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EFFECT OF STRENGTH TRAINING ON TIME DOMAIN INDICES OF HEART RATE VARIABILITY IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE PATIENTS: A SYSTEMATIC REVIEW.

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Background: Chronic obstructive pulmonary disease is a disease characterized by airflow limitation. Heart rate variability has been recognized as an important variable to determine morbidity and mortality. Exercise training have been shown to improve symptoms of COPD.

Objective: COPD is associated with disruption in autonomic nervous control of the heart rhythm. This systematic review aims to evaluate the effects of resistance exercises on time domain parameters of HRV in COPD individuals.

Method: Following the PRISMA guidelines, we search from inception till June 2024 PubMed, Web of Science, and Scopus databases, using predefined search terms related to resistance training, autonomic function, and COPD. The database search yielded 5158 studies, of which four studies met the inclusion criteria, comprising a total of 129 COPD subjects. Most studies reported positive adaptations following resistance training. The interventions ranged from acute to chronic resistance training, utilizing moderate to high intensity.

Results: Risk of bias was evaluated using the ROBINS-I tool, and the quality of evidence was assessed using the GRADE framework. Most of the studies had a serious risk of bias and included a total of 129 COPD patients. The studies show that resistance exercise programs can improve heart rate variability, specifically SDNN and RMSSD

Conclusion: Despite some heterogeneity and methodological limitations, the findings suggest that resistance training may enhance time domain variables in individuals with COPD, warranting further research to confirm these effects.

Implications: Resistance training may help to reduce risks like heart failure and sudden cardiac death. Clinicians should include resistance training in COPD management, particularly for those with cardiac autonomic dysfunction and muscle weakness

Keywords: Cardiac autonomic function, Chronic obstructive pulmonary disease, Heart rate variability, resistance training and Time domain parameter.