International Journal of Physical Education, Sports and Health 2021; 8(1): 20-22

P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (ISRA): 5.38
IJPESH 2021; 8(1): 20-22

www.kheljournal.com
Received: 09-11-2020
Accepted: 18-12-2020

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Effect of zumba fitness on body weight and body mass index of university students

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Abstract
The present study was undertaken to see the effect of Zumba fitness on BMI and body weight of 25 female JNU students in the age group of 20 to 25 years. A 20 days Zumba fitness program was organized in the sports complex, JNU from 4 pm to 5 pm in the Month of August 2018. Statistical technique of paired samples t-test and Pearson's correlation using SPSS version 23 was being used. The results showed significant differences in pre and post Zumba mean body weight and body mass index. Mean age of participants was 23.04± 1.72. Mean height was 1.5 ± 0.1. Mean body weight (before the camp) was 59.40 ± 4.86 and mean body weight after the camp was 55.12 ± 3.70. Mean BMI before the camp was 24.83 ± 3.50 and 22.99 ± 2.66 after the camp. After the 20 days camp 21 participants were in the normal range (18.5 to 24.9 BMI) and only 4 were still overweight. None of the participants was now falling in obese category. Significant correlation was observed between pre and post BMI and body weight.

Keywords: Zumba, fitness, paired samples t-test

1. Introduction
Fitness is a personal choice and when it is the habit through we can avoid many lifestyle disorders by being fit. With space crunch in metro cities there has been a gym trend with main focus on cardio. Zumba and aerobics are such scientifically developed techniques that involve high and low impact exercise which is mentally stimulating as it involves music, rhythm and are often conducted in groups making it all the more useful from psycho-social point of view in the urban settings where people talk and mix up very less even with neighbours and relatives. Body mass index is considered as a fairly reliable indicator of health related physical fitness for persons in the age group of 20 to 65 years. BMI is very easy to measure and calculate and is therefore the most commonly used tool to correlate risk of health problems with the weight at population level. It was developed by Adolphe Quetelet during the 19th century. During the 1970s and based especially on the data and report from the Seven Countries study, researchers noticed that BMI appeared to be a good proxy for adiposity and overweight related problems.

2. Procedure
A 20 days Zumba fitness camp was conducted in JNU for the students in the age group of 20 to 25 years. 32 out of 71 registered participants reported on the first day. Only 25 gave their consent to participate in fitness profiling that involved measurement of body weight, height before and after the camp. Body mass index was calculated using the formula:

$$BMI = \frac{\text{weight (kg)}}{\text{height (m}^2\text{)}}$$

Digital body weighing machine was being used to measure participant's body weight (in kilograms) and stadiometer was used to measure the height (in meters). The participants had registered online for the camp and were being explained clearly about the exercise risk factors and that their data will be kept confidential.

3. Results and Discussion

Table 1: Descriptive statistics of selected demographic variables namely Age, height, body mass and BMI of all the Zumba Camp participants.

Variable	Mean	Std. Deviation	Minimum	Maximum
Age in years	23.04	1.72	20.0	25.0
Height in meters	1.55	0.10	1.44	1.72
Body weight in KG pre Zumba camp	59.40	4.86	52.0	67.0
Body weight in KG post Zumba camp	55.12	3.70	49.0	64.0
BMI (in kg/m^2) pre Zumba camp	24.83	3.50	20.2	30.6
BMI post (in kg/m^2) Zumba camp	22.99	2.68	18.8	29.2

Mean age of participants was 23.04± 1.72. Mean height was 1.5 ± 0.1. Mean body weight (before the camp) was 59.40 ± 4.86 and mean body weight after the camp was 55.12 ± 3.70. Mean BMI before the camp was 24.83 ± 3.50 and 22.99 ± 2.66 after the camp.

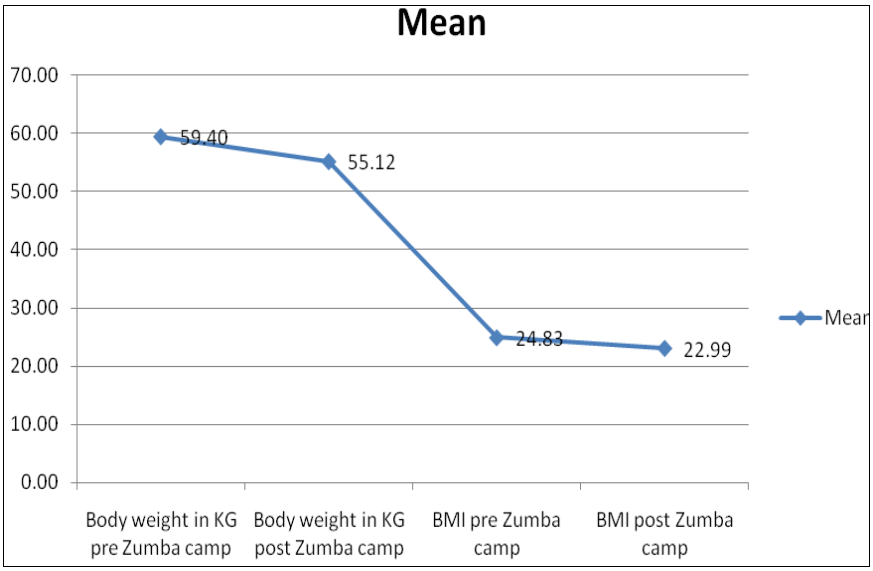

Fig 1: pre and post mean BMI and mean body weight of females

Fig-1 Shows the comparison of pre and post body weight and body mass index values of all the participants showing a downward trend.

Table 2: Pre and post BMI vs. Age Cross tabulation for 25 participants

Variable	Remarks	Age (in years)						Total
		20	21	22	23	24	25	
Pre Zumba camp BMI	Normal	3	1	2	3	2	3	14
	Obese	0	0	0	0	1	1	2
	Overweight	1	0	0	4	2	2	9
Post Zumba camp BMI	Normal	3	1	2	7	4	4	21
	Overweight	1	0	0	0	1	2	4

Table-2 above shows pre Zumba camp 14 participants falling in the normal BMI range (as per WHO norms- 18.5 to 24.9). 2 were obese (above 30 BMI) and 9 were overweight (25 to 29.9 BMI). After the 20 days camp 21 participants were in the normal range (18.5 to 24.9 BMI) and only 4 were still overweight. None of the participants was now falling in obese category.

Table 3: Paired samples t test for body weight and BMI

Paired Samples Test									
Variable		Paired Differences					t	DF	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	body_wt pre_zumba - body_wt post_zumba	4.28	2.88	0.58	3.09	5.47	7.43	24	0.00
Pair 2	BMI_pre_Zumba - BMI_post_Zumba	1.83	1.34	0.27	1.28	2.38	6.85	24	0.00

Table-3 shows that there was a significant decrease in the body weight (p<.05) as well as in the BMI (p <.05). A paired-samples t-test was conducted to compare pre and post Zumpa fitness camp body weight of 25 female participants. There was a significant difference in the pre and post zumba camp scores (differences) for body weight (M=4.28, SD=2.88); t (24) =-7.43, p = 0.00. This shows that there was a significant decrease in body weight as a result of zumba fitness camp

A paired-samples t-test was conducted to compare pre and post Zumpa fitness camp BMI values of 25 female participants. There was a significant difference in the pre and post zumba camp scores (differences) for BMI (M=1.83, SD=1.34); t(24)=-6.85, p = 0.00. This shows that there was a significant decrease in body mas index as a result of zumba fitness camp with BMI falling in the desirable range as per WHO norms. This indicates that there can be less prevalence of lifestyle disorders like heart attack, stroke, obesity etc.

Table 4: Paired Samples Correlations between pre and post Zumba Body weight and BMI

Variable		body_wt_in_kg_pre_zumba	body_wt_in_kg_post_zumba	BMI_pre_Zumba	BMI_post_Zumba
body_wt_in_kg_pre_zumba	Pearson Correlation	1	.806**	.560**	.426*
	Sig. (2-tailed)		0	0.004	0.034
body_wt_in_kg_post_zumba	Pearson Correlation	.806**	1	0.22	0.271
	Sig. (2-tailed)	0		0.29	0.189
BMI_pre_Zumba	Pearson Correlation	.560**	0.22	1	.941**
	Sig. (2-tailed)	0.004	0.29		0
BMI_post_Zumba	Pearson Correlation	.426*	0.271	.941**	1
	Sig. (2-tailed)	0.034	0.189	0	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table-4 above sows there was a significant negative correlation between the pre and post zumba camp body weight scores (r = 0.806), between the pre zumba camp body weight and pre-zumba BMI scores (r = 0.560), between the pre zumba camp body weight and post zumba BMI scores (r = 0.426). There was a significant negative correlation between the pre and post zumba camp BMI scores (r = 0.941).

Khera and colleagues documented in a meta-analytical review the impact of weight reduction with different medications when compared with placebo. They reported that orlistat presented a mean reduction of 2.6 kilograms among overweight and obese adults. In our study we observed that 96% (24/25) of the subjects lost body weight, and that weight reduction had a mean value of 4.28 kilograms. Our findings suggest that weight reduction with a Zumba Fitness program is better that the one observed with orlistat. A systematic review by Johns and colleagues (2016), shown that uncontrolled evaluations of weight loss programs, in the absence of any intervention, would present a reduction of one kilogram or less at the end of the first year. Our results were obtained from students without any nutritional plan or diet. Despite we observed a 3 kilogram reduction in 28% of the subjects, 2 kg body weight reduction in 20% body weight and 4 kg reduction in 12% females after the 20 days Zumba fitness camp. This observation demonstrates the effectiveness of the program intervention. Alfredo (2017) [1] et al. conducted a 23 months follow-up study that included 50 minutes Zumba Class to hospital employees on 55 subjects which showed significant BMI and body weight reduction after one year. This reduction was maintained after 23 months. They observed that 74% of the subjects lost weight (41/55), and that weight reduction had a mean value of 2.17 kilograms.

4. References

1. Alfredo CG, Nora I RM, Lilia CM. Assessment of a Zumba® Fitness Class in Hospital Workers. Int. J Sports Exerc Med 2017;3:072. doi.org/10.23937/2469-5718/1510072
2. Johns DJ, Hartmann-Boyce J, Jebb SA, Aveyard P, Behavioural Weight Management Review Group Weight change among people randomized to minimal intervention control groups in weight loss trials. Obesity (Silver Spring) 2016;24:772-780.
3. Khera R, Murad MH, Chandar AK, Dulai PS, Wang Z et al. Association of pharmacological treatments for obesity with weight loss and adverse events: A systematic review and meta-analysis. JAMA 2016;315:2424-2434.
4. Vikram Singh, Surender Singh. Effect of 4 weeks yoga and continuous running on Body Mass Index of University students paper published in the Proceedings (ISBN=978-81-7873-077-6) of International Congress on Sports Psychology: ICSP-2014 2014,124-127.
5. Vikram Singh. Sports nutrition for youth fitness article published in the proceedings (ISBN No. = 978-81-927686-5-6) of 3rd National Conference on Physical Education and Sports being organized by MHRD and Physical Education Foundation of India (PEFI) held at Bharat Scout and Guides headquarter, ITO, Delhi on 2016,27-31.