

# Acoustic markers to differentiate gender in prepubescent children's speaking and singing voice

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© 2014 Elsevier Ireland Ltd. Objectives: Investigation sought to determine whether there is any acoustic variable to objectively differentiate gender in children with normal voices. Methods: A total of 30 children, 15 boys and 15 girls, with perceptually normal voices were examined. They were between 7 and 10 years old (mean: 8.1, SD: 0.7 years). Subjects were required to perform the following phonatory tasks: (1) to phonate sustained vowels [a:], [i:], [u:], (2) to read a phonetically balanced text, and (3) to sing a song. Acoustic analysis included long-term average spectrum (LTAS), fundamental frequency (F0), speaking fundamental frequency (SFF), equivalent continuous sound level (Leq), linear predictive code (LPC) to obtain formant frequencies, perturbation measures, harmonic to noise ratio (HNR), and Cepstral peak prominence (CPP). Auditory perceptual analysis was performed by four blinded judges to determine gender. Results: No significant gender-related differences were found fo