



Stroboscopy while Lifting Weights: A New Assessment Technique for Observing the Larynx in Strength Athletes while Lifting Weights (with and without Valsalva maneuver)

Samaneh. Ebrahimi^{1,7}, Mohsen. Avatef Rostami^{2, 7}, Mandana. Gholami^{3*}, John W. Dickinson⁴, Mahdi. Bakhshi⁵, Aslan Ahmadi⁶

¹ PhD Student in Department of Sports Sciences, Faculty of Social Sciences, Imam Khomeini International University, Qazvin, Iran

² PhD Student in Department of Biomechanics, Faculty of Medical science and Technologies, South Tehran Branch, Islamic Azad University, Tehran, Iran

³ Associate Professor, Department of Physical Education and Sport Sciences, Faculty of Literature, Humanities and Social Sciences, Science and Research Branch, Islamic Azad University, Tehran, Iran

⁴ Professor in School of Sport & Exercise Sciences, University of Kent, Canterbury CT2 7NB, UK

⁵ Department of Sport Injury and Corrective Exercise, Faculty of Physical Education and Sports Sciences, University of Tehran, Tehran, Iran

⁶ ENT and Head and Neck Research Center and Department, the Five Senses Institute, Hazrat Rasoul Hospital, Iran University of Medical Sciences, Tehran, Iran

⁷ Department of Speech Therapy, School of Rehabilitation, Tehran University of Medical Sciences Tehran, Iran

* Corresponding author email address: gholami_man@yahoo.com

Editor

Reviewers

Mohammad Ali Aslankhani

Professor, Department of Behavioral, Cognitive and Sports Technology, Faculty of Sports and Health Sciences, Shahid Beheshti University, Tehran, Iran
Email: M-Aslankhani@sbu.ac.ir

Reviewer 1: Ali Seghatoleslami

Associate Professor, Sports Science Department, Birjand University, Birjand, Iran.
Email: aseghatoleslami@birjand.ac.ir

Reviewer 2: Seyed Mohammad Hosseini

Assistant Professor, Department of Health and Rehabilitation in Sports, Shahid Beheshti University, Tehran, Iran.
Email: moh_hosseini@sbu.ac.ir

1. Round 1

1.1 Reviewer 1

Date: 12 February 2022

Reviewer: The manuscript presents a novel study on the use of continuous stroboscopy to observe the laryngeal function in strength athletes during weightlifting, with particular focus on the Valsalva maneuver (VM). The study's approach and findings lay the groundwork for further research, with potential implications for athlete training, safety, and performance. Enhancements in data presentation and broader participant inclusion are recommended for future studies.

Minor Comments:

- 1) Given the highly technical nature of the content, the manuscript should ensure that terms and procedures are explained in a manner accessible to a broader audience, potentially interested in the interdisciplinary application of the findings.
- 2) While the preliminary data is intriguing, the report would benefit from a larger sample size to validate and generalize the findings. Future studies should aim to include a more diverse and larger cohort.

Major Comments:

- 1) The study addresses a highly specific and relatively unexplored area, contributing potentially valuable insights into respiratory and laryngeal dynamics in strength training. The innovative use of continuous stroboscopy in a weightlifting context is commendable.
- 2) The methodology appears robust with clear procedural details, providing a replicable model for future studies. The participant's profile and preparation are well-documented, ensuring a detailed understanding of the subject's condition.
- 3) The results, while preliminary, offer an intriguing look at the laryngeal changes during weightlifting with and without VM. The study successfully captures and reports on laryngeal dynamics, providing a foundational understanding of the physiological occurrences in the described scenario.

Authors revised the manuscript.

1.2 Reviewer 2

Date: 14 February 2022

Reviewer: The manuscript presents a unique and valuable study that opens new avenues for understanding and improving athlete health and performance. It is a commendable first step in what could become a significant area of interdisciplinary research, combining insights from sports science, respiratory physiology, and medical diagnostics. Further research with a larger cohort and continued emphasis on practical implications is encouraged.

- 1- The study explores a novel intersection of laryngeal health and strength training, a niche but significant area given the popularity of strength training. The application of stroboscopy in this setting is original and provides a new lens to view athlete health and performance.
- 2- The study places a strong emphasis on safety and ethical considerations, adhering to protocols and ensuring the participant's well-being, which is critical in such invasive and potentially risky assessments.
- 3- The manuscript is technically sound, with careful attention to the equipment used, the subject's preparation, and the execution of the stroboscopic assessment.
- 4- The manuscript would benefit from a discussion on the broader implications of its findings, including how it might affect training protocols, athlete education, and preventative health strategies in the context of strength sports.
- 5- To reach a wider audience, including those in sports science, medicine, and even the athletic community, the manuscript should aim to simplify and clarify the more complex technical aspects of stroboscopy and laryngeal physiology.

Authors revised the manuscript.

2. Revised

Editor's decision after revisions: Accepted.

Editor in Chief's decision: Accepted.