

## **Stuttering: some facts and treatment**

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Stuttering can be recognized by everyone but few agree on its definition. Perhaps the most generally useful description is that proposed (with some reluctance) by Van Riper (1971): "A stuttering behaviour consists of a word improperly patterned in time and the speaker's reactions thereto".

It is not at all difficult to differentiate stuttering from normal disfluency when it is well developed or severe. However, differential diagnosis *is* difficult when the condition is mild or in the early stages of development.

### **General details**

#### **Developmental stages**

There has been surprisingly little research into the developmental sequence of the patterning of stuttered speech. Therefore, any attempt at description must be considered as typical but not necessary.

Bloodstein (1969) describes four stages that he observed after studying 418 stuttering children ranging from 2-16 years. While he found it extremely difficult to see any developmental phases in the speech pattern itself (because it seemed to develop so early and to behave so variably), he was able to discern distinct phases when the child's reactions, adaptations, and techniques for dealing with blocks were taken into account.

**Phase 1:** Bloodstein (1969) sees this stage as occurring between the ages of 2-16. The disfluent speech is typically episodic, appearing for weeks or months then disappearing and returning later. During phase 1 the child stutters most when excited or upset, when he appears to have a great deal to say, and when there is little time in which to say it. The principal form of disruption is the repetition of syllables, particularly at the *beginning* of words and sentences. There may also be a marked tendency to repeat whole words of one syllable. It is during this period that a high percentage of children recover spontaneously. Some children, however, show little or no repetition but have instead a preponderance of blocks and hesitations or prolongations of sounds. Perhaps the most characteristic feature of phase 1 is that these children show little or no concern about the disruption of their speech pattern.

**Phase 2:** This is essentially chronic, there being few periods of normal speech. The child now regards himself as a stutterer but, as yet, shows little or no concern about his speech difficulty. As in phase 1, stuttering is most likely to occur when the child is excited or speaking rapidly. Although this phase can be seen most easily in children up to 8 years, the principal characteristics may be observed in children as young as 4 years and also in adults.

**Phase 3:** This can be seen at all ages from 8 years to adulthood but is most common in late childhood and early adolescence. Here the stuttering occurs largely in relation to specific situations, with some words being regarded as more difficult than others. The stuttering child begins to use word substitutions and circumlocutions but still shows no general avoidance of speech situations and little fear or embarrassment.

**Phase 4:** This is typically seen in late adolescence and adulthood and is characterized by being a serious personal problem. The stutterer avoids speech situations, tends to withdraw from social encounters, and suffers greatly from embarrassment and anxiety.

### **Stutters versus disfluencies**

There is some controversy over the difference between normal disfluencies and stutters and even over whether there is any difference. In one study, Johnson et al (1956) asked two groups of parents to describe what their children were actually doing when they first became aware of their child's disordered speech. One group consisted of parents who thought their children were stutterers and the other group of those whose children were sometimes disfluent. The data showed that the sometimes disfluent children had *more* phrase repetitions (I am, I am hungry), pauses, and interjections (er, um) than did the stuttering children. The mothers of stuttering children focused primarily on syllable repetitions (do, do, doing) and to some extent on the prolongation of sounds. Later research has supported this finding. The listener characteristically reserves the label "stuttering" for repetitions and prolongations as opposed to other disfluencies (Williams and Kent, 1958; Young, 1961).

### **Age of onset**

Not all stuttering develops with the onset of speech or, perhaps more accurately, not all stuttering is recognized or diagnosed at an early age. Andrews and Harris (1964) presented data relating onset of stuttering to age. Even though the figures are derived from the mother's remembered history of events, a source known for its lack of reliability, such information is so scarce that it will remain of value until more dependable data are available. The figure shows that of the 80 stutterers investigated 95 per cent were diagnosed by the age of 7 years. The Andrews and Harris data also show that 70 per cent of the children with moderate or severe stuttering developed their impediment before the age of 5 years; 33 per cent of this group revealed evidence of some defect with the onset of speech. This is in contrast with the mild stutterers, of whom only 9 per cent showed signs of the disturbance at speech onset.

### **Spontaneous recovery**

Severity is also implicated in spontaneous recovery. Sheehan and Martyn (1966, 1970) found that four fifths of adults judged by themselves and others to have had a definite problem of stuttering at some time in childhood recovered spontaneously. However, the other figure shows that in children the mild stutterer has a far greater chance of spontaneous remission than the severe stutterer. These workers also found that recovery was most likely to occur during adolescence and early adulthood and, as with onset, seems to be a gradual process.

## **Incidence and prevalence**

Andrews and Harris (1964) reported that 4.8 per cent of a sample of British adults attending their general practitioners said that they used to stutter. Furthermore, 3.6 per cent stated that there was a member of the family who stuttered. In a sample of 1000 British children under 8 years 4 per cent stuttered or had speech hesitations. If older children were included 3 per cent had stuttered for 6 months or more.

Reviewing the whole literature on the prevalence of stuttering in children. Bloodstein (1969) concluded that the figure was about one per cent in Europe and somewhat less in the USA. The prevalence among the adult populations is unknown, but in view of the spontaneous recovery rate it is presumable well below the one per cent quoted for children.

Van Riper (1971) concluded his survey of incidence and prevalence studies by saying: "We feel that the literature, miserable as most of it is, indicates clearly that the total incidence of stuttering probably amounts conservatively to about 4 per cent of the general population, and that its prevalence is highest in preschool years, declining thereafter to an unstable value of less than one per cent".

It is interesting that several studies show that in the USA there has been a decline of from 25-50 per cent in the number of stutterers requesting help with their problem in the last 20 years.

## **Intelligence and stuttering**

It is commonly thought that the stutterer is to be found among the more rather than the less intelligent groups of people. Yet if anything the evidence is to the contrary. Williams et al (1969) demonstrated that a 100 stutterers in the sixth grade at school in the USA were significantly retarded academically when compared with 300 non-stuttering children. However, they did find that the stuttering child tended to catch up with the non-stutterer by the eighth grade. In addition, Andrews and Harris (1964) discovered that on average their sample of stuttering British children had an IQ that was seven points *lower* than a non-stuttering group.

## **Sex ratio**

Male stutterers outnumber their female counterparts by about three to one. Johnson et al (1956) suggested that parents were more prone to react unfavourably to disfluent speech in boys than in girls and so put more pressure upon them to conform. But Eisenson (1966) found that the incidence of stuttering in Israeli kibbutzim was the same as that among children in the USA.

Other theorists suggest that the sex ratio demonstrates that there is a sex-limited genetic predisposition to stutter and that it reflects the general congenital vulnerability of the male constitution. That the sex ratio exists is one of the very few well documented facts about stuttering, but it is generally accepted that no one has any clear evidence to explain why this should be the case.

## The syndrome

There is increasing concern about treating every stutterer as if all belong to the same group. One of the factors tending to refute the idea of a single disease entity is the frequent reporting of tremendous variability among stutterers themselves. In some experiments there is more variability *within* a group of stutterers than between stutterers and non-stutterers. Another kind of evidence comes from studies showing that, for example, mild and moderate stutterers responded differently to severe stutterers when assessed for anxiety levels (Gray and Karmen, 1967). St Onge (1963) pointed out that the notion of a syndrome is inapplicable to what is known about stuttering. "The fact that we cannot seem to derive from symptoms a satisfactory syndrome leads us to postulate a multiple aetiology. While this sounds nicely academic it is a shallow trick. Not having defined stuttering adequately as a single disorder, by a finely tuned ear for a paradox we ascribe it to a variety of causes but continue to study it as if it were a single disorder". Whether it is a syndrome or not, of course, has important implications for treatment.

## Physical and behavioural treatments

Since there are so few well established facts about stuttering, theories on its causation and approaches to treatment abound. It is virtually impossible to divorce treatment from theory in this as in other disorders since what one thinks about a disorder or piece of behaviour determines what one does about changing it.

Physical treatments of stuttering range from the use of drugs to chewing gum. However, some organic theories lead to the conclusion that the condition is virtually untreatable. Somerset Maugham is said to have remarked: "We're a product of our genes and chromosomes. And there's nothing whatever we can do about it ... no one can. Because we can't change the essential natures we're born with ... all we can do is to try and supplement our own deficiencies" (French, 1966).

The evidence that stuttering is relatively common in twins, the sex bias, and the tendency for stuttering to occur in some families and not in others lend support to the popular belief that the disorder is, in part at least, genetically determined. However, it must be concluded that at present the case is not proven. (For more detailed discussion on this subject see for example: Beech and Fransella, 1968; Bloodstein, 1969; Van Riper, 1973).

The earliest explicit statement on a possible neurological basis for stuttering was the cerebral dominance theory of Orton (1927) and Travis (1931). This theory stated that stuttering occurs because a lack of cerebral dominance results in an asynchrony of the motor impulses to the bilateral muscles of speech. Support for this supposed fact came from the observation that stutterers are often left-handed, have been forced to shift in their handedness during childhood, or are ambidextrous. The lack of support for this theory was so marked that Travis formally abandoned it in the 1940s. Consequently it is not surprising that present-day workers in this field are becoming increasingly irritated by the persistence of these ideas: "The results on all three of the supposed predisposing variables - familial incidence, handedness, and handedness in the family background - were uniformly sterile ... In planning the study, the items were included with considerable reluctance, for they occupied time and space that might have been devoted to more promising variables. However, the resistance of

the dysphemia concept to scientific extinction has been such that it appeared that these data should be gathered" (Sheehan and Martyn, 1966).

Recent support for the Orton-Travis theory has come from reports of stuttering disappearing in patients after operation for temporal lobe lesions. So modern dominance theory states that stutterers have ambilateral dominance and that, when one hemisphere is damaged, representation for speech becomes unilateral and stuttering ceases. However, much more evidence is needed before such a theory is again seriously considered. One of the arguments against this theory is that stutterers *do* recover spontaneously and *can* be cured by psychological methods. Supporters of cerebral dominance theory have to account for these facts as well as provide more evidence.

### **Rhythmicity in treatment**

Of the many types of behavioural treatment associated with ideas of muscular asynchrony, the imposition of some form of rhythm on the speech is currently the most popular. It is a well researched and well documented fact that stuttering can be virtually eliminated in a large proportion of stutterers by the use of rhythmic speech - another form of speech abnormality. Stutterers can then sing or recite poetry with no trouble. The problem lies in helping the stutterer move from rhythmic to fluent speech.

Brady (1968, 1971) reported a treatment programme in which the stutterer uses a battery-operated hearing aid through which rhythmic sounds are transmitted. In his 1968 study Brady used rhythmic speech plus psychotherapy on his six stutterers and in 1971 he combined the rhythmic beat with a desensitization programme. In this the stutterer is helped to construct a hierarchy of situations, ranging from that likely to produce the *least* stuttering to that likely to produce the *most* stuttering. He then enters each situation in the hierarchy, first with the help of metronomic beat and then without it. But unfortunately, as with so many treatment studies, Brady gives no detailed figures to enable objective assessment of his programmes to be made.

A variation on the use of rhythmicity is "shadowing". In this the stutterer follows the words spoken by a second speaker who reads or speaks spontaneously. While Kelham and McHale (1966) reported marked success with intensive shadowing in a sample of 28 stutterers (mainly children), Krikler (Jones, 1969) found that for 50 adults the high percentage of initial improvement was not maintained in those who did not receive additional psychotherapy or more general behavioural treatment. It is often the case that two types of treatment have been employed, thus making it impossible to gauge the effect of the rhythmic component.

Syllable-timed speech is yet another variation on the rhythm effect. This is speech in which the syllables are produced at equal time intervals. Andrews and Harris (1964) found that this was not very encouraging as a treatment procedure, although more promising with young children. There have been many other studies in this country and in Australia which all demonstrate that a disruption of the speech pattern by imposing some form of rhythmicity can eliminate stuttering. However, it is clear that most stutterers cannot generalize from this rhythmic abnormality of speech to normal fluent speech; some seem able to do so for a short time but then relapse and others are reluctant to use rhythmic or syllable-timed speech outside

the consulting room. Reports in which it is used in conjunction with some other form of learning or psychotherapy appear to be more successful, but well designed studies are rare.

### **Delayed auditory feedback**

An extension of the above form of treatment which introduces an artificial speech pattern is the use of delayed auditory feedback (DAF). With a tape recording and reproducing device it is possible to return a person's voice to him via earphones after a brief delay in transmission (of the order of 0.2 seconds). In an effort to overcome this distorted feedback the person slows up his speech and characteristically prolongs sounds. DAF has always been used in conjunction with other forms of therapy.

One of the most intensive studies is that reported by Ingham and Andrews (1972). In their programme, the stutterers came into hospital for 3 or 4 weeks and worked on their speech for up to 12 hours a day. They sat around a table, each with ear-phones that delayed the feedback of their voice productions, and earn tokens for reproducing the length of prolongations or for faster speech. The stutterers were not allowed to spend any money, everything (including food and drink) having to be bought with the tokens. At the end of this period many stutterers had attained a remarkable degree of fluency. However, the fluency is maintained by conscious effort in the majority of cases so that there is a tendency to relapse after discharge (Andrews and Cutler, 1974).

Increasingly, those using behavioural or rhythmic therapies are doing so in conjunction with some form of psychotherapy. There is a realization that speech change is not maintained unless the subject's self-image also changes. However, rigorous assessment of such combinations of treatments is lacking.

### **Drugs**

Before going on to give examples of therapies based on a conception of stuttering as a psychological rather than a physical disorder, some comment is needed on the use of drugs. The literature is full of clinical reports and inadequately controlled experiments, particularly in describing the use of sedatives and tranquilizers. One controlled double-blind trial reported by Wells and Malcolm (1971) used haloperidol and orphenadrine both with and without speech therapy. They found significant improvement in their group of 36 stutterers and "formed the impression that improvement continued at least for some weeks after stopping treatment".

The inadequacy of the assessment procedures for measuring the severity of stuttering and of the follow-up data make it impossible to evaluate the true effects of the drug. As a general rule, it seems likely that drugs can be effective where there is a considerable amount of anxiety. This then enables the stutterer to take advantage of the psychotherapy or speech modification techniques. Nevertheless, there is no clear evidence that any drug on its own can cure stuttering.

## Psychological treatments

Some attempt to change attitudes is inherent in virtually all forms of stuttering treatment - it is really a question of emphasis. Many proponents of dynamic psychotherapy consider stuttering to be a form of neurosis. But, as with handedness, this is a belief so far unsupported by facts. No doubt some stutterers do develop neurotic behaviours because of their very socially disabling disorder, but there is no evidence that they stutter because they are neurotic. Nor is there any identifiable type of stutterer. Beech and Fransella (1968) conclude: "One cannot escape the observation that the mass of reported studies on the personality of stutterers is heavily weighted with negative findings; it seems much easier to show in what ways the stutterer does not differ from the non-stutterer than ways in which he does ... Just as there is no real evidence to justify the conclusion that stuttering is related to maladjustment, so the search for a consistent personality profile of the stutterer seems to have failed".

That attitude (personality) change is related to speech change from stuttering to fluency is shown in a study in which 20 stutterers were treated along personal construct theory lines (Kelly, 1955). Fransella (1972) tested the hypothesis that change from stuttering to fluency would be related to an increase in the "meaningfulness" of being a fluent person. She argued that one of the reasons a person resists change is that one cannot readily give up a familiar way of life for that which is relatively unknown. The stutterer *knows* what life is all about as a stutterer (although he may not like it) but has very little idea of what he would be like, how others would react to him, and how he could interpret others' reactions to him if he were a fluent speaker. The more familiar he becomes with this new life style the more fluent he will be. This was shown to be the case. The research was designed to test the theoretical proposition that fluency can be achieved by the psychological process of reconstructing the self and one's environment, and so no manipulation of speech at all was used. In spite of this, 81 per cent of the group improved by a reduction in stuttering of more than 50 per cent on one of two measures. Of the nine for whom follow-up data were available (ranging from 9 months to 3 years) four continued to improve, two showed slight improvement, two showed no change, and one had become worse.

This study (Fransella, 1972) also showed that there may be some prognostic signs to be found in the extent to which the patient has a well elaborated and well organized system of ideas centred on his view of himself as a stutterer, as opposed to a conceptual system within which there is room to manoeuvre.

A personal construct theory view of the stutterer allows the therapist to use any speech technique that will best help the stutterer to increase his fluency. He is then able to study and experiment with that fluency and so come to learn to live life as a fluent speaker. What is needed now is research to determine the sort of person who will respond best to the rather impersonal techniques of DAF, token systems, or desensitization, rather than to relaxation techniques and the opportunity to express fears, hatreds, and ideas about life and so forth. It seems more than likely that the process of change is the same for all and that the most likely candidate is the one who, at present fortuitously, comes into contact with the treatment that suits him best.

## Treating the child stutterer

Most theories and treatment programmes have been designed with the adolescent or adult stutterer in mind, and there is continuing controversy on the advisability of treating stuttering in children at all in view of the very high spontaneous recovery rate. What advice exists focuses on counselling the parents rather than treating the child.

Foremost is the advice to parents not to criticize or try to help the child. The aid is to avoid drawing the child's attention to his disfluencies. If he becomes aware that something is wrong he will become anxious, try to correct his speech, and in all probability deteriorate.

Every attempt should be made to study the parent-child interaction in order to see how the parent responds to the child's disfluencies - a pointed resigned look can be as harmful as an injunction to "speak slowly". Such reactions can best be studied in family therapy sessions.

The child's behaviour should also be studied to identify the particular situations that are liable to trigger off disfluency. For instance, the parent may think it important that a child carries on a conversation with guests who are relative strangers. The disfluencies evoked in the child will be quickly eliminated if the pressure to speak in such situations is removed.

The parents may also be advised to help the child believe in himself as a fluent speaker, encouraging him to speak as much as possible when his speech is flowing freely. The objective is to prevent his coming to regard himself as a stutterer.

## Conclusions

There is no easy and short way to treat a person with a stutter. His resistance to change and propensity to relapse is well documented. Every form of treatment has some successes and some failures - only the proportions vary. Perhaps of even more importance (and the greatest problem) is the scarcity of facilities of *any* kind in this country for treating this difficult condition. This is very different from the USA where most large universities have departments of speech pathology and in which massive research programmes are undertaken. The present position is ably summed up by Van Riper (1973):

"Old theories and therapies for stuttering never die, they rise and fall but always appear again in slightly altered form. Each time they are greeted with enthusiasm; each time some new rationale for their existence is cited by their adherents and cures are claimed. Perhaps each new generation of stutterers and those who treat them must learn anew the old lesson that stuttering is a slippery disorder and refractory to change."

It must be emphasized that the treatment approaches discussed are examples from a wide range currently practised. It is suggested that little progress will be made in the treatment of this disorder until there is more research aimed at describing the *process* of change rather than simply investigating whether brand X is better than brand Y.