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Combined effect of physical training and isometric stretching on selected anthropometric variable among elite college level sportsperson

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Abstract---The purpose of the present study was to investigate the combined effect of physical training and isometric stretching on calf circumference among elite college level sportsperson. To achieve the purpose of the study thirty college level male sports person were selected from Alagappa University, Tamilnadu, India during the year 2022. The subject's age ranges from 21 to 25 years. The selected sports men were divided into two equal groups consists of 15 sportsmen each namely experimental group and control group. The experimental group underwent a combined physical training and isometric stretching for eight weeks. The control group was not taking part in any training during the course of the study. Calf circumference was taken as criterion variable in this study. The selected subjects were tested on calf circumference was measured through steel tap. Pre-test was taken before the training period and post- test was measured immediately after the six week training period. Statistical technique 't' ratio was used to analyse the means of the pre-test and post test data of experimental group and control group. The results revealed that there was a significant difference found on the criterion variable. The difference is found due to combined physical training and isometric stretching given to the experimental group on calf circumference when compared to control group.

Keywords---combined physical training, isometric stretching, calf circumference, ratio.

Introduction

Yoga is universally benefiting all people of all ages. The study of Yoga is fascinating to those with a philosophical mind and is defined as the silencing of the mind's activities which lead to complete realization of the intrinsic nature of the Supreme Being. In the sports world, physical education is the most essential aspect due to the fact physical schooling increases the performance and the effectiveness of the sports. Asana practices helps to attain some of the physical benefits like muscle building and promote physical requirements of the particular event or sport.

Isometric stretching is a type of static stretching (meaning it does not use motion) which involves the resistance of muscle groups through tensing of the stretched muscles. Isometric stretching is one of the fastest ways to develop increased static or passive flexibility, and is much more effective than either passive stretching or active stretching alone. Isometric stretching is quite demanding on the muscle tendons and joints, and therefore should not be performed more than once per day for a given group of muscles

Research Methodology

Selection of subjects

The purpose of the study was to find out the combined effect of physical training and isometric stretching on calf circumference among elite college level sportsperson. To achieve this purpose of the study, college sports persons were selected as subjects at random. The age of the subjects were ranged from 18 to 25 years.

Selection of variable

Independent variable

- Physical Training and Isometric Stretching

Dependent variable

- Calf circumference

Experimental design and implementation

The selected subjects were divided into two equal groups of fifteen subjects each, such as a combined physical training and isometric stretching group (Experimental Group) and control group. The experimental group underwent combined physical training and isometric stretching for five days per week for eight weeks. Control group, which they did not undergo any special training programme apart from their regular physical activities as per their curriculum. The following anthropometric variable namely calf circumference was selected as criterion variable. All the subjects of two groups were tested on selected criterion variable Calf circumference was measured through steel tap at prior to and immediately after the training programme.

Statistical technique

The 't' test was used to analysis the significant differences, if any, difference between the groups respectively.

Level of significance

The 0.05 level of confidence was fixed to test the level of significance which was considered as an appropriate.

Analysis of the data

The significance of the difference among the means of the experimental group was found out by pre-test. The data were analysed and dependent 't' test was used with 0.05 levels as confidence.

Table I
Analysis of t-ratio for the pre and post tests of experimental and control group on Calf circumference
(Scores in centimeters)

Variables	Group	Standard Deviation		Sd Error	
		Pre	Post	Pre	Post
Calf circumference	Control Group	0.727	0.750	0.187	0.193
	Experimental Group	0.740	0.739	0.191	0.190

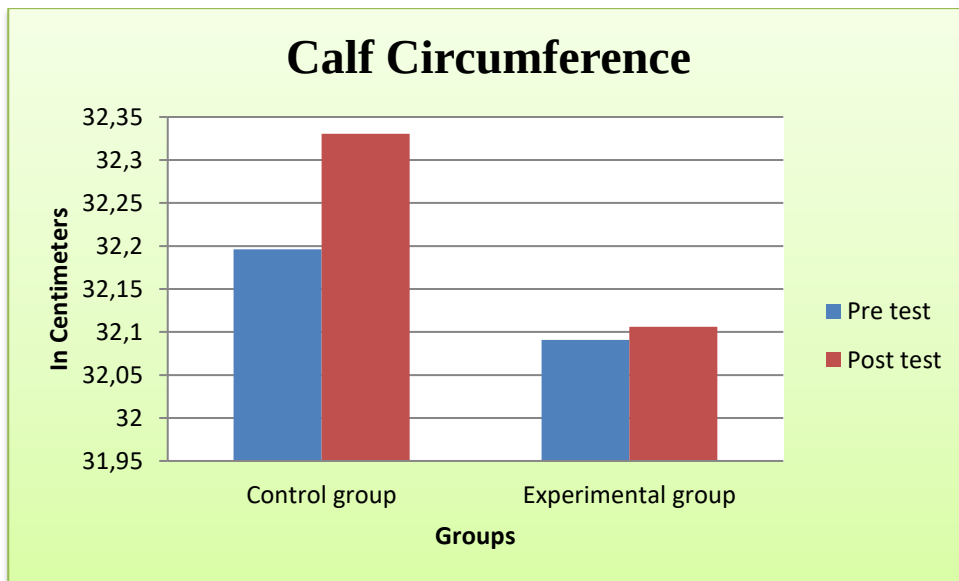
Table II

Variables	Group	Mean		Degree of freedom	't' ratio
		Pre	Post		
Calf circumference	Control Group	32.20	32.33	14	1.48
	Experimental Group	32.09	32.10	14	7.99*

*Significance at .05 level of confidence.

The Table-I and II shows that the mean values of pre-test and post-test of the control group on calf circumference were 32.20 and 32.33 respectively. The obtained 't' ratio was 1.48, since the obtained 't' ratio was less than the required table value of 2.14 for the significant at 0.05 level with 14 degrees of freedom it was found to be statistically insignificant. The mean values of pre-test and post-test of the experimental group on calf circumference were 32.09 and 32.10 respectively. The obtained 't' ratio was 7.99* since the obtained 't' ratio was greater than the required table value of 2.14 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in calf circumference. It may be concluded from the result of the study that experimental group improved in calf circumference due to six weeks of combined physical training and isometric stretching.

Figure-1
Bar Diagram Showing the Pre and Post Mean Values of
Experimental and Control Group on Calf circumference



Discussions on findings

The result of the study indicates that the experimental group, namely combined physical training and isometric stretching group had significantly improved the selected dependent variable, namely calf circumference, when compared to the control group. It is also found that the improvement caused by combined physical training and isometric stretching when compared to the control group.

Conclusion

On the basis of the results obtained the following conclusions are drawn,

1. There was a significant difference between experimental and control group on calf circumference after the training period.
2. There was a significant improvement in calf circumference. However the improvement was in favor of experimental group due to eight weeks of combined physical training and isometric stretching.

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Conflict of Interest

I declare that no conflict of interest could be perceived as prejudicing the impartiality of the research reported.

Source of Funding

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Ethical Approval

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

Informed Consent

Informed consent was obtained from all individual participants included in the study.

Data Availability

The datasets used and/or analyzed during this study are available from the corresponding author on reasonable request.

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