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Title

The effects of the Muscarà Rehabilitation Method for Stuttering (MRM-S) on phonological processing

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Abstract

The covert repair hypothesis (Postma and Kolk, 1993) posits that People Who Stutter (PWS) make an excessive number of covert error-repairs, stopping and initiating speech again. Under this hypothesis, speech flow interruption in PWS could be due to a lower release threshold for error-repairs, such as the cancellation and re-issuing of motor commands, which triggers reverberation in the internal monitoring loop responsible for phonetic planning increasing the release threshold and blocking the speech system over time.

21 PWS subjects were tested in a follow-up rhyming judgment paradigm (Weber-Fox et al., 2003) before (T0) and after a 1-week period (T1) of intensive, daily treatment using the Muscarà Rehabilitation Method for Stuttering (MRM-S), which lies upon an increased ability to monitor motor commands and speech planning. We investigated if MRM-S can affect phonological processing of words and legal pseudo-words in the internal monitoring loop over time (i.e two experimental sessions over two time periods) by means of the Inverse Efficiency Score (i.e. IES) which combines speed and error and can be thought of as an observable measure that gauges the average energy consumed by the system over time (Townsend & Ashby, 1983).

We found a significant three-way interaction ($F(1,20)= 4.395$, $p= .049$) between the factors "Session" and "Word" across "Time", in the sense of a significant increased efficiency over time for rhyme judgments only on words, but not on pseudowords, between T0 and T1 and only in the second experimental session. Short-term significant increased efficiency was also found at T1 between session one and session two only for rhyme judgments on words.

We conclude that the MRM-S method is able to tune phonetic planning over time by reducing reverberation in the internal loop, which in turn can relax the release threshold by weakening error-repair mechanisms and translate in increased fluency.