

# Dance the Calories Away

## A critical look at Dancetown, an exer-game geared for older adults



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Similar to Konami's Dance Dance Revolution (DDR), which became a certified exer-game phenomenon with young users soon after its release in 1998, Dancetown ([www.dancetown.us](http://www.dancetown.us)), a PC-based exer-game, encourages older adults and those in retirement-home settings to follow onscreen dance step cues on a wired dance pad while the computer records their accuracy.

The game's aim is obviously to get older people up off the couch and Dancetown couldn't have come along at a better time given that the Centers for Disease Control and Prevention and the National Center for Health Statistics report that less than 30 percent of adults over the age of 45 engage in regular physical activity. The makers of Dancetown hope to change that statistic.

### The Study

A team of exercise scientists from the University of Wisconsin, La Crosse, set out to evaluate the relative exercise intensity and energy expenditure of Dancetown. They recruited 24 adult volunteers, ages 32 to 70 years, and allowed them to practice the Dancetown game as much as necessary prior to the study.

Once they were comfortable with the game, the participants were observed as they "danced" to three consecutive songs in each of the following difficulty levels: Easy, Moderate and Hard. During each dance session, researchers monitored the oxygen uptake and heart rate of the subjects every 30 seconds, as well as their ratings of perceived exertion (RPE) following the entire 30-minute dance session.

### The Results

Across the board (male and female) all subjects showed a marked increase in exercise intensity as they participated in each of Dancetown's increasingly difficult modes.

At the low end, the intensity of the Easy level averaged 59% of estimated heart rate (HR) max and 31% of estimated  $\dot{V}O_2$  max with an RPE of 10.1 and a caloric expenditure of approximately 3.8 kcal/min. When dancing at the Moderate level, subjects averaged 64% of HRmax and 37% of  $\dot{V}O_2$  max, with an estimated RPE of 11.8, plus a calorie burn of 4.5 kcal/min. Once ratcheted up to the Hard level, subjects averaged 67% of HRmax, 44% of  $\dot{V}O_2$  max, and an RPE of 13.2. This level burned approximately 5.3 kcal/min.

For the entire 30-minute session, subjects burned an average of 136 calories. With regards to Dancetown's calorie burn equivalents, the Easy level is comparable to walking at 2.0 mph while the Hard level is similar to walking at 3.0 mph or square dancing.


### The Bottom Line

Dancetown is an effective and fun alternative to traditional aerobic exercise for older adults.

While the Easy level is best suited as a warm-up activity, says lead author Jaimee Thomas, M.S., R.D., the exercise intensity of both the Moderate and Hard levels are considered sufficient to maintain and improve cardiorespiratory endurance as defined by the American College of Sports Medicine (ACSM).

With regards to calorie burning, ACSM recommends between 150 to 400 kcal of physical activity per day. Based on that, one would need to exercise at Dancetown's Moderate level for a minimum of 35 minutes.

Interestingly, some of the researchers' most important findings have little to do with numbers and data. "Anecdotally, all the subjects really liked the game," notes Thomas. "It's very simplistic and they really enjoyed the different genres of music, from country and pop to rock and Motown." And that fun factor, says Thomas, could result in better exercise adherence and, if Dancetown is done regularly, promote weight loss.

Not bad for a little bit of dancing. 

### Physiologic Responses of Subjects (n=24) to Three Levels of Dancetown

	Female Subjects (n = 16) Mean $\pm$ SD	Male Subjects (n = 8) Mean $\pm$ SD	Average (n = 24) Mean $\pm$ SD
<b>EASY</b>			
HR (bpm)	102 $\pm$ 14.8	96 $\pm$ 13.6	100 $\pm$ 14.3
% HRmax	60 $\pm$ 8.8	58 $\pm$ 7.0	59 $\pm$ 8.1
$\dot{V}O_2$ (ml/kg/min)	10.3 $\pm$ 1.53	12.0 $\pm$ 2.60	10.8 $\pm$ 2.08
% $\dot{V}O_2$ max	33 $\pm$ 7.5	29 $\pm$ 7.9	31 $\pm$ 7.8
Kcal/min	3.2 $\pm$ 0.71	4.9 $\pm$ 1.24*	3.8 $\pm$ 1.20
RPE	9.8 $\pm$ 1.42	10.6 $\pm$ 1.23	10.1 $\pm$ 1.39
<b>MODERATE</b>			
HR (bpm)	110 $\pm$ 16.5	103 $\pm$ 15.9	108 $\pm$ 16.3
% HRmax	65 $\pm$ 10.0	62 $\pm$ 8.9	64 $\pm$ 9.5
$\dot{V}O_2$ (ml/kg/min)	12.3 $\pm$ 2.66	14.0 $\pm$ 4.19	12.9 $\pm$ 3.25
% $\dot{V}O_2$ max	39 $\pm$ 9.9	33 $\pm$ 9.8	37 $\pm$ 10.1
Kcal/min	3.9 $\pm$ 1.01	5.7 $\pm$ 1.72*	4.5 $\pm$ 1.52
RPE	11.7 $\pm$ 1.64	11.9 $\pm$ 1.32	11.8 $\pm$ 1.52
<b>HARD</b>			
HR (bpm)	120 $\pm$ 18.0	111 $\pm$ 15.3	117 $\pm$ 17.4
% HRmax	68 $\pm$ 10.5	65 $\pm$ 8.7	67 $\pm$ 9.9
$\dot{V}O_2$ (ml/kg/min)	14.7 $\pm$ 2.73	16.5 $\pm$ 4.99	15.3 $\pm$ 3.64
% $\dot{V}O_2$ max	47 $\pm$ 12.3	39 $\pm$ 10.8	44 $\pm$ 12.2
Kcal/min	4.6 $\pm$ 1.07	6.7 $\pm$ 1.90*	5.3 $\pm$ 1.68
RPE	13.1 $\pm$ 1.99	13.2 $\pm$ 1.21	13.2 $\pm$ 1.74

\* Significantly different than females (p<0.05).

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