

Physical Activity Levels Using Kinect™ Zumba Fitness versus Zumba Fitness with a Human Instructor

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(No relationships reported)

Using a physically active video game system as an alternative to a home exercise video presents an interesting opportunity for a person to engage in exercise in the privacy of their own home, yet still receive some feedback on the quality of their exercise performance.

PURPOSE: The purpose of this study was to compare the level of physical activity between participating in a Zumba group exercise class and using a Zumba exercise video game.

METHODS: Eight adult women (36.6 ± 10.4 y; 34.8 ± 8.1 % body fat) who regularly engaged in a Zumba exercise class were measured for heart rate, number of steps taken, and (using accelerometry) minutes of light, moderate, and vigorous physical activity as well as energy expenditure while participating in a 60 minute Zumba exercise class or while playing Zumba Fitness on the Xbox Kinect video game system.

RESULTS: There were no significant ($P > 0.05$) differences between the Zumba class or video game in light (10.5 ± 7.1 vs. 11.6 ± 10.4 minutes) or moderate (23.8 ± 7.1 vs. 27.6 ± 8.1 minutes) physical activity, number of steps taken (6,044.8 ± 540.3 vs. 5,900.3 ± 563.9) or energy expenditure (410.9 ± 139.4 vs. 327.8 ± 153.6 kcal). However, the Zumba exercise class elicited higher ($P \leq 0.05$) vigorous physical activity (21.0 ± 11.6 vs. 15.5 ± 13.3 minutes) and average heart rate (149.0 ± 14.8 vs. 125.0 ± 10.9 beats/minute) than did the video game.

CONCLUSIONS: The present data indicate that participating in a Zumba exercise class is more strenuous exercise than is using a Zumba home exercise video game. However, both a live Zumba exercise class and a Zumba Fitness home exercise physically active video game provide sufficient physical activity to promote health.

Exercise Intensity And Metabolism In Brazilian Jiu-jitsu Matches

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Brazilian jiu-jitsu (BJJ) knowledge is very important for BJJ and Mixed Martial Arts coaches, once it's necessary scientific tools to organize athletes' periodization and load control.

PURPOSE: The aim of this study was to determine the exercise intensity and metabolic characteristics during BJJ matches.

METHODS: Sixteen BJJ practitioners, (6.11 ± 0.76 months experience) participated on this study, being 8 men (M); 22.13 ± 5.8 y/o; 78.86 ± 7.92 kg; 19.36 ± 5.15 BF%, and 8 women (W); 20.75 ± 3.54 y/o; 56.25 ± 9.96 kg; 24.16 ± 3.60 BF%. First, volunteers performed maximal treadmill test to determine the maximal heart rate (HRmax), and HR at ventilatory threshold 2 (VT2). After seven days, volunteers performed 5 five-minute matches (5 min rest between), to assess HRmax and average HR during matches, and lactate production pre and post-matches. Intensity was described as percentage of HRmax. Data was analyzed through the t-test for paired samples on SPSS 19.

RESULTS: Treadmill protocol and BJJ HR behavior are presented in Table 1. Average HR during combats represented 77.38 ± 6.80 % (M) and 70.36 ± 18.79 % (W) of HRmax. Values were characterized as vigorous activity according to the ACSM. There was no difference between genders on, lactate production pre (4.67 ± 2.09 mmol/L (M) vs 3.22 ± 1.02 mmol/L (W)) and post-matches (12.78 ± 4.76 mmol/L (M) vs 10.13 ± 4.10 mmol/L (W)). Lactate was higher post than pre-matches for both groups ($p < 0.05$). There was no difference among average HR during matches and HR at the VT2 on treadmill.

CONCLUSIONS: It's known that training load has to be based on the intensity and metabolic demand during matches. Our results suggest that BJJ matches are vigorous activities with predominant anaerobic demand (high lactate production).

Table 1. HR behavior during the treadmill protocol and BJJ matches.

	Treadmill		BJJ		Average HR (bpm)
	M	W	M	W	
HR at VT2 (bpm)	159.25 ± 6.77	155 ± 20.38	159.75 ± 6.56	149.13 ± 25.15	
Maximal HR (bpm)	185.75 ± 9.76	192 ± 12.02	190.62 ± 6.56	182.63 ± 21.10	Maximal HR (bpm)

$p > 0.05$ for M vs. W; $p > 0.05$ for Treadmill vs. BJJ

Physiological and Performance Characteristics of Elite Motocross Athletes Compared to Physically Active Men

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PURPOSE: To examine the physiological characteristics and performance measurements of elite motocross (MC) athletes in comparison to age matched physically active (PA); >3x/week of 60 min/session men.

METHODS: 20 elite MC athletes (19 ± 1.6y) and 22 age-matched PA men (22 ± 2.9y) performed a series of laboratory tests on 2 occasions separated by at least 48h but no longer than 1 week. Visit 1 consisted of the following measurements: anthropometrics, body composition (DXA), anaerobic power and fatigue (Wingate), isokinetic and isometric strength and fatigue (Biodex), and flexibility (sit and reach). Visit 2 consisted of a maximal oxygen uptake (VO2max), handgrip strength, maximum pushups in 1 min, total time to exhaustion for extended arm hang and 90° weighted wall sit (25% body weight) tests.

RESULTS: There were no significant differences between groups in anthropometric or body composition measurements except for android fat (MC, 11.7 ± 1.9 vs. PA, 16.0 ± 8.4%, $p = 0.04$) and biceps circumference (MC, 30.1 ± 2.0 vs. PA, 33.1 ± 3.2cm, $p = 0.001$). MC had significantly higher mean anaerobic power (747.3 ± 63.7 vs. 679.7 ± 93.5W, $p = 0.009$), VO2max duration (550.1 ± 70.6 vs. 470.1 ± 93.2 s, $p = 0.004$), and extended arm hang duration (113.3 ± 44.9 vs. 73.4 ± 25.3s, $p = 0.001$). Between groups, mean thigh circumference (MC, 50.6 ± 3.9 vs. PA, 52.8 ± 3.7cm, $p = 0.06$) and average quadriceps fatigue measured in a 50-repetition 180-degrees/sec isokinetic test (MC, 102.5 ± 12.1 vs. PA, 94.4 ± 17.8N-m, $p = 0.09$) trending toward significance.

CONCLUSION: These results suggest that elite MC athletes have certain physiological adaptations that result from sport-specific demands compared to physically active age-matched men.

Effects of Skateboarding and Gender on Lateral Weight Shift

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Skateboarding demands constant body weight shifting in order to maneuver the board properly. Given the riding position, participants frequently challenge their ability to quickly change this position while on an uneven surface.

PURPOSE: The purpose of this study was to examine the effects of transportation skateboarding and gender on lateral weight shift.