

EFFECT OF RMT ON DIAPHRAGM ASYMMETRY AFTER STROKE



Two of the most common issues that stroke patients experience are respiratory muscle weakness and impaired cough ability. Due to stroke-associated hemiplegia, respiratory (and peripheral) muscles are often affected asymmetrically. This, in turn, contributes to reduced functionality and respiratory capacity. When it comes to improving these issues, it is already known that respiratory muscle training (RMT) is beneficial for stroke patients. Its effect on respiratory muscle asymmetry, however, is unknown.

In the study, we discuss in this post, the effect of RMT on muscle asymmetry will be explored. RMT, using two different protocols of inspiratory muscle training (IMT), is tested for improvement of diaphragm thickness asymmetry in stroke patients.

Key Findings

- Stroke patients often have respiratory muscle weakness and impaired cough ability.
- Respiratory and peripheral muscle are often affected asymmetrically.
- 6 weeks of respiratory muscle training (RMT) reduced diaphragm thickness asymmetry in stroke patients.

Patient Impact

RMT effectively reduces diaphragm asymmetry and improves respiratory functionality after stroke.

Study Methods

Stroke patients received six weeks of either high intensity fixed load (80% of P_Imax) or low intensity RMT with incremental increases in each session. Diaphragm thickness was assessed by ultrasound before and after RMT and compared to a control group.

Study Results

Both methods of RMT were effective in reducing diaphragm asymmetry, while asymmetry increased in the control group due to progressive impairment. Fixed load IMT showed greater improvements, but might not be suitable for patients with severe respiratory muscle weakness. Regardless, RMT significantly reduces diaphragm thickness asymmetry in stroke patients, and can therefore effectively improve impaired respiratory functionality.

References

Jung JH, et al. The effect of progressive high-intensity inspiratory muscle training and fixed high-intensity inspiratory muscle training on the asymmetry of diaphragm thickness in stroke patients. *J. Phys. Ther. Sci.* 27: 3267–3269, 2015.