

Voice Therapy for Voice Disorders

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This presentation describes changes in the acoustic characteristics of the voice in response to tongue exercises (oral motor) and breath management/strengthening exercises. Will include a discussion of acoustic parameters that were altered in response to tongue and breath management exercises. Pre- and post- treatment acoustic data of 20 voice disordered speaker and singer participants will be presented to qualify the effectiveness of the presented exercises. A laryngologist examined all voice-disordered participants and provided a medical diagnosis. Data from non-voice disordered participants will also be presented to show that tongue exercises and breath management/strengthening exercises can facilitate improvement in the non-voice disordered voice as well.

Pre- and post- treatment:

1. Sustain vowels “ah”, “ay”, “ee”, “oh” and “oo” 4 seconds
2. Recite the Pledge of Allegiance or count 10 seconds

Tongue (oral motor) exercises:

1. Chewing 30 seconds
2. Tongue tip flip 30 seconds
3. Mid- tongue movement “yo” 30 seconds
4. Tongue trill “brrr” 30 seconds

Breath management exercises:

1. Take a half breath, relax.
Take a full breath, relax. 5 seconds
2. Repeat “f” 30 seconds
3. Repeat “sh” 30 seconds
4. Repeat “toe” 30 seconds
5. “brrr”- lip trill 30 seconds

Results of Acoustic Analysis:

Demographics: 20 voice disordered singer and speaker participants (age range: 24- 76 years, mean age 44.65 years, 76% female and 24% male). 6 non-voice disordered singers and speakers (age range: 11-76 years, mean age 44, 50% female and 50% male).

After tongue (oral motor) exercises, jitter (perturbation in frequency) changed in 89% of voice disordered patients and 33% of non- voice disordered patients, shimmer (perturbation in loudness) changed in 74% of voice disordered patients and 50% of non-voice disordered patients and harmonics to noise ratio changed in 95% of voice disordered patients and 83% non-voice disordered patients during continuous speech. Pitch changed in 84% of voice disordered participants and 100% of non-voice disordered participants and loudness changed in 79% of voice disordered participants and 80% of non-voice participants during sustained vowels.

After breath exercises, jitter changed in 74% of voice disordered patients and 50% of non- voice disordered patients, shimmer changed in 68% of voice disordered patients and 67% of non-voice disordered patients and harmonics to noise ratio changed in 79% of voice disordered patients and 100% non-voice disordered patients during continuous speech. Pitch changed in 95% of voice disordered participants and 100% of non-voice disordered participants and loudness changed in 68% of voice disordered participants and 100% of non-voice participants during sustained vowels.

Conclusion:

Results of acoustic analysis on the functioning of the voice are as follows: both voice disordered and non-voice disordered singers and speakers reveal changes which indicate improvement in all parameters of the voice following tongue and breathing exercises. These results are a good prognostic indicator of the validity of using tongue and breathing exercises for voice disordered and non-voice disordered singers and speakers.