

MAXIMUM OXYGEN CONSUMPTION, ANAEROBIC THRESHOLD AND HEART RATE IN SLE PATIENTS AND SEDENTARY HEALTHY CONTROLS.

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Oxygen consumption (VO_2 max) in SLE patients is poorly studied and, in the literature there is no study evaluating the physical conditioning in these patients using the American Heart Association (AHA) classification. Objective: to evaluate the oxygen uptake (VO_2 max), anaerobic threshold (AT), maximum heart rate (max HR) and physical conditioning level according to AHA classification in SLE patients.

Patients and Methods: Fifty SLE women (ACR criteria), and 102 sex, age, body weight; and body mass index-matched healthy sedentary controls (HSC) were evaluated after signing the consent form. The Beck Depression Inventory and the Health Questionnaire (HEAQ) were applied to all patients. Patients and controls were submitted to a protocol of incremental load in treadmill (SensorMedics 2.000 treadmill – USA) with gas computed metabolic analysis, breath by breath with mean at each 20 seconds. The VO_2 max and VO_2 AT were calculated using Vmax 29C analyzer SensorMedics (VISION – USA). The heart rate (HR) was measured by electrocardiogram (Cardiosoft program, Corina – USA). The AHA criteria of VO_2 max were used to classify the physical conditioning in patients and HSC.

Statistic analysis included Student t test, Leven's test, and Pearson's correlation coefficient. P values < 0,05 were considered statistically significant.

Results: SLE patients showed significantly lower values of VO_2 max (24.64 ± 4.91 vs 32.93 ± 5.84 ml/kg/min, $p < 0,001$), VO_2 AT (18.01 ± 3.95 vs 20.20 ± 4.72 ml/kg/min, $p < 0.05$), and max hr (169.60 ± 18.36 vs 180.82 ± 12.16 beats⁻¹, $p < 0,001$). when compared to HSC. According to the AHA criteria, 62% of SLE patients and 15% of HSC had mean VO_2 max below of the mean $p < 0.001$). Physical conditioning was considered weak in 42% vs 16% and very weak in 20% vs 0% of patients and HSC, respectively ($p < 0.001$). Twenty-four percent of patients had mild depression and 14% had mild/moderate to severe depression. The Beck inventory questionnaire showed correlation with HAQ (0.438, $p < 0.05$) and nas HR (-0.292, $p < 0,01$). Conclusions: This study showed low oxygen uptake in SLE patients. It is possible that VO_2 max and VO_2 AT were lower due to fatigue, depression, decreased functional capacity, physical inactivity with involvement of peripheral muscles, all of these contributing to limit max HR as a physiological response. This is the first study classifying SLE patients according AHA physical conditioning criteria.