difficulty, then doing nothing when a child is dysfluent seems inexcusable. It would seem sadistic for an adult to watch and do nothing as a child becomes demoralized by futile attempts to do something—perhaps tie his own shoelaces—with the idea that he will outgrow the difficulty or that the difficulty will somehow go away, especially if the parents do not react negatively. Fortunately the latter response is rarely if ever seen in regard to difficulty tying shoe laces, the reason probably being that tying shoe laces is a concrete act generally understood by adults. As such, superstitions and unwarranted responses are not generated as they are when lack of objective information reigns with regard to stuttering.

Therapy for children who stutter has been found to be effective if based on the principles discussed in the foregoing phases of therapy, the only difference being in how they are applied. Viewing stuttering and its alleviation in simple objective terms allows therapists and parents to reduce their fears of “doing something wrong” as they undertake helping a child who stutters. Objectifying the problem reduces the intimidations generated by authorities who speak and write of stuttering and its treatment only in vague high level abstractions punctuated with “Do not...”

It is of the utmost importance that the core behavior of stuttering be alleviated in children so as to avoid demoralizing complicating behaviors that give rise to the more complex “problem of stuttering.” This is accomplished by strengthening the dynamic movement patterns of normal speech, movement patterns that all children who stutter possess more or less in their everyday running speech. However it is accomplished, alleviating stuttering in children should be judicious.

Therapists must begin by accepting and understanding the characteristics of the child's speech performance as it exists. Doing so allows one to differentiate dysfluencies from nonfluencies and to determine the presence

and extent of complicating behaviors. Therapists must also take whatever time is needed to increase their ability to detect the child's dysfluencies (intrapophonemic disruptions) so as to systemize the phonemic configurations (sound sequences) in which they occur most frequently. Alleviating frequently occurring dysfluencies of a child serves obvious purposes. As an example, the personal pronoun "I" is one of the most frequently used words in speech, including that of stutterers. Generally speaking, "I" is a common locus of dysfluency. If such is the case, it should be worked on occasionally with the child, this in contrast to focusing the child's attention on every instance in which saying "I" involves dysfluency.

In the case of young children, what is expected of them is more easily demonstrated than discussed. Using as an example dysfluency on "I"/aI/, pick an occasion in which it has just occurred and which coincides with a mood of patience on the part of the therapist or parent. Place two small objects on a table, objects such as checkers, pennies or soda bottle tops. Associate the sound of /I/ or /i/ with the object to the right and the sound of /a/ (as in *father*) with the object to the left. The therapist or parent should then prolong /a/ as they move the left-hand object slowly and smoothly toward the right-hand object. At the midpoint of the movement, start blending /a/ into /I/ and continue the movement to the right-hand position. Next have the child duplicate the procedure by producing /I/ as he touches the right-hand object and /a/ as he touches the left-hand object. Next have the child sustain /a/ as he moves the left-hand object slowly and smoothly toward the right-hand object. The objective is to have the child start blending /a/ into /I/ at the midpoint of the movement as the left-hand object approaches the right-hand one.

If dysfluency occurs on a word such as *cookie* /kukI/, use the same procedure. Use different models—for example, push a toy car from the left side of the table to the right side, or an elongated beam constructed from Tinker Toys[®]. Associate /u/ or /ukI/ (as one sees fit) with the right-hand position and /k/ with the left-hand position. Prepare physically for the sound /u/. Sustain /k/ as you move the car from the left-hand position toward the right-hand position, blending /k/ into /u/ at the midpoint of movement toward the right-hand position.

In all instances in which objects are used, have the child blend or coarticulate the involved sound as *he* or *she* moves the objects. The objective is to associate movement with the production of speech sounds, movements into and through the appropriate following sounds. Do not have the child produce speech sounds as the therapists or parent moves the objects. This defeats the purpose of attempting to establish an association *within* the child of speech as a dynamic or changing event within his or her neuro-motor system. Variability reduces the possibility of the child establishing undesirable associations between speech sound production and particular objects or extraneous body movements.

The foregoing procedures demonstrate initiation of voluntary coarticulation of speech sound for the purpose of strengthening the process within the given child's speech program. As soon as the idea of coarticulation is in evidence, have the child use it extensively in other words. However, check closely for evidence that the child is preparing for the correct sound before initiating the first sound as a strong deliberate movement into the second and following sounds. When not in evidence, go back to the beginning procedure, using the labeled objects.

It is advisable to educate people in the child's immediate environment to the point where they understand the simplicity of the process. Their understanding, expectations, and help are important parts of the needed nourishment. Keep the process simple, for only by doing so will the child eventually comprehend and develop the process meaningfully.

Therapists and parents are generally amazed at the ability of even very young children to figure out the sound sequences of spoken words. Their ability to do so may relate to the fact that as yet they do not know the written alphabet and as such are not confused regarding symbols for reading and writing versus those for the sounds of speech. Those who initially lack the capacity to distinguish sound sequences must receive assistance to reach that point.

Needless to say, children who stutter need time and the patience of those around them in order to assimilate the procedure of coarticulation into their speech behavior. Unless called for, this does not imply drastic alterations of the activities in the homes of children. Usually only subtle changes are needed. The children involved should have the opportunity *at least at certain times* to express themselves without undue competition or impatience on the part of those around them. For example, a rule could be established that says that the only person who can speak during mealtimes is the person in possession of the salt shaker, including the parents, and only for reasonable lengths of time. During such periods, knowledgeable parents and siblings can practice the same procedure of voluntary coarticulation in their speech. Doing so would make the involved child feel less unique and more inclined to do it.

Those helping children who stutter should be reminded that the procedure should not be limited to working on instances of stuttering. *It should be practiced primarily in the absence of stuttering.* When the basic procedure is established, children should use it to initiate phrases, sentences, and speech situations. Instances of actual stuttering merely signal the need for returning to practicing and strengthening the basic process of coarticulation.

The foregoing are but a few examples of what therapists and interested parents can do for children who stutter. The procedure is simple and positive in nature in contrast to those who list things that parents should not be doing, with the implication that things they have been or are doing cause their child to stutter. Displacing vagueness with basic facts about stuttering allows parents to use the same brand of common sense that most

would use in making provisional changes and allowances if their child was visually or auditorily deficient. Becoming informed leads to adjustment so that *informed action* can displace *uninformed reaction*.

Therapy for Adolescents

Therapy for stutterers who range in age from about ten to fifteen years should be based on the same principles as those for adult stutterers. To generalize, it might be said that therapy for adolescents is most difficult. Although involved to some degree at any age, it is during this age range surrounding puberty that children seem most prone to peer influence and pressure. Many feel that they must excel or at least match the characteristics of their peers in order to be accepted. However, even when their importance is understood, practicing and applying the procedures necessary for alleviating stuttering are not readily undertaken by many adolescents. Yet peer influence and pressure, used in a constructive manner, can work to the advantage of therapy. When conditions have allowed it, such attempts have led to unusually good results.

One means of using this approach is to obtain permission of the child's teacher—it could also be the child's Boy or Girl Scout leader or the child's religious group coordinator—to have a knowledgeable person discuss the topic of "speaking" as a special project for the group. The discussion should center around the importance of coarticulation in normal speech. People of any age are fascinated by objective information about speech. Use visual aids such as the sound spectrograms presented in earlier chapters. Use words cited in earlier chapters as examples so member of the group can personally experience the importance of coarticulation in normal speech. Have member of the group think of and share examples that show articulation.

When the child who stutters gives examples he will eventually stutter and such instances can be objectively discussed in terms of failure of coarticulation. In almost all cases both the adolescent who stutters and

Peer pressure serves to encourage the child to work on his speech.

his peers are fully aware that the problem exists. Because of this, a tactful discussion can be generated as to what constitutes stuttering and what can be done about

it. As it turns out, peers who without information tend to ridicule or bully the stutterer often ease off from such reactions. Other peers react to such information by lending support in the child's attempts to work on his stuttering. As a result, peer pressure, rather than acting as a deterrent, serves to encourage the child to work on his speech.

Certain authorities disapprove of the foregoing procedure, asserting it is “fraught with danger,” or “potentially harmful.” For the most part, the same critics expect adolescent stutterers to accept and exhibit their stuttering as an important part of therapy. Thus, on one hand the critics would shy away from informing the child’s peers and authority figures about speech in general and stuttering in particular, while at the same time expecting the stutterer to expose his difference in speech to uninformed peers at a stage in life when approval and respect of peers is a paramount factor to be dealt with. One must consider other factors as well—for example, the adverse side effects that being excused from class two or three times a week for therapy can have, particularly on sensitive adolescent stutterers. Until informed, certain peers actually resent the classmate who can leave class as they would probably enjoy doing so themselves. Others misinterpret or fabricate stories about what is wrong with the peer who can leave class for help. Also involved is the lack of carry-over of progress exhibited in therapy when the stutterer returns to the classroom. It seems paradoxical to think that informed peers could hinder more than help what appears in some cases to be the deterring effects of peer influence and pressure on the willingness of adolescent stutterers to work on their speech.

As a general rule, adolescents require more individual work than do either younger children or adults. Once the procedures are understood, the fact that the stutterer is still reluctant to apply them provides a viable topic in individual sessions. Sensitivity to the reactions of listeners is also an important subject to discuss as is the usual misconceptions about emotion labeled as nervousness. Also beneficial for those reluctant to work on their speech is a discussion of their use of mental mechanisms such as rationalization, projection, compensation, etc. as potentially self-defeating behavior when dealing with stuttering, as well as life in general. Whatever the age of the stutterer, lack of immediate alleviation of stuttering should not be viewed as failure by those concerned with it. Knowing what and how to do something about stuttering and actually doing it involves personal confrontation and individual differences that must be dealt with.

Evaluation of Therapy

Alleviation of stuttering rather than cure of recovery must be emphasized. Based on our experience as well as many others, stuttering as defined in this book is not cured, nor do stutterers recover, if by such words one implies the end-product of therapy to be permanent eradication of stuttering. On the other hand, cure or recovery is reasonable. We believe that claims of cure or recovery

Cure or recovery is reasonable.

ery in the literature and elsewhere pertain more to those whose speech embodied excessive nonfluency and who were mislabeled as stutterers.

The results of therapy should include two criteria: (1) the degree to which stuttering and reactions to stuttering are alleviated during the length of therapy, and (2) the ability of stutterers to handle post-therapy relapses. Data dealing with the alleviation of stuttering should be gathered as a function of weekly therapy sessions. As an example, the results shown graphically in Figure 3.1 represent mean percentages of repetitions, prolongations, tonic blocks, and fluent words as a function of 12 weeks of therapy for 30 stutterers made up of four groups seen two hours per week.

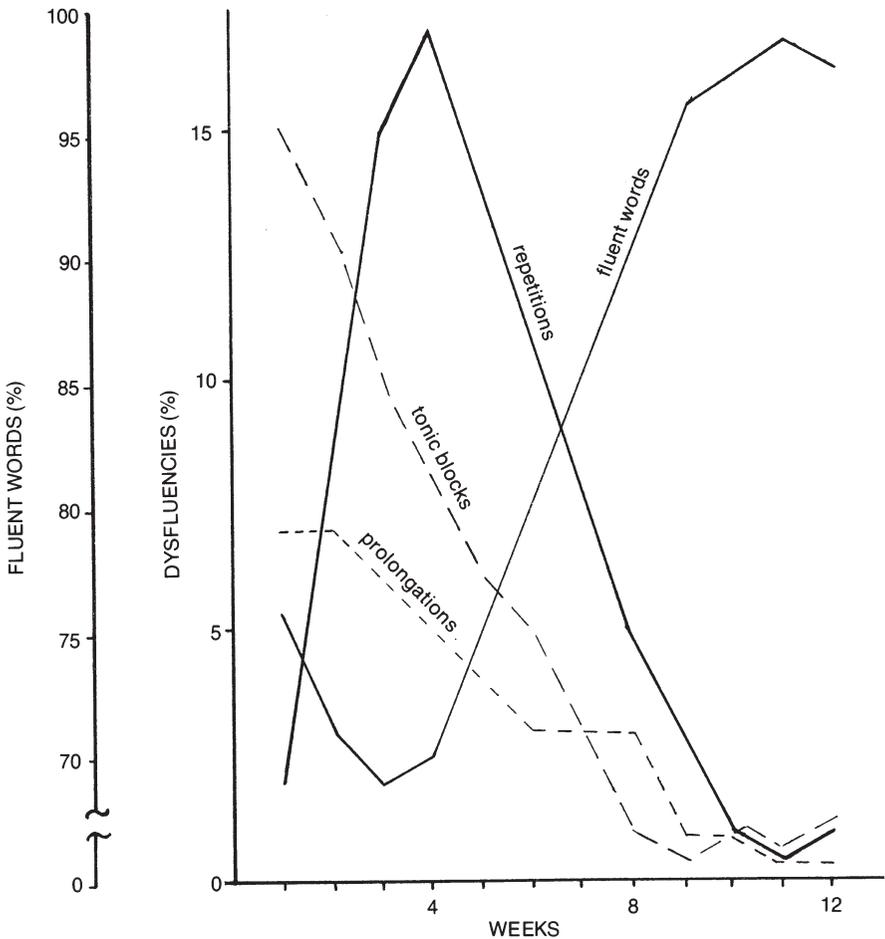


FIGURE 3.1

At the beginning of the first therapy session of each of the twelve weeks, each stutterer was tape recorded with his or her knowledge as each read aloud and then paraphrased a passage from a how-to-do-it book in the presence of their group. During the task the therapist and assistant clinicians trained in discriminating types of dysfluencies and reactions tabulated the number and type of dysfluencies and reactions observed during the first 100 words read and the first 100 words paraphrased. The tape recorded samples were used to resolve judgment discrepancies. Much the same procedure can be used for stutterers in individual therapy sessions by having each read and paraphrase material to a small group of clinical assistants.

Several interesting relationships are to be noted from such results. Using the example illustrated in Figure 3.1 whereas at the beginning of therapy the mean number of fluent words for the 30 stutterers amounted to 76%, the mean number of combined core repetitions and reactions amounted to 24% (15% tonic blocks, 7% prolongations, and 2% core behavior repetitions). As therapy progressed into the third and fourth weeks of learning how to strengthen coarticulation, the mean percentage of core repetitions increased dramatically while the mean percentage of tonic blocks and prolongations showed reductions. During the same period, the percentage of fluent words was reduced to its lowest point during therapy.

This combination of increased core stuttering and decreased number of fluent words becomes extremely disturbing to many stutterers unless

Stutterers work through this important period of therapy.

they are prepared for its eventuality. Such a combination of events works against what stutterers expect from therapy. As illustrated

in Figure 3.1, with adequate preparation and continued supervised practice, stutterers work through this important period of therapy and show a progressive reduction of dysfluencies and related reactions, and a progressive increase in normalization of their speech.

The ability of stutterers to independently work through post-therapy relapses is important. Our results reinforce the conclusion expressed by Charles Van Riper—that relapses and remissions are the rule, not the exception for the adult stutterer if long-term follow-up investigations are conducted. One method of evaluating the ability of stutterers to handle post-therapy relapses is to send questionnaires to stutterers 15 months and 30 months after their completion of therapy. An example of a simple yet effective questionnaire would have the following questions:

1. Has relapse occurred since you completed therapy?
2. If yes, was it slight, moderate or severe?
3. If relapse occurred, what did you do about it?
4. If relapse occurred, were you successful in handling it?

5. Did relapse occur during your period of therapy?
6. If yes, how did you handle it at that time?
7. Do you maintain a schedule for strengthening coarticulation?
8. What personal, educational, and vocational changes have taken place since your completion of therapy?

BETTER HEARING IS THE KEY

OSU Research Theory May Bring A Cure to Thousands of Stutterers

By BILL FULWIDER

At a cubbyhole workbench in Ohio State University's Derby Hall, surrounded by a conglomeration of homemade equipment, Dr. Courtney P. Stromsta searches for the cause of stuttering.

A stutterer himself, but no longer seriously handicapped by it, Dr. Stromsta thinks hearing defects may be partly to blame.

To test his theories, he has assembled \$20,000 worth of electronic equipment designed by himself and William Dawson, an OSU speech technician.

"MOST INTERESTED persons now believe," Dr. Stromsta said, "that psychological effects cause stuttering. But

many such cases don't seem to fit into the picture."

Of the experts he has talked with or read, not one has ever seen a cured stutterer, he said.

"If it were psychological, it could be cured," he said.

STUTTERING is a big problem. One out of about every 100 persons in the United States is affected in some degree, he said.

It has its psychological disadvantages, but "the majority

afflicted suffer because they can't express themselves," Dr. Stromsta declared.

Taunts and jokes of others can be more of an advantage than a disadvantage because they impel a stutterer to overcome his handicap.

"Underneath, I'm sure it motivated me," he said.

MOST PERSONS are afflicted between the ages of 3 and 6, Dr. Stromsta began stuttering when he began to talk. Despite it he has earned his master's and doctor's degree at OSU.

"If you had come to interview me six years ago," he said, however, "I would have had to just walk away."



AID TO STUTTERERS—Probing a problem he knows from experience, Dr. Courtney P. Stromsta seeks to find the cause of stuttering in a Derby Hall

workroom at Ohio State University. He and an aide built the research equipment he is using.—(Dispatch Staff Photo)

CHAPTER IV

A brief outline of therapy for stutterers

Phase One

Developing an awareness of the limitations of knowledge about speech.

Phase Two

Defining the elements of normal speech:

- A physical act based on coarticulation
- A continual movement based on anticipation and preparation for sounds that follow.

Phase Three

Developing a practical definition of stuttering

Disregarding complicating behaviors and waiting for basic stuttering to occur

Discovering how many sounds in I /ai/

Noting differences between core stuttering and complicating behaviors

Using complicating behaviors to minimize core behaviors

Analyzing core behaviors (intrapophonemic disruptions), for example (where C = consonant and V = vowel):

- 60% CVC, CV, CVCC
- 25% VC, VCC
- 10% VV
- 5% CCVC, CCV, CCVCC

Differentiating between dysfluencies and nonfluencies.

Phase Four

Establishing the percentage of speech in which the stutterer actually stutters

- Dividing the number of syllables in which intraphonemic disruption occur by the total number of syllables spoken
- Noting that most stutterers do so only in 5% to 25% of their speech
- Noting that 75% to 95% of the speech patterns of stutterers are normal. (Analysis of intraphonemic disruption analyzed in Phase Three shows they occur with certain sound combinations more often than others and that they occur inconsistently).

Phase Five

Discovering that core stuttering behavior is inconsistent - when correct speech is present, intraphonemic disruptions do not occur

Strengthening the desired behavior until it competes with and displaces undesirable behavior

Practicing when not stuttering

Anticipating and actually preparing for the second sound, making the first sound as a strong voluntary movement into and through the following sounds

Saying the second sound aloud to verify its correctness

Producing the verified sound again and maintaining posture

Using newly acquired skills in therapy and when alone, *practice that is very important and must not be cut short!* The object is not slow speech but rather the smooth transitions of normal speech

Using newly acquired skills on every second word, then every third word, etc.

Phase Six

Preparing stutterers for the effect of emotions on their attitudes and ultimately their motivation in doing what it takes to alleviate their stuttering in the rigors of real life

Recognizing the dissatisfaction and demoralization that predictably result from the inadequate handling of disturbing circumstances due to lack of correct information and lack of related skills

Recognizing that negative feelings and values are associated with accompanying internal body changes

Recognizing that a good understanding of emotions and handling them properly leads to positive developments.

Phase Seven

Learning to deal with impasse (lack of progress) or relapse

Recognizing that periods of fluency indicate that one has the program for normal speech

Working to extend periods of fluency

Recognizing that periods of fluency may serve as the basis for the unrealistic hope that completely normal speech will be attained

Learning how stutterers respond to reactions of listeners

Noting insufficient or faulty practice of coarticulation

Returning to fundamentals—self-discipline and control

Attaining linguistic proficiency

Recognizing that stutterers too quickly decrease the deliberateness of their speech

Identifying signal reaction—speaking or responding too quickly

Identifying, separating and evaluating other problems.

Phase Eight

Terminating therapy

Recognizing that stuttering will reoccur

Preparing to serve as one's own therapist.

THE PROCEDURE IS SIMPLE—DO NOT COMPLICATE IT!



"The early years"

APPENDIX **A**

Phonetic Alphabet

Phonetic Symbol	Written Form	Spoken Form
Vowels		
1. [i]	beet	[bit]
2. [ɪ]	bit	[bɪt]
3. [e]	bait	[bet]
4. [ɛ]	bet	[bɛt]
5. [æ]	bat	[bæt]
6. [ɑ]	far	[fɑr]
7. [ɔ]	bought	[bɔt]
8. [o]	boat	[bot]
9. [ʊ]	put	[pʊt]
10. [u]	boot	[but]
11. [ɜ]	bird	[bɜ:d]
12. [ɝ]	burglar	[bɜ:glɝ:]
13. [ʌ]	but	[bʌt]
14. [ə]	above	[əbʌv]
Diphthongs		
15. [aɪ]	eye, I	[aɪ]
16. [aʊ]	how	[haʊ]
17. [ɔɪ]	boy	[bɔɪ]
18. [ɪʊ]	few	[fɪʊ]
Consonants		
19. [p]	pet	[pɛt]
20. [b]	bet	[bɛt]
21. [t]	tame	[tem]

22. [d]	dame	[dem]
23. [k]	came	[kem]
24. [g]	game	[gem]
25. [s]	sue	[su]
26. [z]	zoo	[zu]
27. [ʃ]	she	[ʃʒ]
28. [ʒ]	measure	[mɛʒə]
29. [f]	fan	[fæn]
30. [v]	van	[væn]
31. [θ]	thin	[θin]
32. [ð]	that	[ðæt]
33. [tʃ]	choke	(tʃok)
34. [dʒ]	joke	[dʒok]
35. [m]	meet	[mɜ]
36. [n]	neat	[nɜ]
37. [ŋ]	ring	[rɪŋ]
38. [r]	rate	[ret]
39. [l]	late	[let]
40. [j]	you	[ju]
41. [w]	we	[wɜ]
42. [h]	hello	[hɛlo]

APPENDIX **B**

Common intraphonemic disruptions and complicating behaviors in stuttering

- I. Dysfluencies involving syllables in which vowels are initiated by consonants:—CVC, CV, CVCC
 - A. Intraphonemic disruptions (stuttering); a disruption that occurs within the vowel, the second sound of the syllable
 1. the correct vowel is initiated and abruptly terminated because following sounds are not coarticulated, or
 2. an incorrect vowel is initiated and abruptly terminated due to the correct vowel not being coarticulated; the result is a wrong transition between the initial consonant and the following vowel which generally gives rise to an abbreviated schwa or neutral vowel
 - B. Complicating behaviors (reactions to stuttering)
 1. When syllables are initiated by voiceless consonants—the initial consonant is prolonged without transition to the following vowel due to a failure to initiate phonation.
 2. When syllables are initiated by voiced consonants
 - a) the initial consonant is prolonged correctly as a voiced consonant without transition to the following vowel, as if the problem is symbolized on the initial sound
 - b) the initial consonant is prolonged or repeated incorrectly as an unvoiced consonant due to failure to initiate phonation.

- II. Dysfluencies involving syllables in which vowels are terminated by consonants (VC, VCC) or a following vowel (VV).
- A. Intraphonemic disruptions (stuttering), when the disruption occurs within the initial vowel, the initial vowel is initiated and abruptly terminated due to the following sound or sounds not being coarticulated
 - B. Complicating behaviors (reactions to stuttering)
 - 1. the initial vowel is prolonged without evidence of transition to the following sounds, as if the problem is symbolized on the first sound, or
 - 2. attempts to initiate the initial vowel are characterized by failure to initiate phonation.
- III. Dysfluencies involving syllables in which vowels are initiated by blends or clusters of two consonants (CCVC, CCV, CCVCC).
- A. Intraphonemic disruptions (stuttering), in which the disruption occurs within the incorrect second sound. A vowel is interjected in place of the correct second consonant due to a lack of correct coarticulation: for example, on the word *blue* [blu], the second sound [l] is not coarticulated with the initial sound [b]; since [b] is a sound that cannot be produced in isolation, it is generally combined with the schwa or neutral vowel [ə]; the result is that [b] is repeated with abrupt terminations occurring within the [ə].
 - B. Complicating behavior (reaction to stuttering).
 - 1. Using the word *blue* as an example, prolongation of the [ə] in the syllable [b], or
 - 2. Repetitions of unvoiced (whispered) [pə] due to failure in initiating phonation.





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