

Letter to Editor

## ZUMBA®: Is the “fitness-party” a good workout?

### Dear Editor-in-Chief

Currently, one of the most popular group fitness classes in clubs is Zumba®. Zumba is a Latin-inspired dance workout first developed in Columbia in the mid-‘90s by celebrity fitness trainer Alberto “Beto” Perez. Zumba was actually developed by “accident,” when Beto forgot to bring his traditional aerobics music to class one day. The only music he had was a few Latin music tapes in his car. In his class, he let the music motivate him, just as if he were in a club, and began dancing to Salsa, Rumba, and Merengue. His participants loved it and Zumba was born.

One of the reasons that Zumba is so popular is that its creator claims that “there is no right or wrong way to do it;” participants are encouraged to move to the beat of the music and the choreography is less formal than in many other group exercise classes. It is more of a dance party and the popular catchphrase: “Ditch the workout – join the party!” has become associated with Zumba. Zumba is currently performed by over 12 million people, at 110,000 sites, in 125 countries around the world (Zumba Fitness, 2012). Recently, Zumba was ranked 9<sup>th</sup> in terms of worldwide fitness trends for the year 2012 (Thompson, 2011). Despite the widespread popularity of Zumba, there is very little research documenting the potential fitness benefits of this dance form. This study was designed to determine the average exercise intensity and energy expenditure during a Zumba fitness class.

Nineteen apparently healthy female volunteers (19 ± 1.4 years, 1.68 ± 0.07 m, 61.8 ± 22.5 kg) were recruited from the University of Wisconsin-La Crosse campus. All subjects were experienced at participating in Zumba fitness classes. Prior to participating in the research study, subjects completed the PAR-Q and provided written informed consent. The research protocol was approved by the local Institutional Review Board.

Each subject performed an incremental, maximal treadmill test with measurement of heart rate (HR) and oxygen consumption (VO<sub>2</sub>). From this test, an individual linear regression equation was developed for each subject to predict VO<sub>2</sub> from HR. This equation was subsequently used to predict VO<sub>2</sub> (ml·kg<sup>-1</sup>·min<sup>-1</sup>) during the Zumba session for that subject. Energy expenditure was calculated from the predicted VO<sub>2</sub> data assuming a constant of 5 Kcal·L<sup>-1</sup> of O<sub>2</sub> consumed. Pilot studies in a subset of the study group (n = 3) had demonstrated that the HR-VO<sub>2</sub> relationship during treadmill exercise accurately reflected the HR-VO<sub>2</sub> relationship during Zumba.

After the treadmill test, participants participated in a single Zumba session. The Zumba classes were all taught by the same ACE-certified instructor. During the class, subjects wore a radiotelemetric heart rate monitor. The HR data was subsequently inserted into the individual HR-VO<sub>2</sub> regression equation to estimate VO<sub>2</sub> and energy expenditure during the class.

Average physiological responses to the Zumba session are presented in Table 1. The average HR was 154 ± 14 bpm, which corresponded to 79 ± 7.0% of HRmax. The average estimated VO<sub>2</sub> was 66 ± 10.5% of VO<sub>2</sub> max. The average estimated energy expenditure of participating in a Zumba session was 9.5 ± 2.69 Kcal·min<sup>-1</sup>, which corresponded to an average of 369 ± 108 Kcal per class.

**Table 1. Exercise responses to a single Zumba® fitness class.**

Variable	Mean (SD)	Range
Workout Time (min:sec)	38:48 (4:53)	32-52
HR (bpm)	154 (14)	127-177
HRmax (bpm)	196 (7)	180-202
%HRmax	79 (7)	65-89
VO <sub>2</sub> max (ml·kg <sup>-1</sup> ·min <sup>-1</sup> )	47.2 (5.6)	38.8-60.0
Estimated VO <sub>2</sub> (ml·kg <sup>-1</sup> ·min <sup>-1</sup> )	30.9 (6.19)	21.2-42.1
%VO <sub>2</sub> max	66 (10.5)	40-82
METs	8.8 (1.8)	6.1-12.0
Kcal (min)	9.5 (2.7)	5.1-15.3

According to accepted fitness industry guidelines, individuals should exercise between 64-94% of HRmax or 40-85% of VO<sub>2</sub>max to improve cardiovascular fitness (ACSM, 2010). All of the subjects who participated in the Zumba sessions fell within these guidelines. During the study, subjects were exercising at an average of 79% of HRmax and 66% of VO<sub>2</sub>max, which should be sufficient to increase aerobic capacity. Even though there was a wide range of fitness level amongst the subjects in the current study (VO<sub>2</sub>max = 38.8-60.0 ml·kg<sup>-1</sup>·min<sup>-1</sup>), all of the subjects met ACSM’s criteria for recommended exercise intensity.

ACSM further recommends that individuals expend 300 Kcal/workout in order to promote weight loss and maintain a healthy body weight (ACSM, 2010). This study found that participating in a Zumba dance class used an average of 9.5 Kcal·min<sup>-1</sup>, or 369 Kcal for an average length class. It should be pointed out that average class length in the current study was approximately 39 minutes in length. Longer classes would obviously result in greater energy expenditure. Thus, regular participation in Zumba should positively affect body composition.

The only other published study which examined the exercise intensity of Zumba was conducted at Adelphi University (Otto et al., 2011). It reported caloric expenditure during Zumba to be between 6.6 and 7.4 Kcal·min<sup>-1</sup> (vs. 9.5 Kcal·min<sup>-1</sup> in the current study), depending on the particular dance style being performed. Additionally, the oxygen cost of participating in Zumba was lower than in the current study (6.6-7.3 METs vs. 8.8 METs). Differences between the two studies could be attributed to subjects actually wearing the metabolic equipment while performing the dance sequences in the Adelphi study. This may have encumbered subjects in their movements, thus resulting in a lower energy cost. In the current study, subjects wore only a HR monitor and energy cost was

estimated from individual HR-VO<sub>2</sub> regression equations developed from the incremental treadmill exercise test. Additionally, there appears to be a wide range in the intensity of Zumba and other group fitness classes, depending upon the choreography and enthusiasm of the instructor. The enthusiasm of the instructor, as well as the experience of being in a group setting, often spills over to the participants, who then work harder. This cannot be captured when following video-taped workouts. All of these factors could account for the differences between studies. Regardless of these differences and the apparent effectiveness, the growing popularity of Zumba warrants additional research into this growing fitness trend.

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