Acoustic Analysis of Alexander Technique Intervention: A Longitudinal Case Study

Objective: The Alexander Technique (AT), a re-educative framework focusing on the prevention of habitual injurious actions through improved head, neck and back coordination, is thought by many singing pedagogues to benefit vocal production. Since there is little objective evidence to support claims of the technique's efficacy, this study seeks to examine the acoustic effects of AT intervention.

Method: Audio recordings of "Caro mio ben" were taken directly preceding and following 15 AT lessons over 5 weeks from a single participant new to the technique. All audio files were calibrated and analyzed in *Praat*. Parameters evaluated included alpha ratio (0-2, 2-4 kHz), maximum sound pressure level (SPL), (0-10 kHz), and harmonic-to-noise ratio (HNR).

Results: Alpha ratio results showed a consistent and notable trend of increased energy between 2-4 kHz both post-intervention and over 15 sessions. Post-intervention SPL tended to decrease initially while trending up over five-weeks. Latter SPL results revealed some boosted post-intervention data with less variance pre- to post-intervention. HNR values declined slightly over time with post-intervention values settling near the participant's mean in latter sessions regardless of variable external pre-intervention influence.

Conclusions: Boosted energy in the 2-4 kHz region, emblematic of a classical ring, was consistently measured post-intervention and continued to increase throughout the research period. Data suggest that AT intervention may boost SPL over time, especially after singers gain some experience in the technique. Latter HNR results suggest that, with greater AT proficiency, intervention may assist in the rapid re-establishment of a singer's vocal balance after external factors adversely impact vocal function.

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