

# Effect of Zumba on quality of sleep in young adult women

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## Abstract

**Background:** The Zumba fitness is a new kind of dance workout, inspired by Latin American music and Latin American dances. Despite awareness of the physical and mental health promoting properties of dance, no research have been done to assess physiological responses and psychological experiences during classes of Zumba fitness using validated dance.

**Methodology:** Zumba fitness exercise having basic aerobic dance steps was performed five days per week in the evening. Each Zumba training (60 minutes) contained basic principles of Zumba exercise. Sleep was assessed by using Pittsburgh sleep quality index (PSQI) questionnaire before and after this Zumba fitness program and results were compared. **Results:** 3 months of Zumba exercise is effective in improving the sleep quality in women.

**Key Word:** Zumba.

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## INTRODUCTION

The Zumba fitness is a new kind of dance workout, inspired by Latin American music and Latin American dances. It is fusion of basic principles of aerobic interval training and strengthening exercises which promote consumption of calories, improve sleep, psychological status and strength of the whole body (Perez and Greenwood-Robinson, 2009). This modern approach of fitness exercise satisfies goals such as harmony of the body, mental health, improving posture and strengthening bone-joint segments of the locomotors apparatus (Furjan-Mandic, Kosalec, and Vlašić, 2011) The advantage of this model of exercise is that every practice is a new entertainment based on various dance steps with different intensity and form of exercising, what makes the

participants more motivated (Perez and Greenwood--Robinson, 2009). This is very important from the aspect of maintaining interest for continuous exercise, since the main reason for leaving the group fitness program is monotony of each training session in long term of practicing (Stoiljkovic *et al.*, 2010). Despite awareness of the physical and mental health promoting properties of dance, no research have been done to assess physiological responses and psychological experiences during classes of Zumba fitness using validated dance. Some of the adverse health outcomes linked to sleeping less than the recommended amount include weight gain and obesity, diabetes, hypertension, heart disease and stroke, depression, and increased risk of death<sup>21-25</sup>. Additionally, chronic lack of sleep increase the potential for impaired immune function, increased pain, impaired performance, increased errors, and greater risk of accidents<sup>1</sup>. Hence, the purpose of this study is to assess the effect on quality of sleep during instructor-led group classes of Latin dance and Latin-themed aerobic dance in young adult women.

## AIM

To determine the effect of Zumba fitness program on quality of sleep in young adult women with the help of questionnaire.

## OBJECTIVES

To assess the quality of sleep in women with the help of Pittsburgh sleep quality index (PSQI) questionnaire before and after the Zumba fitness program and compare the results.

## MATERIAL AND METHODS

The study was conducted at BVDUMC and H, Sangli, after taking the permission from IEC. Participants were selected from different batches of Beat to Beat Dance Crew Academy, Sangli.

### Inclusion criteria

The study was conducted on

1. Women attending the Zumba fitness program who's PSQI score on admission was > 5
2. Completed 3 months of Zumba program
3. Between the age group of 20-40 years
4. Should not be practicing any other kind of physical exercise
5. Same socioeconomic class

### Exclusion criteria

Women having any medical illness eg Hypertension, diabetes mellitus, endocrinal diseases affecting sleep, sleep disorders, orthopaedic conditions affecting exercise or any

medications etc were excluded by taking history. The quality of sleep of the participants will be assessed with the help of Pittsburgh sleep quality index (PSQI) questionnaire before starting the Zumba fitness program. The Pittsburgh Sleep Quality Index (PSQI) is a self-rated questionnaire which assesses sleep quality and disturbances over a 1-month time interval. Nineteen individual items generate seven "component" scores: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction. The sum of scores for these seven components yields one global score. A global PSQI score >5 yielded a diagnostic sensitivity of 89.6% and specificity of 86.5% ( $\kappa = 0.75, p \leq 0.001$ ) in distinguishing good and poor sleepers.

19 self rated questions were there --- individual items are combined to generate seven "component" scores, each of which has range of 0-3 points.

0 – no difficulty 3- severe difficulty

Seven component scores added to generate one global score with range of 0- 21,

0 - no difficulty 21–severe difficulty

A global PSQI score > 5 distinguishes good from poor sleepers.

Pittsburgh sleep quality index (PSQI)		
Component 1	Subjective sleep quality	Question no 6 score
Component 2	Sleep Latency	Add Question no 2 and 5a score
Component 3	Sleep Duration	Question no 4 score
Component 4	Habitual sleep efficiency	No of hrs slept / no hrs spent in bed x 100
Component 5	Sleep Disturbances	Add Question no 5b to 5j score
Component 6	Use of sleeping medication	Question no 7
Component 7	Daytime dysfunction	Add Question no 8 and 9 score

**Zumba fitness program:** Zumba program will be conducted by a licensed Zumba instructor. Zumba fitness exercise having basic aerobic dance steps will be performed five days per week in the evening. Each Zumba training session (60 minutes) contained basic principles of Zumba exercise: warm-up, main part of the workout (Zumba party section), cool down and stretching (Perez and Greenwood-Robinson, 2009). Exercise intensity is determined by the tempo of the music that changed during training sections. Warm up contains basic dance steps without leaps and jumps. Total warm-up time will be 10-15 minutes. The goal of warming up was to increase body temperature, muscle blood flow, joint mobilization and the psychological preparation, as well. The main part of the Zumba training will be performed for 45 min (8-10 original Zumba fitness songs). All Latin American dance choreographies (salsa, samba, belly dance, tango etc.) provide dosing of exercise intensity. Each dance lasts 3-5 minutes, with pause of 15-30 sec. The aim of the main part of the training is that trainees enjoy the music and dance, and practice at the same time. Cool down as the final part of the training contained easy dance movement with mental and physical relaxing purpose. It will be performed for 10-15 min. Stretching was performed for muscle relaxation and increase body flexibility. After completion of 3 months of Zumba fitness program, general examination was repeated, sleep was assessed again with the help of same questionnaire.

## OBSERVATIONS

Parameter	Mean ± SD Pre Zumba program Score	Mean ± SD Post Zumba program Score	Paired t- test	P value
Sleep	14.03±3.20	4.19±1.64	- 16.83	0.00 Highly significant

## DISCUSSION

Considering the statistical results obtained from this study, it was observed that 3 months of Zumba exercise is effective in improving the sleep quality in women. Historically, perhaps no daytime behavior has been more closely associated with better sleep than exercise. The notion that exercise promotes sleep has been traced back to Biblical times<sup>1</sup>, and persists today. On the National Sleep Foundation's Web site, regular exercise is listed as one of the ten "Healthy Tips for Better Sleep" ([www.sleepfoundation.org](http://www.sleepfoundation.org)). The assumption that exercise promotes sleep has also been central to various hypotheses about the functions of sleep. Hypotheses that sleep serves an energy conservation function<sup>6</sup>, a body tissue restitution function<sup>7</sup>, or a temperature down-regulation function<sup>8</sup> have all predicted a uniquely potent effect of exercise on sleep because no other stimulus elicits greater depletion of energy stores, tissue breakdown, or elevation of body temperature, respectively. Exercise offers a potentially attractive alternative or adjuvant treatment for insomnia. Sleeping pills have a number of adverse effects<sup>9</sup> and are not recommended for long-term use

## CONCLUSION

Exercise could be a healthy, safe, inexpensive, and simple means of improving sleep. As we know, monotony is the reason for leaving the exercise program, Zumba helps to maintain the continuous interest in exercise

## REFERENCES

1. Barene, S., Krustup, P., Jackman, S. R., Brekke, O. L., and Holtermann, A. (2013). Do soccer and Zumba exercise improve fitness and indicators of health among female hospital employees? A 12week RCT. *Scandinavian*

- Journal of Medicine and Science in Sports on line*. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1111/sms.12138/full>.doi:10.1111/sms.12138
2. Donges ,C. E., Duffield, R., and Drinkwater, E. J.(2010). Effects of resistance or aerobic exercise training on interleukin-6, C-reactive protein, and body composition. *Medicine and Science in Sport and Exercise*, 42(2), 304-413. doi: 10.1249/MSS.0b013e3181b117ca; PMID: 20083961 Furjan-Mandic, G., Kosalec, V., and Vlašić, J. (2011). The effects of aerobic exercise on the increase of repetitive strength in women. In S. Simovic (Ed.), *3th International aspects of Sports, Physical education and Recreation* (pp. 75-83).
3. Banjaluka, Bosnia and Herzegovina: Faculty of Physical Education and Sport. doi: 10.5550/SP.3.2011.09Hižnayova, K. (2013). Exercise intensity during Zumba fitness and taekwondo aerobics. *Journal of Human Sport and Exercise*, 8(2), S228-S241. doi:10.4100/jhse.2012.8.Proc2.26
4. ostic, R., Đurašković, R, Miletić, Đ., and Makalacki,M. (2006). Changes in cardiovascular fitness and body composition of women under the influence of dance aerobic. *Facta Universitatis*,4(1), 59-71.
5. ostic, R., and Zagorc, M. (2005). Comparison of changes in cardiovascular fitness two models of aerobic exercise of women. *Facta Universitatis*,3(1), 45-57. kic, A. (2006).
6. Herring MP, Puetz TW, O'Connor PJ, Dishman RK: Effect of exercise training on depressive symptoms among patients with a chronic illness: a systematic review and meta-analysis of randomized controlled trials. *Arch Intern Med* 2012, 172(2):101–111.
7. Weinert D, Waterhouse J: The circadian rhythm of core temperature: effects of physical activity and aging. *Physiol Behav* 2007, 90(2–3):246–256.
8. Shapiro CM, Bortz R, Mitchell D, Bartel P, Jooste P: Slow-wave sleep: a recovery period after exercise. *Science* 1981, 214(4526):1253–1254.
9. Raymann RJ, Swaab DF, Van Someren EJ: Skin deep: enhanced sleep depth by cutaneous temperature manipulation. *Brain* 2008,131(Pt 2):500– 513.

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