

THE ROLE OF CARDIOPULMONARY EXERCISE TESTING IN OSTEOARTHRITIS REHABILITATION: EMPHASIS ON BODY MASS REDUCTION

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Background and Aims

Osteoarthritis (OA) is a leading cause of disability worldwide, often aggravated by excess body weight, which increases biomechanical stress on joints and accelerates disease progression. Effective weight management, particularly through structured physical activity, is a key component of OA rehabilitation. However, exercise prescription must be individualized to ensure safety, efficacy and adherence, especially in patients with compromised joint function. The aim is to evaluate the role of cardiopulmonary exercise testing (CPET) in the development of personalized rehabilitation programs for patients with OA, with a specific emphasis on interventions aimed at body mass reduction.

Methods

CPET provides an objective, comprehensive assessment of cardiovascular, pulmonary and musculoskeletal function during graded exercise. Parameters such as peak oxygen uptake, ventilatory thresholds, heart rate kinetics and respiratory parameters offer critical insights into functional capacity and exercise limitations. These data support the formulation of individualized aerobic training zones and guide selection of appropriate exercise modalities.

Results

In overweight or obese individuals with OA, CPET- guided rehabilitation enables the safe implementation of low-impact, aerobic exercise modalities that optimize caloric expenditure while minimizing joint load. Strategically planned training improves metabolic efficiency, supports sustainable weight loss and enhances overall physical function. Furthermore, the use of CPET improves patient stratification, monitoring and outcome prediction, ultimately enhancing long-term adherence and therapeutic outcomes.

Conclusion

CPET is a valuable tool in the management of OA, particularly when body mass reduction is a therapeutic goal. Patients with osteoarthritis have high prevalence of comorbidities which requires individualized, risk-adapted exercise prescriptions. By enabling precise exercise prescription, it contributes to improved functional outcomes, reduced symptom burden and better quality of life for patients with OA. Incorporating CPET into rehabilitation protocols represents a step toward more personalized, evidence-based care for patients with osteoarthritis.

Keywords: cardiopulmonary exercise testing, osteoarthritis, rehabilitation