



The Cardiorespiratory Responses In Lap Swimmers and Zumba Dancers

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Introduction

Cardiorespiratory responses can be evaluated by measuring the workload, heart rate (HR), blood pressure (BP), and rate of perceived exertion (RPE) in a submaximal test. Although it is often used to determine an exercise prescription, it also evaluates the aerobic fitness of an individual. There are many aerobic activities that benefit health/fitness. Swimming has been one of most popular fitness activities. Swimming is a non-weight bearing exercise that allows individuals who have joint problems or arthritis to exercise. Although, swimming has been ranked second to walking, dancing has become increasingly popular. Zumba is a weight bearing exercise that consists of different types of dance styles such as salsa and rumba.

Purpose

The purpose of this study was to evaluate the cardiorespiratory responses between lap swimmers and zumba dancers.

Methods

4 lap swimmers (W= 4) and 5 zumba dancers (W=3) (M= 2) between the ages of 20-44 years of age volunteered to participate in this study. The swimmers were given a questionnaire regarding their participation in lap swimming before participating in the YMCA Cycle Ergometer test. The questionnaire included the duration, frequency, intensity, and mode. All subjects were tested once. The YMCA Cycle Ergometer was used to test the cardiovascular endurance of the swimmers and zumba dancers. It consisted of 4 stages with each lasting 3 minutes with increasing work rate. Provided was a heart rate monitor, headgear, mouthpiece, and nose clip. Before the test, resting heart rate, blood pressure, height, and weight was recorded. The participants pedaled at 50 rpm throughout the test. During the test, the resistance on the cycle ergometer was increased in accordance to their heart rate. The participants' workload, blood pressure, heart rate, RPE, and relative VO₂ were measured during the test. The test lasted until the participants reached 85% of their heart rate max or if they felt fatigue or any symptoms such as: shortness of breath, chest pain, dizzy, faint etc.

Methods (cont'd)

The following instrumentation was used in this study:

- Stethoscope
- Blood Pressure Cuff
- The Monark Ergometer 894 E
- Parvo Cart
- Vacuum Hose
- YMCA Cycle Test Data Sheet

The True One Exercise program was used to collect the participants' relative VO₂ data. A t-test was used to find the difference between the lap swimmers' and zumba dancers' heart rate, blood pressure, rpe, and relative Vo2 using Microsoft Excel.

Results

The workload was 431.2±211.2 kgm/min (LS) and 555±296.4 kgm/min (Z), which resulted no significant difference (p>0.05). The heart rate for submaximal test was 128.1±24.1 bpm (LS) and 157.4±186.3 bpm (Z), which resulted in no significant difference (p>0.05). The systolic blood pressure was 152.8±22.8 mmHg (LS) and 150.5±17.2 mmHg (Z), which was also not significantly different (p>0.05). The diastolic blood pressure was 76.8±4.7 mmHg (LS) and 85.1 ± 9.9 mmHg (Z), which resulted a significant difference (p<0.05). The RPE was 10.3±3.4 (S) and 11.1±3.4 (Z), which resulted no significant difference (p>0.05). The relative VO₂ was 20.4±3.5 ml/kg/min (LS) and 37.6±7.4 ml/kg/min (Z) which resulted a significant difference (p<0.05).

Table 1:	The Cardiorespiratory Responses of Lap Swimmers and Zumba Dancers		
	Lap Swimmers (LS)	Zumba Dancers (Z)	P Value
	Mean± SD	Mean± SD	
Workload (kgm/min)	431.25±211.2	555±296.4	0.153521989
Heart Rate (Bpm)	128.1875±24.1	157.4±186.3	0.495816327
Systolic Blood Pressure (mmHg)	152.8125±22.8	150.5±17.2	0.739480412
Diastolic Blood Pressure (mmHg)	76.875±4.7	85.05±9.9	0.003084109
Rate Percieved Exertion (RPE)	10.375±3.4	11.05±3.4	0.563552926
Oxygen Consumption (ml/kg/min)	20.45±3.5	37.62±7.4	0.003999944

Results (cont'd)

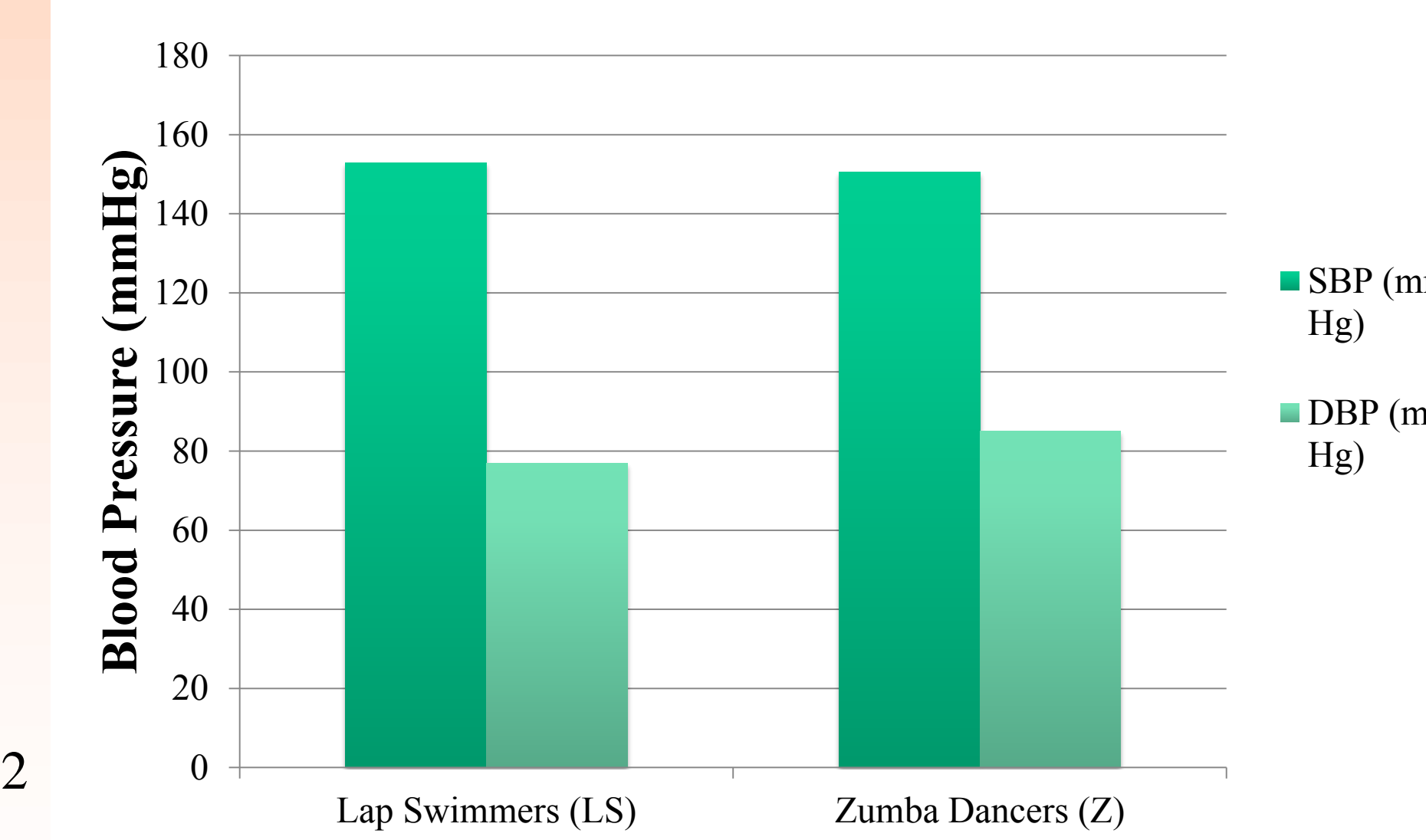


Figure 1: The Average Blood Pressure in The YMCA Cycle Ergometer Test

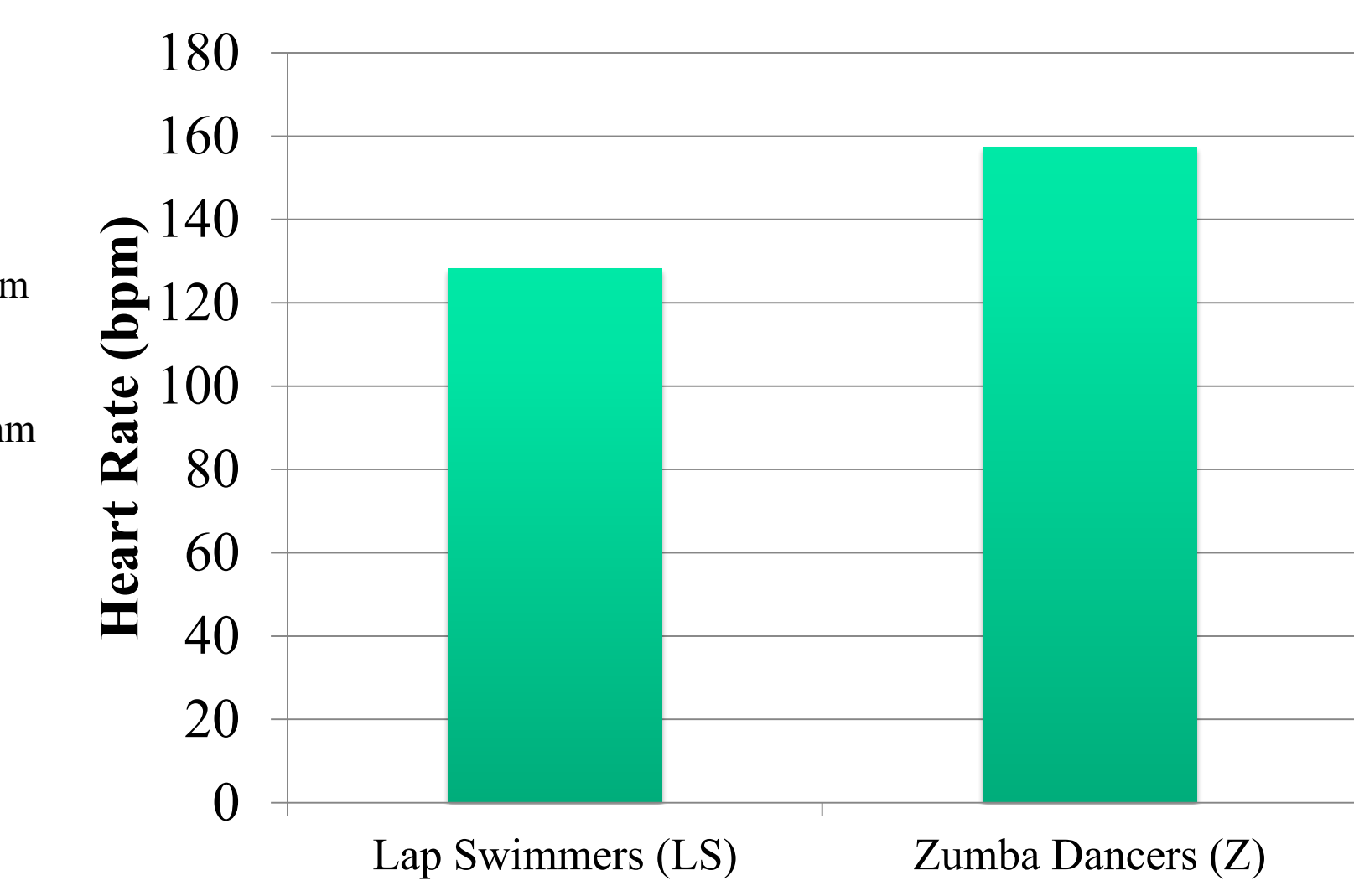


Figure 2: The Average Heart Rate In The YMCA Cycle Ergometer Test

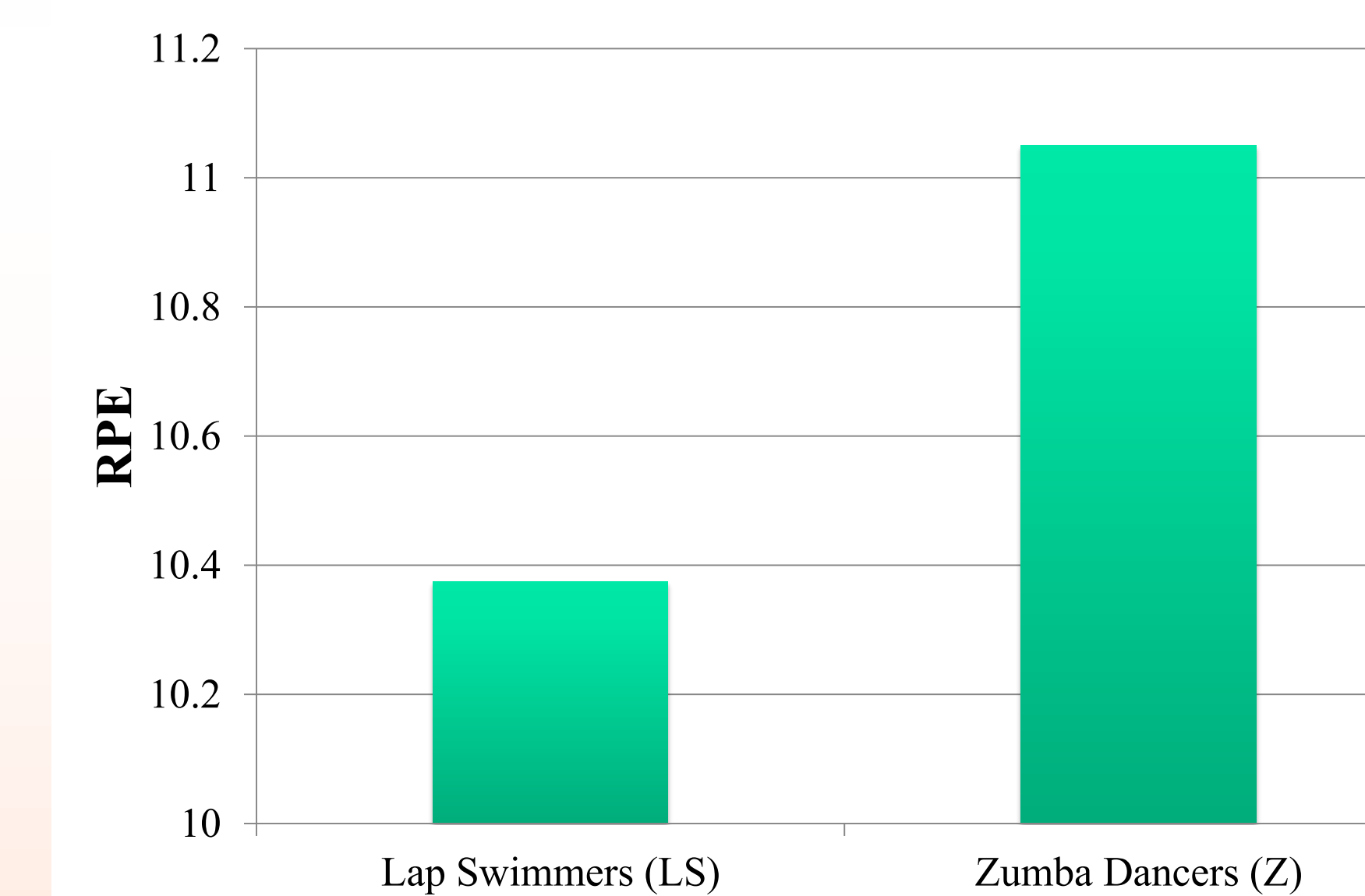


Figure 3: The Average RPE In The YMCA Cycle Ergometer Test

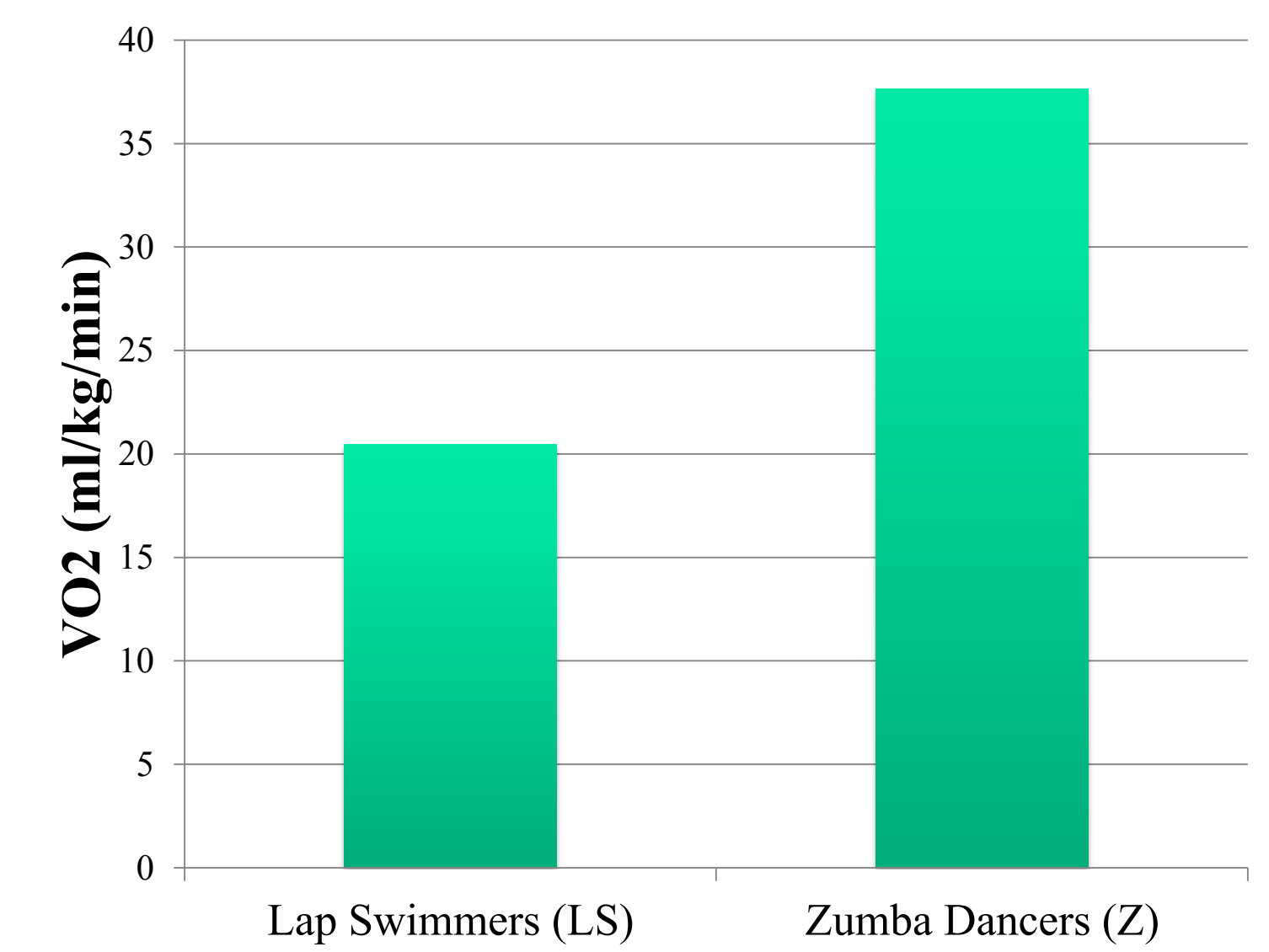


Figure 4: The Average Oxygen Consumption In The YMCA Cycle Ergometer Test

Conclusions

These data suggest there is no significant difference between lap swimmers and Zumba dancers in workload, heart rate, systolic blood pressure, and rate of perceived exertion. However there was a significant difference between the two groups in diastolic blood pressure and relative VO₂.