

LARYNGOSCOPIC AND SPECTRAL ANALYSIS OF LARYNGEAL AND PHARYNGEAL CONFIGURATION IN NON-CLASSICAL SINGING STYLES

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Purpose. The present study aimed to assess three different singing styles (pop, rock, and jazz) with laryngoscopic, acoustic, and perceptual analysis in healthy singers at different loudness levels. Special emphasis was given to the degree of anterior-posterior (A-P) laryngeal compression, medial laryngeal compression, vertical laryngeal position (VLP), and pharyngeal compression.

Study Design. Prospective study.

Methods. Twelve female trained singers with at least 5 years of voice training and absence of any voice pathology were included. Flexible and rigid laryngeal endoscopic examinations were performed. Voice recording was also carried out. Four blinded judges were asked to assess laryngoscopic and auditory perceptual variables using a visual analog scale.

Results. All laryngoscopic parameters showed significant differences for all singing styles. Rock showed the greatest degree for all of them. Overall A-P laryngeal compression scores demonstrated significantly higher values than overall medial compression and VLP. High loudness level produced the highest degree of A-P compression, medial compression, pharyngeal compression, and the lowest VLP for all singing styles. Additionally, rock demonstrated the highest values for alpha ratio (less steep spectral slope), L1-L0 ratio (more glottal adduction), and Leq (more vocal intensity). Statistically significant differences between the three loudness levels were also found for these acoustic parameters.

Conclusions. Rock singing seems to be the style with the highest degree of both laryngeal and pharyngeal activity in healthy singers. Although, supraglottic activity during singing could be labeled as hyperfunctional vocal behavior, it may not necessarily be harmful, but a strategy to avoid vocal fold damage.

Key Words: Laryngeal hyperfunction–Supraglottic activity–Laryngoscopy–Singing voice–Nonclassical singers.