

Voice Quality in Future Musical Actors

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Musical performers

Musical students are a special group of **elite vocal performers** with a high vocal load as they combine **singing, acting** and physical performance (**dancing**). As they are absolutely depending on their vocal quality and vocal capacities for their studies and their future profession, an optimal voice coaching is very important. Future musical performers are at risk for developing voice disorders as a result of a very high vocal load combined with vocal abuse and a lack of physical and vocal rest.



Purpose

The purpose of this study was to determine the objective and subjective voice quality of future elite vocal performers (Musical performers).

Secondly, voice quality between first and second year students of the bachelor program Musical was compared.

Actors, in rehearsal and performance, frequently engage in emotionally charged behaviors, often producing voice accompanied by extreme physical exertions (as in a staged fight), or sudden emotional outbursts, such as screaming, shouting, grunting, groaning, and sobbing. These **vocally violent behaviors** appear to involve extremes in pitch and loudness, increases of muscular tension in the circumlaryngeal area, and explosions of air across partially closed vocal folds. Such behaviors are generally accepted to be **vocally abusive**, and may contribute to vocal fold mucosal injury and voice mutation. Roy et al. (2000)

Voice Assessment Protocol

Aerodynamic measurements

Voice Range Profile

Acoustic analysis of /a/

VHI

Singing VHI

Videolaryngostroboscopy

Dysphonia Severity Index

Subjects

31 Musical students of the School of Arts (Musical Department) of Brussels

- Mean age: 20,7 jaar (SD: 1,89)
- Men: 7, Women:24
- 1st Bachelor: 23, 2nd Bachelor:7

Results

Voice profile of Musical students

- The results of the voice characteristics of male and female musical students are presented in the table.
- Videolaryngostroboscopy
 - Abnormalities in 29%
 - Functional dysphonia in 16.1%
 - Organic dysphonia in 12.9%

Comparison 1st and 2nd Bachelor for men and women

- Mann-Whitney U test
- No differences between 1st and 2nd Bachelor in women and men.

	Men					Women				
	Mean	Median	Min.	Max.	SD	Mean	Median	Min.	Max.	SD
Aerodynamic measurements										
MPT	22,2	23,8	9,1	31,8	7,2	18,7	18,5	10,3	29,8	4,5
VC	3814,3	3700,0	3400,0	4600,0	414,0	2375,0	2275,0	1900,0	3200,0	333,0
PQ	194,0	164,6	113,1	373,6	85,3	132,8	128,9	73,9	204,7	32,5
Voice Range Profile										
l _{low}	57,0	57,0	50,0	62,0	4,4	55,4	55,5	50,0	61,0	3,1
l _{high}	109,9	109,0	104,0	118,0	5,1	109,1	109,0	95,0	118,0	6,4
f _{low}	75,6	77,8	65,7	87,3	7,0	138,3	138,6	71,0	164,8	18,3
f _{high}	781,8	830,6	523,3	1046,5	227,8	1208,9	1174,7	740,0	1661,8	266,2
Acoustic analysis										
F0	126,3	126,4	108,2	153,0	14,0	218,9	216,8	185,8	270,1	20,9
jitter	0,64	0,52	0,26	1,46	0,40	1,01	0,78	0,26	2,59	0,66
shimmer	3,28	3,70	1,89	4,41	0,94	3,54	3,42	2,27	5,91	0,84
vFO	0,90	0,86	0,61	1,37	0,27	1,06	0,97	0,43	2,15	0,49
NHR	0,14	0,14	0,13	0,15	0,01	0,12	0,12	0,10	0,17	0,02
DSI	3,9	5,3	-1,0	6,2	2,7	5,6	5,7	0,6	10,4	2,4
VHI	7,1	5,0	2,0	24,0	7,8	14,0	10,0	0,0	60,0	13,7
VHI singing voice	14,3	9,0	5,0	30,0	10,5	20,3	15,0	1,0	49,0	12,7

Conclusion

The mean DSI in male and female Musical students was respectively 3.9 and 5.6, both corresponding with an overall good vocal quality. The results of the VHI showed no important psychosocial impact on the speaking voice. However, the scores for the sVHI were higher than the VHI scores in both male and female Musical students. Despite the overall good vocal quality, videolaryngostroboscopy revealed a high presence of organic and functional voice disorders. Optimal voice coaching with regular otorhinolaryngology consults are absolutely necessary in this group of future professional voice users.