Table Cardiorespiratory Exercise Testing in Individuals with Arthritis.

Mode	Protocol Specifics	Clinical Measures	Clinical Implications	Special Considerations
Use a treadmill for those with minimal to mild joint impairment.	Use protocols with small increment increases (i.e., modified Naughton or a ramp protocol) unless disease activity and severity are minimal.	Assess type of arthritis and degree of activity and impairment. Assess comorbidities and past surgical and medical history	Standard peak VO_2 prediction equations may overestimate functional capacity because they were developed on healthy (nonarthritic) populations.	With patient using handrails for support, use equation* to predict VO_{2max}
Use cycle ergometry for those with mild to moderate lower extremity impairment.	Use protocols with small increment increases (i.e., 10-15 W · min^{-1}) or ramping protocols.	Assess the type of arthritis and degree of activity and impairment. Assess comorbidities and past surgical and medical history.		Additional investigations are needed to improve prediction of peak VO_2.
Use arm ergometry for those with severe lower extremity impairment.	Use arm ergometry–specific protocols with small increment increases or ramping protocols.	Assess type of arthritis and degree of activity and impairment. Assess comorbidities and past surgical and medical history.		Additional investigations are needed to improve the prediction of peak VO_2. Consider submaximal testing in those with severe impairment.

* VO_2 (mL · min−1 · kg^{-1}) = 0.0698 × speed (m · min^{-1}) + 0.8147 × grade (%) × speed (m · min^{-1}) + 7.533 mL · min^{-1} · kg^{-1}

Table 2. Strength, Range of Motion, and Balance Testing in Individuals with Arthritis.

Test Type	Mode	Protocol Specifics	Clinical Implications
Lower extremity	Dynamometer	All testing in supine position except knee flexion and extension (while seated)	Often (up to 50%) decreased in persons with arthritis
	30 s chair sit-to-stand test	The number of stands completed in 30 s, without using arms, from a chair with a seat height of 17 in.	
	8RM (8-repetition maximum)	The maximum resistance that can be moved through the full range in a controlled manner for 8 reps (8RM, e.g., leg press, knee extension)	
Upper extremity and grip	Hydraulic dynamometer	In the seated position with an unsupported arm flexed 90° at the elbow	Often (up to 50%) decreased in persons with arthritis
	Electronic dynamometer	Peak grip force Average sustained force	Usually (up to 90%) decreased in persons with hand arthritis
	30 s arm curl test	Total number of arm curls in 30 s with 5 lb dumbbell for women and 8 lb dumbbell for men	
	8RM	The maximum resistance that can be moved through the full range in a controlled manner for 8 reps (8RM, e.g., bench press)	Often (up to 50%) decreased in persons with arthritis
Range of motion	Goniometer	Align device fulcrum with joint fulcrum	Usually (up to 90%) decreased in persons with arthritis
Balance	Figure-eight walking	Useful in those with limited or mild impairments Track width = 150 mm Inner diameter = 1.5 m Outer diameter = 1.8 m	
	Berg balance scale	Useful in those with moderate to severe impairments Includes 14 single tasks beginning with sitting unsupported and progressing to standing on one leg	Often (up to 50%) decreased in persons with arthritis