



HAL
open science

Motorized Cricothyroid Tilt Control on human excised larynx

Thierry Legou, Fabrice Silva, Pierre Champsaur, Antoine Giovanni, Aude Lagier

► **To cite this version:**

Thierry Legou, Fabrice Silva, Pierre Champsaur, Antoine Giovanni, Aude Lagier. Motorized Cricothyroid Tilt Control on human excised larynx. Fall Voice Conference, Oct 2018, Seattle, United States. . hal-02139183

HAL Id: hal-02139183

<https://hal.science/hal-02139183v1>

Submitted on 24 Jan 2022

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

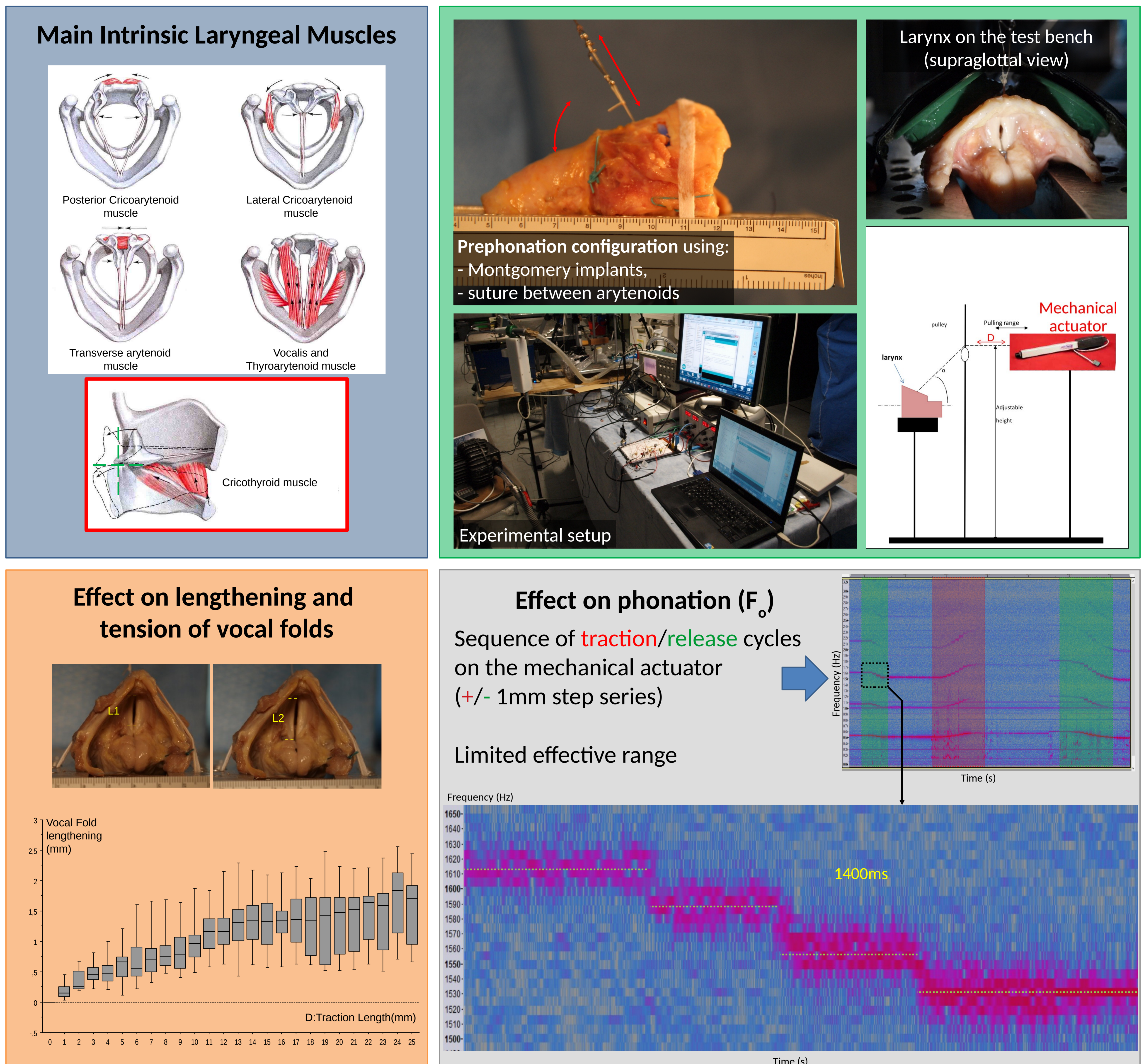
Motorized Cricothyroid Tilt Control on human excised larynx

T. Legou¹, F. Silva², P. Champsaur³, A. Giovanni^{1,4} and A. Lagier^{3,5}

Introduction

A **controlled human phonation** needs the coordination of **several extrinsic and intrinsic muscles**.

In order to study the contribution of the **Cricothyroid muscle (CT)**, we implement a **mechanical control of excised human larynx** able to finely reproduce actions of the CT and measure its consequences on phonation.



Discussion

This pilot study **validates the motorized Cricothyroid tilt**, by checking its effects onto:

- the **length of vocal folds**
- The phonatory **fundamental frequency (F_0)**: traction increases F_0 , while relaxation decreases F_0 .

References

1. Aix Marseille Univ, CNRS, LPL, Aix-en-Provence, France
 2. Aix Marseille Univ, CNRS, Centrale Marseille, LMA, Marseille, France
 3. Aix Marseille Univ, APHM, Laboratoire d'Anatomie, Faculté de Médecine, Marseille, France
 4. APHM, CHU Conception, Service d'ORL, Marseille, France
 5. Service d'ORL, CHU de Liège, Belgique
- [1] Garcia and Herbst, *Anthropological Science* 126(1):9-17, 2018
 - [2] Legou, Lagier, Silva, Henrich, Champsaur and Giovanni, *Test bench for human excised larynx studies*, MAVEBA, Florence, 2015
 - [3] Lagier, Legou, Champsaur, Henrich and Giovanni, *Control of the Glottal Configuration in Ex Vivo Human larynges*, Voice Foundation Conference, Philadelphia, 2015