Research Note

The effects of special speech therapeutic procedures involving individuals with sibilant distortions: A pilot study

R. David Baskervill

Suggested Citation

Baskervill, R. D. (1976). The effects of special speech therapeutic procedures involving individuals with sibilant distortions: A pilot study. *International Journal of Oral Myology*, 2(4), 86-92.

DOI: <https://doi.org/10.52010/ijom.1976.2.1.9>

This work is licensed under a [Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License](#).

The views expressed in this article are those of the authors and do not necessarily reflect the policies or positions of the International Association of Orofacial Myology (IAOM). Identification of specific products, programs, or equipment does not constitute or imply endorsement by the authors or the IAOM. The journal in which this article appears is hosted on [Digital Commons](#), an Elsevier platform.

The Effects of Special Speech Therapeutic Procedures Involving Individuals with Sibilant Distortions: A Pilot Study

R. David Baskervill

Assistant Professor

Communication Disorders

State University College at Buffalo

Buffalo, New York 14222

The controversy between the existence of reverse swallowing patterns and the misarticulation of the sibilants can be traced in the literature. Fletcher and others (1961) reported that the tongue thrust swallow tended to also have a sibilant distortion as opposed to an individual without the swallowing pattern. Ward and others (1961) reported that the reverse swallowing pattern was evident in 75% of a group of first through third grade elementary children. They also reported that many of the children who had this swallowing behavior also produced tongue tip phonemes in a more forward position causing them to be dentalized or interdentalized. Ronson (1965) found the incidence of the reverse swallow with sibilant distortions to be approximately 50%. Jann and others (1964), in studying longitudinal effects of the reverse swallow syndrome, did not find that the maturation alone reduce the incidence of reverse swallowing patterns during the time they conducted their study involving 281 children in grades first through fifth. Bell and Hale (1963) reported that eighty-two percent of the pre-school children they studied exhibited reverse swallowing behavior. It was also reported that this swallowing behavior appeared to be normal among the group of children they studied. Their findings also showed that eighty nine percent of the children studied appeared to show deviant sibilant production.

The studies reported so far indicate a relationship between reverse swallowing behavior and sibilant distortions, however, Subtelny and others (1964) found no significant differences between the two groups of subjects with sibilant distortions. They also reported that the tongue thrust and malocclusion co-existed with normal and defective speech. Mason and Proffit (1974) have raised some interesting questions resulting from their review of earlier research combined with their own studies. The first question pertains to the relationship between sibilant distortions and reverse swallowing patterns. The investigators share the same conclusions of Winitz (1969), that there appear to be no definite or predictable links between tongue thrusting and lisping. The other question raised by them deals with the question pertaining to the efficacy of providing myofunctional therapy for reverse swallowers who also have sibilant distortions. Another recent study by Subtelny and Subtelny (1973), raised additional questions in the absence of objective data pertaining to the myofunctional

therapy and strongly suggest that form influences function, and that the presence of orthodontic appliances can positively effect the positioning of the tongue.

Although there are some strong arguments that tend to negate the relationship between reverse swallowing and sibilant distortions, as well as arguments against the support of using myofunctional therapy techniques techniques, there are still many research questions which need to be answered. Mason and Proffit (1974) have referred to spontaneous changes of the tongue's position as the individual reaches puberty, and explain these changes as the result of rapid growth patterns of the face. However, Mason stated (1974) that to date no research has been conducted to study what speech changes take place spontaneously along with the changes in swallowing behavior.

As a result of the controversy, most speech clinicians have received little formal training in reverse swallowing patterns, and have been encouraged to use the more "traditional approaches for the remediation of articulation disorders, especially those involving the sibilants. This observation was further supported by the findings of Baskervill (1975) when he reported that as a result of a survey sent to five hundred members of the American Speech and Hearing Association, the respondents reported that even though they had not had training with tongue thrusting, most of them had determined that they were capable of identifying the presence of such a problem. When specific questions were asked with respect to the presence of digital sucking, mouth breathing, poor lip posture, muscular weakness and inbalance, and facial asymmetry, clinicians were unable to report such findings with any degree of accuracy. It also appeared that many of these individuals seemed to feel that there was a strong to moderate relationship between reverse swallowing and articulation problems. The study indicated that there is wide variation of opinion regarding 1.) the definition of tongue thrusting, 2.) the identification of the problems, and 3.) the identification of oral muscular weakness and inbalance which may be accompanied with the presence of the reverse swallowing pattern. This investigator's personal interest stems from direct observation of individuals with sibilant disorders and reverse swallowing patterns. His observations have revealed that these individuals have experienced great difficulty in mastering acceptable production of the sibilants in conversational speech after the administration of traditional speech remediation procedures, which usually emphasized auditory discrimination, and proper articulator placement in conjunction with production. The duration of such therapy may last six months to several years. Conversations with other clinicians directly involved with articulation disorders, have revealed that their experiences are similar to this writer's. This writer has also had some limited personal experience using myofunctional therapy combined with some of the traditional approaches towards the remediation of defective sibilant production, and has found that the persons involved made progress in reducing the distortions and in some instances eliminating them completely.

A search of the literature has revealed that a study of comparative therapeutic approaches involving traditional speech therapy, and myofunctional therapy involving subjects who have sibilant distortions and who have reverse swallowing patterns has not been performed, thus it is still unknown if myofunctional therapy in addition to speech therapy has a positive effect on individuals with sibilant distortions.

PURPOSE OF STUDY

In an attempt to study the effects of traditional speech therapy procedures versus myofunctional therapy in addition to the traditional speech therapy procedures, this

investigator chose to conduct a pilot study during the summer months of 1974. The traditional speech therapy method chosen consisted of the Speech Improvement Program (SIS). SIS, a taped articulation program (Van Hattum and others, 1974) consists of eight programs. One, the pre-literature training program, provides training in skills necessary for non-reading children to succeed in the tasks required in SIS. A second provides general training for all children who will participate in one of the sound programs and additionally, there are six individual sound programs, one each for /s/, /r/, /l/, / /, voiced /j/, and the unvoiced /o/ sounds. These programs are taped and are intended to be presented by a non-professional, a communication aide, to groups of up to eight children in grades one through six. The basic emphasis of SIS are as follows:

1. Auditory identification and discrimination
2. Production
3. Stabilization

The basic goals of myofunctional therapy (MFT) are as follows:

1. To elicit proper placement of the tongue tip on the alveolar ridge while swallowing.
2. To strengthen the mid and posterior muscles of the tongue.
3. To strengthen the oro-facial musculature through the employment of isometric and isotonic exercises.
4. To introduce proper swallowing behavior in concert in solid and liquid food intake.
5. General carryover with the new swallowing behavior.

The general purpose of this study was to find out how well a group of children who have sibilant distortions and reverse swallowing patterns perform after the administration of the SIS compared to a group of children with sibilant distortions and reverse swallowing patterns after the administration of MFT in addition to SIS.

PROCEDURES

Five subjects, four males and one female (all of whom had sibilant distortions and also had reverse swallowing patterns) were chosen to participate in a summer pilot therapy program. The subjects received pre-testing and post-testing in the areas of articulation proficiency, and in the presence of reverse swallowing patterns. The articulation tests performed involved the administration of the McDonald Deep Test and a conversational speech sample. The conversational speech samples were recorded on an Ampex tape recorder, Model AG 600. Each subject was requested to state his name, address, name of school, count from 59 to 80, and to repeat a narrative story. Analysis of correct sibilants were judged by first obtaining a count of the sibilants uttered, judged as being correct or incorrect, and then the percentage correct productions were recorded. Listener judgements were made from the recording tape, played on the Ampex using TDH-39 headphones.

Pre-tests for pure tone audiometric testing (sweep check) and auditory discrimination were administered. The subjects chosen were elementary school age children, of normal intelligence, between the second and fourth grades, ranging from eight to ten years of age.

The program was administered in the SUCB College Learning Laboratory between July and August of 1974, and covered a period of sixteen scheduled visits for each of the subjects, each of which covered a period thirty to forty-five minutes in duration. The subjects were scheduled three days a week between this time period. Table I displays a temporal assignment for each of the SIS lessons utilized in all three phases of the /s/ sound program, showing which lessons were used on each date.

As in any regular school program, the clinician had to anticipate problems associated with absenteeism. Inasmuch as the investigator had an absolute terminal date, a decision was made not to have the subject listen to any of the lessons they may have missed due to absenteeism. One other problem which is not normally experienced during a regular school year is that of extended absenteeism due to vacations which had been previously planned prior to the subject selecting. The attendance of the subjects ranged from 43 percent to 100 percent, with a mean attendance of 74 percent.

One of the subjects was unable to complete the program due to family vacation plans, so pre and post tests information were not included as part of this study.

TABLE 1

A temporal Assignment for Each of the SIS Lessons

7/12/74 Systems Training Program Introduc- tion	7/15/74 Phase 1 Lessons 1-7	7/17/74 Phase 1 Lessons 8-13	7/19/74 Phase 1 Lessons 14-19	7/22/74 Phase 1 Lessons 20-21	7/24/74 Phase 1 Lessons 22-28	7/26/74 Phase 1 Lessons 29-35
7/29/74 Phase 1 Lessons 36-41	7/31/74 Phase 1 Lessons 42-46	8/2/74 Phase 1 Lessons 1-10	8/5/74 Phase 1 Intro-9	8/7/74 Phase 1 Lessons 10-19	8/9/74 Phase 1 Lessons 20-25	8/12/74 Phase 1 Lessons 26-32
8/14/76 Phase 3 Lessons 33-38	8/16/74 Phase 3 Lessons 39-42					

The equipment used in the administration of the SIS /s/ sound program included six EFI Transiphone IV headphones, one EFI program control amplifier, and one Wollensak Tape Recorder. The SIS taped program was the 1971 revised program as described by Van Hattum and others (1974). At the conclusion of the administration of SIS, post test data were obtained on each subject by assessing articulation through the McDonald Deep Test and the taped conversational sample.

In addition to the administration of SIS, two of the subjects received myofunctional therapy. Initially while the subjects were receiving SIS* the MFT was also being administered. The investigator decided not to introduce MFT until he felt that the subjects had adequately adjusted to the administration of SIS. The introduction of MFT began on

July 22, 1974. Each of the subject's parents were informed and communication pertaining to the home regimen exercises was transmitted either in person or by a note carried by the subject. This procedure was usually followed up by a telephone conversation. The MFT exercises were administered each day along with the administration of SIS* which consisted of twelve sessions for MFT.

MFT was not administered between 8/17 and 9/6, however, each of the subject's parents was apprised as to which exercises were needed to be practiced and was instructed to maintain supervision of their exercises. The continuation of MFT was resumed on 9/7 and each of the subjects was seen on a weekly basis until 11/2, at which point they were evaluated as having successfully completed the regimen. It should also be mentioned that neither of the subjects who were administered MFT received any direct speech work after 9/7/74.

After mid November, 1974, all four subjects were brought in for a final re-evaluation of their articulation through the administration of the McDonald Deep Test and a taped conversational sample from each subject.

RESULTS

All four subjects tested within normal limits with respect to pure tone audiometric sweep testing, and auditory discrimination testing. Since these results were normal, post-tests were not administered in these areas. The McDonald Deep Test of Articulation for the /s/ was administered to each of the remaining subjects as a pre and two post test situations. Conversational speech samples were also taken for all three testing situations. The results of these test scores are displayed in Table II. The data as it is displayed shows immediate improvement for all of the subjects after the administration of SIS in the first post-test situation for both the McDonald Deep Test and in the conversational speech sample. With the exception of two instances in the pre-test situation and one instance in the second post test situation, the subjects scored higher on the McDonald Deep Test than in the conversational situations. The data as it is displayed does show a slight improvement of one subject who received SIS and MFT over a subject who received only SIS. It is however extremely difficult to determine any true trends based on the small number in the sample.

TABLE II

**The Results of Pre and Two Post Test Situations
for the McDonald Deep Test of Articulation
and Conversational Speech Samples
[ercent correct]**

	Pre-Test Mc D Conv.		Post-Test #1 Mc D Conv.		Post-Test #2 Mc D Conv.	
Subject #1	52	56	89	61	80	76
Subject #2	.02	16	69	39	32	30
Subject #3	.02	25	67	53	39	54
Subject #4	43	36	84	62	97	83

Subjects who received SIS and MFT

Certain uncontrollable occurrences took place which may have influence the final outcome. It was learned that Subject #3, who received SIS and MFT had two of his right maxillary molars removed just prior to his final post test. His speech had been judged as significantly better when he was seen for the final therapy session approximately two weeks prior to the post testing. It was also learned that one of the subjects who received only SIS* Subject #2, had been receiving speech therapy in his school situation since that September up until the time he was brought in for the post testing. Therefore, there is no way to know what effect that had on the final testing results.

Although a study utilizing as small a number of subjects as this one is always open to question, it would seem that a similar study involving a larger number of subjects for both the experimental and contact groups, could quite possibly answer some questions pertaining to the efficiency of utilizing MFT as part of a speech remediation program and consequently eliminate some of the existing controversy associated with this particular discipline.

BIBLIOGRAPHY

- Baskervill, R.D., A Survey on the Relationship between Sibilant Distortions, and Tongue Thrusting, **Child Study Journal Monographs**, 39-50, 1975.
- Bell, D. and Hale, A., Observations of Tongue Thrust Swallow in Pre-School Children. **J.S.H.D.**, 28, 195-197, 1963.
- Fletcher, S.G., Castell, R.L., and Bradley, D.F., Tongue Thrust Swallow, Speech Articulation and Age. **J.S.H.D.**, 26, 201-208, 1961.
- Jann, G., Ward, M., and Jann, H., A Longitudinal Study of Articulation, Deglutition and Malocclusion, **J.S.H.D.**, 29, 690-700, 1964.
- Mason, R.M., and Proffit, W.R., Tongue Thrust Controversy: Background and Recommendations, **J.S.H.D.**, 39, 115-132, 1974.
- Mason, R.M., Personal Conversation at the ASHA Convention, 1974.
- Ronson, I., Incidence of Visceral Swallow Among Lispers, **J.S.H.D.**, 30, 318-324, 1965.
- Subtelny, J.D., Mastre, J.C., and Subtelny, J.D., Comparative Study of Normal and Defective Articulation of /s/ as related to Malocclusion and Deflutation, **J.S.H.D.**, 29, 269-285, 1964.
- Subtelny, J.D., and Subtelny, J.D., Studies in Form, Function and Therapy. **Angle Orthodontist**, 32, 347-383, 1973.
- Van Hattum, R.J., Page, J.M., Duguay, M.J., Baskervill, R.D., Connley, L., and Davis, T.A., A Taped, Aide-Presented Program for Articulation Remediation, **Language, Speech and Hearing Services in Schools**, 4, 1974.
- Ward, M.M., Malone, St., H.D., Jann, G.R., and Jann, H.W., Articulation Variations Associated with Visceral Swallowing and Malocclusion, **J.S.H.D.**, 26, 334-341, 1961.
- Winitz, H., **Articulatory Acquisition and Behavior**, New York: Appleton-Century-Crofts, 1969.