

# A Retrospective Cohort Study of Longitudinal Audiologic Assessment in Single and Fractionated Stereotactic Radiosurgery for Vestibular Schwannoma

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**Objective(s):** To evaluate the relationship between audiologic performance and SRS fractionation scheme.

**Methods:** We performed an IRB-approved retrospective review of patients treated with 1, 3, or 5 fraction SRS for VS at our institution from 1998 to 2016. Pre- and post SRS audiograms with speech awareness threshold (SAT) in treated and contralateral ears were obtained. Contralateral ear measurements were used for hearing normalization to account for presbycusis.

**Results:** Fifty-six patients with median audiologic follow-up of 2.0 years (mean 2.66 years, min-max 0.50-9.45 years) were included. Patients treated with single fractionation had a significantly worsened SAT (dB) compared to patients treated with 5 fractions ( $P = .008$ ) and compared to all multifraction patients ( $P = .009$ ) at 12 to 24 month follow-up.

**Conclusion(s):** This retrospective analysis supports the use of fractionated SRS to preserve hearing in patients with VS. SAT can be used as an objective metric of hearing response to radiosurgery.

Results reported were accepted for publication in manuscript form by the journal Neurosurgery on March 18, 2019. The accepted Neurosurgery publication by Khattab et al is currently in press and with anticipated print publication in the coming months.