



**UNIVERSITY OF WEST ATTICA  
SCHOOL OF HEALTH AND CARE SCIENCES  
PHYSIOTHERAPY DEPARTMENT**

**PhD Thesis Summary**

**Title**

The effect of respiratory muscle exercise on the successful weaning of critically ill patients from mechanical ventilation.

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## **Summary**

Critically ill patients, due to their prolonged stay in the Intensive Care Unit (ICU), the severity of the admission disease and the possible adverse side effects of their hospitalization, may develop serious late complications, such as muscle atrophy and weakness, which also affects the respiratory muscles. It is characteristic that from the first 18-69 hours of mechanical ventilation (MA), proteolytic processes take place that lead to rapid atrophy and dysfunction of the diaphragm . Physiotherapists are involved in both the prevention and treatment of the consequences of critical illness and bed rest. Their role, in the care of ICU patients, is multifactorial. It aims at a quick and successful discharge from the MA and the restoration of their functionality.

In the context of a multifactorial physiotherapy program, inhalation muscle exercise can be applied to prevent diaphragm dysfunction and to enhance their strength and endurance. This intervention is mainly carried out by means of resistance devices and, in particular in recent years, by means of electronic devices that adapt the resistance minute by minute to the patient's inspiratory effort.

The aim of this PhD thesis is to investigate the effectiveness of an inspiratory muscle exercise program using an electronic exerciser in the disengagement of the critically ill patient from mechanical ventilation.