



# FLUENCY DISRUPTION IN SPEECH AND IN WIND INSTRUMENT PLAYING

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A case of an adult who stutters and complains of a similar fluency problem when playing the trombone is reported. This is the fourth such report, with previous cases involving trumpet, flute, and horn playing. © 1999 Elsevier Science Inc.

**Key Words:** Fluency disruption; Wind instrument playing; Stuttering

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## INTRODUCTION

There are three examples in the literature of persons who stutter reporting that they experience similar problems with fluency when they engage in a nonlinguistic activity: playing a wind instrument. Such reports warrant attention because of the possibility that they may shed some light on the processes or mechanisms underlying stuttered speech.

The first report concerns trumpet playing (Van Riper, 1952). After playing the trumpet for 13 years, the man suddenly experienced extreme difficulty in “striking the first note” (Van Riper, 1952, p. 434) of a musical phrase. The subject described his musical problem as “stuttering on the trumpet” (p. 434).

The second report concerns a flute player (Silverman & Bohlman, 1988). The young woman had been playing the flute for six years when she experienced the onset of stutter-like disfluency in her playing. She reported:

I experienced something rather unique—i.e., stuttering on my flute. Whenever I would start to play my throat would tense, my facial muscles would freeze, and my whole body would stiffen. It would take me 15–30 seconds to start a piece of music. Once I had gotten past the first note, I would be able to play the rest of the piece without any type of blocking (Silverman & Bohlman, 1988, pp. 427–428).

The third report concerns horn playing (Meltzer, 1992). According to Meltzer, the subject’s stuttering consisted of short, tense repetitions and prolonga-

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tion of sounds at the start of words and was reported to be similar to the disfluency he displayed when playing the horn. The player reported "In my job as a performing musician, stuttering has manifested itself by hesitant stumbling attacks" (Meltzer, 1992, p. 260).

These three cases reported remarkably similar problems when playing three different wind instruments. This paper describes a case in which a person who stutters reported a similar problem with another wind instrument, this time the trombone.

## **METHOD**

### **Subject**

The subject, M, was a 23-year-old male who stutters and recently started to experience problems playing the trombone. He described these problems as hesitations at the start of musical phrases. M had obtained a musical performance degree 2 years previously from a college of music and, upon graduation, joined the military to take up a position as trombonist in a military band. The onset of the problem coincided with his playing in the band full-time, after completing basic military training. Although under some stress at that time, M reported that he did not suffer from performance anxiety or experience feelings of apprehension about playing, and that he only started to anticipate difficulty after the onset of the problem.

M reported that he had stuttered since early childhood. Stuttering was confirmed by the consulting speech pathologist and the first author. M reported that he was not concerned about his stuttering and had never sought or received treatment for it. He said he was prepared to discuss and demonstrate the difficulties he was experiencing with his playing, but that he was unwilling to undergo further investigations because he thought this would focus his attention on the problem and possibly exacerbate it. M attended the Australian Stuttering Research Centre twice and on the second occasion was videotaped in the university recording studio. On this occasion he was interviewed by the first author and then played his trombone.

### **Analyses**

Using a dual-button counter-timer, the first author measured percentage of syllables stuttered (%SS) and speech rate in syllables per minute (SPM) from the videotape recording of the interview. The first author also rated the severity of M's stuttering using a 3-point scale (mild, moderate or severe), rated M's speech naturalness on the 9-point scale of Martin, Haroldson, and Triden (1984) in which 1 = highly natural and 9 = highly unnatural. The videotape recording was also analyzed for type of stuttering, using the Lidcombe Behav-

ioral Data Language (Packman & Onslow, 1998). To establish reliability, a speech-language pathologist who specializes in the treatment of stuttering, but who was not associated with the conduct of the study, independently obtained the same measures and performed the same analyses. Acoustic analysis of M's stuttering and the problem he experienced when playing was performed from the recorded audio signal using the software package Signalyze on a Macintosh G3.

## RESULTS

### Speech Measures

A 2,669-word sample of M's speech was analyzed. The first author's speech measures and those of the speech-language pathologist (in parentheses) were: 6.6 (6.2) %SS; 202 (202) SPM; and speech naturalness 3 (3). Both listeners rated stuttering as mild and identified fixed postures as the predominant stuttering type, with some repeated movements and occasional slight grimacing. Figure 1a shows the acoustic waveform of an example of M's stuttering, consisting of syllable repetitions at the start of "it's pretty much . . ."

### Trombone playing

The first author (A) asked M to describe the problem he had with his playing.

M: I take a breath and go to breathe out but it would be like everything

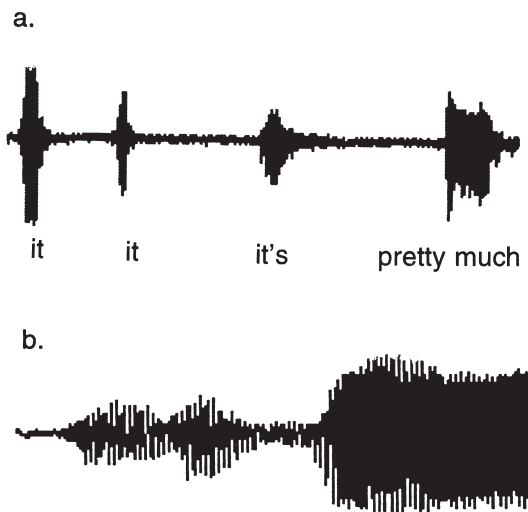


Figure 1.

would lock up; and it's the same kind of feeling as when I'm stuttering. As anyone who's done it knows, it's almost like you lose control . . . (Figure 1).

A: So it's a really locked up feeling?

M: Yes, everything really gets tight. I notice it mainly in my chest and with everything that's associated with getting the air in and out. It's just like a complete halt.

A: And you said this happens after you've breathed in. Is that the only time it happens when you're playing?

M: Pretty much, yes, it's very rare that it happens after I've started a breath. Once the air gets moving things are usually pretty fine. Its just getting started that... it's kind of the same for me as when I'm talking. Once I've started talking, things are usually pretty well OK, but it's often when I'm getting the sentence started that the problems come up.

M was then asked to describe how he used the tongue when he played the trombone:

M: When you're producing a note, there are a few syllables . . . which you can use to keep the start of the note as clean as possible . . . . The tongue works like a gate for the air... Because I have trouble with those syllables sometimes with my speech, I'm pretty sure that that's part of what's happening to me. Because that's the way I say them sometimes, or have trouble saying them, they get in the way of the playing as well.

M described the syllables he used when playing as "ta" and "ka" and combinations of these for a clean attack, and "da" or "do" for a softer attack, for example in legato playing. Interestingly, as he was relating this information, M stuttered as he spoke the syllable "ta." The problem M described was clearly identifiable on a number of occasions when he played the trombone, although it did not occur at the start of every phrase, and M drew attention to the problem when it occurred. They consisted of either a delay in the onset of the note, a "false start" at the onset of the note, or a brief prolongation of sound at very low amplitude at onset before the note achieved its full amplitude. The waveform of an example of a "false start" is shown in Figure 1b. It should be noted that the time scales in Figure 1a and Figure 1b are different: the duration (1,028 ms) of the stutter (the repeated movements at the start of the phrase) is much greater than the duration of the difficulty M had initiating the musical note (266 ms).

M reported that he could usually anticipate when the problem would occur and that position (start of phrase) was the strongest predictor. M was asked if he experienced anxiety when playing and, if so, whether he felt this contributed to the problem. He reported that 70–80% of the time the problem was worse if he was feeling tense, but that he felt that "something else was going on" (his own words) to cause the problem. He also reported that if he was having a "bad day" (his own words) with playing, his stuttering was also likely to be worse.

## DISCUSSION

This paper has described the case of an adult who stutters who reported similar problems when playing the trombone. An interesting feature of this case is that both M's stuttering and the difficulty he experienced when playing typically consist of failure to initiate sound appropriately.

Although the present subject and the three previous subjects all described the difficulty they experienced playing wind instruments as "stuttering," any functional relationship between the two must be regarded as speculative. However, there are considerable motoric similarities between speaking and playing wind instruments (Askill, 1979; Lieberman, 1991). Both activities integrate highly complex, skilled, and over-learned behavioral routines involving coordination of breathing and movements of the articulators. They both achieve acoustic targets by the voluntary regulation of air pressures and flows which, in turn, involves complex and varying interactions of inspiratory and expiratory muscles at different lung volumes (see Bouhuys, 1968; Hixon, 1973).

Rare and unusual cases are a part of scientific observation. These four reports of disfluent wind playing are interesting because they suggest that, under extraordinary circumstances, individuals who stutter may experience similar difficulty with fluency in activities that are nonlinguistic.

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