

ORAL PRESENTATION

Contribution of abdominal and chest breathing in different body positions to the breathing cycle

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Introduction: Previous report showed that the body position of patients with COVID-19 disease significantly affected the mortality. Thus we hypothesized that the proportional participation of abdominal (AB) and thoracic breathings (TB) to the respiratory cycle is different. Thus, we aimed to measure the participation of AB and TB in different positions during resting conditions.

Methods: Using plethysmography respiratory belts, changes in the circumference of the chest and abdomen cavities were measured in young men and women (n=14; age:21.3±1.8 years) during inhalation and exhalation in resting conditions. The following positions were used: standing (St), sitting (Si), supine (Su), prone (Pr), and all on fours (Af).

Results: In different positions, the percent ratio of AB and TB was significantly different. AB gradually increased while TB gradually decreased in the following order: Si: 62/38%; St: 65/35%; Su: 75/25%; Pr: 61/39%; Af: 55/45%. For example, AB was significantly higher than TB in the Su position, while there was no significant difference between AB and TB in the Af position. During the measurements the respiratory frequency did not change significantly.

Conclusions: These data show that the different body positions significantly affected the participation of abdominal and thoracic breathing during complete breathing cycle. Thus, optimizing the participation of abdominal and thoracic breathing may improve the efficacy of respiration of patients and mortality.

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