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Impact of aerobic dance and yogic training on flexibility among professional students

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Abstract--The purpose of the present study was to find out the impact of aerobic dance, yogic and combination of aerobic dance and yogic training on flexibility among professional students. To achieve this purpose, eighty ($n=80$) professional students were selected as subject from Wayanad district of Kerala state at random. The age was ranged between 21 and 24 years. The selected subjects were further divided into four equal groups of aerobic dance training group, yogic training group, combined aerobic dance and yogic training group and the control group of twenty ($n=20$) each in strength. The training groups were treated with systematic aerobic dance training, yogic training and combined aerobic dance and yogic training for the duration of twelve weeks and three sessions per week. The variable were considered as flexibility for this study and it was measured by using sit and reach test. The data were collected before and immediately after the training protocol. The collected data were analyzed statistically by using analysis of covariance (ANCOVA). The level of confidence was fixed at 0.05 in all aspects. The result of the study noticed that the flexibility were significantly improved after the training duration for different groups ($p \leq 0.05$) and the result were not produced significant improvement ($p \geq 0.05$) on flexibility for the groups of aerobic training group and the combined aerobic and yogic training group and the yogic training group and combined aerobic and yogic training group. The level of confidence were fixed as 0.05 in all cases.

Keywords---Flexibility, aerobic and yogic training, professional students.

Introduction

Flexibility may be defined as the range of motion in a joint or group of joints or the ability to move joints effectively through a complete range of motion. Our body might have different range of motion or different level of flexibility for different joints (Scott, 2020). The general condition of our muscle system depends age and strength work which we follows. As we aged, naturally we loses strength and size of our muscles and it become less supple and stiffer. This can be affect the range of movement around our joints, which may lead to stiffness in the muscles and joints (Galley).

Aerobic dance exercise is any physical activity that makes us sweat causes to breath harder and gets our heart beating faster than at rest. Aerobic dance strengths our heart and lungs and trains our cardiovascular system to manage and deliver oxygen more quickly and efficiently throughout our body. Aerobic dance uses our large muscle groups is rhythmic in nature and can be maintained continuously for at least ten minutes (www.omicsonline.org).

The word aerobic means 'with oxygen' but aerobics usually refers to any kind of activity that gets our heart pumping and our muscles using oxygen. Aerobic dancing involves any kind of exercise put to music and can include everything from country music line dance aerobics to hip hop dancing. It is recommended for kids at least twenty minutes and three times per week (www.kidzworld.com, 2006).

Yoga is a sanskrit word derived from the Sanskrit root 'yuj' which means to connect, join or balance. Yoga is usually defined as union: union between the limited self and the divine self. The aim of yoga is not really to unite us with anything for we are already united. It is to help us identify with the divine self, to make us known and tune into our intrinsic nature. The end of all human pursuits is everlasting peace, happiness and a sense of fulfillment. This is possible with steady and prolonged sincere practice of yoga. It activates a process of cleansing and purification of mind, which in turn, prepares us for the dawning of self-knowledge (Nikethan, 2020).

Yoga is a physical, mental and spiritual practice that originated in ancient India. It has been practiced for thousands of years, and whilst many different interpretations and style have been developed, most tend to agree that the ultimate goal of yoga is to achieve liberation from suffering. Although each school or tradition of yoga has its own emphasis is and practices, most focus on bringing together body, mind and breath as a means of altering energy or shifting consciousness (www.yogapedia.com).

Methods and Materials

The purpose of the present study was to find out the impact of aerobic dance, yogic and combination of aerobic dance and yogic training on flexibility among professional students. To achieve this purpose, eighty ($n=80$) professional students were selected as subject from Wayanad district of Kerala state at random. The age was ranged between 21 and 24 years. The selected subjects were

further divided into four equal groups of aerobic dance training group, yogic training group, combined aerobic dance and yogic training group and the control group of twenty ($n=20$) each in strength. The training groups were treated with systematic aerobic dance training, yogic training and combined aerobic dance and yogic training for the duration of twelve weeks and three sessions per week. The variable were considered as flexibility for this study and it was measured by using sit and reach test. The data were collected before and immediately after the training protocol. The collected data were analyzed statistically by using analysis of covariance (ANCOVA). If the 'F' value was found to be significant for the adjusted post-test mean, the Scheffe's test was applied as a post hoc test to determine the significant difference between the paired mean. The level of confidence was fixed at 0.05 in all aspects.

Results and Discussion

Table I
Analysis of Covariance on Flexibility of Aerobic, Yogic, Combined Aerobic and Yogic Training and Control Group

Group		Aerobic TG	Yogic TG	Combined TG	Control	SOV	SS	df	Mean Squares	F-Ratio
Pre Test	Mean	26.05	24.80	24.90	25.55	B	19.83	3	6.61	1.12
	SD	2.45	2.50	2.31	2.44	W	448.05	76	5.89	
Post Test	Mean	28.70	30.80	29.15	25.15	B	339.30	3	113.10	20.06*
	SD	2.67	2.21	2.01	2.54	W	428.50	76	5.64	
Adjusted Post Test		28.28	31.11	29.38	25.03	B	388.26	3	129.42	35.26*
						W	275.29	75	3.67	

*Significant $F = (df 3, 76) (0.05) = 2.74$; ($P \leq 0.05$) $F = (df 3, 75) (0.05) = 2.74$; ($P \leq 0.05$)

The table I showed that the pre test mean values on flexibility for aerobic training group, yogic training group, combined aerobic and yogic training group and the control group was 26.05, 24.80, 24.90 and 25.55. The obtained 'F' value of pre test 1.12 which was lesser than the table value of 2.74 for df 3 and 76. There was no significant difference between pre test values on flexibility for the level of confidence 0.05 level. The obtained post test mean values on flexibility for aerobic training group, yogic training group, combined aerobic and yogic training group and the control group was 28.70, 30.80, 29.15 and 25.15. The obtained 'F' value of post test 20.06 which was greater than the table value of 2.74 for df 3 and 76. Hence there was a significant difference between groups on post test values for flexibility. The adjusted post test mean values on flexibility for aerobic training group, yogic training group, combined aerobic and yogic training group and the control group was 28.28, 31.11, 29.38 and 25.03. The obtained 'F' value of adjusted post test 35.26 which was also greater than the table value of 2.74 for df 3 and 75. The adjusted post test also shows the significant difference for the level

of confidence 0.05 level. Further to find out the paired mean differences the Scheffe's test was implemented as post hoc test.

Table - II
Scheffe's Test for the difference between the Adjusted Post-Test Mean of Flexibility

Adjusted Post Test Mean				MD	CI
Aerobic TG	Yogic TG	Combined TG	Control Group		
28.28	31.11	-	-	2.83*	
28.28	-	29.38	-	1.10	
28.28	-	-	25.03	3.25*	1.74
-	31.11	29.38	-	1.73	
-	31.11	-	25.03	6.08*	
		29.38	25.03	4.35*	

*Significant at 0.05 level of Confidence

Table II shows that, the adjusted post-test mean difference on flexibility between aerobic training group and the yogic training group was 2.83. It was greater than the table value of 2.74. Hence there was a significant difference occurred between aerobic training group and the yogic training group on flexibility. The adjusted post-test mean difference on flexibility between aerobic training group and the combined aerobic and yogic training group was 1.10. It was lesser than the table value of 2.74. Hence there was no significant difference between aerobic training group and the aerobic and yogic training group on flexibility. The adjusted post-test mean difference on flexibility between aerobic training group and the control group was 3.25. It was greater than the table value of 2.74, hence there was significant difference between aerobic training group and the control group on flexibility. The adjusted post-test mean difference on flexibility between yogic training group and the combined aerobic and yogic training group was 1.73. It was lesser than the table value of 2.74, hence there was no significant difference between yogic training group and the combined aerobic and the yogic training group on flexibility. The adjusted post-test mean difference on flexibility between yogic training group and the control group was 6.08. It was greater than the table value of 2.74, hence there was a significant difference between yogic training group and the control group on flexibility. The adjusted post-test mean difference on flexibility between combined aerobic and yogic training group and the control group was 4.35. It was greater than the table value of 2.74, hence there was a significant difference between combined aerobic and yogic training and the control group.

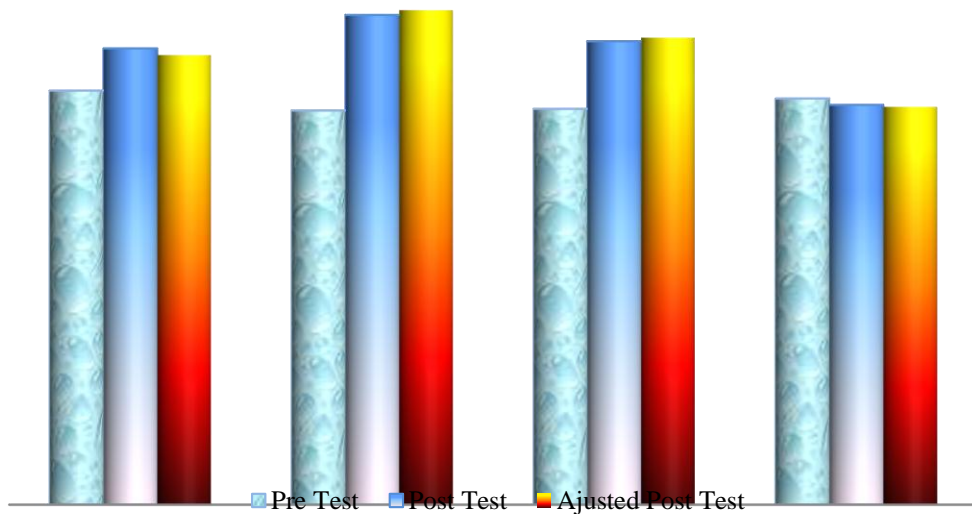


Figure 1: The pre, post and adjusted post test mean values of experimental groups and the control group on Flexibility

Results and Discussion

Polsgrove et al. (2016) examined their study among athletes and implemented yoga and combine training as training package. The result of the study noticed that the flexibility were significant improved among the athletes. Petric et al. (2014) conducted their study among nine youth female subjects and they were aged twenty three to twenty five year. The training duration was extended up to five weeks and two days per week. The result of the study noticed that the flexibility were positively increased among the subjects. Amin (2014) evaluated sixteen young subjects for his study and the training were given priority for yoga and the training were extended ninety minutes per session. The result were noticed that the flexibility among the subjects were significantly improved after the training duration. The studies of Hosiso and Rekoninne (2013) and Sridhar and Giridharprasath (2017) were also used aerobic training as training package and also noticed significant improvement on flexibility. Woodyard (2011) used therapeutic yoga as a medicine for physical and mental benefits of selected groups. The study reached the conclusion that the flexibility of the selected subjects were increased and supporting for the present result. The studies of Arasi and Dharuman (2014), Cheng et al. (2017), Bobo and Yarbrough (1999) also pointing the similar result as per the present study. Flexibility among the selected subjects were significantly improved after the training duration.

Conclusion

The following results were concluded form the present study.

1. There was a significant difference occurred between aerobic training group and the yogic training group on flexibility.

2. There was no significant difference between aerobic training group and the combined aerobic and yogic training group on flexibility.
3. There was significant difference between aerobic training group and the control group on flexibility.
4. There was no significant difference between yogic training group and the combined aerobic and the yogic training group on flexibility.
5. There was a significant difference between yogic training group and the control group on flexibility.
6. There was a significant difference between combined aerobic and yogic training group and the control group.

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