

Title:

DIFFERENCES BETWEEN SPEAKING AND SINGING IN DIFFERENT
POSITIONS

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Abstract:

With the increased use of magnetic resonance imaging in voice research, it is crucial to know the effects of the measuring conditions on the speaking and singing voice.

It is already known that lying supine can affect the speaking voice, however the effects of lying supine on the singing voice are not yet fully known. It is also not yet known if professional voice users such as opera singers are affected by their position as much as “normal” non-expert speakers.

The aim of this study was to establish to what extent professional opera singers are impacted by the situation, and whether this is the same for different types of voice production.

To investigate this, six professional soprano opera singers were asked to complete three tasks; reading a short text aloud, singing a short song, and finally singing an ascending chromatic scale from the bottom of their range to the top, on each of three vowels, while the vocal tract resonances were measured using broad-band noise excitation. They repeated these tasks in two different positions; firstly, standing in their normal singing position, and then in “simulated MRI” conditions, lying on a foam board wearing earplugs and headphones playing MRI noise. The singers wore a head-mounted microphone to record the acoustic signal throughout the procedure.

Long-term average spectra (LTAS) were calculated for both the speech and song recordings for each singer. The differences between the speaking and singing LTAS were calculated, and compared for each of the singers, alongside the resonance measurements in each situation.

Initial results from four singers indicate that both speech and singing were very similar in both standing and supine positions; however the difference between the positions was slightly greater for speech than singing. This could indicate that expert voice users such as the ones in this study are not greatly affected by a change in positions, which has implications on the validity of using Magnetic Resonance Imaging for voice research, in terms of replicating techniques in different environments.