# 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.

**Dysphonia Severity Index** 





#### 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.

## **Voice Assessment Protocol**

Aerodynamic measurements

Voice Range Profile

Acoustic analysis of /a/

VHI

Singing VHI

Videolaryngostroboscopy

## **Subjects**

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

## 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 1<sup>st</sup> and 2<sup>nd</sup> Bachelor for men and women

- Mann-Whitney U test

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

No differences between 1<sup>st</sup> and 2<sup>nd</sup> 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											
llow	57,0	57,0	50,0	62,0	4,4	55,4	55,5	50,0	61,0	3,1	
Ihigh	109,9	109,0	104,0	118,0	5,1	109,1	109,0	95,0	118,0	6,4	
Flow	75,6	77,8	65,7	87,3	7,0	138,3	138,6	71,0	164,8	18,3	
Fhigh	781,8	830,6	523,3	1046,5	227,8	1208,9	1174,7	740,0	1661,8	266,2	
Acoustic analysis											
FO	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	
vF0	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.

