



# Isolated action of the different laryngeal intrinsic muscles in an animated excised human larynx

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## CONFLICT OF INTEREST DISCLOSURE FORM

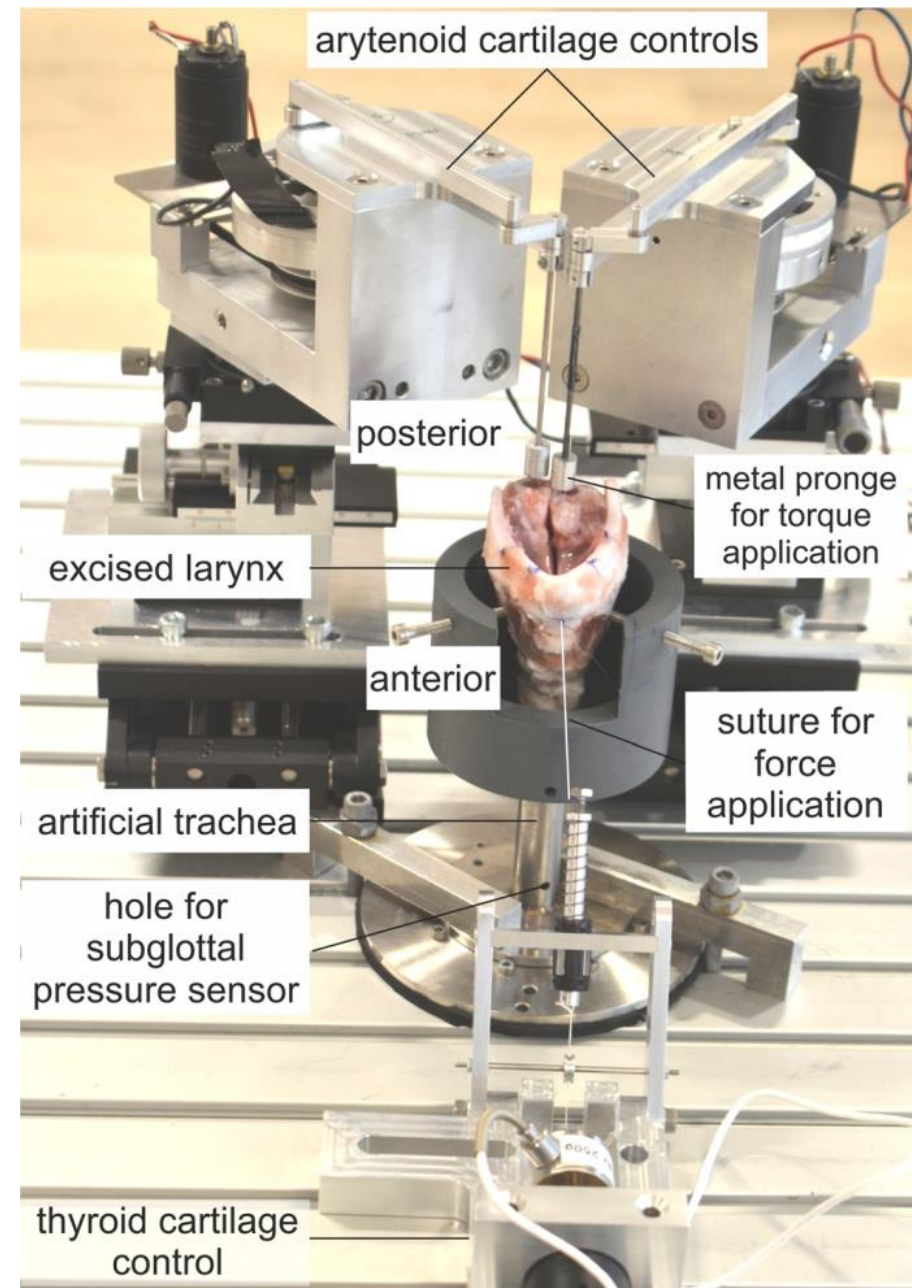
I have no potential conflict of interest to report

I have the following potential conflict(s) of Interest to report

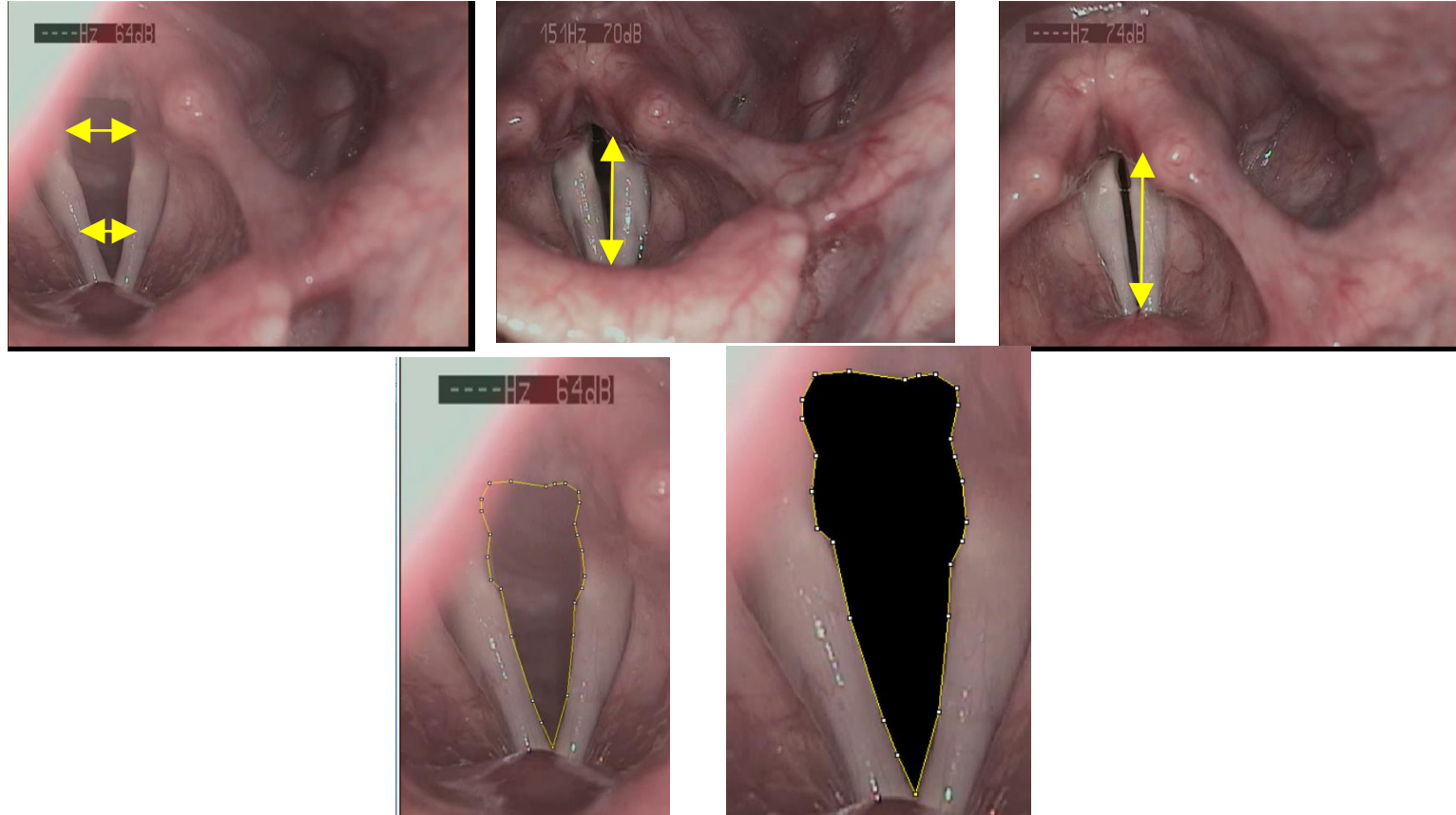
Type	Name of commercial company
Receipt of grants/research supports	
Receipt of honoraria or consultation fees	
Participation in a company sponsored speaker's bureau	
Stock shareholder	
Spouse/partner	
Other support (please specify)	

# Objective

- Reproduction of the effect of the activation of the intrinsic laryngeal muscles in an excised human larynx
- Why?
  - Studies on excised larynges supposed to be as close as possible to the *in vivo* phonation, BUT:
    - Often on animal larynges
    - To date, only rough controls of the glottal configurations have been described in the literature.



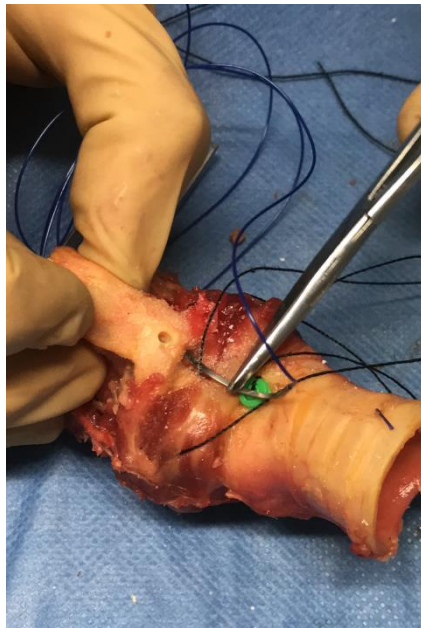
# Objective



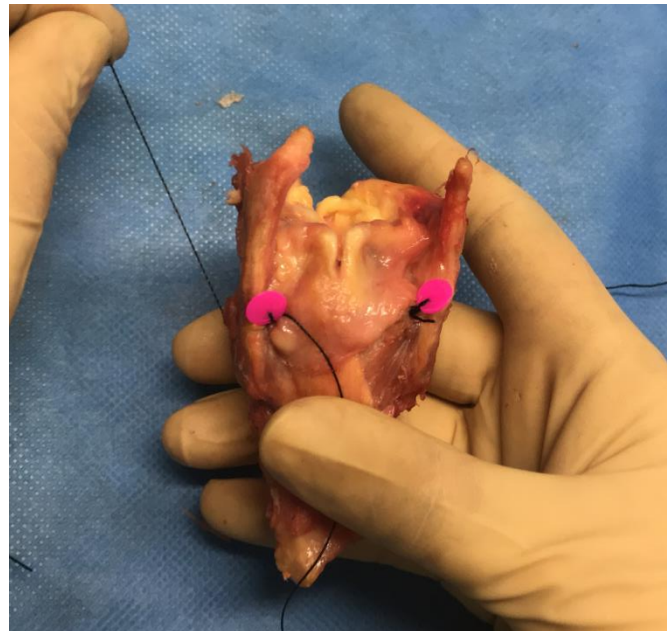
# Material and methods

## Crico-thyroid (CT), Lateral (LCA) and Posterior crico-arytenoid (PCA) Muscles

- The insertions of the different muscles were reproduce
- The actions of these muscles were reproduced by the approximation of their insertions.



CT



LCA



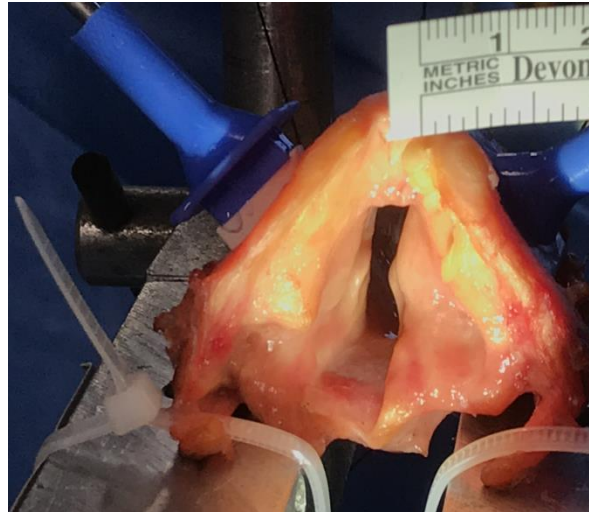
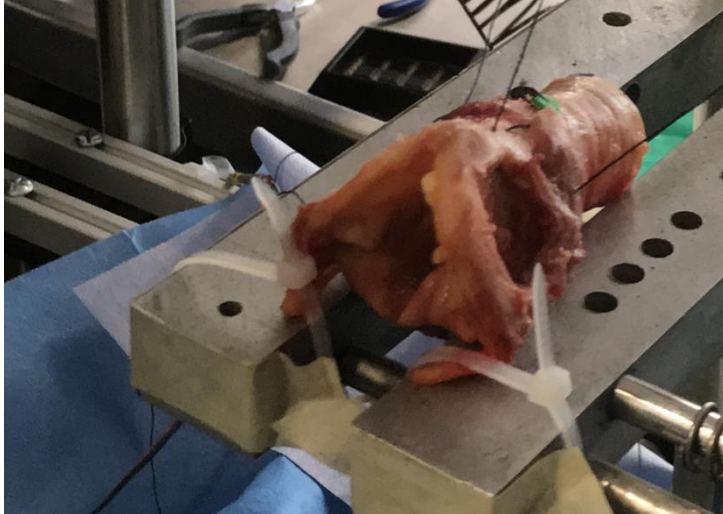
vPCA



# Material and methods

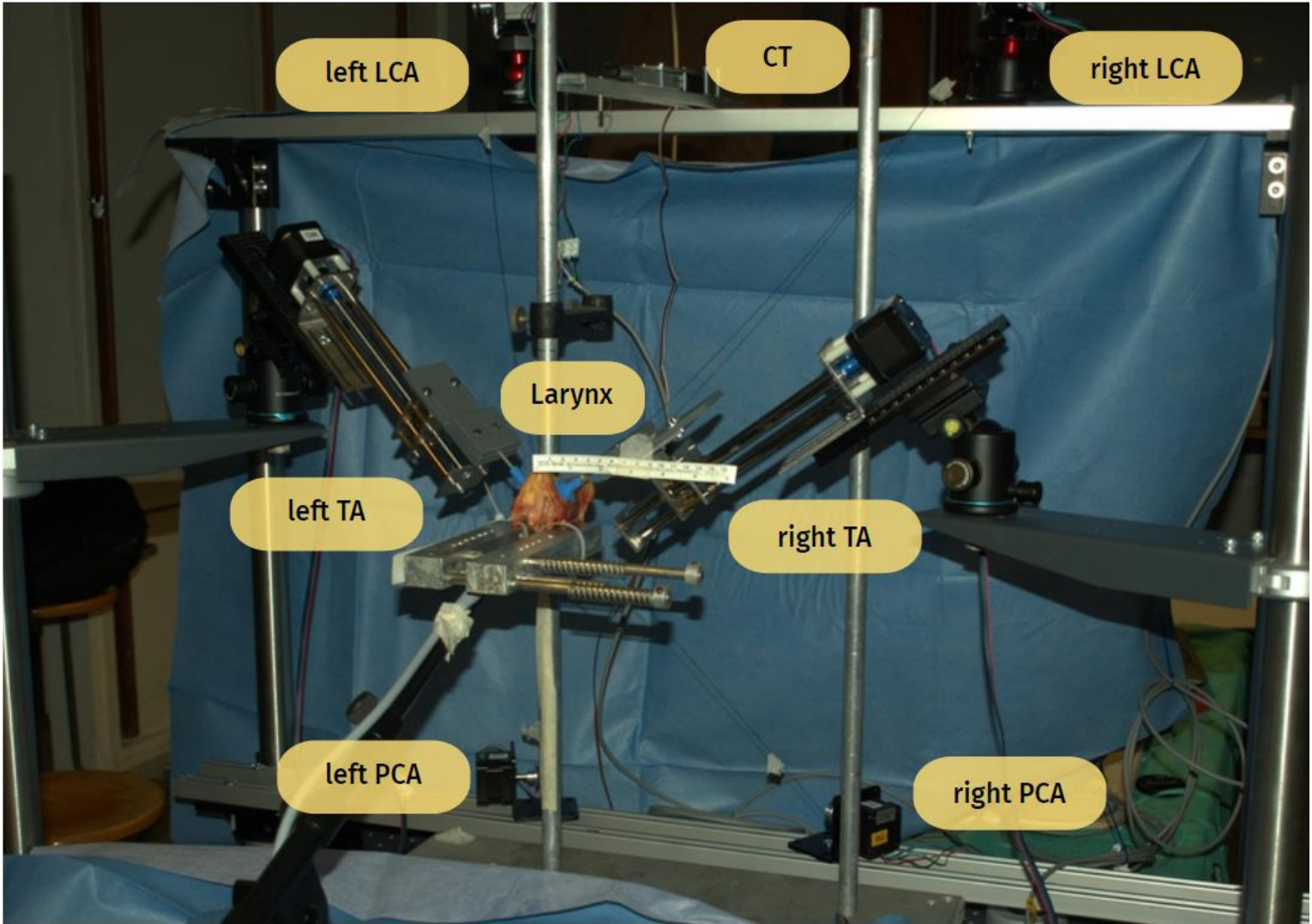
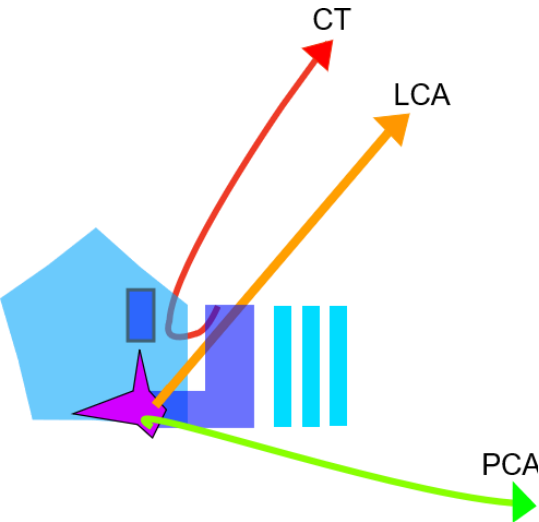
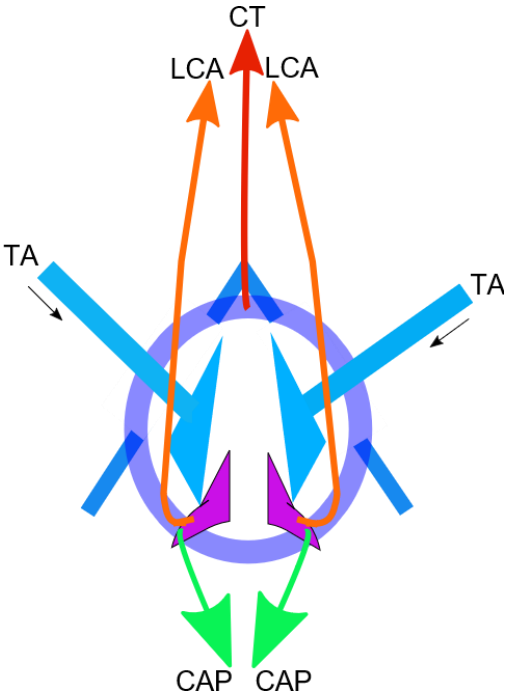
## Action of the vocalis

- Reduced to its function of adduction of the membranous part of the vocal fold
- with Montgomery implants into a large thyroplasty window



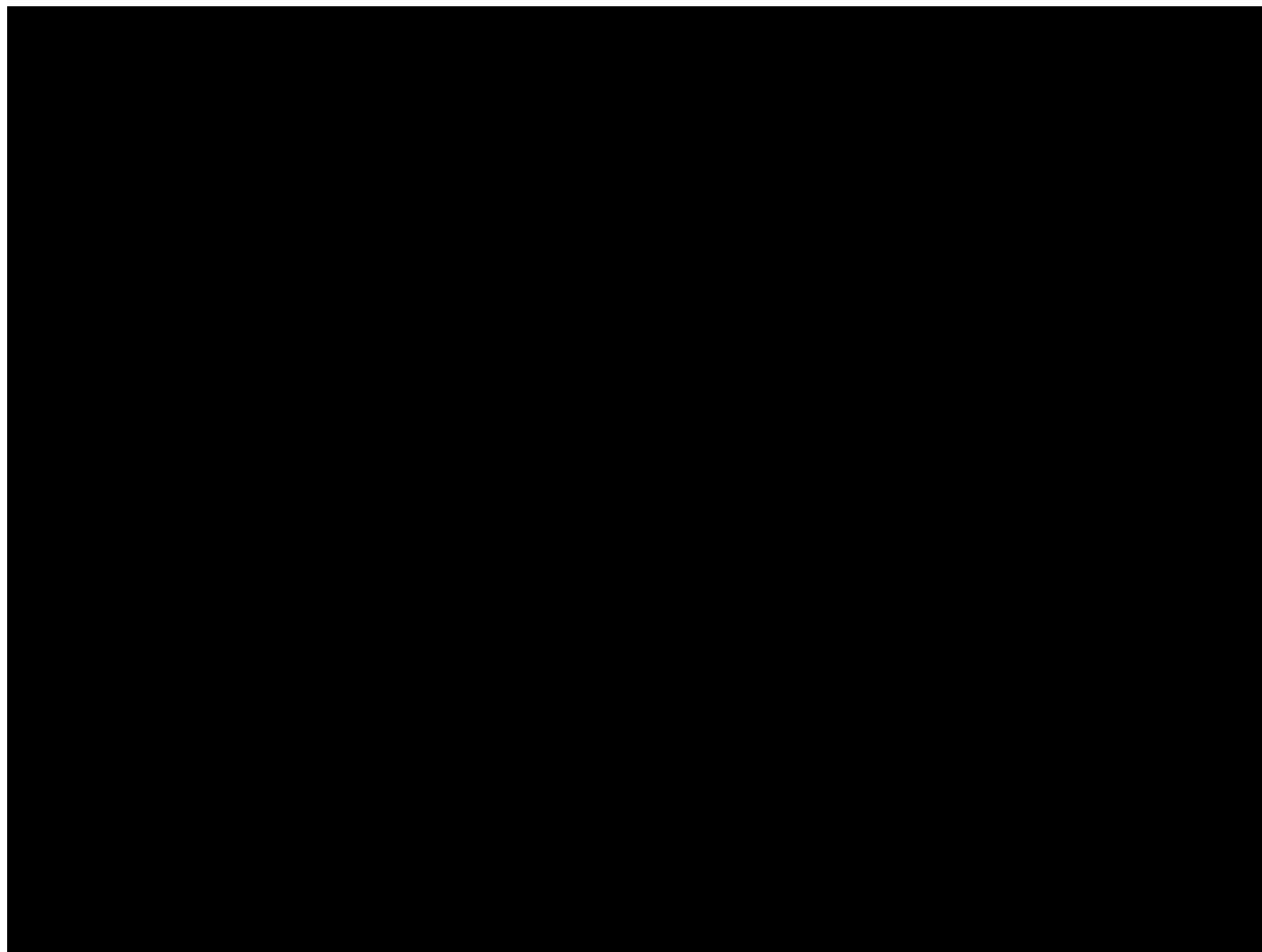
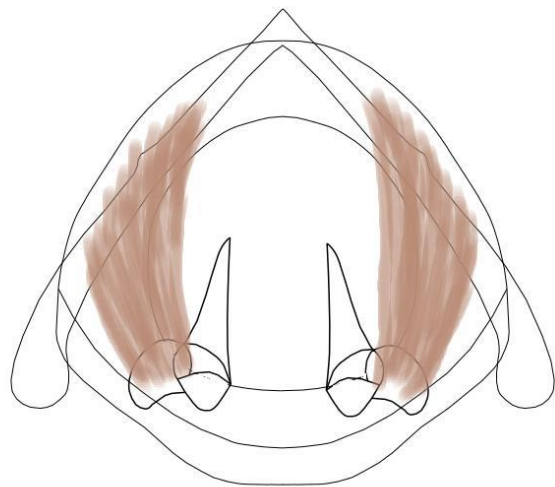
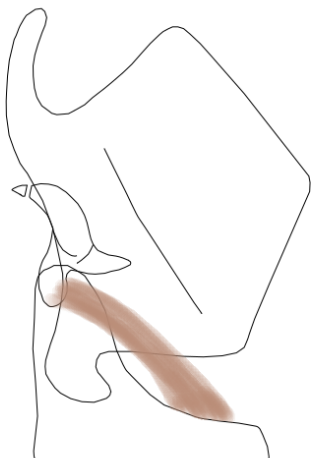
# Material and methods

## Motorization of the different actions



# Results and discussion

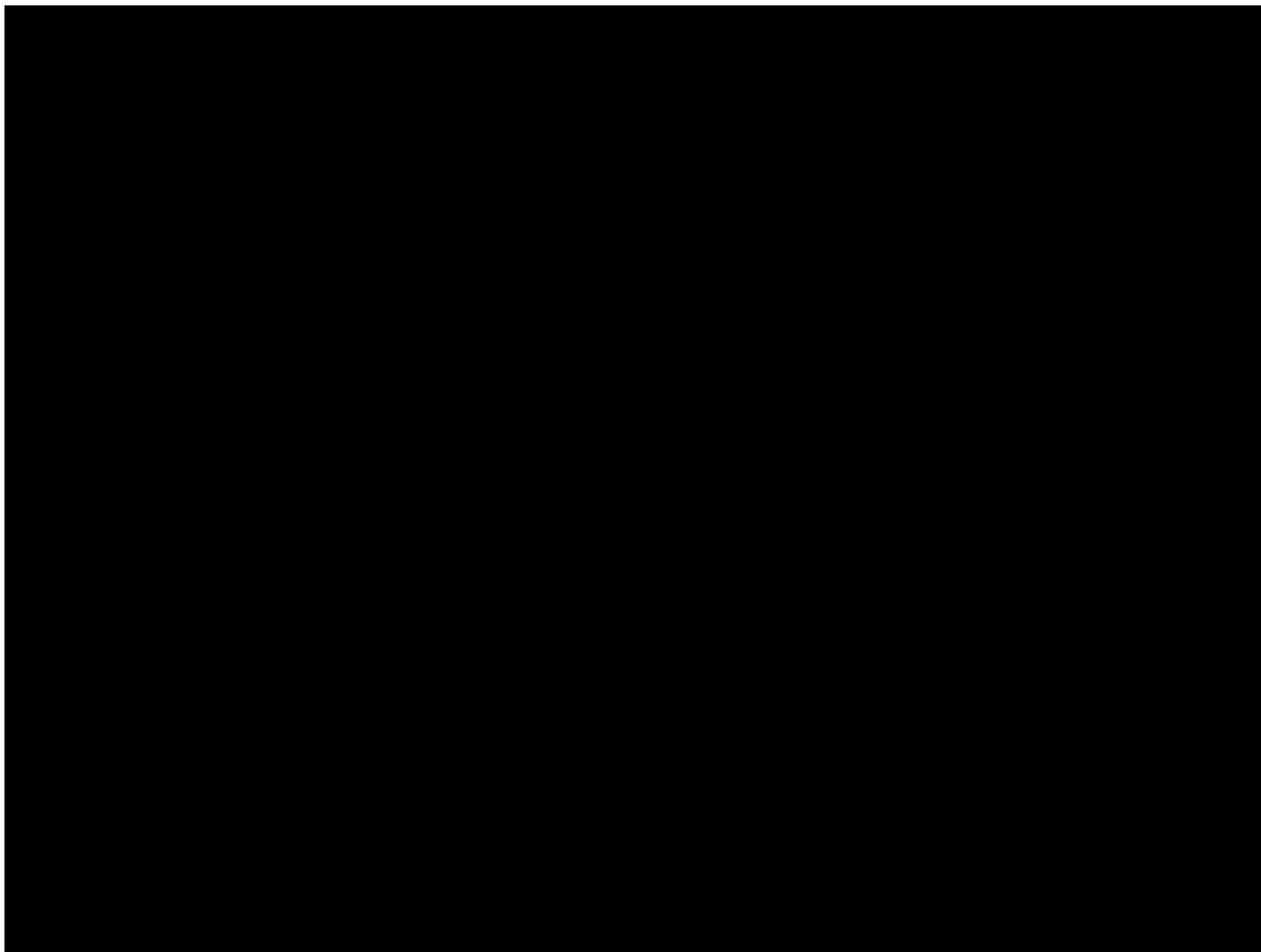
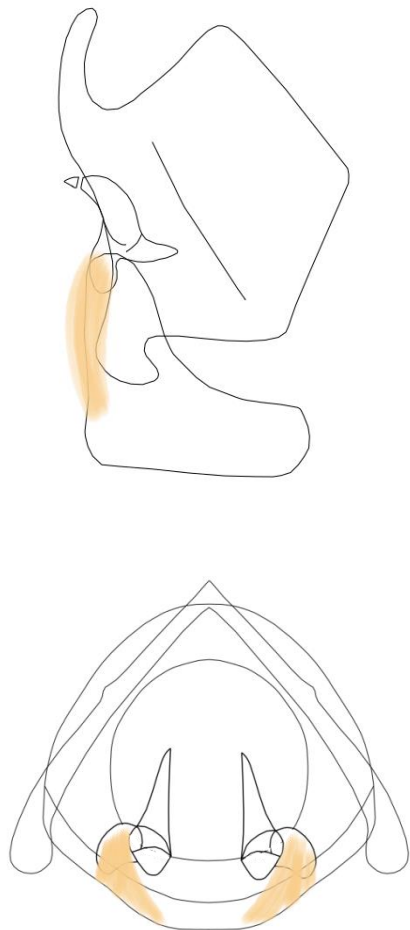
## LCA





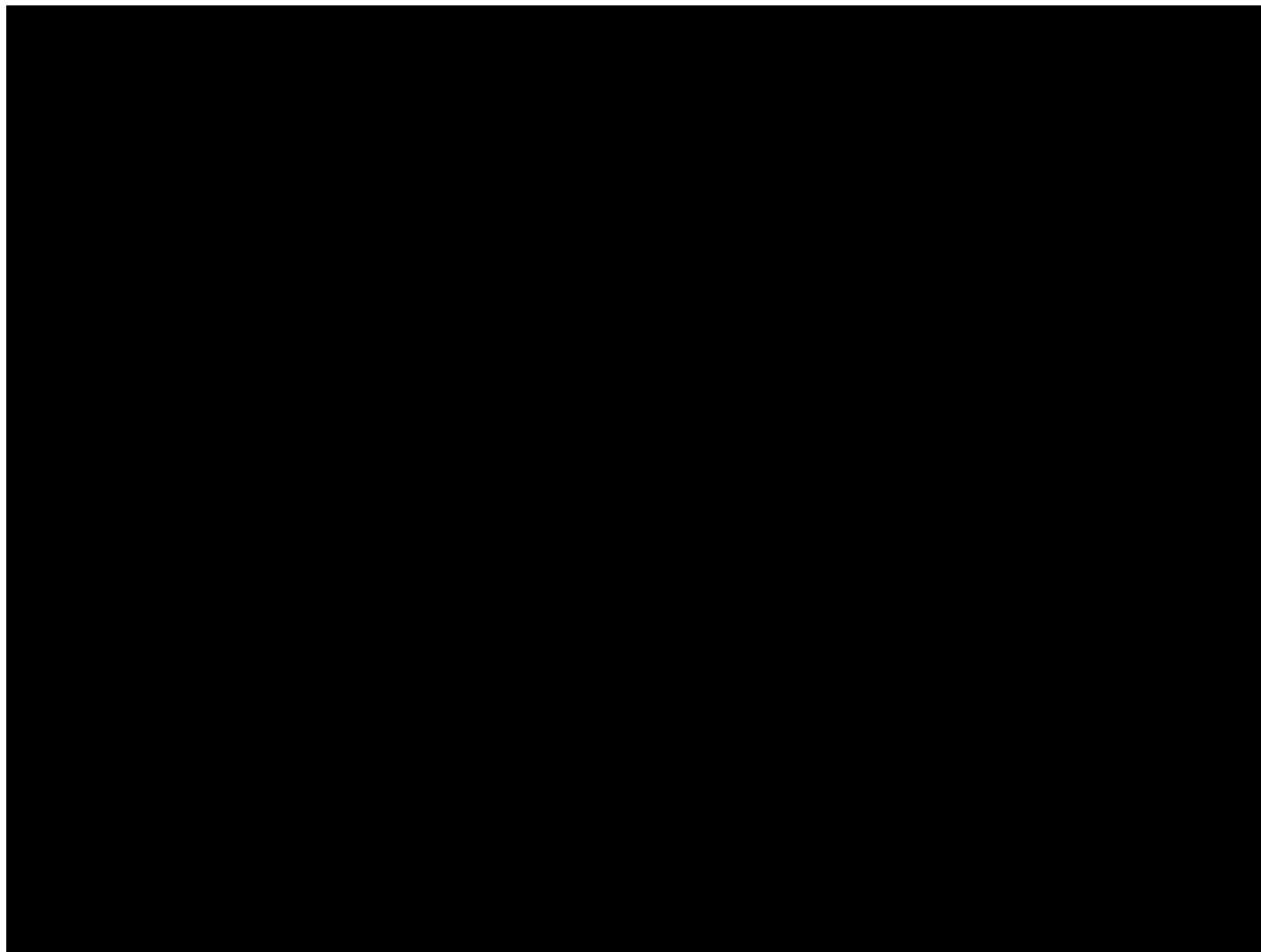
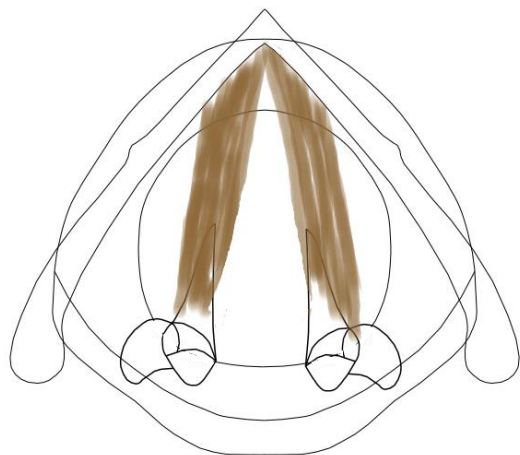
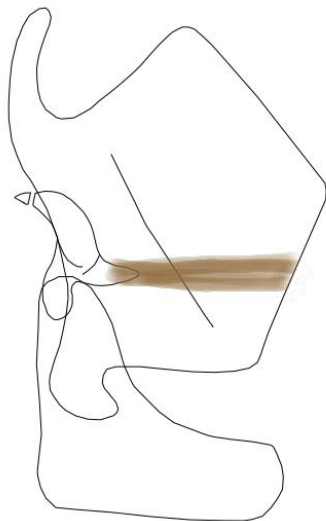
# Results and discussion

## PCA



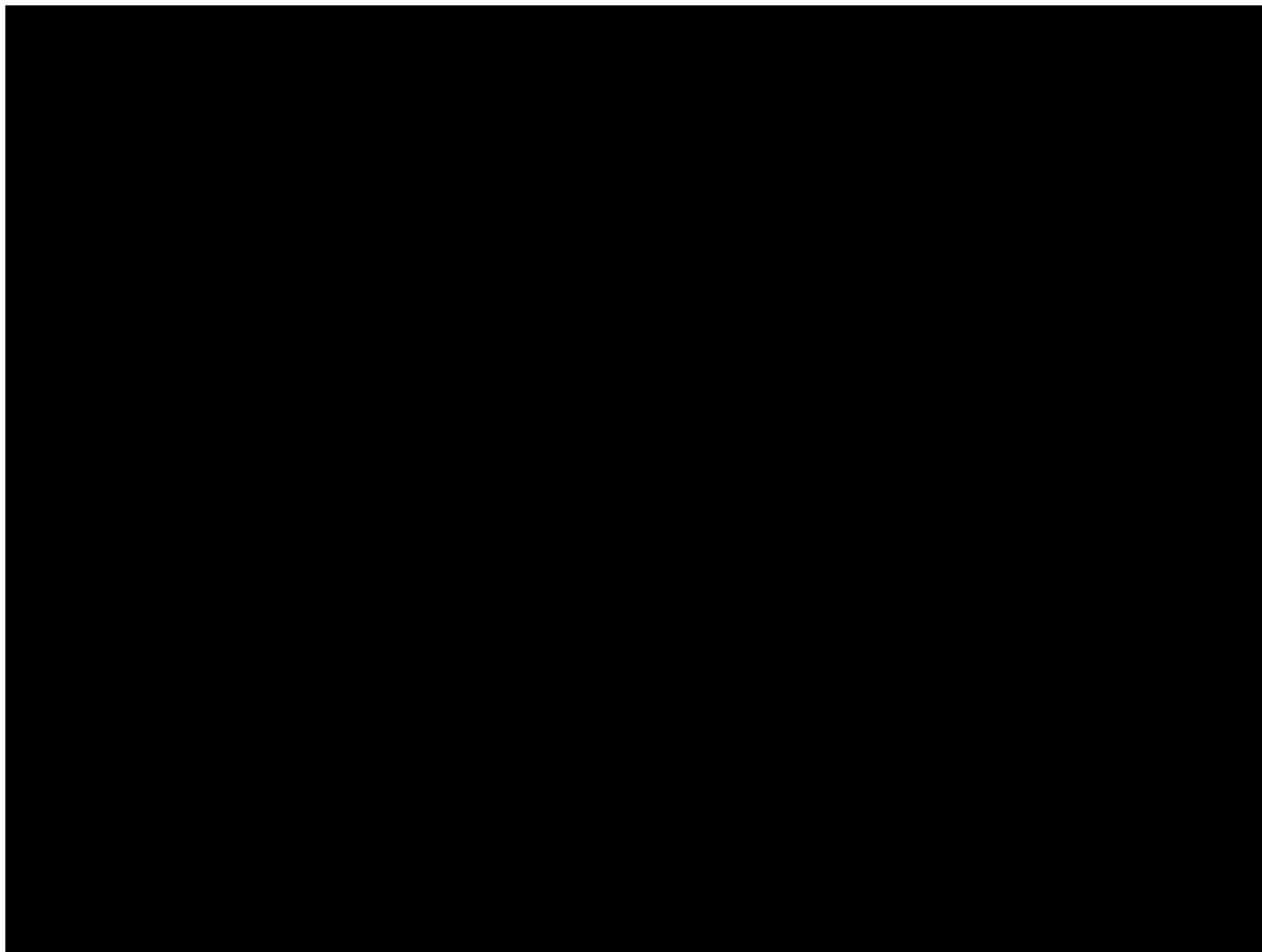
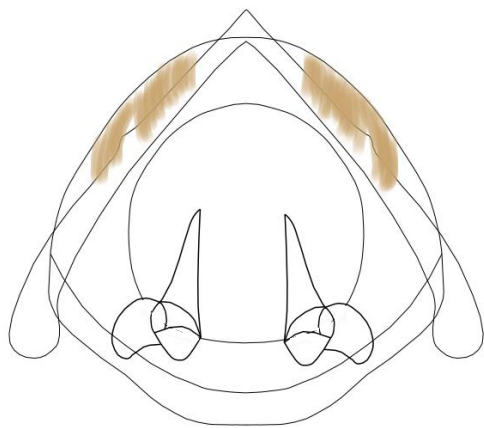
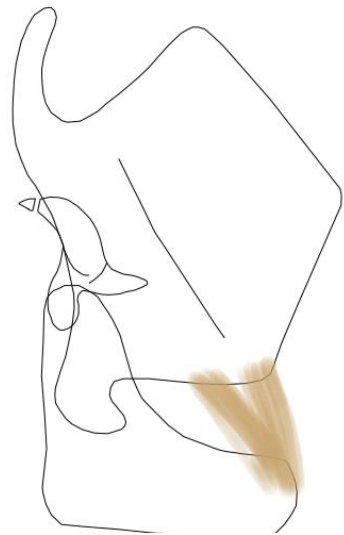
# Results and discussion

## Vocalis



# Results and discussion

CT



# Conclusion

- The activation of the different muscles leads to different glottal shapes,
- More natural and closer to vocal physiology
  - Possibility to reproduce the initiation of the phonation,
  - The maintain of the phonation in mechanism 1 and 2
- Perspectives for a better insight in the laryngeal physiology with refining the *ex vivo* models of larynx.



To be continued....

