

exercise test consisted of 4-min bouts of exercise with gradual increases and decreases in workload at 20% and 60% VO₂max. Heart rate (HR), blood pressure (BP), and oxygen uptake were measured in both experiments. Maximal and minimal values, amplitude, and phase lags were measured with each cycle of unsteady workload exercise. All participants went to bed at 23:00 and awoke at 07:00 on each experimental day. Each participant had breakfast at 07:30 and lunch at 12:30. Results and Discussion: In a resting state before the evening exercises, HR and double product (DP) were significantly higher in the ME condition than the C condition. The BP, oral temperature, and ln HF, an index of cardiac parasympathetic nervous system modulation, of the participants were not compared between the ME and C conditions. HR, systolic BP (SBP), and DP at 60% and 40% VO₂max were significantly lower in the ME condition than the C condition. However, oxygen uptake did not show a significant difference between 2 conditions. The phase lags of HR and oxygen uptake with the increase and decrease of the workload were significantly shorter in the ME condition than the C condition. The amplitude of oxygen uptake was significantly larger in the ME condition than the C condition. Previous studies have reported that low-intensity exercise in the morning significantly enhanced exercise performance in the evening in terms of the jumping power, bendability, cardiorespiratory endurance, and anaerobic capacity. Our results show that low-intensity exercise in the morning can be considered an effective conditioning method on the day of a sporting event. In conclusion, the physiological response during exercise in the evening is enhanced by low-intensity exercise in the morning.

LONGER TRAINING EXPERIENCE INDUCED GREATER EFFICIENT SYSTOLIC FUNCTION IN ENDURANCE ELITE ATHLETES

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Introduction High performance in endurance athletics is maintained during a large range of age by elite athletes and depends largely on aerobic capacity which in turn depends in part of the cardiovascular system. The aim of this study was to identify changes in specific cardiac mechanisms related to aerobic capacity along with the training experience in elite athletes. **Methods** Twenty-eight male elite athletes in endurance with a strict adherence to high performance training for years were divided into two groups according to age and years of training at high level. Short-training experience (STE) group (n=16, aged 25.6±3.0 years and 8.9±3.0 years of high performance training) and long-training experience (LTE) group (n=12, aged 34.7±2.8 years and 15.7±3.9 years of high performance training). All subjects underwent a standard echocardiographic examination at rest and the morphological parameters of the left atrium, left ventricle and systolic function were obtained. **Results** No changes were found in morphological parameters on left atrium. There were no differences in any morphological parameters of the left ventricle, although a tendency towards statistical significance was found in the left ventricular internal diameter which was higher in LTE than in STE (30.97±1.62 mm; 32.33±2.28 mm, P<0.07). Ejection fraction was ~7% higher in LTE than in STE group (59.81±6.27 %; 64.33±4.09 %, P<0.05) as well as fractional shortening that was ~8.5% higher in LTE than in STE group (32.44±4.44 %; 35.58±3.28 %, P<0.05). **Discussion** Longer training experience in elite athletes is associated with a higher ejection fraction and a higher fractional shortening despite the similar morphological parameters on the left ventricle. These data suggests an increase of cardiac efficiency associated with a progressive increase in cardiac contractility along the years in high performance training. Systolic function continues to improve with the experience training without significant myocardial structural changes in elite endurance athletes. The improvement could partly explain the maintenance of performance along the years in endurance sports in cardiovascular system. **References** - Left ventricular systolic performance is improved in elite athletes. *Eur J Echocardiogr.* 2011 Jul - Assessment of the left ventricular chamber stiffness in athletes. *Echocardiography.* 2011 Mar - Atrial and ventricular functional and structural adaptations of the heart in elite triathletes assessed with cardiac MR imaging. *Radiology.* 2010 Oct

EFFECT OF SAMBA DANCE IN CARDIOPULMONARY FITNESS AND BODY COMPOSITION IN WOMEN DANCERS.

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INTRODUCTION Studies have shown that dancing regularly as a physical activity can improve fitness (Di Blasio et al., 2009). However samba, typically Brazilian dance, is not well known about the impact that its practice may cause on individuals who perform it. The objective of this study was to investigate the effect of 12 weeks of samba dance practice in cardiorespiratory fitness and body composition of women dancers who parade in samba schools. **METHODOLOGY** Longitudinal study, almost experimental. Thirteen sedentary women, 20 to 40 years old, body mass 52,1 and 71,3 kg and height 156 and 175 cm, participants of the pre-carnival trials of a samba school in Brazil. The intervention performed were samba dance sessions, lasting 60 minutes, three times per week for 12 weeks. Maximal heart rate (HR_{max}) in the trials ranged from 66% to 85% of HR reached in the stress test and was monitored by a heart rate monitor. Pre and post intervention subjects were evaluated the cardiorespiratory function by ergospirometry and their body composition by skinfold. **RESULTS** Increased by 17%, 13% and 8% of maximal oxygen consumption (VO₂max), oxygen pulse rate (PO₂max) and respiratory exchange rate (RER_{max}), respectively (P <0,001). Decreased by 11% body fat percentage (BF%) and 12% fat mass (FM) and lean body mass (LBM) increased by a pound (P <0,001). **DISCUSSION** Of intermittent characteristic, the intensity and the amount of physical effort required in tests resulted in adjustments that have caused improvements in aerobic system of individuals (Helgerud et al., 2007) and body composition while maintaining the resting metabolic rate at high levels for a long period (Gerber et al., 2014) which contributed to decrease body fat levels. Although the type of exercise is not specific to muscle gain, those found increases (Angioi et al., 2009) corroborate to previous studies where lean body mass indexes for dancers are smaller in relation to sports practitioners in general, but larger than those found in sedentary situation. **REFERENCES** Angioi M, Metsios G, Koutedakis Y, Wyon MA. Fitness in contemporary dance: a systematic review. *Int J Sports Med* 2009; 30 (7): 484. Di Blasio A, De Sanctis M, Gallina S, Ripari P. Are physiological characteristics of Caribbean dance useful for health? *Journal of Sports Medicine and Physical Fitness.* 2009; 49 (1): 30-4. Gerber T, Borg ML, Hayes, Stathis CG. High-intensity intermittent cycling increases purine loss compared with workload-matched continuous moderate intensity cycling. *Eur J Appl Physiol.* 2014; 114 (7): 1513-1520 Helgerud J, Høydal K, Wang E Karlsen T, Berg P Bjerkaas M, et al. Aerobic high-intensity intervals improve VO₂max more than moderate training. *Med Sci Sports Exerc.* 2007; 39 (4): 665-671. CONTACT via email ciceracduarte@usp.br