

Auditory abilities of speakers who persisted, or recovered, from stuttering

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Abstract

Objective: The purpose of this study was to see whether participants who persist in their stutter have poorer sensitivity in a backward masking task compared to those participants who recover from their stutter.

Design: The auditory sensitivity of 30 children who stutter was tested on absolute threshold, simultaneous masking, backward masking with a broadband and with a notched noise masker. The participants had been seen and diagnosed as stuttering at least 1 year before their 12th birthday. The participants were assessed again at age 12 plus to establish whether their stutter had persisted or recovered. Persistence or recovery was based on participant's, parent's and researcher's assessment and Riley's [Riley, G. D. (1994). *Stuttering severity instrument for children and adults* (3rd ed.). Austin, TX: Pro-Ed.] Stuttering Severity Instrument-3. Based on this assessment, 12 speakers had persisted and 18 had recovered from stuttering.

Results: Thresholds differed significantly between persistent and recovered groups for the broadband backward-masked stimulus (thresholds being higher for the persistent group).

Conclusions: Backward masking performance at teenage is one factor that distinguishes speakers who persist in their stutter from those who recover.

Education objectives: Readers of this article should: (1) explain why auditory factors have been implicated in stuttering; (2) summarise the work that has examined whether peripheral, and/or central, hearing are problems in stuttering; (3) explain how the hearing ability of persistent and recovered stutterers may differ; (4) discuss how hearing disorders have been implicated in other language disorders.

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Keywords: Persistent stuttering; Recovered stuttering; Hearing; Backward masking

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Stuttering often starts in childhood, though the problem frequently remits before teenage. Statistics about recovery during childhood were given by Andrews et al. (1983). They analyzed results from several studies and estimated that 75% of those stuttering at age 4 years, 50% of those stuttering at age 6 years, and 25% of those stuttering at age 10 years, recovered by the time they reached 16 years of age. If the problem continues to around teenage, the chance of recovery decreases. Thus, Andrews and Harris's (1964) survey data show that no child who was stuttering when they passed age 12 years recovered by age 16 years. (The survey ceased when participants were around this age.)

Recovery and persistence of stuttering has been assessed in several different ways. For instance, Andrews and Harris (1964) used a population-based sample of all children born between May and June 1947 in Newcastle-on-Tyne in the United Kingdom. Initially, there were 1142 respondents. The study only located a small number of children who stuttered and this subsample is not considered adequate according to some authorities (Yairi & Ambrose, 2005). Also, audio recordings do not appear to have been made for their participants. Thus, clinicians seem to have made their speech-based assessments in real time. The approach of Yairi and Ambrose (2005) has been to locate speakers who are close to the onset of their stuttering and follow them up, typically to about age 8. The children are recorded and have been assessed on various language, motor and demographic instruments longitudinally. Members of this team are clinically trained. Diagnosis of stuttering in such very young children is not always easy, even for clinicians (as Yairi's group's own work shows). Also recovery is not complete by age 8 (Andrews et al., 1983), so it is possible that some participants who have not recovered by this age will do so subsequently (up to age 12 according to Andrews & Harris, 1964). Our own work examines children from as near to 8 years as is possible and re-examines them at the minimum age of 12 years. Ages at initial testing are partly determined by the clinical populations that are available. The things that commend studying children at these ages are: (1) that the test range extends before and after the age at which most recovery is complete, (2) there is a realistic expectation that children at these ages can perform in the procedures required for testing (such as those used for hearing assessment in the current study), and (3) the age range complements that of Yairi and co-workers so it provides information their study cannot (and conversely, their study provides information which ours cannot).

The present study examines the extent to which auditory functioning is predictive of recovery from stuttering. The current study examined whether teenage participants who recovered or persisted in the disorder, differed in their performance on a range of auditory tasks. In the remainder of this section, (1) the criteria used for classifying participants who stutter as recovered or persistent are outlined and (2) the reasons for thinking auditory performance might differ between the two subgroups of participants who stutter are presented.

A participant may be considered to have recovered from stuttering (recovered developmental stutterer, RDS) if he or she (1) has been diagnosed as stuttering in childhood, (2) but is regarded as fluent at age 12 (Andrews & Harris, 1964). A past history of stuttering can be established by personal report (Wingate, 1976). However, a more satisfactory way is to obtain an independent clinical assessment at an age before recovery has taken place (at least 1 year before assessment of recovery in the work reported below). Speech samples obtained at this earlier age provide an objective record of the speaker's previous status (Wingate, 2002). The samples need to be analyzed using a standardized measurement instrument designed to assess frequency and severity of stuttering (Riley, 1994). Recovery is generally considered to be associated with a reduction in the frequency and severity of stuttering (e.g. Ingham, 1984; Starkweather, 1993; Yairi, 1993, 1996). To establish any such reduction, additional speech samples need to be obtained and analyzed

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