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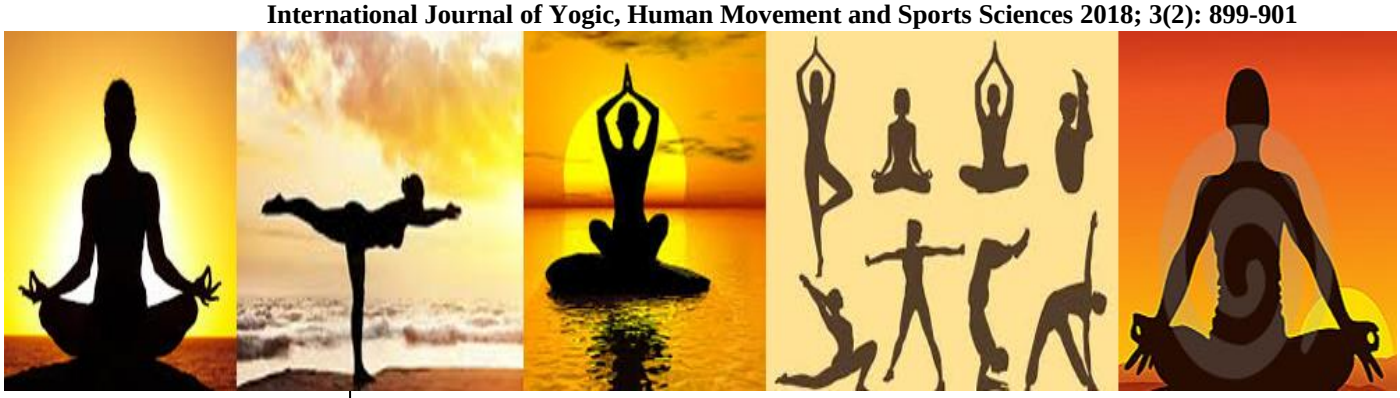

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Effect of mountaineering training on flexibility of moderate altitude inhabitants

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Abstract
The motive behind giving the training is to create an impact that lasts beyond the end time of the training itself and person gets updated with the new phenomenon. The goal of the study was to find out the effect of mountaineering training on flexibility of moderate altitude inhabitants. For the purpose of this study fifty male students were selected as subjects form the Jawahar Institute of Mountaineering and Winter Sports Phalgam Anantnag (J&K). The age of the students which serve as subject was 18 - 26 years which is confirmed from institute record. All subjects belongs to moderate altitude. The subjects were divided into equal groups Group A- Experimental (N =25) and Group- B as Control Group (N=25). All the subjects were informed about the aim and methodology of the study. The experimental group was given special training of mountaineering for twelve weeks. The control group was not given any training rather than their daily work routines. The data was collected and administering with the ANCOVA test and was analyzed in SPSS with the help of statistical procedure in which Standard Deviation, Mean and "t" ratio were employed. The level of significance was set at 0.05 level. The result of the study showed that mountaineering training program make significant improvement on flexibility of moderate altitude inhabitants.

Keywords: Mountaineering, flexibility, moderate altitude inhabitants

Introduction
Training is about momentous where you are in the current and after some time where will you reach with your abilities. By training, people can learn new methodology, new information and refresh their existing knowledge and skills. Due to this there is much improvement and adds up the effectiveness at work. Training can be offered as skill development for individuals and groups. Mountaineering is not only climbing mountains the hard way with an ice axe, crampons, cams, and rope, but it is also simply challenging and difficult hiking up steep rocky slopes, talus fields, and along airy ridges studded with outcroppings in the high mountains, high above the world of cities and civilization, the climber can pause and look out over a world ruled by nature and her raw beauty. Mountaineering is the sport of climbing mountains it's all about challenge and perseverance, putting hands and feet on rocks, ice, and snow, and finally reaching a summit. (Stewart Green, 2017) [1].

Flexibility
Flexibility refers to the range of movement in a joint or series of joints, and length in muscles that cross the joints to induce a bending movement or motion. Flexibility varies between individuals, particularly in terms of differences in muscle length of multi-joint muscles. Flexibility has not been identified as a necessary determinant of climbing success, although climbing-specific flexibility could be valuable to climbing performance (Giles *et al*., 2006) [2]. Flexibility in some joints can be increased to a certain degree by exercise, with stretching a common exercise component to maintain or improve flexibility. Quality of life is enhanced by improving and maintaining a good range of motion in the joints. Overall flexibility should be developed with specific joint range of motion needs in mind as the individual joints vary from one to another. Loss of flexibility can be a predisposing factor for physical issues such as pain syndromes or balance disorders. Sex, age, and genetics are important for range of motion. Exercise including stretching and yoga often improves flexibility. Flexibility is a key performance component for the sport when a climbing-specific test is used (Draper *et al*.,

2009) [3]. Many factors are taken into account when establishing personal flexibility: joint structure, ligaments, tendons, muscles, skin, tissue injury, fat (or adipose) tissue, body temperature, activity level, age and sex all influence an individual's range of motion about a joint. Individual body flexibility level is measured and calculated by performing a sit and reach test, where the result is defined as personal flexibility score.

Materials and methods

The objective of the study was to observe the effect of mountaineering training on flexibility of moderate altitude inhabitants. To complete the aim fifty male students of Jawahar Institute of Mountaineering and Winter Sports Phalgam Anantnag (J&K) were selected as subjects which belongs to moderate altitude. The fifty male students were divided in two equal groups Group - A, experimental group (25) and Group- B as control group (25). The simple random sampling was applied to selected the subjects for the study. The age of the students was between 18 to 26 years.

Result and discussion

The analysis of dependent "t" test on the data obtained for flexibility from pre-test and post-test means of Mountaineering training group and control group have been analyzed and presented in table 1.

Table 1: The summary of mean and dependent "t" test for pre and post tests on flexibility of mountaineering training group and control group

Testes	Training Group		Control Group	
	Mean	SD (±)	Mean	SD (±)
Pre-Test	10.23	1.06	10.04	1.05
Post-Test	12.44	0.85	10.12	0.83
"t" value	22.90		0.569	

*Significant at 0.05 level of confidence. Table value required for "t" test df 1and 24 is 1.71

From the table above, the dependent "t"-test values between pre and post test means of mountaineering training group on flexibility were 10.23 and 12.44, and from control group per and post test means were 10.04 and 10.12, while, the obtained "t" value from training group was 22.90, which is greater than the required table value 1.71 with df 1and 24 at 0.05 level of confidence, it clears that training group has significant improvement on flexibility. However, the obtained "t" value from control group was 0.569 which is lesser than the table value 1.71 with df 1 and 24 at 0.05 level of confidence, which clears that no significant improvement occurred in control group on flexibility, because they were not performing any specific training other than their habitual practice. The pre and post test mean values of experimental and control groups on flexibility are graphically represented in the figure 1

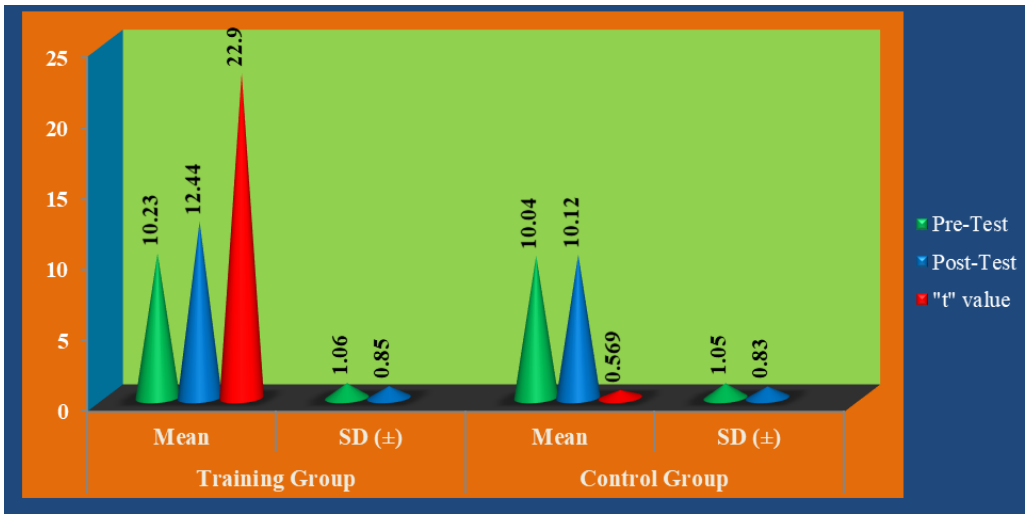

Fig 1: Pre and post test mean values of mountaineering training group and control group on flexibility.

Table 2: Analysis of covariance on flexibility of experimental group and control group

Tests	Training Group	Control Group	SoV	SS	*df*	MS	"F" Ratio
Pre-Test Mean SD (±)	10.32	10.04	BG	0.98	1	0.98	0.86
	1.06	1.05	WG	54.40	48	1.13	
Post-Test Mean SD (±)	12.44	10.12	BG	67.28	1	67.28	101.55*
	0.85	0.76	WG	31.80	48	0.66	
Adjusted Posttest Mean	12.34	10.21	BG	56.12	1	56.12	299.22*
			WG	8.81	47	0.18	

*Significant at 0.05 level of confidence. Table value required for F ratio for df 1and 48 is 4.00, for 1and 47 is 3.99

As result shows in above table, the pre test mean on flexibility of mountaineering training group is 10.32 with standard deviation ± 1.06 and control group is 10.04 with standard deviation ±1.05. The obtained F ratio 0.86 is lesser than require table value 4.00 for df 1 and 48 at the 0.05 level of significance. It is clear from the result of the table, that there is no significant variation between experimental group and control group before the beginning of training programme. The result presented in the same table shows, that the post test mean on flexibility of mountaineering training group is 12.44 with standard deviation ±0.85 and control group is 10.12 with standard deviation ±0.76.The obtained F ratio101.55 is greater than the require table value 4.00 for df 1 and 48 at the 0.05 level of significance. It is clear from the result of the table, that there is significant variation among experimental group and control group after 12 weeks of training programme. The adjusted post test mean on flexibility of mountaineering training group is 12.34 and control group is 10.21. The

obtained F ratio 299.22 is greater than the require table value 3.99 for df 1 and 47 at the 0.05 level of significance. It is clear from the result of the table that 12 weeks training have considerable develop the flexibility of the subjects as compared to the control group. The adjusted posttest mean on flexibility of mountaineering training group and control group are graphically represented in the figure 2

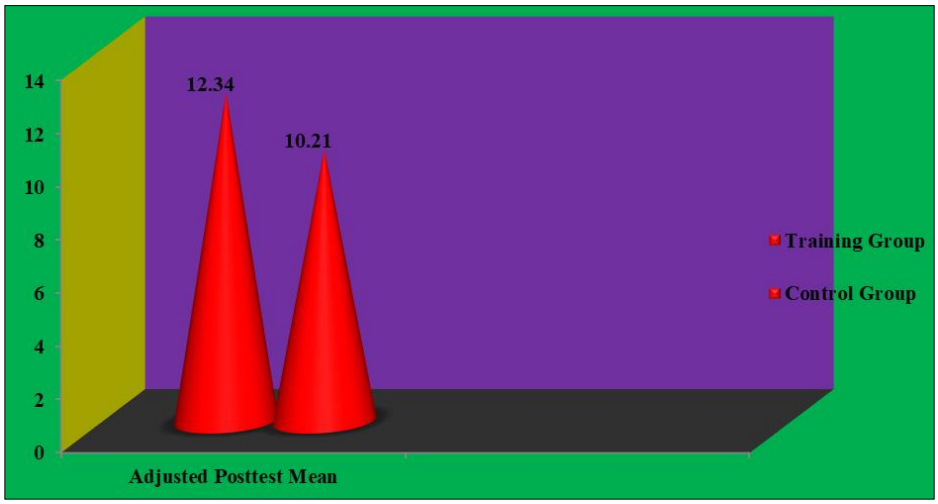

Fig 2: Adjusted post-test mean on flexibility of mountaineering training group and control group

Conclusion

Analysis of percentage on flexibility between mountaineering training group and control group of moderate altitude inhabitants.

Physical Fitness Variable	Pre and Post Tests	Experimental Group	Control Group	% of Training Group	% of Control Group
Flexibility	Pre Test	10.32±1.06	10.04±1.05	20.54%	0.79%
	Post Test	12.44±0.85	10.12±0.76		

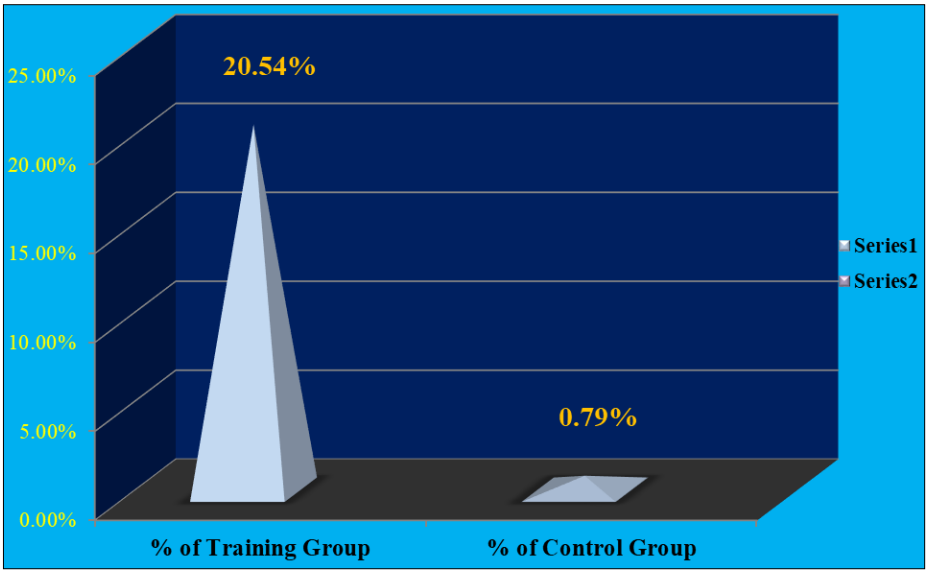

Fig 3: Percentage on Flexibility of Training Group and Control Group

From the analysis of the data showed in the figure 3 the conclusions was drawn out that the experimental group has achieved significant improvement of 20.54% on flexibility due to twelve weeks of mountaineering training on moderate altitude inhabitants. While no improvement was shown in the control group and remain on 0.79%, which is almost negligible.

Hence mountaineering training program of twelve weeks was adequate for flexibility. It was also concluded that the mountaineering training is one of the best training methods for improving physical fitness variable like flexibility. Flexibility was improved due to the effect of mountaineering training because during rock climbing subjects has to stretch and elongate their full body to get grip on rocks and make steps for climbing which improves their flexibility. Subjects also perform the snow crafting which needs arm extend and leg stretching for making moves it also helps the subjects to improve their flexibility.

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