Letter to editor

Turn it on!: The relative exercise intensity and caloric expenditure of QiDance[TM]

Dear Editor-in-Chief

QiDance is the newest style of choreographed group exercise to hit the fitness scene. QiDance is one component of the fitness company known as Qignition, which focuses on overall fitness and wellness (Qignition, 2012). Other components of Qignition are QiForze[TM], QiNaia[TM], and QiStryke[TM], which are centered on strength development, the mind-body connection, and the martial arts, respectively. The company's philosophy is to "ignite people's vital energy to improve their quality of life" (Qignition, 2012).

QiDance classes incorporate proprietary choreographed routines set to music. All of the songs are claimed to be original creations composed by Qignition founder Kike Santander, a multi-Grammy winning recording artist. Classes may include dance moves as diverse as hip-hop, disco, Latin, jazz, and even Bollywood. The result is a wide variety of rhythmic, high-energy dance classes that are designed to revitalize and reenergize participants. To our knowledge, there are no previous data on the acute responses to QiDance. In fact, the classes taught as part of this study were among the first classes taught in the United States by a QiDance certified instructor. The purpose of this study was to investigate the relative exercise intensity and caloric expenditure of QiDance relative to American College of Sports Medicine (ACSM) guidelines.

Twenty healthy, college-aged females (21.2 ± 1.9 years, 1.64 ± 4.0 cm, 59.5 ± 7.1 kg) from the University of Wisconsin – La Crosse served as subjects for the study. All subjects were relatively fit (e.g. exercising ≥3 times per week) and had participated in coreographed group exercise classes previously. Prior to participating in the study, subjects completed the PAR-Q and provided written informed consent. The research protocol was approved by the university Institutional Review Board.

Each subject initially performed an incremental, maximal treadmill test with measurement of heart rate (HR) using radiotelemetry and oxygen consumption (VO_2) using open circuit spirometry. From this test, a linear regression equation was developed for each subject to predict VO_2 from HR. This equation was subsequently used to predict VO_2 ($ml·kg^{-1}·min^{-1}$) during the QiDance session for that subject. Energy expenditure was calculated from the predicted VO_2, based on the HR response during the QiDance session, assuming a constant of 5 $Kcal·L^{-1}$ of O_2 consumed. Pilot studies in a subset of the study group (n = 3) had demonstrated that the HR-VO_2 relationship based on treadmill exercise accurately reflected the HR-VO_2 relationship during QiDance.

After treadmill testing, subjects were given a QiDance DVD and told to practice the routine at least three times prior to the QiDance class. All 20 subjects then participated in a 52-minute, instructor-led QiDance session. Two separate classes were held in order to facilitate scheduling of subjects. Both QiDance classes were taught by the same QiDance certified instructor, with the same choreography. During the class, subjects wore a radiotelemetric heart rate monitor. The HR data was subsequently reduced using the individual HR-VO_2 regression equations to estimate VO_2 and energy expenditure during the class. Session RPE was recorded at the end of the QiDance class utilizing the Borg 6-20 RPE scale.

The physiological and perceptual responses to the QiDance class are presented in Table 1. Average HR for the 52-minute QiDance class was between 68-95% of HRmax and the predicted VO_2 ranged from 47-91% of VO_2max. Average caloric expenditure ranged from 5.9-11.4 kcal·min⁻¹ and RPE at the conclusion of the session ranged from 12-16, corresponding to "somewhat hard" to "hard" exercise.

Table 1. Average exercise responses to the QiDance class.

	Mean(SD)	Range
Heart rate (bpm)	158(10.4)	126 - 188
% HRmax	82(7.5)	68 - 95
Predicted VO_2 ($ml·kg^{-1}·min^{-1}$)	28.2(3.36)	18.1 - 36.3
% VO_2max	69(12.6)	47 - 92
METS	8.1(0.96)	5.2 - 10.4
Energy ($Kcal·min^{-1}$)	8.3(0.99)	5.9 - 11.4
Total energy ($Kcal·min^{-1}$)	433(76.0)	306 - 591
Session RPE	14.0(0.89)	12 - 16

HR: heart rate; METS: metabolic equivalents; RPE: rating perceived exertion.

To improve cardiovascular fitness, ACSM recommends that apparently healthy adults should exercise between 64-94% of HRmax and 40-85% of VO_2max (ACSM, 2010). In order to control body weight, it is recommended individuals expend an average of 1500 or more kcal per week, which is 300 kcal per exercise session when exercising five times a week (ACSM, 2010). Based upon the above recommendations, the 52-minute QiDance class met ACSM guidelines for both parameters. Exercise intensity averaged 82% of HRmax and 69% of VO_2max, respectively, and every subject fell within the recommended guidelines. Subjects in the study expended between 306-591 kcals during the workout, with an average of 433 kcal per session or 8.3 kcal·min⁻¹.

Most recently, our laboratory studied the acute responses to a 40-minute Zumba® session (Luettgen et al., 2012). Zumba is a Latin-inspired group fitness dance class. We found that participants exercised at an average of 80% of HRmax and 64% of VO_2max during a typical Zumba class, which is similar to the intensity found for QiDance. Subjects expended an average of 9.5 kcal·min⁻¹ during Zumba, compared to 8.3 kcal·min⁻¹ during QiDance. This small difference was most likely due to the

differences in body weight of the subject in the two stud-
ies.

This study found that a single QiDance class met
ACSM guidelines for relative exercise intensity and ca-
loric expenditure and thus may be another option for
individuals looking for an effective, yet enjoyable aerobic
workout. Future studies may want to focus on the physio-
logical benefits following an 8-12 week QiDance training
period.

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