Oxygen Uptake During Walking in Patients with Rheumatoid Arthritis – A Controlled Study

Maria Rosenilda Petronila de Carvalho, Antonio Sergio Tebexreni, Carlos A.F. Salles, Turibio L. Barros Neto, and Jamil Natour

J. Rheumatol., 31:655-662, 2004.

Abstract. Objective. To analyze the energy expenditure of patients with rheumatoid arthritis (RA) of functional classes I, II, and III during walking at different speeds on a treadmill.

Methods. Thirty-five consecutive patients selected from the rheumatology outpatient clinic were studied and compared with a control group consisting 0f 35 healthy individuals paired for age, sex, body weight, and body mass index. An incremental test on a treadmill consistent with normal walking was developed, with metabolic analysis performed at 30 s intervals using a gas analyzer connected to a computerized system. Heart rate, rate of perceived exertion, visual analog scale of pain. Ritchie index, the Scale of the Escola Paulista de Medicina for Evaluation of Articular Movement Range, and Health Assessment Questionnaire were also used evaluate functional capacity.

Results. Patients with RA showed a greater energy expenditure than controls at the following walking speeds: 3.0 km/h (RA = 229.36 ± 56.47 kcal/h; controls = 197.44 ± 52.59), 4.5 km/h (RA = 266.41 ± 58.93 kcal/h; controls = 231.41 ± 56.14 kcal/h), and 5.0 km/h (RA = 289.11 ± 65.35 kcal/h; controls = 250.18 ± 56.67). Patients with RA presented higher values for all test measures except heart rate. The functional class II group differed significantly from the controls, whereas the functional class I group had values close to notmal.

Conclusion. Patients with RA had a greater energy expenditure walking compared to healthy controls under the same conditions, and patients with functional class II experienced greater energy expenditure compared to controls.

Key Indexing Terms. Theumatoid arthritis, walking, oxygen, energy