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EFFECT OF YOGA ON FLEXIBILITY AND RESTING HEART RATE AMONG ENGINEERING STUDENTS

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Abstract:

The purpose of the study was to investigate the effect of yoga on flexibility and resting heart rate among engineering students. It was hypothesized that there would be significant differences on physical variables due to the effect of yoga among engineering students. For the present study the 30 male engineering students from BIT campus, Anna University, Tiruchirappalli were selected at random and their age ranged from 18 to 25 years. For the present study pre test - post test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of fifteen each. Group 'A' underwent yoga only, group 'B' have not underwent any training. The data was collected before and after twelve weeks of training. The data was analyzed by applying Analysis of Co-Variance (ANCOVA) and scheffe's post hoc test. The level of significance was set at 0.05. It was observed that the six weeks of yoga have significantly improved the flexibility of engineering students. It was observed that the six weeks of yoga have significantly reduced the resting heart rate of engineering students.

Key Words: Yoga, Flexibility, Resting Heart Rate, Engineering Students.

Introduction:

Yoga is one of India's wonderful gifts to mankind. It refers to the union of body and mind. Yoga is simple and easy to practice, acceptable to the people of all walks of life. One of its valuable qualities is that it builds up a store of physical health through the practice of a system of exercises called asana which keep the body cleansed and fit. Yoga postures are the physical positions that co-ordinate breath with movement and withholding the position to stretch and strengthen different parts of the body. Yogic practice is the ideal complement to other forms of physical exercises such as running, cycling and swimming. Yogic postures systematically work on all the major muscle groups, including the back, neck and shoulders, deep abdominal, hip and ankles, feet, wrists and hands. By their very nature, yogic practice affect all the muscle groups and organs as they simultaneously impart strength, increase flexibility and bring nourishment to internal organs. Although most poses are not aerobic in nature, they do in fact send oxygen to the cell by way of conscious deep breathing and sustained stretching and contraction of different muscle groups. Yoga can help to check any imbalance in muscular development and will enable both mind and body to function efficiently (Bharathapriya & Gopinath, 2011). The meaning of the Sanskrit word 'asana' is 'a steady and comfortable posture'. It is often believed that asana are physical exercises. And of course this is true; they do have a profound influence on the body, but this does not convey their full significance. Each person is made up of three aspects: body, mind and consciousness, which merge together to constitute our whole being. Asana aim at influencing all these three aspects and moulding and yoking them into one harmonious whole. The prime aim of asanas is to help us tread the path to higher consciousness so we can begin to understand and know relationship with existence. We cannot even consider attaining higher awareness if we are ill with disease, aches and pains or mental depression. Therefore the initial purpose of practicing asanas is to eliminate these afflictions and disturbances (Hema, 2003).

Methodology:

The purpose of the study was to investigate the effect of yoga on flexibility and resting heart rate among engineering students. It was hypothesized that there would be significant differences on physical variables due to the effect of yoga among engineering students. For the present study the 30 male engineering students from BIT campus, Anna University, Tiruchirappalli were selected at random and their age ranged from 18 to 25 years. For the present study pre test – post test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of fifteen each. Group 'A' underwent yoga only, group 'B' have not underwent any training. The data was collected before and after twelve weeks of training. The data was analyzed by applying Analysis of Co-Variance (ANCOVA) and scheffe's post hoc test. The level of significance was set at 0.05.

Results:

Table 1: Computation of Mean and Analysis of Covariance of Flexibility of Experimental and Control Groups

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Pre Test Mean	21.16	20.90	BG	0.50	1	0.50	1.99
			WG	7.10	28	0.25	

Post Test Mean	26.72	21.10	BG	236.88	1	236.88	541.06*
			WG	12.25	28	0.43	
Adjusted Post Mean	26.71	21.11	BG	219.16	1	219.16	485.24*
			WG	12.19	27	0.45	

* Significant at 0.05 level. Table value for df 1 and 28 was 4.20, 1 and 27 was 4.21

The above table indicates the adjusted mean value of flexibility of experimental and control groups were 26.71 and 21.11 respectively. The obtained F-ratio of 485.24 for adjusted mean was greater than the table value 4.21 for the degrees of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference among experimental and control groups on flexibility. The above table also indicates that both pre and post test means of experimental and control groups differ significantly.

Figure 1: Shows the Mean Values on Flexibility of Experimental Group and Control Groups

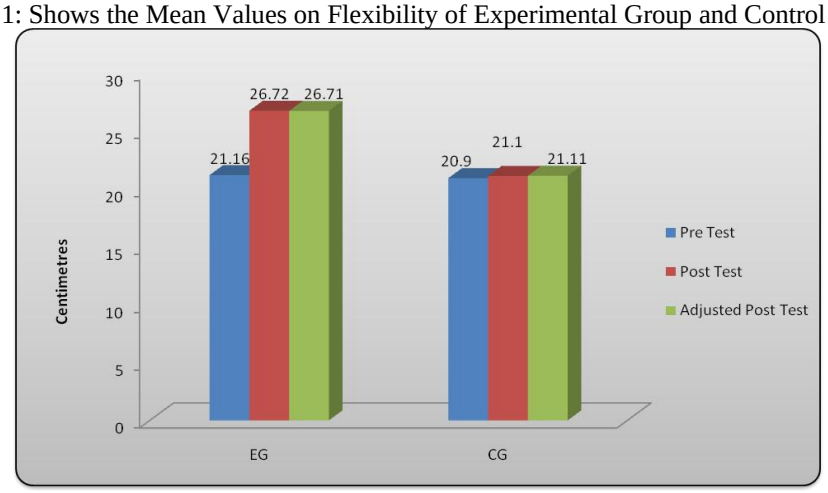


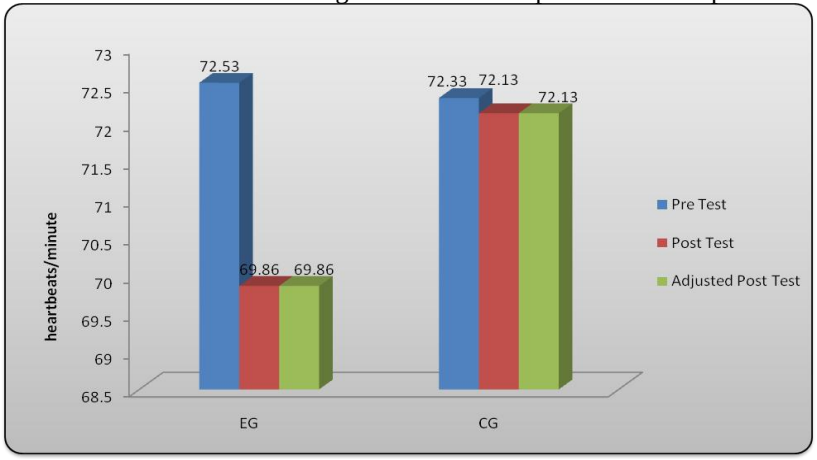
Table 2: Computation of Mean and Analysis of Covariance of Resting Heart Rate of Experimental and Control Groups

	Experimental Group	**Control Group**	**Source of Variance**	**Sum of Squares**	**df**	**Mean Square**	**F**
Pre Test Mean	72.53	72.33	BG	0.30	1	0.30	0.10
			WG	81.06	28	2.89	
Post Test Mean	69.86	72.13	BG	45.63	1	45.63	26.04*
			WG	49.06	28	1.75	
Adjusted Post Mean	69.86	72.13	BG	45.50	1	45.50	25.03*
			WG	49.06	27	1.81	

* Significant at 0.05 level. Table value for df 1 and 28 was 4.20, 1 and 27 was 4.21

The above table indicates the adjusted mean value of resting heart rate of experimental and control groups were 69.86 and 72.13 respectively. The obtained F-ratio of 25.03 for adjusted mean was greater than the table value 4.21 for the degrees of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference among experimental and control groups on resting heart rate. The above table also indicates that both pre and post test means of experimental and control groups differ significantly.

Figure 2: Shows the Mean Values on Resting Heart Rate of Experimental Group and Control Groups



Conclusions:

- It was observed that the six weeks of yoga have significantly improved the flexibility of engineering students.
- It was observed that the six weeks of yoga have significantly reduced the resting heart rate of engineering students.

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