Introduction:
Proper diaphragmatic function is of great importance for ICU patient under mechanical ventilation in order to facilitate the weaning process. 1

Methods:
We conducted a physiological study to correlate information derived from esophageal pressure measurements with measurements of diaphragmatic thickness in patients ventilated on a Pressure support mode, breathing through a T-piece tube and a situation of resistive breathing

Results:
We studied 12 patients hospitalized in the Intensive Care Unit of the University Hospital of Larisa. During the Pressure Support mode we found a positive correlation between lung compliance and diaphragmatic thickness during inspiration and expiration (r: 0.842, p=0.001 and r: 0.777, p=0.003 respectively) and also between Diaphragmatic thickness and Tidal volume (inspiration r: 0.650, p=0.022 and expiration r: 0.680, p=0.015). Transdiaphragmatic pressure generated when the patients on a T tube was correlated with Diaphragmatic thickness during inspiration and expiration (r:0.550, p=0.001 and r:0.471, p=0.004, respectively). The same was found between diaphragmatic thickness and the Tidal Volume (inspiration r:0.539, p<0.001, expiration r:0.465, p=0.004). Tidal Volume also correlated with Diaphragmatic displacement during inspiration (r: 0.463, p=0.004) During resistive breathing, both diaphragmatic thickness during inspiration and expiration were positively correlated with the generated tidal volume (r: 0.358 p=0.010 and r: 0.454, p=0.001, respectively) and so was the diaphragmatic displacement during inspiration (r:0.533, p<0.0001).

Conclusion:
In this study we found that the result of diaphragmatic function, meaning transdiaphragmatic pressure and the generated tidal volume, can be assessed focusing on the changes of the diaphragmatic thickness during the respiratory cycle.

References: