

STUTTER NO MORE

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A NOTE TO THE READER

Two thousand and five marks the thirty-seventh anniversary of my association with New York University Medical Center. During most of these years I have led two lives. The first has been my association with the Department of Surgery and basic research on birth defects, particularly the problems of cleft lip and palate. My second, which emerged from the first, started thirty-one years ago when I accidentally discovered the physical cause of stuttering and developed a treatment for it.

The birth of my second life was not without incident. When I entered it, research colleagues were there waiting, contending that stuttering was not my area, that I should stay with basic research, and that direct, clinical work with stutterers represented a form of prostitution that would destroy my career.

Clinicians, on the other hand, contended that I was an interloper, that I should remain in my "ivory tower" and stay off their "turf." They even went so far as to threaten legal action!

I listened to both groups for quite a while before making the decision to forge ahead. In retrospect, I was correct, and the ensuing years have borne witness to a revolution in both our understanding and treatment of stuttering - all stimulated by my initial discovery of its physical cause.

As I have continued to work with stutterers I have been struck by their similarities. There is no difference treating a person from France, Nigeria, Japan or the US. The stories and emotions are the same.

What follows is a compilation of experiences gleaned from many patients; it represents the voice of the archetypical stutterer speaking about his life; it is why I feel so deeply about the problem and why I continue to work personally with stutterers whenever I can.

"Imagine that from the time you were a child you stuttered with everyone. Not that you wanted to stutter, mind you, you just couldn't help yourself. As a result you often went to great lengths to avoid stuttering and, in so doing, found that people misunderstood you. They considered you aloof, withdrawn, a loner, the silent type.

But you ached to be with people, you had much to say, and the thought of the interaction was marvelous. And so each night before you went to sleep you prayed that this dreadful affliction would be gone. But it was not to be.

As a child you were sent to specialists who tried to show you how to stop stuttering or how to stutter in less offensive ways. Sometimes you stopped with them, but as soon as you left their office it returned, and their suggestions, which earlier had worked so well, now failed miserably.

The stuttering demeaned you, it humiliated you, it destroyed your self-esteem. And often, when it was at its worst, as if to add insult to injury, people laughed at you, called you stupid, and never took you seriously at all.

In school if you had a question you wouldn't ask it. If you had to respond and couldn't give the correct answer you'd give an incorrect one. In the cafeteria, you ordered what you could say rather than what you wanted. Anything to avoid the humiliation.

You studied a lot, and since you were intelligent, received excellent grades, as long as the grades were based on written exams. You lived in constant dread of required oral reports and begged your parents to ask your teachers to excuse you from them. Some teachers were sensitive, and made class participation easier. Others insisted that the way to overcome the problem was to force you to participate - and the memory of this nightmare persisted for years and made your fighting worse, not only in class, but everywhere.

You wanted to go to college, but dreaded the prospect of an interview. As a matter of fact, any sort of interview was a nightmare. Because of this, jobs were difficult and you were lucky to find an employer who would overlook your problem.

Dating was another torture; the very prospect filled you with terror. The first hint of a stutter seemed instantly to destroy the evening. Occasionally you met someone kind, a person who did not appear to be bothered by your problem, someone who looked beyond the superficiality of it to the person beneath. These were wonderful times.

And as you grew older you grew smarter, you learned tricks to avoid stuttering and chose an occupation you could perform without penalty - like accounting or engineering or computer programming or truck driving - activities that could be performed alone.

Your parents gave up. They no longer mentioned your affliction. It was as if it didn't exist. And your friends and acquaintances did the same. A massive conspiracy of denial gradually descended to protect you and them from a behavior too painful for anyone to acknowledge.

You tried alcohol and illegal drugs because you heard these sometimes worked. But not for you; they only made it worse, and you stopped. You tried tranquilizers, anti-

convulsants, beta-blockers - anything that modern medicine might suggest had the slightest possibility of helping. But again nothing.

You joined a self-help group of others with your problem, but it was like looking into a mirror. You especially couldn't stand confronting those worse than yourself; it suggested what might happen if your stuttering got worse.

To say that the stuttering affected your life would be the profoundest of understatements. It permeated your life and controlled it in so insidious a fashion as to often cause you to reflect whether any life like this should continue.

And so you gave up. You quit looking for an answer. You joined the conspiracy of denial and made the best of it."

Fortunately, this tale of woe is becoming a thing of the past. Not only do we have a technique that works, but one that works quickly, often in a matter of minutes, and stops stuttering completely. We have perfected the procedures for making a habit of this technique, and have made remarkable strides in eliminating the fears associated with stuttering.

Of equal importance is our hope for the future. The promise is bright. New research is shedding light on the inner workings of the brain: the neural center responsible for stuttering has been located. It seems more likely than ever that the 21st Century will witness a cure.

But until then, we can stop stuttering with a simply-learned technique and can, with a short period of time devoted to practice, make a permanent, new habit.

It is clear that no one need stutter any longer!

CHAPTER 1

THE DISCOVERY OF THE PHYSICAL CAUSE

It was an accident. My discovery of the physical cause of stuttering was one of those things I never expected to happen but that nonetheless succeeded in changing the direction of my professional life. It was 1974, and I was a Professor of Speech Science, helping design an operation to improve the speech of patients born with cleft palate. I was using a machine called a Sonagraph. The Sonagraph is an ultrasound device used by obstetricians and applied to the abdomen to look at the fetus.

The portion of the Sonagraph touching the abdomen is called the transducer, only in my instance I was applying the transducer to the side of the neck to study throat-movement patterns in cleft-palate patients slated for surgery. A consideration of these patterns was necessary to establish the donor site - the place in the throat from which a piece of tissue would be taken to close a hole in the roof of the mouth.

One of the patients stuttered, and with the Sonagraph it became clear that the throat constricted forcefully before every stutter. First would come the constriction, then the stutter. It was very regular, and I couldn't help but pause and consider this curious event.

Failing to find a ready explanation, I called a Speech Pathologist to ask if he knew anything of the relationship between throat constrictions and stuttering I had observed. He knew of none, he said, since Speech Pathologists had never been able to look at the throat during speech. My ultrasonic scan represented something new.

Excited by the prospect of a new discovery, we arranged to have several stutterers seen for ultrasonic examination. Within two weeks I had examined five - and all displayed the same pattern of constrictions.

Having confirmed the non-uniqueness of my initial observation, I began to systematically move the transducer along the side of the neck to see if the throat constrictions varied in intensity along the vertical dimension. The answer came quickly: the further down the throat, the more vigorous the constriction.

The throat rests upon the larynx, or voice box, which contains the vocal cords. The vocal cords are two small horizontal folds of tissue that lie within, one on either side of the box. The larynx rests on top of the trachea (or wind pipe) and its front cover is the Adam's apple. In order to speak, the vocal cords are brought together by several pairs of muscles so that they touch each other gently. The person then builds up an air pressure beneath them by expelling air from the lungs. When the air pressure becomes great enough, it blows the vocal cords apart, which sets them into vibration and makes sound. This sound is the raw material for speech production; it is converted into speech by moving the lips, tongue, jaw, teeth, palate and other articulators.

When the transducer was applied to the side of the stutterer's larynx, something happened which was not to be expected: just before every stutter, the vocal cords would rise slightly and then suddenly slam together in a constriction more violent still than any seen in the throat.

Here, I thought, was the center of the activity - the vocal cords - pressed together forcefully. For some reason the stutterers were tensing their vocal cords so powerfully that the air required for speaking couldn't pass. It reminded me of a phenomenon in medicine known as a laryngeal spasm, a forceful locking of the vocal cords which sometimes occurs after an operation. From my ultrasonic examination, it appeared that stutterers were exhibiting short-duration laryngeal spasms, but why, I didn't know.

I proposed an explanation which seemed outlandish at the time, but has since been substantiated repeatedly by investigators - namely, that the source of all stuttering is a locking of the vocal cords. But at that time I did not understand what the relationship was between the struggles I observed and the vocal cords.

I began to examine the struggles closely. For instance, some patients would suck air in briefly through their mouths just before speaking - a sort of inspiratory gasp. They reported that this facilitated fluency. It soon became clear why. The more rapidly one inhales, the wider the vocal cords open to allow a greater volume of air to pass. The patients were using this rapid inspiratory movement to widely open locked vocal cords so they could initiate speech before the cords locked again.

Similarly, other patients who spoke at the end of their breaths were unknowingly making use of another strategy to open locked cords. There are nerve endings in the lungs that detect air volume. When a person exhales most of his air before speaking these receptors detect what they interpret as the imminent collapse of the lungs, and signal the brain to initiate inspiration. A single pair of muscles at the back of the voice box begins to contract to force the vocal cords apart in preparation for the inflow of air. A person cannot stutter when a pair of muscles is being powerfully driven by the brain to open the vocal cords.

Other patients reported being able to speak after first swallowing. During the swallow reflex the vocal cords close tightly to prevent liquids or solid food from entering the lungs, and immediately after the swallow, as part of the same reflex, the cords are opened forcefully so that respiration may resume. The patients had unknowingly discovered that if they started speech at the instant a swallow was completed, they could speak without stuttering.

The non-speech behaviors of the stutterer now made sense. I was still at a loss, however, to understand precisely how a locking of the vocal cords could lead to the wide variety of speech struggles I observed.

CHAPTER 2

THE HUNT FOR THE STUTTER REFLEX

How could locked vocal cords produce such varied speech struggles? Speech therapists I spoke with maintained that the struggles were divisible into the three categories of hesitations (sometimes called blockages), repetitions (of words, sounds, or syllables) and prolongations (again, of sounds or syllables). But this categorization seemed arbitrary and

tended to obliterate many of the apparent differences I observed. Also, it related only to speech, completely disregarding the non-speech events.

Most speech pathologists nebulously conceptualized stuttering as an "incoordination" among respiratory, vocal cord, and articulatory mechanisms. However, the precise nature of this incoordination was never spelled out and there didn't seem to be research to support it.

Why, if there was an "incoordination," did it disappear when the patient talked out loud to himself? And why was it not present continuously but only on certain words?

After reviewing the literature, my feeling remained that the physical cause of stuttering lay at the vocal cords and that all the other behaviors seen were a reaction to the constriction of the vocal cords. But the precise nature of this response eluded me, until one day, quite by accident, I found an answer.

There is a door in my office through which I pass each day. The procedure is always the same. I go to the door, put my hand on the doorknob, turn it, pull the door open, walk through, and the door closes automatically behind me. It always works, I always expect it to work, and I'm never disappointed.

But one particular day a water pipe broke in the office above me, and the water seeped slowly through the ceiling and into the wooden door. The door was swollen and stuck in the door frame but I didn't know it because it had been a slow ooze I couldn't see it.

So I went to the door, the way I have every day for years, put my hand on the doorknob, turned it, and pulled. But it didn't move; it was stuck. My initial reaction was to pull harder, and that didn't work. So I pulled ever harder, until finally, I wrenched the door open.

Twenty minutes later, I returned to the door and again found it stuck. I immediately yanked forcefully and it opened.

At that instant I realized I had undergone a conditioning. I had learned, after just a single trial, some twenty minutes earlier, to forcefully yank the door. I had learned to struggle.

The swollen door was equivalent to the locked vocal cords, and my tugging was equivalent to the struggle behaviors of stuttering. The fact that my initial struggle had resulted in success, that is, the door had opened, meant that I had been rewarded for my efforts and thus, in the same situation, would likely struggle again. Which I did.

To relate this to stuttering - John, struggling to say his name (pulling on the door knob), after a few moments, says it (gets the door open), and the act of saying it (getting the door open), becomes the reward for the struggle (the stutter) which enables him to say it.

I now began to suspect that all of the stuttering I observed was learned. And all of the variety I had noted was nothing less than an eloquent testimonial to the heterogeneity of human beings learned struggle behaviors against a common core problem, a spasm of the vocal cords. Here, at last, was the stutter reflex. All the struggle events were now viewed as extricatory and learned.

The pieces of the puzzle were beginning to come together. From my knowledge of the anatomy and physiology of the speaking apparatus I knew that there are small nerve endings within the vocal cords that detect tension and send this information to the brain. When the tension in the vocal cords builds to a critical locking threshold, these nerve endings issue a particular pattern of impulses. I now began to understand that it is this particular pattern of nerve impulses reaching the brain that triggers the stutter reflex.

In response to some form of apparent stress (as yet, unspecified), the stutterer locks his vocal cords; it is an inborn reflex. The locking of the vocal cords, in turn, triggers stuttering, a learned reflex. So there are two reflexes - one inborn, the other learned.

I asked a colleague whose specialty was learning psychology if it was possible that so violent and varied a behavior as stuttering could really be learned. His response was to show me a film of learned self mutilations and to point out that most physically aggressive behaviors are culturally acquired. The struggles I was seeing were mild by comparison. Any behavior that was rewarded could be learned, and the act of speaking which followed the struggle was clearly a sufficient reward to enable the learning of stuttering.

He further pointed out that there was yet another reward commonly present in most human learned behavior and he suspected it to be present for stutterers - anxiety reduction. Anything that would reduce a stutterer's speech anxieties would be rewarded and learned.

I recalled that many stutterers reported that they would often word substitute rather than stutter. As they spoke they mentally looked ahead so that they could shift the conversation away from feared words or change instantly to a word they could pronounce. The successful avoidance of feared words reduced anxiety, was therefore rewarded and learned. Word avoidance was as much of a reflex as the stutter itself. Further, in order to avoid one had to develop the habit of looking ahead and so that, too, became reflexive.

I learned that the stutter reflex was, in fact four learned reflexes. First, the overt stutter; second, word avoidance, third, situation avoidance; and fourth, the habit of looking ahead.

Chapter 3

STRESS

There is ample reason to accept a psychological explanation of the cause of stuttering. Stutterers acknowledge that their problem becomes worse under conditions of stress and report, for example, that when they were alone and under no stress, they have no difficulty.

Stutterers for years have gone to psychologists or psychiatrists to have their problem treated. The published results have not been encouraging. The stuttering rarely, if ever, improved. And the usual explanation offered by the psychotherapist was that the problem was so deep-seated, having most often begun between the ages of two and six, that it would require years of intensive therapy to get to its roots and handle it effectively. And this, in spite of the fact that repeated psychological tests have shown stutterers to be totally representative of the normal population.

One stutterer I saw had undergone seventeen years of psychotherapy at a total cost of approximately \$85,000. I remember noting on my evaluation form that this young man was probably the most well-adjusted stutterer I had ever seen.

To this very day, the mythology persists that stuttering is a "psychological problem." Each year so-called experts write books that proclaim this fact aloud, and articles appear frequently in both newspapers and magazines that reinforce the belief. Psychiatrists continue to attempt to treat thousands of stutterers each year using techniques that have long since been proven inadequate.

Freud knew they were inadequate. In one of his early books he wrote, "Whatever the source of stuttering is, it is not amenable to the treatments I have developed. I therefore refuse to attempt to deal with it further."

But it was never-the-less clear to me that stress was affecting the tension at the vocal cords. I discussed the problem with a physiatrist friend who specialized in physical medicine and rehabilitation, and he told me about a study that had been published in 1953. It appears that a laboratory had been established in Germany to study the physiology of movement of world-class athletes, with the goal being able to enhance athletic ability. As part of this research, the investigators had considered the effects of stress.

The research found that the athletes tensed their muscles when stressed, but most interestingly, that they focused tension in certain areas of the body - the most common ones being the muscles of the shoulder girdle, abdominal wall, lower back, face and hands. These foci were later termed targets and found to be congenital and frequently, but not always, inherited.

There were also less common targets, and one of them, affecting about two percent of the world's people, are the muscles of the vocal cords. Subsequent research revealed that all

stutterers come from this 2% population. Stutterers are born with the tendency to tense their cords when under stress.

In these studies the entire body was mapped for men and women, and sex differences in targets were found. For example, while fully five times as many males focused tension at their vocal cords when stressed, almost three times as many women focused tension in the abdominal wall muscles when under identical stress.

I showed this research to the Speech Pathologist and he postulated that the five-to-one sex ratio for the vocal cords shown for males might explain the precisely identical sex ratio for stutterers reported in the research literature.

CHAPTER 4

EIGHT PSYCHOLOGICAL TRIGGERS

Since stress was apparently always required to produce a locking of the vocal cords, I questioned patients about the stresses that provoked their stuttering. I was looking for common, unifying threads in their observations. Tentative lists of types of stress were prepared and presented to stuttering patients, and their critical comments were obtained. In this way I developed what I call the stutterer's eight basic stresses.

1. **Situation Stress.** When I asked stutterers in what situation they found speaking most difficult, the most frequent response was, "On the telephone." Over 80 percent of adult stutterers reported some fear of using the phone. I saw a nineteen-year-old who exemplified this form of stress. A personable young man, he sat in my office and stuttered moderately in response to my questions.

As is customary in my diagnostic evaluations, I asked him to pick up the telephone, call the information operator, and request the telephone number of Macy's Department Store. He refused. I demanded that he do so, saying that this was an essential part of the evaluation. He pleaded with me not to force him to use the telephone. He confessed that he hadn't used it in years and had nightmares about it.

A most unusual situation stress was reported by a priest who was terrified at the thought of speaking in the pulpit. He had stuttered as a child, but thought he had outgrown it. After ordination, he assumed a position with a small congregation. A few years later he was given a new post and on his first Sunday entered the church to greet a congregation of 800.

The audience size overwhelmed him, his vocal cords locked, and the feedback receptors in his cords triggered a stuttering response that had lain dormant for years.

He began to take tranquilizers, but the dosage required to be effective created undesirable side effects. He decided to leave the church when his physician told him to stop taking the drugs. He approached his bishop with his decision, saying that the stuttering was apparently a sign of his "unsuitability." The bishop, a practical man, suggested he try speech therapy first.

2. Word or Sound Stress. Most people who stutter tend to avoid specific words and frequently report they have difficulty with certain sounds. This form of stress, like almost all forms of stress, is learned. As such, it can show great variability - stutterers can learn to fear any of the sounds, and these fears can change periodically - that is, a person can fear "p" and "t" sounds one year and "b" and "k" sounds the next. Sometimes a person can lose all his fear of specific sounds only to have them return at a later date.

More common are word fears. Almost all adult stutterers have some of these, very often fearing only a few specific words. I treated a lawyer who stuttered on only about twenty words. He prepared a list and we practiced them. His problem was treated successfully in a few sessions.

Another patient had a problem saying his first name. He had had it legally changed to a name he had always been able to say easily - and then began to stutter on the new name. When he saw me he was unable to say it. I encouraged him to try and to continue to make the attempt in spite of the difficulty he was having. I timed his attempt. The block lasted two minutes and thirty-eight seconds - two minutes and thirty-eight seconds of totally silent and remarkably violent head-thrusting, punctuated only by the occasional need to take a breath. His convulsions finally terminated in the speaking of the name: David.

Another patient reported invariably lying when asked, "Where did you grow up?" because he could not say Westport. And many patients reported often giving wrong answers in class because they could not say the right ones - and they had to say something. One patient told me he was twenty-eight by saying, "the year after twenty-seven." And many patients bemoaned the fact that they were often required to eat what they did not want to eat in restaurants simply because they were unable to say what they wanted.

Word substitution is, at best, awkward and often frustrating and embarrassing. It is always the result of word or sound stress.

3. Authority Figure Stress. Many patients reported difficulty speaking before individuals best described as authority figures. They report having trouble talking to the boss or the teacher or when being interviewed.

One patient related that when he was stopped by a policeman for speeding he had to take a sobriety test because he was unable to answer the officer's questions.

And another reported that throughout school his questions and answers to teachers were written out and read aloud by fellow students.

Virtually all patients report they often stutter only with certain people, for example, with parents. Frequently, parents, noting their children's stuttering at home, request that the school speech therapist treat the problem. But when the child appears before the therapist there is no trace of a stutter. What the therapist is unaware of is the fact that for this child it is only in the presence of parental authoritarian stress that stuttering occurs and that in all other situations, it is absent.

One young man I encountered never stuttered with his fiancée but only with her father, not her mother, just the father.

Another patient reported that he never stuttered with a colleague at work until that person was promoted and became his supervisor. He now assumed the role of authority and in that context became an object capable of provoking stress and consequent stuttering.

4. The Stress of Uncertainty. Patients often have difficulty speaking when uncertain about the proper way to behave - for example, in unfamiliar situations such as new neighborhoods or new jobs or meeting new people. This stress occurs also when one is uncertain about the correct way to pronounce a word.

Nowhere is uncertainty stress more manifest than in the difficulties encountered by stutterers attempting to learn a foreign language. There are a number of sources of uncertainty at work here. First an uncertainty about pronunciation, second, one of vocabulary, and third, grammar. It is no wonder that many patients report stuttering on almost every word in the new language.

5. Physical Stress. Stutterers sometimes report more difficulty when tired or ill. Indeed, in the nineteenth century in Europe a school of therapy contended that the primary cause of stuttering was lack of sleep. And so patients were often required to sleep as many as fourteen hours a day - as treatment. Some early therapists believed that only a certain part of the body, usually the tongue, was tired, and devices were constructed to hold up the "tired" tongue. Generally made of gold or ivory, and worn in the mouth, they functioned essentially as distractions and, as such, temporarily stopped the stuttering. But after a few days, at most, the stuttering returned with as much intensity as ever.

But one does not have to go back to the nineteenth century for unusual therapies which focus upon speech rest as the means for treating the problem.

I encountered several individuals who were treated by a therapist from Russia. His contention was that stuttering was an expression of an overworked speech apparatus, and so he required all his patients to refrain from speaking for six weeks. After this period of total silence they were to start speaking using single words only for the first several weeks, then to proceed to using short phrases and then finally to full sentences.

Needless to say, this technique invariably failed when the first real stress occurred and the vocal cords locked.

Illness is definitely a cause of stress. The Country & Western singer Mel Tillis started to stutter at the age of three after a bout with Malaria and Winston Churchill stuttering is attributed to an early severe fall.

6. External Stress. This form of stress can also be called "bad news." It is the stress of discovering that you have just been fired or that a relative has a terminal illness or that your car has been stolen. Patients frequently report that external stress figures prominently in their difficulty.

I treated a patient who responded beautifully to my techniques and after a few days of intensive therapy was symptom-free in virtually all situations. He left for his home in Ohio confident of his new skills and equally certain that the continuation of his program would strengthen these new habits and establish them permanently.

When he returned, however, he discovered that his house had been burglarized and burned. The external stress was so great that it took him fully six weeks to regain his ability to control his stuttering.

I have seen patients operating in the pressure cooker of the advertising world who, while fluent in most situations after treatment, cannot cope with the external stress of clients continuously contemplating agency changes. I recall seeing an Art Director whose speech deteriorated further with each subsequent rejection of his artwork by a major client.

7. Speed Stress. Probably the most common of all the stresses is speed stress. Speed stress is responsible for the onset of most stuttering in children. It is the product of speaking too rapidly.

Almost all patients were found to suffer from this to some degree. For very young children, speed stress was often the only form of stress experienced. When they spoke slowly, they became fluent. Adults, on the other hand, were under other forms of stress, and thus slow speaking did not result in immediate fluency for most.

As a matter of fact, most adults were not aware of speaking too rapidly. Indeed, when I measured the average number of words they spoke per minute, when fluent, it was well within normal limits, that is, approximately 130 words per minute; it was not a question of average speed but rather how quickly they spoke the first word of each sentence; that is, how quickly they started to speak.

When this was measured, they were found to be as much as four times faster than average. In other words, stutterers, instead of beginning speech in a slow and leisurely manner, attack their words.

One patient who invariably stuttered on the first word indicated that the reason he spoke so quickly was that he "wanted to get away from the scene of the crime as quickly as possible." What he did not realize, of course, was that this desire was resulting in speed stress and thereby helping to contribute to the very block he was seeking to escape.

8. Base Level Stress. There are sixteen muscles in and around the vocal cords, and if one were to put an electrode on any one of them one could easily record the tension developed within. This tension is present at all times and its magnitude can fluctuate widely. The fluctuation is the product of two major influences.

The first are brain hormones - which, through their chemical effects on certain cerebral centers, have been shown to have the capability of increasing muscle tensions dramatically. When patients report their speech has suddenly worsened, and can find no obvious reason for it, the usual explanation is an increased production of these hormones.

The second source of tension are persistent, longstanding subconscious conflicts which become exacerbated by a change in one's life circumstances. Perhaps a new job, with a boss whose demeanor parallels a parent's - sets off a sequence of underlying emotional reactions which go unrecognized but wreak havoc with speech. Or a spouse, whose decision to make a major life change, subtly upsets the well-defined structure of the relationship - producing forms of destabilization which provoke anxiety and subsequent negative effects upon speech. All this in spite of the fact that both parties consciously acknowledge the absolute desirability of the change.

When both factors are present simultaneously and are in combination with any of the other seven stresses, the total tension on the vocal cords can mount to the point where the patient is virtually incapable of speaking. This is seen often in young children whose Base Level Stress has been shown to vary widely over time. Parents are particularly frustrated by this and report that their child can often go for weeks without stuttering only to find that overnight the dysfluencies return with full force. Many such children are brought to my office during one of their fluent periods. The parents are quick to assure me that their child stutters and sometimes violently, and in a sense apologize for their child's lack of difficulty. They almost invariably say that they are unable to account for these fluctuations and experience much reduction of guilt when Base Level Stress is explained to them.

CHAPTER 5

FOUR TYPES OF STUTTERING

Four types of stuttering emerged from a careful examination of a large number of patients.

Type I is considered the most common. Stress leads to a locking of the vocal cords which shortly precedes the stutter which coincides in time with speech. The struggle with speech consists of hesitations, repetitions and prolongations of sounds, syllables or words. When the average non-stuttering individual thinks of stuttering, it is Type I he has in mind.

The second category is Type II. Again stress leads to the locking of the vocal cords which reflexively triggers a struggle, but in this instance the struggle is not part of speech but precedes it. The struggling may be violent but the stutterer has elected to delay speech until after the struggle - so the speech, when it occurs, is fluent.

Type II stutterers are fascinating to observe as they speak on the telephone. Their head may be thrust back in some violent gesture, their jaw may shake, eyes clench, hands thrust - while the person at the other end hears nothing, just a pause followed by normal-sounding speech. If the listener knew the magnitude of the titanic struggle ensuing at the other end of the line, he would be amazed and appalled.

I later treated such a stutterer in England. The day before treatment, I had arranged an appointment to meet with him at a small airport just outside of London. He was a pilot and had offered a bird's eye view of the city and surrounding countryside.

As a Type II stutterer, his speech on the radio to the tower sounded normal, but the struggle taking place in the cockpit as we taxied to the runway suggested I was about to have a bumpy ride.

And indeed it was, for his struggles involved his entire body, including both arms and legs. And each sentence that emerged fluently was preceded by a brief but hair-raising form of aerial aerobatics that left me at the end of the flight exhausted and air-sick.

We had arranged that he would drive me back to London. The trip took about an hour and I recall speaking almost incessantly, since whenever he spoke, the car lurched.

The Type II stutterer demonstrates that the struggle to release the vocal cord spasm is clearly independent of speech. The fact that for most stutterers the struggle appears in the speech (Type I) is simply an expression of their inability to wait and complete their struggles before starting to speak.

In Type III stuttering the stress also provokes the locking of the vocal cords, but the patient has elected not to struggle but to pause and wait until the locked cords release. This may be accomplished by several means: he may distract himself in some appropriate manner, he may passively wait for his stress to drop, he may quietly inhale to open his vocal cords, or he may swallow to achieve the same end. One patient I treated would cough gently during such pauses to blow his vocal cords apart.

Another patient would pause, smile, look up at the ceiling and appear to be deep in thought before responding. If one looked closely at his Adam's Apple, however, one observed that it bobbed up and down very rapidly during these "reflective" pauses. What the patient was actually engaged in was a series of very rapid swallows to open his vocal cords. If a single swallow was sufficient the pause would be brief. But if his cords locked again too quickly, it might be necessary to swallow two, three or four times in quick succession to speak.

Beneath the smile, and apparent thoughtfulness, lay a violent, hidden and single-minded struggle to deal with a spasm that both blocked breathing and speech.

Finally, in Type IV stuttering the stuttering chain is aborted before it starts. The stutterer uses an avoidance behavior when his conscious habit of scanning informs him of the presence of "trouble ahead."

This type is referred to as the hidden or "closet" stutterer (discussed in the next chapter). Twenty percent of all patients seen at the National Center for Stuttering fit this category. These patients avoid words, sounds, and speaking situations. No one knows they stutter, but the price they pay for their fluency is constant vigilance.

Type I stuttering is the "typical" form, seen most often in stutterers. The struggles are part of speech. Type II stuttering, though less frequent, is also recognized as stuttering even though the speech is unimpaired. Type III and Type IV stuttering are socially acceptable; they are not recognized as forms of stuttering. Stutterers in these two categories rarely seek professional help even though these forms of the disorder often take a considerable emotional toll.

As I examined more and more adult stutterers, I was to discover mixtures of each of the four types. For example, a patient might struggle with the pronunciation of his name, substitute one word for another while describing his occupation, and cough to release his laryngeal spasm before describing an experience. I was to discover that a mixture of types within patients was the rule rather than the exception. There were, of course, "pure" types, and clinicians would see them on occasion. They were mostly Type I and Type II. Types III and IV were rarely seen, not because they did not exist in substantial numbers, but rather because they did not seek assistance.

CHAPTER 6

CLOSET STUTTERERS

My work with stutterers revealed that since they are intelligent they quickly learn to scan for feared words to either shift the conversation or substitute synonyms. All stutterers do this to some extent but some become so adroit at it that they appear to stop stuttering altogether. I have labeled these "closet stutterers," and they constitute approximately twenty percent of all patients seen for treatment.

Winston Churchill was a closet stutterer and his vast vocabulary was in large measure due to the fact that he was continually word substituting. Closet stutterers are walking thesauruses; they do crossword puzzles in ink. And since they don't stutter, they function well in society.

I recall evaluating a closet stutterer and then later communicating with him by mail. His wife called to say that she had received the letter and wondered what it was all about since her husband of nineteen years had never stuttered. I told her he was a closet stutterer and that he avoided certain words, sounds and speaking situations. There was a long pause and then a torrent of questions. "Do you think that's why he has me make the phone calls, and why I always wind up ordering in restaurants, and why he never speaks up at PTA meetings?" As she asked these questions, questions which were in a sense rhetorical, I could hear by the change in the pitch of her voice that she was beginning to understand something about her husband, something she had never known. I suggested she speak with him about it since I felt if he were to undergo successful treatment, her assistance would be invaluable.

Closet stutterers report they are exhausted at the end of the day. There is no such thing as an idle conversation, they are always on, hunting, substituting, avoiding. In a sense, they are more stressed than the overt stutterer, because for the latter, everyone knows, "it all hangs out." But if no one knows, then one must maintain a constant vigilance, and this is always fatiguing.

Closet stutterers report that in an effort to hide their stuttering, they frequently say things that are inappropriate, foolish or nonsensical. They also often leave sentences hanging in the hope that the listener will fill in the missing (difficult) words.

I recall treating a hair dresser whose name was Pierre and who spoke with a thick French accent. As part of my evaluation, I asked him where he was born and he responded, Brooklyn. Thinking that he had been raised in France, I asked him where he gone to school. And again he responded Brooklyn. "So your accent is phony?", I queried. "Yup", he answered without a trace of an accent. He then recounted his discovery that if he spoke in this manner, he tended not to stutter, and people would forgive him for the fractured English that his word substitution required. Also, if he couldn't say a particular word such as comb, he could easily point to it and say, "How you say in English?". This strategy had worked well until his brother-in-law suggested that he join him in his Insurance Agency. He wanted the job and so now sought treatment.

Closet stutterers will go to inordinate extents to hide their difficulty. I evaluated a man who was a judge in a state Supreme Court in New England. He had been a closet stutterer for over thirty years, and although his word substitution habits had sometimes resulted in rather unusual language, he was so good at it that, in a sense, it added to his speaking charisma.

He controlled his stress by taking a moderate dose of Valium each day, and this he had done for over fifteen years. While on a cruise with his wife in the Caribbean, he decided to forgo the Valium and within a day began to have seizures - the sign of Valium dependency. He immediately went back on the drug.

He was a respected member of his community and much admired for his legal expertise. It was no surprise when he was asked to take a Federal District Judgeship. But he refused the offer and no one knew why. He gave some excuse of liking the kind of work he was doing when everyone knew the Federal position was a real prize.

He came to see me for two reasons. First, he wanted to be able to gradually reduce his Valium intake, and this he felt could only be accomplished if he eliminated the stresses associated with being a closet stutterer. Second, and by far the real reason for visiting me, turned out to be the explanation for his refusal to take the Federal District Judgeship: on the State Court he was allowed to paraphrase the charge to the Jury, on the Federal Court he had to read it word-for-word, couldn't substitute, and thus obviously couldn't take the position.

He was now confiding this for the first time, and the apparent release of tension associated with this confession reduced his Base Level Stress considerably. I did not see him immediately; he was initially unwilling to substitute my technique for his well-established avoidance behaviors. But a year later, when he was again offered a position he wanted, he presented himself for treatment and was successful.

While any consideration of stuttering reveals approximately five times as many men have this problem as women, the statistics for closet stuttering are reversed. In the study reported in the appendix of this book, 87 of the patients were closet stutterers. The group was comprised of 62 females and 25 males - a ratio of two and a half to one favoring females. It would appear that women elect to hide stuttering more often than men.

One female patient I treated reported that she had stuttered openly until the age of twelve at which point she had learned to word substitute and situation avoid. When I asked her why she had elected to do this, her response was quite revealing: she said "It's just too darn unfeminine to fight." And I think there is some truth to that. Some male stutterers may feel it is, in a sense, alright to show their struggles while more females may find physical behavior of this sort totally unacceptable. Of course no one knows if this is in fact the reason, but the evidence is clear, two and a half times as many women as men are closet stutterers.

Closet stutterers make more rapid progress than overt ones because they have less to accomplish - they already function well in society and are not viewed by themselves or their peers as handicapped. Their self esteem and socialization skills tend to be good. And when they stop word substituting it constitutes virtually a seamless transition into their everyday activities.

The overt stutterer, on the other hand, has a direct and negative effect upon his environment and suffers as a result of it. His socialization skills tend to be poor and when he no longer stutters he must begin to acquire new skills for interacting with his peers. As one patient said to me, "Dr. Schwartz, now that I don't stutter, what do I say to people, what do I talk about?"

I often tell the closet stutterer: "If you stutter openly and you stop, it is a gift to the world because the world is no longer required to see and hear you stutter - and a gift to yourself because you know you are free of the affliction. But when you are a closet stutterer, it is a gift just to yourself, you can't expect society to know or care or be interested in your hidden problem. The gift, of course, is this incredible sense of freedom to be able to say whatever you want to say, wherever you want to say it, whenever you want to say it - without fear."

I once treated a closet stutterer who, after learning the technique successfully, and practicing it for several months, called to tell me that one of his colleagues at the office had said to him, "John, for some reason you now make a lot more sense when you talk".

CHAPTER 7

PRIMARY VERSUS SECONDARY STUTTERING

Our consideration of the speech symptoms of stuttering would be incomplete without noting the difference between the beginning and advanced forms of the disorder. They have been labeled Primary versus Secondary Stuttering, and have traditionally been defined in terms of the forcefulness and location of the struggles. The Primary Stutterer is said to show effortless repetitions only at the beginnings of sentences, and the Secondary Stutterer struggles forcefully anywhere in the sentence.

My examination of patients led me to conclude that the force distinction was erroneous; type III and IV stutterers, for example, never struggle openly but are clearly advanced forms of the disorder. I therefore developed, in its place, three diagnostic questions which have been shown to yield far more useful information. The first question is, "When you

speak, do you sometimes look ahead for difficult words and try to substitute one word for another?" The second, "Can you usually tell when you are going to stutter just before it happens?" And the third, "Do you stutter when you talk to yourself out loud alone?"

A primary stutterer will answer no to all three. Indeed, for the very young child, the questions may not make sense, and this lack of understanding is a positive sign that the child has no anticipatory stress. Children who respond this way will invariably show repetitions or hesitations only at the beginnings of sentences. The behaviors may, however, be forceful.

The Secondary Stutterer will usually say yes to the first two questions and no to the last. If the last question is also responded to with a yes, it is a indication that the overall stress level is high. The Secondary Stutterer usually exhibits strong struggle behaviors which can occur anywhere in the sentence.

Using the severity of the struggle as the major distinction between Primary and Secondary Stuttering is, as I have indicated, invalid. For example, twenty percent of patients are hidden or "closet" stutterers. They never stutter but rather look ahead for difficult sounds, words and situations and avoid them. No one knows they stutter - their overt struggle symptoms are less than mild; they are non-existent.

So the distinction between Primary and Secondary Stuttering cannot be the magnitude of the struggle behavior but has to be the presence or absence of anticipatory stress. Does the patient see the sounds, words or fearful speaking situations approaching? For most children under seven, the answer is no, and they are Primary, for most over ten, the answer is yes, and they are Secondary. And during the three-year interval between, there exists a period of Transitional Stuttering.

During Transitional Stuttering the child may report fear of speaking in certain situations while at the same time have no knowledge of the words or sounds with which he will have difficulty. Also during this period some children will report that they can see some of the feared words coming but that others are a surprise. The average eight year old will understand the following line of questioning, "Sometimes you have trouble with your speech, don't you? When you have trouble, do you know what words you are going to have trouble with - can you see the hard words coming?" The child may respond, "Sometimes." This is followed with the question, "You mean sometimes you can tell and sometimes it's a surprise - is that right?" Usually the child will say yes and the next question is, "Is it mostly a surprise or mostly you can tell?"

If the child says it's mostly a surprise we can be fairly certain he is at the beginning of the transitional period. But if he reports that mostly he can tell, we must then view him as an adult stutterer and treat him accordingly.

While it is generally correct to say that most children under the age of seven are Primary Stutterers and those over the age of ten are Secondary, it is clear there are many excep-

tions to this rule. I have seen precocious five year olds with well established sound, word and situation fears coupled with strong struggle behaviors and word substitutions. And I have also seen teenagers with no word or sound anticipations and only minor effortless repetitions at the beginnings of sentences.

Another reason for focusing on the presence or absence of anticipatory stress is that it directly relates to the expected outcome of therapy. A child with no word or sound fears is unaware of his difficulty and thus is not in much pain. Self-motivation to do anything about the problem is low and prognosis for recovery is guarded.

The Secondary Stutterer, on the other hand, lives in continuous anticipatory dread of feared words and sounds, and is in considerable emotional pain. Thus motivation to improve is great.

I attempted to treat several children who were clearly either Primary or Beginning Transitional Stutterers. In each instance, the child learned the techniques for stopping stuttering and upon returning home began practicing with a parent. In each instance, the technique produced complete fluency, but there was no motivation to follow through with the prescribed exercises.

The parents found themselves badgering the child and an initial willingness disintegrated into continuous bickering. They would call to express frustration and I would respond by altering the mix of exercises. But this, too, soon lost its power to sustain interest.

We would then use a reward system in which the child would be given a gold star for a correct sequence of performances. At a later time these could be redeemed for a prize. The reward system worked well for some but for others it, too, failed to sustain.

It became clear that it was unlikely that direct therapy with a primary stutterer would always be successful. Later in this book I will present a series of indirect approaches that have proven successful with a large number of Primary Stutterers.

My case records show several examples of children worked with unsuccessfully as Primary Stutterers who demonstrated a successful outcome five years later after they had become Secondary. In a sense it is very much like pneumonia. You may not be able to treat them when they have a cold, but you can when they have pneumonia.

PART II

TREATMENT

CHAPTER 8

ATTEMPTS AT CORRECTION

Approaches to the treatment of stuttering have been extensive. Hundreds of books and thousands of articles have been published on the subject in the last half century. Certain techniques occur repeatedly in the literature; they occur because they have been partially successful.

Relaxation Therapies. These have by far been the most prevalent set of approaches to treating stuttering. There are several varieties, but in all the aim is to reduce muscle tensions throughout the body, and thus elude the stutter reflex. In one approach, patients are encouraged to start by focusing on a specific muscle group (usually the toes), contract it maximally to heighten awareness of the tension, and then relax it as much as possible. Each muscle group is addressed separately until the entire body is relaxed. This procedure, known as Progressive Relaxation, was first described in 1923 by Edmund Jacobson, and has been employed frequently for the treatment of stuttering. The reported results indicate improvement but never total success in eliminating the problem.

Another type of relaxation involves yoga-derived stretching exercises. In these attention is drawn to increasing flexibility of the spine and involve twisting, rotating, and bending the torso. Performed slowly and in a deeply meditative state, these exercises gradually bring their practitioners a more tranquil demeanor - the result again being improvement, but not total arrestation.

Guided Imagery is another relaxation technique that has been employed to treat stuttering. Patients are trained to imagine a restful scene or tranquil activity and then encouraged to dwell on the image periodically throughout the day. This technique produces substantial relaxation in some patients, again with its attendant improvements in speech.

Finally, there are the biofeedback approaches. Electrodes are attached to various muscles (usually on the neck) and the degrees of tension developed during speech are registered on a meter. Patients are trained to lower tensions by attending to the meter as they attempt to make the level decrease. Unfortunately, the findings with biofeedback have been disappointing since the stuttering, following treatment, rarely improves.

In summary, it appears that relaxation approaches tend to improve or reduce stuttering, but not stop it. They simply do not subtract enough tension from the vocal cords.

Deep Breathing Exercises. It is felt that breathing deeply before speaking stops stuttering. Based on this premise, some therapies teach a variety of deep breathing exercises. A few of these techniques stress breathing from the diaphragm while others stress the ribcage. Some talk about the importance of nasal breathing, others, oral. The justification for the exercises is the often-noted observation that the breathing patterns of stutterers are disturbed. Unfortunately, most of the experimental studies have shown no improvement.

Speaking Exercises. Employing a novel way of speaking as a method for treating stuttering has been used frequently. For example, some therapists have advocated using speech timed to the rhythm of a metronome while others have suggested using what is best described as a sing-song voice. Some require their patients to speak softly while others require them to shout. Still others have suggested that the pitch be raised, while just as many are equally emphatic about the importance of lowering pitch. Some have insisted that speech with a foreign accent is a solution and others advocate speaking as they inhale. Some suggest hardly moving the mouth while speaking while others suggest whispering.

The outcome of the survey of these often contradictory approaches is a set of largely ineffective treatments. This is not to suggest that novel ways of speaking do not produce fluency, on the contrary, they often do. But they are ineffective as a form of therapy because patients reject them. They are perceived as alien; they are not normal. Patients may not like stuttering but at least they are used to it. They are not used to talking in a manner which they and others perceive as strange.

For example, it is known that every stutterer in the world will be fluent if he sings. But show me a stutterer who is willing to break into song every he wants to communicate. It is just not acceptable. The Country-Western singer, Mel Tillis, has made a career of juxtaposing a totally fluent singing voice against the difficulty he experiences whenever he tries to speak. He does this in a humorous vein and has his audience laughing along with him at the incongruity.

It has also been well documented that one can stop stuttering by speaking slowly. Proponents of this approach are known as the Controlled Rate Group. These therapists claim that the reason slow speech helps stuttering is that it allows the brain time to compensate for some presumed but unspecified incoordination among the respiratory, vocal cord and articulatory mechanisms.

One method commonly employed for slowing speech is called Delayed Auditory Feedback. Patients speak into a microphone which is attached to a tiny computer which records, delays, and sends amplified speech to earphones. The patient hears his speech delayed by approximately .2 second. Speaking under such conditions is difficult; one tries continuously to adjust or compensate for the delay.

It turns out that the only successful way to compensate is to slow the rate of speaking. While the slowing reduces or even eliminates stuttering, the price one pays, apart from the obvious slowness of the speech, is the obtrusiveness of having to speak into a microphone, wear a computer and have earphones on all the time.

In another method a tiny electronic metronome is inserted behind the ear. The speed of the metronome can be adjusted as the person speaks, so he is required to time his syllables to the rate he heard in his ear. Providing the beat is slow enough, this Syllable-Timed Speech, as it is called, produces fluency. But again, the price paid is unnatural sounding speech and dependency on an electronic device.

Proponents countered by saying that patients could gradually increase the speed of the metronome, and when it was sufficiently rapid, the speech would sound normal and the patient could then discard it. The experience of stutterers, however, contradicts this: as the rate is increased, stuttering reappears.

Punishment. As a form of treatment, punishment has a long history in the therapy for stuttering. For example, electric shocks have been and continue to be employed to create unpleasant stimuli. No one likes a shock, however mild it may be, and a patient will do anything to avoid one.

But the psychology of learning tells us that people learn because they are rewarded, and a shock is punishment, something to be avoided. Patients do whatever is necessary to avoid getting shocked, whether it means changing the pitch of their voice, swallowing, coughing, speaking slowly or sounding as unnatural as they can. But this does not mean that they learn these techniques. As soon as the shock is removed they quickly revert to stuttering.

Another form of punishment used with stutterers was carbon dioxide treatment. Breathing CO₂ has been used to treat depression and other mental problems. It was often used as a substitute for electro-convulsive shock therapy. A patient in her early sixties reported being forced to breath CO₂ as a child. She recalled being taken every morning by her father to a doctor who would administer pure CO₂ through a face mask. After two breaths she would pass out and, when revived, be driven to school. This went on for a year and a half without any positive effect on her speech, and the memory of this daily torture has remained vividly etched in her mind for over half a century.

Surgery, while not necessarily punishment, had the same effect. Surgical approaches were employed in Europe in the middle of the nineteenth century and still continue today, albeit to a much lesser extent. For example, if one lived in Germany in 1842 there was a good likelihood that a stutterer would have had a portion or all of his tongue removed. (Bear in mind that this was before the advent of anesthesia). Surgeons pursued this course for almost fifteen years before they decided it was ineffective.

Even today, one sees well-meaning physicians suggesting that the cause of stuttering is tongue-tie and that the problem can be cured by the simple expedient of snipping the small piece of tissue they feel tethers the tongue to the floor of the mouth. Unfortunately, there is no evidence that this approach has any positive effects upon speech what-so-ever, and one can only hope that the practice will cease.

Drugs. The last area of treatment for stutterers has to do with the administration of drugs. There are three basic types. The first are the anti-convulsants. Neurologists see the violent struggle behaviors associated with stuttering and feel that they constitute a form of convulsive seizure. But lacking training in learning psychology, they fail to understand that such struggles are learned. The medical literature is filled with published reports of the merits of one anti-convulsant drug over another for the treatment of stuttering. The fact that the vast majority of patients do not stop stuttering and that the side effects of the drugs are often serious does not seem to dissuade neurologists from pursuing this treatment.

The second class are the tranquilizers. There are a number of these and all, in one way or another, have been tested. Many are useful in reducing overall stress. But again, they do not completely eliminate the problem and their side-effects can be substantial. Recently tested are a new family of tranquilizers called Beta-Blockers. These show promise and further research is under way.

The third group are the muscle relaxants. If tension is the ultimate source of stuttering, it makes good sense to investigate any approach that reduces tension. However, it appears that the amount of any drug necessary to reduce vocal cord tension is so great that the side effects are invariably unpleasant and unsafe.

It is clear that there has been great interest in methods for treating stuttering. Most bring at least some relief to a significant percentage of stutterers. But none solve the problem completely, and that ultimately creates their downfall. It's very much like cancer. You remove ninety percent of the cancer and the other ten percent does you in. Unless you can eliminate all of the stuttering, the residuum will eventually create the inevitable relapse. Also, if the price you have to pay for your improvement is speech which sounds strange or an involvement with obtrusive apparatus, the chance for fluency is virtually doomed from the start.

CHAPTER 9

THE PASSIVE AIR FLOW TECHNIQUE

I ran an ad in a local newspaper: WANTED - someone who stuttered badly as a child and later outgrew it. I wished to interview people regarding the technique(s) they had used to overcome their problem; I offered \$20 for the privilege. Respondents were screened by phone to eliminate non-stutterers and, 72 face-to-face interviews were conducted.

The interviews revealed some patients speaking a bit more slowly than usual, though not remarkably so. On the other hand, I found a significant number exhibiting tiny airflows in their speech: Using a metal mirror against the lips to record condensation, I could visually detect a small amount of air coming from their mouths just before they spoke. It was as if they preceded each sentence with a tiny, inaudible sigh.

The more I thought about this, the more intrigued I became. What were these tiny airflows? What function did they serve? I never saw them in the speech of stutterers, nor in the speech of normal speakers with no history of stuttering. Why, then, in this group?

I remember sitting in my office mimicking the flows. And then it hit me. The answer was in the flow. The flow was being used to ensure an opening of the vocal cords prior to speaking. The flow was passive, never pushed, and its sigh-like quality appeared to keep the cords apart and relaxed.

I could now explain the bizarre behavior of a patient whom I had seen earlier who stated that he never stuttered when he smoked. When I asked him to demonstrate, he lit a cigarette, inhaled, let out some of the smoke, and began to speak. The stuttering disappeared.

When I asked him why he thought it helped, he said it relaxed him. I passed it off as a form of psychological distraction. Little did I suspect at that time that the answer to the problem was to be seen in the smoke being blown past my face.

Later, through my reading, I was to discover that the vocal cords are controlled by the breathing centers of the brain. During normal, quiet respiration they open slightly just before inhalation, then close slightly as the air flow is reversed and exhalation begins.

The opening of the vocal cords has been shown to be an active process, the result of the contraction of a single pair of muscles located at the rear of the voice box. The exhalation phase, on the other hand, is passive, the inward movement of the vocal cords occurring as the muscles relax. Research has shown that the most relaxed state of the vocal cords occurs during this expiratory phase of normal, quiet respiration.

In other research, electrodes have been placed on the vocal cords to study the tension patterns associated with speech. The tensions in the vocal cords before speech have also been studied. The research shows that the average person starts to tense his vocal cords between one-third and one-half second before he speaks.

This fraction of a second before speech begins appears to be critical because it is the time during which the vocal cords can and often do lock. I had observed this earlier in my ul-

trasonic scans of the vocal cords in stutterers. I reasoned that if I could reduce these pre-speech vocal cord tensions I would stand an excellent chance of keeping the cords from locking and thus stop stuttering.

The trick, then, was to somehow learn to exhale just before speaking as if one were not going to speak at all but were simply quietly breathing. The brain had to be fooled into believing that the speaker was simply taking another breath. If the brain were fooled, it would develop no pre-speech tensions on the cords.

I began to experiment with an airflow technique. I started by asking a stutterer to produce a long, audible, relaxed sigh. I then asked him to sigh once again, and when halfway through, say a one-syllable word. The stuttering stopped. I increased the number of one-syllable words spoken on a breath. Again, no stuttering.

I was amazed. It seemed so simple. But day after day my results were confirmed - the patient's speech continued to be fluent. My spirits began to rise. I kept wondering how long before the inevitable relapse, but it did not occur, and I decided to proceed to the next step. I asked the patient to make the flows inaudible. He did this immediately, saying he had practiced this at home since he did not care to go about sounding "like a breathy pervert." His speech was now totally acceptable, and he remained fluent.

Here, I thought, was a treatment that represented the essence of simplicity. It focused specifically upon what I had theorized to be the cause of stuttering. The passive airflow kept the vocal cords apart and relaxed prior to speech and deprived the brain of the signals necessary to trigger the stutter reflex.

But for other patients, the immediacy of the result belied a subsequent period of difficulty. Although they used the airflow continuously, they still stuttered at times. What was wrong?

I recorded examples of these stutter occurrences from a number of patients, I was able to uncover four characteristic mistakes which seemed to provoke the reappearance of stuttering. I called them misuses of air flow, and all patients were subsequently given instructions to alert them to these mistakes so they might avoid them at all times.

1. Pushing the Flow. Under conditions of stress, patients tended to push or force the flow, which frequently led to a locking of the vocal cords and a subsequent stutter. They were reminded that the flow had to be absolutely passive, that a pushed flow would sooner or later be interpreted by the brain as an "h", and that the brain would then "think" that all sentences began with an "h" and the stuttering would reappear.

2. A Failure of Transition. Another source of difficulty was the lack of a smooth flow into the first sound of the first word. The flow appeared short, with a pause between the end of the flow and the beginning of speech. It appeared as if the patient were catching his breath - as if, perhaps to initiate an inhalation. The pause provided the time necessary for the

cords to lock. I told patients, "The air flow is your life-line to fluency, follow it directly into the word."

3. A Failure of Intent. Patients are often so preoccupied with the upcoming first sound that their mouths are seen to form the position for that sound during the final minutes of air flow. Thus the air flow is affected by the anticipated sound, and one of the effects of such anticipation is always a tensing of the vocal cords - which often leads to a stutter. Patients are reminded that the object of the air flow is to fool the brain that they are just simply taking another breath. If they start to form the first sound of the first word, the brain is not fooled.

4. Holding the Flow. Patients, in an effort to time their flows, often inhale and hold the air by closing their vocal cords, then start the air flow at the appropriate time by releasing their cords. If they attempt to do this under stress, the hold is often transformed into a lock and they stutter.

Patients were instructed never to hold the flow but to keep the air in continuous movement, that is, to inhale smoothly and then just as smoothly reverse the flow and exhale; there was never to be a stoppage of the flow at any point.

With these cautions in mind my patients were now responding well. The Air Flow Technique, when practiced properly, brought substantial improvement. But occasionally stuttering blocks still occurred. Despite the use of seemingly perfect air flows, some patients continued to experience difficulty.

Reexamining these patients I would, for example, hear a young man use perfect air flow into a "t" and then stutter. I tape-recorded a number of instances of these unexplainable blocks and played them over and over.

I was listening to them at home one evening, wondering if I would ever find a solution, when my wife entered the room commenting, "You know, those people speak awfully fast." And then I realized the obvious fact - they were speed-stressing themselves. If a patient was afraid of a sound, even though he used perfect airflow, he would most certainly rush through the word which contained the sound. As a result of this rushed word, the brain would tense the vocal cord muscles, anticipating rapid speech to follow. It's much the same as when a sprinter tenses his leg muscles a split second before starting a hundred yard dash. But while tensed leg muscles in a sprinter give him a clear advantage, tensed vocal cord muscles in a stutterer obstruct his air flow and result in a stutter.

In a sense, then, getting set to speak should be the same as getting ready to run a twenty-six mile marathon. The marathoner doesn't need the high initial acceleration of a sprinter, and if we measure the tension in his leg muscles a split second before the race, we find considerably less of it.

If our goal with stutterers is to subtract as much tension as possible from the cords prior to the start of speech, a slow start is critical. Indeed, when I forced patients to say the first word slowly, the stuttering aborted.

We have found the combination of the passive air flow and the slowed first word to constitute a powerful defense against stuttering, and it is what I have come to call "perfect technique." With "perfect technique" it is impossible to stutter. I began to inform patients of this very important fact. I arranged multiple-stress speaking situations so that each could see firsthand that this dictum was inevitably true. Patients invariably felt much less anxiety and stress, and the effect of their successful performance was powerful and obvious. Here, for the first time, was a clear-cut prescription for fluency.

CHAPTER 10

THE WORKSHOP

I began working with single patients and with patients in pairs, and found performance in the paired situation to be clearly superior. The presence of another patient increased stress by making the performance not private but slightly public. And the element of competition enlivened things a bit.

Initially, I matched patients according to age and sex. But I found no differences when I paired dissimilar individuals. The same held true for closet versus overt stutterers as well as for both type (I - IV) and severity of stuttering.

I then began to experiment with larger groups. First three people, then six, twelve, Again, no difference could be seen for the variable of number of participants, except, of course, as the number grew larger, the amount of time necessary to achieve the desired therapeutic goals lengthened. I finally settled on fifteen patients as the maximum I would treat at once, and the length of each treatment session increased from one hour to three hours and then to an entire day. I found that the group structure coupled with a full day gave each patient ample opportunity to participate during the session, and maintained just enough stress that speaking was a challenge but not an impossibility. Patients learned from one another's mistakes and each time a patient spoke it was, by definition, public speaking.

After much trial and error, here is the treatment format that we found to be most effective, and that we now use in our workshops at the National Center for Stuttering.

We start by teaching patients to breathe passively from their mouths. I ask them to imagine themselves with a cold, with their noses stuffed and able only to breathe from the mouth. I reinforce this by saying that they carry with them at all times the perfect model of the breath. It is the calm breathing they engage in when they are sitting quietly, doing nothing - except now it's through the mouth. I continue to talk to them and watch their mouths, chests, and abdominal walls for signs of passive outflows of air.

Once passive air flows from the mouth are established we move on to the use of passive airflows before monosyllables and then multisyllables. At this point we introduce several feedback techniques that have been developed for monitoring Air Flow. By enabling patients to hear their own breathing patterns, these devices help them recognize the particular sound quality of a totally passive air flow. This quality of sound is called Flutter, and differs from person to person since everyone's respiratory system is shaped differently. Every patient must learn to recognize his own characteristic Flutter pattern. For some this takes no time at all; for others it takes more practice -- but whatever the time involved, no progress can be made in Air Flow Treatment without first attaining a consistent Flutter.

The simplest, and probably the most effective feedback technique involves a piece of rubber tubing about a foot long. One end of the tubing is placed directly in front of the speaker's lips and the other placed in his ear. Thus the patient, as he breathes, can listen to his breath. Another feedback device commonly used is a tape recorder. A special microphone is employed for all patients, a microphone capable of picking up minute Air Flows from the mouth and recording them. The microphone is placed in front of the mouth and the Air Flow is tape-recorded and played back for evaluation. The patient must learn to recognize his Flutter on the tape recorder.

The most important point about Flutter is that its presence indicates a passive air flow. When the air flow is no longer passive, flutter vanishes and is replaced by one of two classes of breathing sounds: pushed or squeezed flows. A pushed flow indicates that the patient is now actively aiding the outflow of air while a squeezed air flow is one that is produced when the vocal cords are already locked and the air is being forced between them. During Workshops, pushed and squeezed flows are recorded on the patient's recorder and played back for training purposes. Pushed and squeezed flows invariably lead to stuttering and are to be avoided at all costs.

Proper awareness of Flutter is crucial since fluency will always be present in the absence of stress. So if a patient is practicing at home alone, he will be comfortable and relaxed and probably completely fluent; at the office, on the other hand, he may have pressures that increase his stress level so that his stuttering returns. Thus the patient needs some form of external objective indication of the correctness of practice. Flutter provides just such an indication.

In Workshops Flutter is demonstrated through the use of the tape recorder and each of the participants is trained in methods of producing absolutely passive outflows. Much time is spent practicing this extremely basic and critical phase of the program.

When Flutter before single words is produced in a consistent fashion, we proceed to the production of Flutter before short phrases and then before short sentences. Two rules are taught to deal with the problem of the quick start. The first rule applies to the condition in which a phrase or sentence begins with a one-syllable word. The rule states: "When a sentence or phrase begins with a one-syllable word, we are to put a comma, a mental pause, between the first word and the rest of the sentence." The second rule relates to the situation wherein a phrase or sentence begins with a multisyllable word. This rule states: "When the first word is a multisyllable, we must say each syllable with equal slowing, much as if it were spoken to the rhythm of a slow me-tro-nome."

All patients are given special lists of phrases and sentences to practice. All practice is performed using the rubber tube to monitor for the presence or absence of Flutter and the slowed first word. In addition, periodic samples are recorded on a cassette and played back for evaluation.

During the Workshop, the technique is continually likened to a sport. The sport consists of two strokes: a passive outflow of air followed by a slowed first word. The presence of flutter and a slowed first word are the signs that the sport is being played correctly.

Since public speaking is usually described as painfully difficult, I developed a routine, in the first morning of treatment, of having each patient stand in front of his fellows at the end of the session and give a short speech. A few hours earlier, the thought of such an activity would have been an impossibility; now they were standing and speaking perfectly - without a trace of a stutter.

As each person's turn comes to speak, the others are required to subvocally practice with the patient. In this way, practice is fairly continuous. In addition, I continuously scan the room observing these subvocal practices to make certain that they are done correctly. If I see a misuse of air flow or a failure to slow the first word, I note it publicly and forcefully, thereby stressing the extreme importance of powerfully attending to technique.

I developed a one minute exercise called Contract to deal with the problem of attending to technique. After patients demonstrate both an understanding and ability to produce a passive air flow together with a slowed first word, they are required to recite a string of unrelated sentences out loud for one minute in front of an audience. Unrelated sentences are chosen initially because related ones would form a context which might distract the patient's attention away from his fledgling technique. Each sentence must be perfect, and if the speaker happens to stutter, he is required to pay a dollar for every block. My typical comment in announcing this is, "Now that you have shown that you can control your stuttering you must pay for the privilege of inflicting your struggle behavior on the world around you." Initially, contract is done for one minute a day. Later the duration is increased.

We have found that patients' attention to technique while under contract is outstanding. The slightest tendency for the mind to wander is effectively cancelled by the knowledge

that if they stutter they have to pay up. All monies collected during Contract were given usually to the youngest individual at the Workshop who has been elected to buy me lunch. Alas, I often can't even raise enough money for desert.

I recall treating a young man from Houston whose father was a fabled Texas Oil Man. This nineteen-year-old received a monthly allowance of \$3500. He came to the Workshop in his Turbo Porsche and when I proposed that he would have to pay a dollar a stutter, his response was, "Dr. Schwartz, that ain't no money!" To which I replied, "Roger, for you it's fifty dollars a stutter!" To which he replied, "More like it sir!".

Patients are required to practice Contract with someone at home for several months. If the Contract is done with a close friend or spouse, the money, instead of given to the individual, is simply to be thrown out the window. The thought of doing this clearly has the potential of upsetting all parties and increases the impulse for careful attention to technique. Patients learn and practice Contract at the Workshop and many have found it helpful in dealing with stressful situations long after the workshop is over.

I recall one patient calling the Center to tell me that he had gone on an interview for a position and as the interviewer began to ask the first question, the idea crossed the patient's mind that the situation was like a sort of Contract and that the instant he realized that, he went into what he called, "Contract Mode". I asked him what he meant by that and he described it as a psychological space he was in when under Contract - a space associated with a powerfully focused attention to technique. In this space, nothing could "throw" him. Needless to say, in so far as speech was concerned, the interview went perfectly.

Another exercise that has proved extremely effective is called Toughening. It is designed to make the stutterer resistant to the speed of the speech of those around him. There is a tendency for people to respond in kind. That is, if one is spoken to quickly, the tendency is to respond quickly. If the stutterer attempts to respond quickly, he will scarcely leave time for implementation of his technique. Time is required to let a small bit of air flow out passively from the mouth and to slow the first word. Toughening teaches the stutterer to take this time.

Like Contract, Toughening requires another person. The other person asks a question, which the patient then answers in a single sentence, employing the air flow technique. In the middle of the sentence, the assistant interrupts with a second question. The patient has to stop in mid-answer, generate another airflow, and, employing a complete sentence, respond - whereupon in mid-sentence he is again interrupted. This goes on for a minute. The patient tends to speed, discarding his technique in responding to the rapid-fire questioning. The goal is to retain the Passive Air Flow and continue to slow the first word regardless of the speed of the question.

I frequently tell patients at workshops that, in a sense, I wish they would all develop a peculiar form of paranoia. I wish they would believe that everyone in the world was being

paid by me to toughen them. This would put them on their guard and make them highly resistant to the verbal speed demands of the world around them.

CHAPTER 11

BASIC TRAINING

As I have indicated, the Air Flow Technique is a sport. Small muscles are involved rather than large ones but the same rules apply. The first thing anyone must do with a sport is practice. A habit must be made - a habit strong enough to compete successfully against the tendency to lock the cords. The habit must be made automatic and both look and sound natural. It takes time to achieve this - typically twelve to fifteen weeks. It is a period I call Basic Training.

Patients are encouraged to imagine themselves as machines sitting in a room generating one perfect sentence after another, taking time between each sentence to set themselves up properly to produce the best possible example of technique. The axiom of quality rather than quantity is reinforced.

Foundation Exercises. The first four weeks of Basic Training are devoted to Foundation Exercises. In these, the patient must demonstrate an absolutely consistent use of Flutter and slowed first words on short, simple sentences and short speeches composed of simple sentences. This phase is critical because it constitutes the basis for subsequent progress. If there is the slightest imperfection in technique, any stress will exaggerate it, and can lead to stuttering. In order to build a permanent edifice of totally fluent speech, the patient must have a completely sound foundation.

Bridging Exercises. The next four or five weeks are devoted to using the technique in structured, real-life situations. These are called Bridging Exercises. The goal here is to bridge the basic practice exercises into the real world. These exercises are performed with a friend, family member or co-worker.

At this stage of the program the patient is introduced to the MotivAider, an electronic timer device that looks like a personal pager and can be attached to a belt or slipped into a pocket. The MotivAider can be programmed to go off at any interval from once a minute or once a day and, when activated, produces a half-second-long vibration, reminding the patient to attend to technique.

The MotivAider was invented by Dr. Steve Levinson, a clinical psychologist in Minnesota to remind patients to perform a task at selected intervals. In an early study, he selected a group of depressed patients who were constantly thinking depressing thoughts. He selected a positive statement and required his patients to repeat it aloud fifty times each day for several days. After that they were given the MotivAider. Each time the MotivAider went off, they were to repeat the positive statement to themselves as a thought. The chain of continuous negative thinking was thus broken at regular intervals and the depression lifted for a certain number of patients.

In our program, the MotivAider is set to go off once every three minutes and is used for three hours a day for three weeks. Each time it goes off the patient is trained to think, "The next sentence is with perfect technique." After the three-week period of use the patient goes on vacation for a week and then resumes use. It has been found that several three-week cycles of MotivAider use are all that are required to make a permanent habit of the Air Flow Technique.

During MotivAider use we introduce the concept of Nickel and Dime Practice. The term, Nickel and Dime refers to the fact that during the course of the day one can always find a spare five or ten minutes to practice. For example, many people commute to work by car. A typical trip may last twenty to forty minutes each way. During this time one is captive. What a perfect place to practice!

In the car the patient is required to generate strings of unrelated sentences. It has been estimated that if a patient drives an average of an hour a day, he can produce approximately five thousand practice sentences a week - in that one location alone!

One patient generated sentences while watching television commercials. Another practiced each time he went to the toilet. And a youngster reported Nickel and Dime during chores.

There are three types of Nickel and Dime Practice. The first is "Out Loud." In this, the patient uses perfect technique (a Passive Air Flow followed by a slowed first word) to generate a series of sentences out loud.

The second type is called "Silent," and in it the patient practices silently. The Air Flow still emerges passively, the first word is still spoken slowly, but the articulations are unaccompanied by vocal cord vibration. Silent Nickel and Dime practice is used in public situations where the audible production of unrelated sentences would be inappropriate or distracting to others.

The third form of Nickel and Dime practice is called "Silent and Covered." In it, the patient repeats Silent Nickel and Dime Practice but, in addition, covers his mouth with his hand, looks up at the ceiling, and appears to be thinking. Since it can be used anywhere, it can immediately be put to use in virtually every situation. Of course, since the speech is silent and no one knows, there is no stuttering. But it doesn't matter, the patient is actually

starting to get better in that situation. He is taking practice swings on his turf. And if someone comes up to him and asks him a question, it's more of the same, but out loud.

In this "bridging" phase of Basic Training the patient begins to show signs of automatic use of the technique. He reports speaking for an hour and discovering that he has been using technique without actually being conscious of precisely when he began to use it. He experiences a greater frequency of real-world successes. He begins to see that the technique really has the power to stop his stuttering, that it is not merely something that works in carefully structured situations, but has definite, practical applications. As all this becomes manifest, his motivation starts to soar as he begins to see the light at the end of the tunnel.

Real World Exercises. The third, and final, stage of Basic Training has been developed to confirm the stutterer's technique in any and all situations. It's called Real World Exercises. All of the prior weeks' practice can now be seen to have been a preparation. Here is the stepping off point for the future.

We introduce the patient to a series of exercises which are graded along a hierarchy of distractibility, that is, in terms of their ability to distract the patient's attention away from use of the technique. For example, we'll assign a simple conversation exercise that requires the patient to discuss some neutral, or uninteresting topic with a friend. When the patient exhibits consistently perfect technique at this level, he progresses to conversations that are somewhat more distracting. For example, if the patient was interested in baseball, a discussion on that subject would be initiated. Again, the requirement for consistency in technique is strongly reinforced.

At this point we introduce the telling jokes exercise. Stutterers report telling jokes to be difficult - particularly when it comes to the punchline. The punchline carries the information of the joke. It is usually a high-stress utterance, one associated with more tension on the vocal cords. In addition, amateur joke tellers tend to deliver punchlines quickly - and this raises vocal cord tension as well.

Patients are assigned the task of telling jokes to a variety of people. Samples are recorded and sent to the Center for evaluation. Occasionally one hears a burst of laughter coming from a therapy room where a therapist is monitoring tape cassettes sent by patients to the Center. One can be fairly certain she is listening to jokes.

Following jokes, we enter into a group of exercises known as debates. In these, the patient is required to take a position on a subject of great personal interest and to debate his position with an opponent. Often debates are held under contract. If a patient becomes distracted and forgets to use technique, he must pay for this oversight. Debates are the most powerful of the class of distraction exercises and successful mastery of them signals the completion of the last phase of Basic Training.

The patient now has an automatic and powerful habit. The next step is to eliminate the habit of scanning - the process of looking ahead for feared sounds, words, or speaking situations. I have found that if a patient stops practicing when he no longer stutters but still looks ahead, he runs a substantial risk of having a relapse. All vestiges of anticipatory stress must be eliminated to insure a permanent result.

CHAPTER 12

OVERCOMING ANTICIPATORY STRESS

The consistent use of Air Flow brings total fluency. Patients are delighted with an easy-to-use technique that handles stuttering effortlessly. And following the twelve-to-fifteen week period of Basic Training, the habit is both automatic and strong. Many patients think that continued application of the technique will eventually secure permanent fluency.

But it is not always that simple. Patients' use of technique is frequently compromised by the extreme stress associated with certain sound, word and situation fears. These fears, which formerly had been directly responsible for the locking of the vocal cords, now produced the same locking in an indirect fashion - by completely filling the patient's conscious awareness and preventing attention to the technique. The result is inevitable: the patient stutters, which, in turn, raises stress further, leading to still more difficulty. Early success is reversed by a tenaciously persistent array of anticipatory stresses.

In order to secure their fluency, patients need to be able to handle these stresses consistently. Indeed, it is the elimination of these speaking fears and scanning behaviors, rather than the initial fluency produced by mastering the Air Flow Technique, that signals the permanent result. These fears will not abate by themselves, however, and merely wishing them away won't work. They need conscious attention - a deliberate, planned strategy - and sometimes they take months to overcome. Of course, everyone has his own personal methods for dealing with stress, but here are a couple we have found to be particularly effective in dealing with anticipatory stress in stutterers.

Systematic Desensitization. Developed by psychologists to help patients overcome situation fears, systematic desensitization involves creating a hierarchy of examples of a stress situation (from low to high), and then slowly and successfully negotiating the patient through each step to gradually build confidence. For example, if a patient reported a fear of job interviews, he or she would be advised to interview first for jobs that held no interest for them. The rationale was that there would be virtually no stress associated with the interview. After initial success, the patient would be encouraged to interview for positions

for which they might have an interest. The hierarchy is obvious: the least desirable position would be interviewed for first, the most desirable one would be reserved for last. And after a week or two, if the hierarchical steps were chosen properly, the fear of job interviewing should be extinguished.

I found this procedure to be very effective in eliminating anticipatory stress in stutterers. An example shows the process in detail. Several years ago I treated a man from New Jersey who, in spite of a severe stutter, had managed to develop a successful automobile dealership. Now, at forty, he seriously wished to marry and have a family. But he always stuttered severely when meeting women socially.

He suffered from an interesting if not altogether unusual hierarchical affliction: the prettier the woman, the greater the stress and the more he stuttered.

He confided this dilemma to me one morning as we sat in my office. The description of his fear hierarchy prompted an idea. I suggested that he and I visit a series of bars. I would choose the bars and he would engage in a systematic desensitization while we bar-hopped. He agreed to the proposal.

At the appointed time and location, in a somewhat disreputable part of town, we entered a bar, and I pointed to a "bag lady" sitting disconsolately in a corner. My patient, when told to approach her with an offer of a drink, balked, saying that this was not a stressful situation since the woman was unattractive. My response was that this was a fine place to begin.

He approached the woman, bought a drink and offered it to her. The conversation was brief and the technique excellent. No stuttering occurred.

At our next location we encountered a fiftyish woman of obvious means but with a clear addiction to alcohol. She had already had several drinks and was intoxicated as my patient sidled up to her to engage in conversation. Again the technique was employed and again fluent speech ensued. Later I pointed out that this woman was far more attractive than the one he had spoken with just twenty minutes earlier and that, as a result, we should proceed to the next step.

A taxi ride to the other side of town brought us to a favorite after-work spot frequented by secretaries and young executives who worked in the many office buildings in the neighborhood. We chose as our next "victim" a woman in her late thirties who, while sober and moderately attractive, was not too eager to speak with my patient since she was looking for a friend. He persisted, however, and found that he could still attend to technique in spite of the fact that the disinterest shown by her had been misinterpreted by him as rejection and had caused an elevation of his Base Level Stress. He reported later that he had been "on the edge" but had managed to hold on to technique.

I decided not to proceed further up the hierarchy and chose, instead, another woman about the same age who seemed both unincumbered by the expectation of meeting someone and more self-contained. My patient found in her an immediate conversation partner and spoke at length. After the conversation he reported that his stress was again low. I noted to him that this woman was very attractive and he acknowledged this with a smile.

In the next bar he soloed, that is, as soon as we had selected our person, I left and it was his task to both initiate conversation and sustain it with perfect technique. I chose a remarkably attractive woman and left. Twenty minutes later my patient skipped out of the bar in obvious delight and as he approached, pulled a slip of paper from his pocket, a slip bearing a phone number which she had given him.

I suggested that the night was young and that he continue to mass practice in as many of bars he could find until his fear was completely gone. This he agreed to do, and in the course of the next several days, he extinguished a lifelong fear. Two and a half year later I attended his wedding.

The same hierarchal procedure can be applied to deal with word or sound fears. A common example is the difficulty some stutterers have saying their name. The reason is obvious: one cannot word substitute one's name and it is often the first thing said in a conversation, where the peak of the stress is greatest. Many stutterers remember sitting in a classroom on the first day as the teacher went around the room having the students say their names. As their turn approached, the stress mounted to horrific proportions and the result was always a stutter.

With such a history it is no wonder that some patients, in order to avoid stuttering on their name, either always spell it or never leave home without a business card. One patient went so far as to have his name changed to one which he could say easily, only to discover that the stress had now shifted and he could not say his new name.

The solution to this problem of saying a feared word such as one's name is to first practice saying it with perfect technique a thousand times. Employing a leisurely pace, and practicing approximately a half hour a day, four days will produce the required number of repetitions. Following this, the patient is encouraged to repeat his name with perfect technique to the closest person he knows, whether it be a spouse, parent or best friend. Twenty five repetitions per day for a week suffices and he is to increase, on a daily basis, the number of people with whom this practice is performed.

The hierarchal concept is at work here since the patient starts first with the easiest, least fearsome, person and then progresses to more and more difficult ones.

The next step is to use lists of 800 numbers to make calls. When the operator responds, he is required, with perfect technique, to say his name and hang up. This may appear rude, but I have always justified it as the operator's momentary minor inconvenience against the patient's life.

The next step is to begin mentioning one's name in ongoing conversations. A number of strategies have been developed. For example, a patient would talk about a hard-of-hearing elderly grandparent who could not comprehend speech over the telephone. In the course of telling the story the patient would say the following: "I would repeatedly say, this is John Smith and yet he still wouldn't recognize his own grandson". Whether or not John Smith really had a hard-of-hearing grandfather is immaterial; the fact was he was practicing saying his name in conversation.

I've had patients call hotels to find out if someone with their name was registered, have had patients page themselves at airports, have had them call information for their phone numbers - one patient even made up a fictitious company name which was in fact his own and used this to describe a wonderful stock investment he had heard about. Of course, this ruse worked only with strangers!

For some, the extinction of word or sound fears occurs rapidly; for others it is a long, arduous process. There seems to be great variability in the number of successful experiences required for a person's subconscious to become convinced that there is no longer any need to look ahead for feared words or sounds. Some individuals are highly suggestible: a few instances are all that are required for persuasion. While others have anticipatory stresses that linger for weeks or months before finally slipping into the abyss of extinction.

CHAPTER 13

PREVENTING RELAPSE

Ironically, one of the greatest advantages of the use of the Passive Air Flow Technique - the speed with which it often brings total fluency - can, with some patients, also be one of its greatest setbacks. A patient who on Monday had been a severe stutterer, will on Tuesday, speak effortlessly everywhere without a trace of his former problem. He, his friends, and family would be delighted; his therapist, on the other hand, would be deeply concerned.

For the immediate, total success produced by the Air Flow Technique for some patients can be reversed as quickly as it was learned, if careful maintenance is ignored. The patient is highly suggestible, having just overcome a major lifelong difficulty, and if he lets down his defenses and relaxes his attention to technique, he runs the risk of having his stuttering return at the slightest provocation. He also opens himself up to another, more subtle complication - a condition that I have come to call "the assault of the subconscious."

The assault of the subconscious only occurs in individuals with a moderate or severe stut-ter who quickly become fluent. Shortly after attaining fluency the patient reports experi-encing an anxiety attack which may range from nervousness to a deeper sense of dread. The anxiety continues unabated for days and they begin to feel that if only they were to start stuttering again, their anxieties would decrease. For a small percentage of patients the stress is so great they succumb to the temptation. The stress does indeed stop after the re-sumption of stuttering and the patient vows "never to go near that fluency again."

The theoretical explanation for the assault of the subconscious is as follows: The subcon-scious plays a critical role in a person's identity, and in producing and maintaining change. In a person who stutters, the subconscious sees itself as a stutterer. For years the individual has been telling his subconscious that he cannot say certain sounds, certain words, or speak in certain situations - and the subconscious believes it. The subconscious does not place a value judgement on stuttering, it simply says that's the way it is. Value judgements came from the conscious mind.

When a person abruptly stops stuttering, the subconscious becomes disoriented. Fluency is not the normal state of affairs; it violates the self concept of the subconscious. The sub-conscious becomes "concerned" that the well-being of the individual is being threatened, and its only mode of response is to "sound the alarm" by raising the person's level of anxiety.

It is well known in learning psychology that all newly learned behaviors, including the Passive Air Flow Technique, are lost under conditions of stress. The elevated state of anxiety is an attempt on the part of the subconscious to restore its self concept as a stutterer by causing the individual to give up his newly-learned fluency. I have encountered this prob-lem time and again, in totally different situations, and have come to recognize it as the precipitating cause of relapse in patients who attain total fluency quickly!

During my early experiences with stutterers I found that fully a third of those who became totally fluent quickly reported the assault of the subconscious. Some would "hang tough" and after a week or two it would be gone; others would succumb to the temptation to re-sume stuttering and would be lost to the Program. The Bathtub Technique is a treatment that has been developed by the National Center for Stuttering to deal with this problem. At first it may seem unusual, but it has been used with over 4,000 patients and it successfully eliminates the assault of the subconscious.

Three things are required: a bathtub filled with warm water, a candle in a candle holder, and a mirror. The candle is lit, placed in the holder, and put on the ledge of the tub. The mirror is placed next to it. The patient then turns out the light, enters the tub reclines in the water so that his torso is completely submerged, breathes calmly in and out through his nose, keeps his eyes open and stares at a spot on the wall directly in front of him. Each time the air calmly comes out of his nose, he thinks the word one. As he does this, he may find his mind starting to drift, starting to think other thoughts. Each time this happens, he is to bring his mind gently back to thinking the word one. Since the mind is an undisci-

plined thing, he may find himself frequently having to bring it back to the thought. But he is to persevere for at least five minutes and steep there in the tub like a pot of tea.

Here's how the first phase of this technique works: First, the warm water mechanically relaxes the muscles of the patient's body. Second, the subdued light from the candle prevents any bright light from tensing his eyes. Third, fixing his eyes on a spot on the wall prevents eye-scanning movements, which is important to this exercise since eye-scanning movements have been shown to stimulate muscle tension. Fourth, thinking the word one over and over again renders the word meaningless. Like repeating a Hindu mantra, and this prevents the patient from thinking about what he should have done yesterday and what he has to do tomorrow. Such thoughts stimulate tension.

In those five minutes, we are attempting to strip away as much muscle tension as we can, to create as much of an intra-uterine experience as we can, our mother's uterus being the safest place we've ever known - warm, moist, dark, supportive, thoughtless, relaxed. We are using an intra-uterine model as the physiological rationale for this first phase of The Bathtub Technique.

We now move to the second phase. The patient sits up in the tub, picks up the mirror, and positions it so that he can see his eyes. Using perfect Air Flow Technique, he begins to repeat the word "relax" slowly, using an extremely soft voice. He does this for about three minutes (usually about fifty repetitions are produced during this time). These first two phases are designed to reduce muscle tension to a level where we can access the subconscious.

We are now ready for the third and most important phase of the program. In it, the patient is literally going to brainwash himself; he is going to change the self-concept of the subconscious..

The patient reads a specially-prepared series of positive statements called affirmations. The affirmations are prepared individually for each patient. They are read three times using the Air Flow Technique. One of these affirmations is designed to provide subconscious motivation to practice. It is naive to rely solely on conscious desire, when the subconscious is free and accessible.

Subconscious motivation is powerful but gentle. An example of this is brushing the teeth. Think of brushing the teeth as practice we do every morning and every evening. Somehow we feel obliged to do it, as if the day would be uncomfortable or incomplete if we didn't. There is no question about our doing it. It is something we all have to do and we never call it practice. It is our subconscious at work, telling us to do it. We are almost never too tired to brush our teeth. So too does airflow practice become almost involuntary as the bathtub technique affects the subconscious.

Each patient is provided with a post-hypnotic cue word to say silently before entering a stressful speaking situation. Many stutterers, when they say the word, experience a pro-

found drop in Base Level Stress - to the point where they seem to be alone, even if they are in the middle of a large group. Their fluency is then assured.

CHAPTER 14

SUPPORT SYSTEMS

Stutterers rarely, if ever, stutter when they talk to themselves out loud alone. Any attempt, therefore, to make a permanent change in stutterers must consider the "outside world" - that is, the world of speaking individuals. It is terribly difficult for a stutterer, after stuttering for his whole life, to suddenly communicate fluently with others, and sometimes the strain is so great that the patient suffers a relapse and begins stuttering all over again. Knowledgeable friends and family members can offer reassurance and reinforcement, but we have discovered that a more systematic program is what is most effective. Indeed, to assure permanent fluency in any and all situations, any treatment should continue to offer a follow-up program long after the stutterer has demonstrated fluency in the classroom and at home or work - and this may take some time.

There are a lot of resources available, among them the system of reinforcements that the National Center for Stuttering has developed over the past fifteen years to assist the stutterer in his transition and help him maintain fluency. There are several components to this system, enabling patients living anywhere in the United States to refresh their technique and get moral support from professionals and other stutterers. Patients have found this support network extremely helpful, and it has become an integral part of the NCS program.

Therapists. The ongoing support of a therapists can be invaluable. Our patients participate in an active exchange process with a trained therapist for 9 to 12 months after basic training is over. The therapist monitors the patient's performance weekly via a cassette tape, and guides him through difficult speaking situations.

While one can learn to completely stop stuttering in a few short months, it can take much longer to overcome anticipatory stress - the habit of scanning ahead for feared sounds, words, or speaking situations. The patient's "scanner" must be put to sleep, and since it is deeply imbedded in his subconscious, this can be a complex psychological process. The stutterer must be patient. In the course of working with thousands of stutterers, I have learned that if a patient stops practicing the Air Flow Technique when he no longer stutters, but still scans, his risk of having a relapse is great. Having the ongoing support of a therapist gives many the extra incentive they need to stick with the program.

Refresher Courses. Many stutterers have found refresher courses invaluable as a way of brushing up on technique and renewing motivation to practice. These refresher courses are conducted periodically throughout the United States, giving patients fact-to-face contact with a therapist. The refresher courses also allow time for dealing in depth with particular questions raised by the patients, and provide an opportunity for discussing highly refined strategies for handling unusual and high-stress speaking situations.

For example, one patient worked in a nuclear electric generating plant. He was an evening supervisor and virtually ran the plant. His stuttering was controlled, but his greatest fear was that in the event of a crisis, when called upon to give a long and complex series of commands rapidly, he would find himself unable to do so. He lived in fear that if a crisis did occur, it would prove devastating not only to him but to those who relied on him. This knowledge weighed heavily upon him, and he thought a great deal about changing jobs.

He came to a refresher course and I suggested that he stage simulated emergencies or full-blown dress rehearsals on a regular basis. Emergency drills were, of course, routine procedure at the nuclear installation, but by increasing their frequency and making them as vivid as possible, he would be able to practice speaking under pressure, and learn to control the emotional responses that might occur in such a situation.

Six months later I received a letter from him informing me that there had been a true emergency at the plant, and that he had handled it flawlessly. Not only had he achieved a personal victory, but he had also been promoted to a new position, one that did not require him to speak under stress. His practice had moved him into a low-stress speaking situation.

The National Stutterer's Hotline: 1-800-221-2483. One component of our support network that has helped countless stutterers with their problems is the special hotline number established for patients of the Air Flow Technique. This toll-free number is manned by trained professionals, and is available to anyone who stutters, or his family or friends. It is extremely comforting to know that a knowledgeable therapist is available to provide support and advice. If you stutter or know someone who does, you are encouraged to call the hotline for information concerning the availability of treatment programs in your area.

In the past, stutterers have called about particular assignments, or if they are having a bad day, or if they are worried about an upcoming speaking situations and want a strategy for maximizing their success, or if they are in an emergency situation and need help - quick! For example, several years ago I treated a patient who worked for the State Department. He had performed reasonably well in his career because he was a closet stutterer. But he was hampered by his inability to learn a second language - which is a requirement for advancement in the State Department. The difficulty was that in the second language he did not have the facility to word-substitute. He would have to say all of the feared sounds, and his anxiety over this prospect had grown to gargantuan proportions; the mere thought of having to study a foreign language was terrifying.

He wanted to learn French, but all attempts in the past had failed miserably. He had been practicing the air-flow technique for six months and felt he was ready. In the State Department courses are provided in which one can study a foreign language intensively - six hours a day for a number of weeks - until mastery of the basic elements of conversation is achieved.

The first day of training began. The session went well for the first half-hour, and then he hit his first serious block on a "t" sound. His base-level stress shot up and he found himself suddenly unable to continue. All of his old fears about learning a second language returned with full ferocity. He asked to be excused, went to the nearest pay phone, and dialed the toll-free Patients' hotline number. A therapist responded and counseled him about both technique and strategy. She reviewed the basic features of the technique and, in addition, suggested he continue, but speak softly and slowly the remainder of the day. She also suggested that he inform his instructor that he would speak speaking in this manner. He was told to call back as often as necessary. On the first day he called a number of times. On the second, twice. He successfully completed the course.

While professional support of the type provided by our therapists, refresher courses, and the national stutterer's hotline has proven extremely effective in helping former stutterers remain fluent through attention to technique, we've found that it is the successes of other stutterers that provides the real psychological edge, the greatest hope and motivation to stutterers still working to overcome their affliction. Let's consider some of the other support programs that have proven effective.

Clubs. Sharing a problem with others who are working through a similar situation can be invaluable. Clubs for Air Flow users have been established in most major cities in the United States. These generally meet twice a month in local hospitals, churches, or libraries and serve as power support groups. A rotating leadership system prevails, allowing each member to lead a meeting, and members perform various exercises to refresh their technique. Most importantly, though they are able to share their stories of victory and defeat with who really understand - and the support members provided for each other provides maximum motivation to continue practicing Air Flow technique on a daily basis. While some people may be nervous at first, they soon feel at ease in the club meeting situation.

Advanced members often function as a sort of miniature lecture bureau. They arrange to give group lectures on stuttering to various local organizations such as a speech-therapy class at a local college, or a women's group. Their goal is not only to educate a public that needs such knowledge, but, in the process, to use the support of the club as a tool to broaden their public-speaking experience and gain self-confidence. Newer members in the club aspire to join these mini-lecture bureaus and, once they have become sufficiently expert in the use of the technique, are welcomed into the bureau.

Many club members have also given interviews to local newspapers and have spoken on radio and television. To go from being a person who stutters to one who receives applause for a public lecture represents the most dramatic change in self-concept possible. The in-

dividual who accomplishes this goal has gone so far psychologically that the possibility of relapse is extremely remote.

Many of the participants in these club meetings go on to join a national public-speaking organization called Toastmasters. There they have an opportunity to give a speech before an audience every week. A number of Air Flowers have become presidents of their local Toastmasters chapters, and others have won regional public-speaking competitions.

The Monitor System. Another helpful technique draws on the age old concept of the buddy system. We call it the Monitor System - a monitor being a person (spouse, parent, or friend) who has a vital interest in the stutterer.

A monitor totally understands the stutterer's treatment program. He may practice the Air Flow Technique with the patient or encourage him to confront speaking fears. He is almost like a surrogate parent, a mother or father who is intimately involved with the child's homework. We have discovered that patients make much greater progress if there is someone at home and/or at work or school who is intimately involved with the rehabilitation program. People have a lot more power to change when they are with another person rather than alone.

From time to time a stutterer reports that he lives alone, that he knows virtually no one, that his work is done in isolation, and that he cannot think of who might be a suitable monitor. I suggest that he go out and hire one, that he pay a high-school student a few dollars an hour to function as a monitor. At all costs, he must not try to go it alone. He is to think of the stutterer inside himself as a sort of child - a child that needs parenting.

We have repeatedly discovered that monitors are crucial to the establishment of success and that patients who attempt to succeed alone court disaster. Although it is possible for some individuals to succeed by themselves, their number is small. The general suggestion is: get a monitor. And if you can find two, you are twice blessed.

Banquets. One of the most satisfying occasions for any former stutterer who has triumphed over his affliction is the opportunity to share his achievement with others. Each year, throughout the United States, banquets are held in a number of cities. They celebrate the achievements of Air Flow students. After dinner, thirty individuals present short speeches on a topic related to the theme "How My Life Has Changed." Their speeches are testimony to how far these individuals have come in changing their lives. You'll read some of these wonderful first-person success stories in Part III of this book.

A call for speakers for an upcoming banquet is usually announced a month in advance; the first thirty to respond are chosen. In recent years, far more have responded than time allotted. Those who are "shut out" are given top priority for the following year's presentation. I recall one patient who felt so disappointed at not being able to speak at a Washington, D.C., banquet that he submitted his name for one in New York, was accepted, and flew up for the dinner.

Individuals who have shown an interest in learning Air Flow but who have not yet done so are invited to attend a banquet and listen to the speakers after the dinner. Many of these stutterers are skeptical about being able to recover. They have had many therapies in the past, none of which have ever worked for any considerable amount of time. As these individuals hear one success after another, a glimmer of hope begins to develop.

We have found these support systems absolutely critical in helping establish a permanent result. Without them, the patients are left to fend for themselves and, unfortunately, very few have enough power on their own to voluntarily make the major changes required.

CHAPTER 15

GUIDELINES FOR SELECTING A TREATMENT PROGRAM

Because of the time required to train a therapist, it is not surprising that a number of centers professing to use an Air Flow technique do not. Here are some guidelines to use when selecting a program. First, ask whether a member of the staff has been certified by the National Center for Stuttering as an Air Flow Therapist. Second, ask to speak to patients who have been through the program to determine what their results have been. Third, ask whether or not the program provides a clearly delineated long-term follow-up support system. Fourth, take a dim view of any program that purports to effect permanent changes in a few weeks; it is absolutely unrealistic to expect that a lifelong problem will be changed so quickly. Fifth, determine whether the program considers the importance of base-level stress and its variability. And last, if any doubt exists about the competence of the program, call the Center for an opinion.

There are so many different clinicians employing such a variety of approaches that it is often difficult to properly evaluate them all. But some definite conclusions can be drawn. Any program, if it is good, must produce an initial fluency quickly. If the technique does not accomplish this, the program should be discontinued. Similarly, stutterers should avoid the clinician who does not specialize in stuttering but instead treats a variety of speech or psychological problems. Stuttering is a specialized area, and its treatment is best left to those with extensive clinical experience. Lastly, no therapy be pursued if the clinician can offer no numerical probability of likely eventual success.

CHAPTER 16

ONGOING RESEARCH:

IMPLICATIONS FOR THE FUTURE

What does the future hold? Much promise, I think. The creation of a National Institute of Communication Disorders in Washington, D.C. has insured substantial and continued Federal funding for research into stuttering.

We are beginning to see the results of this research. In 1989 several investigators reported discovering the area in the brain responsible for the locking of the vocal cords in stutterers. This finding means that researchers may now begin to attempt to develop medications targeted to work in that area. It is conceivable that in the future stuttering might be treated by the simple expedient of taking a pill.

Researchers at the National Institutes of Health are attempting to deal with the problem of stuttering by injecting a chemical substance into the muscles which move the vocal cords. The action of this substance is to temporarily weaken or paralyze the cords, thus preventing them from locking. Preliminary findings have been shown some reduction of stuttering and further research is underway with larger numbers of patients. It seems likely that one future approach to the treatment of stuttering may involve injections to the vocal cords once or twice a year. Most individuals who stutter would probably be willing to undergo this procedure if they knew it to be effective.

Perhaps the most exciting line of research currently under way is based on a study recently conducted by the National Center for Stuttering in conjunction with a major New York hospital. In this study, we anesthetized the vocal cords in a group of four stutterers to determine if we could eliminate the neurological trigger for stuttering - the nerve impulses that report vocal cord tension to the brain. If the brain never realized there was tension on the vocal cords, stuttering could be avoided.

The nerves in the vocal cords are intricate mechanisms that actually serve two functions. On the one hand, they are sensory nerves, detecting tension within the vocal cord muscles and sending this information to the brain. On the other hand, they are also motor nerves, receiving impulses from the brain which instruct the vocal cords to contract or relax. Any procedure designed to numb the nerves must be able to isolate the sensory portion of the nerve, for numbing the motor portion as well would result in paralysis of the cords and then, of course, speech would be impossible.

Fortunately, the fibers within the nerve are arranged in such a way that we can selectively target the sensory function. The motor fibers carrying nerve impulses to the muscles are clustered together in the center, while the sensory fibers carrying nerve impulses from the

muscles are arranged on the outer surface. When a nerve is injected with anesthetic, it is initially blocked in both directions, but after a period of time, usually about twenty minutes, the inner core (motor portion) recovers, followed by the outer surface. If our thinking was correct, injection to the nerves on both sides would result in immediate total paralysis of the cords followed by initial return of the motor ability to tense the cords followed by a return of sensation from the cords.

In all, four adult stutters received the injections. The first, a man of about forty-five, possessed a severe stutter of life-long duration. Ten minutes after receiving the bilateral injections he became aphonic - that is, he was unable to make any sound whatsoever; his paralyzed cords were too weak to approximate one another. He was able to mouth the words but they were rendered in silence.

Thirty-seventh minutes following the injection a weak breathy voice started to be heard. And over the course of the next twenty-six minutes the voice became progressively stronger as the anesthetic in the inner core of both nerves wore off.

The remarkable aspect of this patient's speech was that during the twenty-six minute period he was totally fluent - not only on words spoken in isolation, but also in sentences, ongoing conversations, and even telephone calls. After this period of fluency, he gradually began to stutter as the sensory portion of his nerve recovered from the effects of the anesthetic. During the next twelve minutes he completely relapsed into his former stuttering pattern.

The other three patients in the study demonstrated similar responses: first total loss of voice, followed by a weak but fluent voice which regained strength progressively, and then lastly an initial mild stutter which over a relatively short period of time attained its preanesthetic level of severity.

This finding confirmed our hypothesis that if we could selectively block the outer (sensory) surface of the nerve fibers going to the vocal cords we could probably eliminate stuttering.

One of my colleagues at New York University is now working on just such an approach. The work is at the test tube stage, though. Small portions of mixed nerves taken from animals are being kept alive in supportive media while a variety of enzymes are being applied to the nerves. Some of these enzymes have an affinity for sensory nerves - in a sense, they eat them. Studies are underway to find the best approach that most cleanly eliminates the sensory nerves while leaving the motor portions intact.

The implication of this line of inquiry is obvious: if we can prevent the brain from receiving sensory information from the cords we will have removed the trigger for stuttering and there will be no stuttering. Furthermore, all that would likely be required would be a single injection on either side of the larynx administered once. The patient would be rendered fluent on a permanent basis.

In another area of research, it has been shown that if a stutterer speaks against a very loud background noise, the stuttering tends to be totally eliminated. Indeed, in the ancient literature of stuttering there is occasional mention of individuals whose stutter was totally absent when they spoke near the base of a waterfall.

Many explanations have been developed to account for this waterfall phenomenon. Some feel that the loud noise serves as a distraction, while others say that the presence of the noise somehow leads the stutterer to conclude that his words will not be heard and this in turn reduces stress and produces fluency.

This historical experience of a loud noise tending to eliminate stuttering formed the basis for the development by a team of researchers at the University of Edinburgh of an electronic device known, appropriately, as the Edinburgh Masker. The principle of its operation is quite simple. A microphone is attached to the patient's neck by an elastic band. When the vocal cords start to vibrate, the vibration is detected by the microphone and the impulses are sent to a small device known as a white noise generator. White noise sounds very much like hissing steam. As soon as the white noise generator receives the impulses from the throat microphone it becomes activated and the sound is amplified and sent through earphones worn by the patient.

This creates the following situation: when the patient is silent the noise is off and he can hear the speech of others around him but as soon as he starts to speak the noise comes on and it is of sufficient loudness that he is unable to hear himself. This tends to stop stuttering, but the price the patient must pay is obvious. First is the paraphernalia that must be worn at all times - a throat microphone, an amplifier, noise generator, earphones and the associated wiring to connect them. The patient is also obviously dependent on batteries and the hope that they do not run out in the middle of a conversation. Second, there is some evidence to suggest a possibility of nerve damage to the hearing nerves when there is prolonged exposure to loud noise. And third, there is the difficulty associated with phone conversations, since the earphones do not permit the convenient placement of the telephone against the ear.

There is one other serious problem associated with the device. The noise generator comes on initially after the first sound is produced, but as we have discovered, the locking of the vocal cords occurs before speech begins. And so the Masker is inoperative during the critical prespeech period. The result is that the cords are still free to lock. In order to deal with that problem, one is often forced to use a starter, such as a brief humming sound to get the Masker going to deal with this deficiency.

The principle behind the Masker is an admirable one. The waterfall effect is real. The reason it works, however, did not come to light until recently. The hearing nerve, as it courses to the brain, attaches to the nerves coming up from the vocal cords. There is a co-mingling of fibers and impulses. When a loud noise is presented to the ears a very strong signal comes up the hearing nerve, and this signal, when it co-mingles with the vocal-cords nerve

signals alters them. This altered signal is no longer the correct stimulus for triggering stuttering - and no stutter occurs.

In the future small implantable devices will be placed in the middle ear to accomplish the same end. They will make use of the hearing nerve to intercept the impulses coming up from the vocal cord nerves so that the impulses no longer have cue value to elicit stuttering.

It is clear from the foregoing that what every stutterer in the world is looking for is an expeditious cure. A cure that requires no effort. The prospects for the future are thus particularly appealing because they are passive. Apart from the act of presenting himself for treatment, the patient is not called upon to participate in any way in his recovery. In addition, the treatment usually requires a single intervention and the recovery period is short.

It is my belief that by the year 2006 some of these approaches will begin to be manifest. Research is well under way and knowledge is accumulating at a rapid rate. The next chapter in the treatment of stuttering will probably read, Stuttering: Its Speedy, Total, and Permanent Cure.

PART III:

SUCCESS STORIES

Now that you have read and understood the treatment process, let's hear firsthand from just a few of the thousands of people who have succeeded in overcoming stuttering. What is extraordinary about these first-person accounts is not only the dramatic retelling of how each person overcame his affliction, but that these accounts were spoken before a large audience as after-dinner speeches.

CHAPTER 17

THE COMPUTER PROFESSIONAL

I remember a childhood friend asking me why I talked funny sometimes. The question surprised me, but it was the beginning of an awareness that I did have difficulty speaking

at times. This was at the age of eight. I soon realized that I was having difficulty in school particularly, and was enrolled in speech therapy for the first time in the second grade. I met other children with the same problem at the institute. I attended therapy sessions for over a year, but I'm not sure what effect it had.

By the third grade I had begun to experience real humiliation and frustration in classroom reading situations. Reading and speaking before a group became an experience to be feared. I was aware of laughter as I stuttered my way through repetitious sentences. Words on a page would blur before my eyes and lose their meaning. The harder I tried, the more my fluency disintegrated. The next few years were the worst. I considered pretending to be a mute as a way of avoiding the uncontrollable stuttering which was causing me embarrassment and shame. I had heard someone say that I would outgrow it eventually, and this was the hope I held on to.

I remember a period of several months when speech without stuttering was impossible. I clung to a few short answers which I felt safe in saying: 'Same here', 'I don't know', were a couple.

I began to substitute words and phrases for those I knew would cause me trouble, and gradually built up a fairly successful ability for scanning and switching to improve fluency. Of course, there were still unavoidable situations in which I could not substitute and the blockages were interminable at times. An article I had to read to the class as a freshman in high school is still fresh in my mind. It dealt with abbreviations and acronyms used for agencies and companies. It took me great lengths of time to stutter through the letters which appeared over and over again. I managed to get through part of the first page before the laughter was apparent. I would have laughed myself if I hadn't felt so miserable. I finally looked at the teacher in such a pleading way that he had someone else finish reading for me.

At home, things were little better. I dreaded the use of the phone. It was something I used only under duress. To be home alone and hear the phone ring was traumatic. Each time I faced a decision to just let it ring or force myself to pick up the receiver. Inevitable, when I did answer it, my stuttering was disastrous.

As a teenager, I still felt I would outgrow my affliction. I couldn't imagine being a stuttering adult. As a sophomore in high school I decided to return to the institute for therapy. After several months of group therapy I still didn't understand what we were doing, what we were trying to do, or whether I was improving. I stopped going.

I chose a technical area of study in college, since it was clear to myself and my counselors that I would function best where oral communication would not be a burden. I periodically reviewed the literature on speech therapy for hints and theories relating to my problem. I realized that I was not going to outgrow it after all, and tried to plan accordingly.

As an adult, my pattern was still to avoid people and situations which gave me trouble. I was quite fluent at times. The phone remained an obstacle. Extreme nausea, rapid heart-beat, sweating and shortness of breath were some of my reactions to simple phone calls. Clever substitutions and various distractions (for example, writing words on a chalkboard) got me through many situations. Some friends of mine were unaware that I had a problem. They could never guess the energy and planning I put in to keep my speech 'under control'.

About a year ago, my parents sent me a book on the Air Flow Technique. I was curious enough to read it. I became excited as I saw my frustrations catalogued and explained in those pages. Understanding the problem was almost satisfaction enough; I was hesitant at first to commit myself to the possibility of undergoing therapy. I finally resolved that if I were ever to try to beat stuttering again, this was the opportunity. I arranged for treatment knowing that if it failed, it would not be from lack of effort on my part.

At the end of the first day of treatment and practice I felt that the technique did in fact give me control over my speech for the first time. The first night during treatment was very restless; my subconscious perhaps refusing to admit what I already sensed. From the first day, I ceased to struggle against vocal cord locks. I learned to recognize them and to respond with careful use of technique. I dedicated myself to using the technique correctly and at all times. The prescribed practice became my top priority when I returned home and began the follow-up phase of therapy. With the help of my family at home and an understanding supervisor at work, I was able to follow the program faithfully.

I still encountered occasional blocks in high stress situations, invariably due to sloppy use of the technique. As my command of the technique grew, my confidence increased, and in situation by situation I was successful.

Word substitution was the first crutch I discarded. It took me a while to get used to always saying exactly what I originally intended to say.

By the fourth month of therapy, the phone was no longer an object of fear. I was now pleased to hear it ring, since it would present an opportunity to further practice my technique. The apprehension and former stress symptoms were gone.

By the sixth month, I knew that I could be completely successful if I kept at it. I had already been through some serious high-stress experiences with total fluency. I was having no problems with group situations, interviews or phone calls.

The most difficult part has been to develop a high degree of concentration on the technique, regardless of my surrounding. Diligent practice and effort makes it possible. There were some early instances in which another speaker or questioner would become impatient for a reply. I learned to not react to this, but to still take a second or so to employ the technique. It amazed me that no one ever realized that a flow was being employed unless I

specifically demonstrated it for them. Some people did indicate they thought I was speaking a little slower than usual.

I think I can best categorize the therapy as a learning process. I didn't become totally fluent overnight, but each day has increased the range of situations in which fluency is achieved, regardless of stress level.

At the age of 35, I have started a new phase in my life. There are many things I have done during the last year which were quite beyond me before, simple things like ordering over the phone, calling the hospital in an emergency, inquiring about a new position, speaking easily to people - always a problem in the past.

I achieved a goal of teaching in my church, something I had long hoped to be able to do.

I changed jobs during the therapy, taking a position requiring constant interaction with people under situations of considerable stress.

I have been able to eliminate the dependency I had on others to help me through situations, either voluntarily or by manipulation on my part. I feel that others can now count on me, and I can offer the kind of support and leadership I once shied away from.

CHAPTER 18

THE IMPORTER

I was a dropout before I started. The National Center for Stuttering wouldn't take me on as a patient because they felt my stress level was too high to do the Air Flow Technique effectively. But having seen the technique work (on me) during my interview, I knew I had to take the Workshop. So NCS agreed to have a therapist monitor me for a few weeks to see if I could handle it. I started the training a month later.

My life up till then was a constant inner battle of trying to hide the fact I was a stutterer from everyone - somewhere along the way I got the impression people looked upon us as mentally deficient. So at all costs I had to hide my speech problem and became a "closet stutterer". How successful I was didn't really matter; it was hardly worth the effort. In fact had I come out in the open and admitted to myself and others I was in fact a stutterer, life would have been a whole lot easier for me, and later on it would have been easier to control. I didn't get involved in lengthy conversations; I avoided every talking situation possible; I didn't order what I wanted in restaurants; people always phoned for me; school was

a worse horror for me because I wasn't very apt at substituting one word for another at that time. And worst of all, when I did stutter, which was more often than I like to admit, it left terrible pains in my body and mind, and left me feeling helpless.

Of course, I went to all the speech helpers and quacks available at the time, from therapists to hypnotists. Nothing helped. To avoid talking in certain situations, I would go as far as forcing a self-inflicted sore throat so I could legitimately cancel any speaking assignments. I could write and make a speech without stuttering if the vowel sound was hooked on to a consonant making it one word - like: "Can I have a can of beer? I can recall hundreds of stories in my youth and mature years where, as a result of my stuttering I did not lead a normal life - and I was very bitter about. It never fully left me.

I was all through with speech doctors and their cures so even the NCS method held no interest for me - except one night while coming up from the basement I called my wife's name, but I never got it out. Instead I fell over backwards on the stairs going into a beautiful spasm and nearly breaking my neck. I just grabbed the bannister in time. That convinced me to give it one more shot. Her name? Ellen!

I can never forget when my therapist took me into a cafeteria and encouraged me to use the Air Flow Technique speaking to total strangers. For the first time in my life I spoke without faking it and without stuttering. I put my arms around him and couldn't speak because of the excitement of being able to speak. I will never forget that moment.

CHAPTER 19

THE SEMINARY STUDENT

As far back as I can remember, I've always stuttered. I remember early in childhood, asking members of my family why. I was never satisfied with their answers. One interesting theory was that it was due to my frustration over a toy fire engine. I was 2 years old, and the fire engine was too big for me. My feet could not touch the pedals, and it was suggested that I became extremely frustrated in my attempts to make the fire engine move forward. As a result of this frustration, I began to stutter. Whatever merit this theory may have, I've learned not to speculate. Suffice to say that much of my early childhood was spent trying to solve the riddle of my stuttering problem.

Because I stuttered, I had a very frustrating childhood. On a scale from 1 to 10 (10 being the worst), I would rate my childhood stuttering at about a 6, with gusts to 8. I believe I was a normal kid, with average abilities in most areas. But because of my stuttering, I was

alienated from potential friends and opportunities. I developed a tendency to frown which has plagued me most of my life. Even today, I am generally regarded as being unfriendly because of my tendency to look cross.

I have suffered educationally because of my stuttering. I would have done anything to keep from contributing orally during class, or from formally giving oral reports. I would even refrain from asking questions, or sometimes I would pretend not to know the answers to questions if I was called on. All of this dodging during school tended to keep my grades down in the average category. I believe now I could have earned much higher marks had I not stuttered.

As I embarked on high school days, I entered one of the most frustrating times in my life. Much of the normal high school life is social in nature, and I felt alienated from most of it. I never did much dating during my high school years because I was too afraid to talk to any girls. I was sort of black-listed from the "in crowd" because of my stuttering.

I would like to relate a particular incident which captures the frustration and embarrassment of my high school days. The incident occurred in my English class during my junior year. There were a couple of guys in the class I had been hanging around with, and I really wanted to be friends with them. I had been making strenuous efforts to keep my stuttering to a minimum around them. As part of a class assignment, we were to team up into small groups, and give oral reports on a short novel. I was teamed up with my two "friends". As you might imagine, this proved to be one of the most embarrassing situations I have ever faced. We got up before the class, and each gave their portion of the report. I was the last to give his report, and I was tied up in knots in anticipation. I started my report in a very choppy manner, and then I lost all composure. I suddenly locked on a feared word, and I couldn't break the lock. I just stood there in front of the class, and I groaned on like an automobile trying to start on a cold morning. My face turned many shades of red, and I believe I did some slobbering as well. Before I was done, I had locked on several other words, and as I walked back to my seat, I remember myself as a very humiliated young man. I also never seemed to click with those two "friends" after that.

I have been frustrated with several "therapies." I remember in grade school, once a week I went to a school therapist. This was a frustrating experience because I never did much stuttering in front of the therapist. I remember when I was in junior high, my mother took me to the family doctor. I did not stutter at all in front of him either, but he prescribed "tranquilizers" as part of my therapy. He said that this was "the newest thing". I never felt the "tranquilizers" helped at all. More recently, I went to the speech therapist at the university I am now attending. Among other things, she said I should do relaxing exercises, and I should slow my speech down in stress situations. I feel this particular therapist helped somewhat, but I still felt frustrated and helpless. She could not adequately explain to me why I stuttered, and the best she could offer me was minor improvement over the rest of my life. She spoke in terms of "control" but not "cure". It seemed to be another "band-aid" approach to speech therapy.

I would like to relate at this time, the events that led to finding out about the National Center for Stuttering's Therapy Program. By my early teens, I had learned to be apathetic about my speech problem. I decided the less I said, the better off I would be. In fact, in my late teens, I even used alcohol and drugs excessively, partly because they relaxed me and I didn't stutter as much. However, I was jolted from my apathy at the age of 20, when I received Christ into my life. I could no longer tolerate staying quiet. I had to tell others about what He had done for me.

I found out it is pretty tough to be a witness for my faith with a speech impediment, however. I also began to realize I wanted to begin to train to become a Christian Minister. I knew, however, that something had to be done to improve my speech.

My parents saw an article in a Long Beach newspaper which told of the amazing work that the National Center for Stuttering was doing in the area of stuttering therapy. My parents bought me a copy of a book, Stuttering Solved. This was only the beginning of a new life frame. I read the book and I knew this was the answer to the problem. Here was a therapy which pin-pointed the physical mechanism of stuttering, and which set about to attack the problem source. This was definitely not a "band-aid" approach to speech therapy. After reading the book, I contacted the Center and signed up for one of their seminars on the West Coast.

The seminar in San Francisco was two full days of intense therapy. I left San Francisco on cloud nine, knowing the Air Flow Technique was going to work. And it has! But I do not wish to paint a completely rosy picture. Old habits die hard, and stuttering is definitely a set of bad speaking habits. The power of stuttering seems to be in the fear of speaking. Fear is a powerful thing. That is why, as a necessary part of therapy, we have a set of practice exercises to perform each day, to make the new Air Flow Technique more natural than the old habit of locking the vocal cords and stuttering. It takes discipline to do the exercise that is needed everyday. But the rewards are definitely worth it. I would estimate that I have attained about 95% fluency. Generally, if I encounter a problem, it is because I have not used the Air Flow Technique properly. I must evaluate the failure, and then set about to correct the problem. I believe one of the strengths in the "technique", is that the ignorance about stuttering is replaced with knowledge. If problems are encountered, they are then to be analyzed and corrected.

I am convinced that 100% fluency is within my grasp. The Air Flow Therapy has changed my life, given me the opportunity to help myself which is very exciting. I am looking to the future with confidence, not with fear, and I am forever indebted to the National Center for Stuttering.

CHAPTER 20

THE RETIRED MECHANICAL ENGINEER

My case as a stutterer is unique in that I did nothing to correct it until I was seventy-four years of age. I stuttered mildly as a boy, but managed to get by without too much trouble. But after college, when I entered the business world, the situation worsened and I had my troubles. I attempted to speak freely using human willpower, but the results were disastrous. I developed ways of getting by. I often coughed to get started; I avoided certain words, especially those starting with the letter s, and this resulted in very odd sentence structure. Sometimes my telephone conversations were most embarrassing. I did a very bad job of introducing others, asking for directions, and ordering in restaurants. At times I wanted to run and hide.

But I didn't. I struggled on, learning to live with a condition which was so abnormal. I often thought of seeking some sort of therapy but never did. Now I am just satisfied that I didn't, because, having talked recently with other stutterers who tried various curative systems, I found that none of them were helpful.

I had a fairly successful business career in spite of my handicap, although I surely could have done better had my speech been normal.

Then, about twelve months ago I read an article on stuttering, which described briefly the Air Flow Technique. This intrigued me, and I arranged to join an NCS workshop in Los Angeles.

After a revealing two days at the workshop, there began the (sometimes arduous) work of mastering the technique under any circumstance that can befall a speaker. Frankly, I had no idea a wrong habit of speaking could be so stubborn. It seems so easy to master the technique under controlled conditions, but oh how easy it is to forget and return to the old habit. With the help of the weekly tapes reviewed by the National Center for Stuttering staff worker (bless her!), I am making slow but steady progress, and daily getting closer to the goal of complete correction of the old difficulty.

Proofs of progress are many. The automatic use of the technique is becoming stronger and stronger. Words starting with s give me practically no trouble. I use the telephone freely. I make introductions with ease. I order in restaurants for myself and others. I ask directions without difficulty. Speaking in public is becoming easier. I have given talks before more than a hundred people, and while not yet perfect, I have exhibited a freedom I never had before. I have not the slightest doubt my continued practice will bring about the elimination of the problem that plagued me so long.

To say that I am grateful is a complete understatement. When I recall the handicap I once had and note the freedom I now have, it seems like a miracle. And it is all so simple. It

promises a wonderful boon to countless individuals who are now in bondage to this awful affliction.

Finally I want to express my deep appreciation for the dedication of the National Center for Stuttering staff in their wonderful work of helping stutterers. One feels the sincerity of their work and is aware of their strong desire to help through patience, encouragement, and scolding when necessary. They deserve strong praise.

CHAPTER 21

THE SOCIAL WORKER

I remember vividly when I was seven years old (that was 26 years ago). My parents were vociferously affirming "You are not really a stutterer, you just have to learn to think before you talk". This notion - that something was screwed up in my thought processes - set me on an incredible journey from therapist to therapist in search of a way, method, or system to tighten up my "sick" mind and help me to stop stuttering.

This poor, distorted self-image was continually reinforced by teachers and schoolmates. I remember the frequent instances of laughter in the elementary grades when I was called on to speak. I remember the feeling of utter terror going up and down my spine in anticipation of being singled out to speak. I remember the grimaces of disappointment on my father's face when I blocked on a word or phrase. His body language affected me greatly and usually released a bevy of verbal blocks. So at an early age I learned that if I wanted to passively upset my parents, all I would have to do is stutter - and since I was very angry, I did it all the time.

Then the myriad of therapies began. First, it was from a matronly woman who lived in a house full of antiques. A classical speech therapist, she had me recite, curl my tongue, and massage my neck muscles. I lost interest in this quickly and besides receiving some candy canes I don't recall much benefit from the experience.

My next adventure was with an institute specializing in speech disorders. The modalities this time were group therapy, play therapy, and relaxation exercises. Imagine for a moment the painfully tedious progress which can be made in a group full of stutterers trying to communicate with each other. Time passed slowly but my symptoms held fast.

After a therapeutic hiatus of three or four years, I found myself an awkward adolescent with a horrible self-concept. I frankly thought I was crazy and persuaded my parents to

have me see a psychiatrist. He was a classical analyst who delighted in relating my adolescent psycho-sexual fantasies to my stuttering. He tried to hypnotize me but I did not trust him and hence was a poor subject.

My social life was a disaster. Since I could not speak over the telephone, I found it very difficult to go out on dates. My friends occasionally made calls, pretending they were me, but as you could imagine, it was impossible to follow-up on such proxy dates!

In high school I excelled in writing. I became editor of the literary magazine and was a speech writer for winning candidates in student government. I vicariously spoke through them.

In college the same social pressures and frustrations increased. I consequently did very poorly during the first two years and decided to have another round at psycho-therapy. This time it was with a very supportive "ego psychologist". My fluency did not increase but I began to understand myself better and my self-esteem improved considerably. I decided to take a master's degree in social work and in graduate school I was an honor student.

Everything was going fine until a research project I was conducting required the use of a telephone for interviews. I manipulated the situation by getting my wife to call for me and even faking some interviews,. The reality of living a lie threw me into a serious depression.

The "better living through chemistry" concept took firm hold of me via a team of organic psychiatrists attached to the university I was attending. In addition to anti-depressants they were experimenting with major tranquilizers to relax my neck muscles. I gave up that folly when I experienced the horror of not being able to swallow.

I dropped out of graduate school and went to a rural part of the western United States to work. I got a job as a school social worker. Since this job required considerable verbal ability, my new found depression was a convenient out to continuing the job.

I went back into therapy - this time with a Jungian analyst. After 5 sessions he wisely told me to "stop achieving, drop out and try to find yourself". At the same time I met a man who was deeply involved in the "Synanon" type therapeutic community movement back East. I knew that if I were to really grow up I would have to rid myself of those drugs which the good doctors had prescribed for me. My wife and I flew back East and spent a miraculous two weeks of detoxification and self-discovery. My depression game was completely shattered by this community of ex-cons and recovered addicts.

We returned to the West and began an incredible drug-free adventure into the potentialities of the fulfillment of human consciousness and practical mysticism. Our lives were finally together and although I did stutter occasionally on the telephone and in groups, it did not seem to hamper my development. My spiritual master, Meher Baba once said, "Do your

best, then don't worry; be happy and leave the results to God". I took these words as my guide and was resigned to the fact that I would probably stutter the rest of my life. There's a funny thing about resignation. Once you are really resigned to something, it occasionally happens that opportunities for self-growth arise of which you had not previously been aware.

I noticed an article in a magazine about the Air Flow Technique. Since my profession is the evaluation of clinical therapies I was quite skeptical of the reported high success rate but I was intrigued enough to read Stuttering Solved. My scientific side was quite satisfied and my metaphysical nature was equally pleased (mystics of all traditions have been aware of the power of the breath as a healing tool throughout the ages).

I entered therapy and on the following day spoke fluently! Now a year has gone by and I have been practicing daily on an intensive basis. I can honestly say that I remember only about 10 occasions on which I have stuttered during the past year and it was only when I forgot to conscientiously apply the technique.

I thank God for the wisdom of this technique and for my continued strength to harness the healing power of the breath.

PART IV:

FINAL WORDS

CHAPTER 22

TO THE STUTTERER

If you, the stutterer, have read this book to this point, you've undoubtedly seen yourself described several times. You understand your form of stuttering and know how it developed. Perhaps you have experienced a rekindling of interest in doing something about your problem. You've likely had the traditional speech therapies and/or psychotherapies

and know these are not the solution. The key, of course, is understanding, and what I have attempted to do in this book is relieve some of the mystery and ignorance surrounding stuttering. You may already have experienced a reduction in Base Level Stress as a result.

The treatment described herein may enable you to profit still further. Your stress may be so low you may be able to treat yourself. But this book is not intended as a self-help manual. Self treatment is not advised - many of the subtleties of the technique must be seen and, in addition, most patients tend to jump ahead too quickly in their practice regimen and invariably experience difficulty. If you are serious about addressing your problem, you are advised to call the National Stutterers' Hotline at 1-800-221-2483 for further information about your therapy options.

Motivation is your most important asset. If you feel compelled to seek therapy because of outside pressures from family and friends, you are approaching it from the wrong direction. The decision must be a personal one, for the work, while not difficult, requires faith and determination. You will have to make a major commitment to restructuring a part of your speech. Learning the Air Flow Technique is not difficult; habituating it to all speaking situations and extinguishing the fears that lie in the way is where the challenge lies.

Most of us take speech for granted. Having been a stutterer throughout life you are used to the struggling and the avoidance behaviors, even though they are physically and psychologically exhausting. But if you have a specific goal in mind - whether finding a new career, or seeking advancement in your present one, or simply freeing yourself of this nagging constraint so that you can become a new person - you will find the strength to sustain your motivation as you acquire and build a new habit.

Thousands of stutterers have received Air Flow training. The long-term success rate in our most recent published report is 93.4 percent (see the Appendix). This high rate of success may appear startling in view of the poor results of the past. But if you simply reread this book, you will understand why Air Flow Therapy has achieved such excellent results: it is based on a theory which does a better job of accounting for stuttering than any previous theory. The therapy is a direct, logical outcome of the theory and involves not only a set of techniques, but also the patient's understanding of how his stuttering began and why the technique is effective. This understanding is crucial to the outcome and accounts in large measure for the virtually negligible incidence of relapse.

When I explain the cause of stuttering to patients the usual response is: "You know, that makes sense. It agrees with what I had always felt. I knew I wasn't crazy or neurotic." It is my sincerest hope that, having read this book, you, too, will feel that its contents make sense. The evidence, based upon the results of work with thousands of people like yourself, seems to lend support to this conclusion.

CHAPTER 23

TO FRIENDS AND FAMILY:

HOW YOU CAN HELP

Just about everyone knows someone who stutters. Perhaps it's the young man at the gas station, or the boy who delivers the newspaper, or the English teacher you had in high school. Do you remember how you felt when you saw and heard them stutter? Perhaps you wanted to help. And perhaps you did by providing the word they were so desperately struggling to say.

You've always wished that someone had told you how to react when you met someone who stuttered. But no one did. Like many, you thought it was "psychological", or that "their thoughts were running faster than their words." Whatever it was, you knew one thing for sure: it made you uncomfortable to be with them.

Like the rest of us, you tried to ignore it. You maintained eye contact and kept an even expression on your face. Pretending it wasn't there seemed to be the only course of action. After all, what could you say or do to help?

Imagine the following scene. A stutterer is talking to you. He is under stress, tensing, and blocking severely while he is pretending nothing's wrong. You, the listener are also stressed, tense and also pretending nothing's wrong. Neither you or he say anything; both of you suffer as you remain locked in a socially-proscribed vice of denial.

Imagine now a different scene, a make-believe world. In this world there is a law which dictates that if you see someone stuttering, you are required to immediately go up to the person and say, "Just a minute now, breathe in, let some air out passively, and slow the first word." In other words, in this make-believe world everyone knows about the locking of the vocal cords, everyone knows about a suitable means for preventing the locking, and everyone further knows that instead of saying nothing when you see someone stutter, you are required by law to immediately go up to the person and give what is generally recognized to be the right correcting information. And furthermore, everyone who stutters knows, from the time they are children, every time they stutter everyone within earshot will come up to them and give the right correcting information. How much stuttering would there be? Not very much!

What can the President of the United States say in thirty seconds that can dramatically improve the lives of millions of Americans with cancer, arthritis, colitis? Nothing. But if the President of the United States gave the right correcting information for stuttering in thirty seconds, suddenly 2.6 million Americans would find their lives much improved.

Well, that is not about to happen. But we can do the next best thing. We can let people who stutter know that there has been a revolution in the understanding and treatment of stuttering. Most stutterers aren't aware of the advances, they've given up, they had therapies years ago which didn't work, they've joined the conspiracy of denial.

How do you make them aware of these advances? It might be awkward for you to go up to them and just start talking about their problem. If this is the case you can contact The National Center for Stuttering and we'll send this book or a packet of free information be sent to the person who stutters.

On numerous occasions I have seen patients come to my office for evaluation carrying yellowed newspaper clipping about the Center - sent to them years earlier by an interested friend or relative - and acted only upon now in a moment of personal crisis. The fact that the paper was kept and not thrown away, carried on their person continuously in a wallet or purse, suggests that the underlying desire to solve the problem is always there.

One patient told me, when asked why she waited so long to receive treatment, "Dr. I've had so many disappointments in the past, I was afraid to hope." Help rekindle that hope by sharing this book with someone who stutters.

CHAPTER 24

TO THE THERAPIST

In a sense, having a brief section devoted to information for speech therapists may strike these professionals as somewhat strange. After all, isn't the entire book precisely that? The answer, of course, is yes, but in this section my intent is to offer some cautionary advice.

The Air Flow Technique differs in important ways from speech therapy. As is apparent from the success of this technique, focusing on the speech problem itself has been one of the major mistakes in the treatment of stuttering. The struggle which so characterizes the disorder is not with speech but rather against a locking of the vocal cords which has occurred just prior to speech. Therefore to attempt to work on speech is a grave mistake, and any form of therapy that attempts to do so is of dubious value.

Traditional speech therapy techniques ("bounce," "pull-out," and "cancellation") have no value when viewed within the context of the orientation presented in this book. Our attention, and the attention of our patients, must be constantly focused upon what they do before they speak. If they set themselves up properly, that is, use the Passive Air Flow and

intend a slowed first word, their speech will emerge fluently. This preoccupation with preparation and a total disregard for speech constitutes the major distinction between Air Flow therapy and traditional speech therapy.

The National Center for Stuttering has developed a training program for speech clinicians. At present, training for speech therapists is available in many cities across the United States. The training program consists of both observation and practicum. In the first phase, therapists observe a two-day intensive treatment workshop. The second phase follows the workshop and consists of a six-month clinical application of the therapeutic techniques demonstrated during the workshop. Therapists administer Air Flow Therapy to their own patients, recording on tape their initial presentation and periodic therapy sessions. These tapes are then mailed to the Center for evaluation. All tapes are returned with comments and suggestions.

At the end of the six-month monitoring phase, those therapists demonstrating a thorough understanding of the Air Flow Technique and the ability to transfer that understanding in the therapeutic setting are awarded Certification.

The Center has maintained a training program for speech clinicians for more than fourteen years. Typically, the Center trains about two hundred clinicians a year. Much work remains, however, since there are more than sixty thousand speech therapists in the United States.

APPENDIX

A Study of the Long-Term Effects of a Multi-Dimensional Treatment Program for Stutterers

The purpose of this study is to present data relevant to the long-term effects of the multi-dimensional treatment program described in this book. The results are based upon a population of 625 patients who participated in the NCS program.

Subjects. The experimental population was composed of 492 males (mean age, 31 .6 years) and 133 females (mean age, 27.4). Almost all had had speech therapy or psychotherapy at some point in their lives prior to enrolling in the NCS program. For 538 patients, their overt struggle symptoms ranged from mild to severe; for 87 patients, there

were no overt struggle behaviors, but rather a well-developed word-substitution capability. This group, labeled "closet stutterers," was comprised of 62 females and 25 males.

Method. Each patient was treated using the methods described in this book. All received weekly individualized assignments and sent tape cassettes to their therapist at the center on an average of at least once each ten days during the follow up period. All were required to attend local club meetings or to communicate regularly by telephone with fellow patients in their area. All attended at least two regularly-scheduled refresher courses.

Prior to and at the end of the year period the patients were called upon to complete a detailed questionnaire. The questionnaire was a self-assessment of relative percent speaking success in each of twelve representative speaking situations. The test was also readministered after twenty-four and thirty-six months to determine the effects of post-treatment years upon the groups' judgments of their performance.

Results. At the end of the initial twelve-month period, 96 percent of the patients reported that the program had been successful. One year after termination of therapy, at twenty-four months, the success rate had dropped to 93 percent.

Discussion. The definition of success used in this study was "to be essentially symptom-free in all daily routine speaking situations." There was no attempt to define success as total elimination of undesirable habits, but rather to define it in a functional sense - that is, to function routinely without stuttering, word or sound substituting, or avoiding speaking situations.

Might the patients slip once in a while and stutter? The answer is yes. But they could recover immediately and, most importantly, reported that they were not psychologically devastated by the block. They knew it was caused by a failure to employ technique and further knew they could take immediate action to prevent further blocks from occurring.

Thus the results of this study indicate that for adults, well over nine out of every ten can expect to have a relatively permanent success with the techniques described-provided that they are religious in their adherence to all aspects of the program.

But what of the "failures"? Some, interestingly, may not be. For example, one of the patients, a stockbroker, entered the program, performed well during the initial phase, followed that by entering a telephone hierarchy, spent an unusually long time going through the hierarchy (four months), practiced several other hierarchies to success and, at nine months, quit. When tested, both at twelve and twenty-four months, the patient was still stuttering in some situations but reported overall that he personally considered the program a success. He revealed that his major, if not sole, purpose in entering the program had been to become fluent on the telephone since, if fluent, he could call new customers and be expected to increase his income substantially. The excessive amount of time spent on the telephone hierarchy was, therefore, a reflection of his personal emphasis. His business had increased significantly and, although he was stuttering in a number of situations,

he had achieved his major goal. The program had performed its function for him. It was a success.

Many patients, after improving substantially in a number of speaking situations, are quite content with their accomplishment and simply stop practicing. There may be several situations in which they have consistent difficulty, but these occur for them so infrequently or are so relatively unimportant that the motivation for continued practice is nonexistent. These individuals are pleased with their result but from our research point of view are considered part of the "non-success" group.

The slippage of three percentage points between the twelve and twenty-four-month assessment represented approximately twenty individuals who reported the reoccurrence of difficulty in some speaking situations. All 625 patients had been without formal therapy for a year, and it was surprising to find such a small number reporting difficulty. It was possible to reinitiate treatment for eleven of the patients and, after a month, all had recovered to their twelve-month levels. These results suggest that some form of periodic refresher course may be required for a small group of patients for a period beyond the formal year of practice.

One important additional result emerged from the study. The likelihood of relapse appears to be great in the first five months of treatment. The patients are fragile. A high-stress episode can provoke an onset of stuttering that, if left unchecked, can result in a disastrous downward spiral in performance. We have discovered that the support groups, hotlines, weekly monitorings, and refresher courses have saved dozens of patients from relapse. We are left with the inescapable conclusion that all treatment programs must provide these services if patients are to achieve comparable levels of success.