



EFFECT OF STRECHING EXERCISES ON PHYSICAL FITNESS PERFORMANCE

Dr. Hartej Singh

Principal Govt. College Of Physical Education Gadoora Ganderbal.

ABSTRACT

*This study interprets the results of the effects static stretching, dynamic stretching, ballistic stretching, and PNF stretching (proprioceptive neuro-muscular facilitation) on various types of performance. Reviewing the related literature research was conducted on effects of stretching exercises and warming up exercises and their effect on performance and prevention of injuries. As a result it was important to investigate the effects of stretching exercises on performance. For this purpose our study entitled “the effects of stretching exercise on physical performance” to analyze which type of stretching is better to improve performance comparing active and passive stretching exercises. Investigators made the two groups to see whether active stretching can improve performance significantly than passive stretching exercises. The investigators had approached to the department of physical-education university of Kashmir to collect the data. The investigators briefly explained the subjects about the purpose of the study, all subjects cooperated sincerely. A total 30 subjects were purposive selected as a sample, out of which 3 subjects were injured due to the other activities and we removed 3 subjects due to their absence, then 24 subjected were given the training to seek effects of stretching exercises on 6 variables namely **explosive strength, flexibility, speed, agility, cardio-vascular endurance, abdomen muscular endurance (ame)**, which gave us data regarding the study and subjects were divided into two groups active and passive groups which composed 12 and 12 subjects respectively, they were given 16 sessions of active and passive stretching exercises. In these 16 sessions after the warming-up for 15 minutes stretching was given for 20 minutes to each group. The finding of the study is that there is no significant effect on active and passive stretching exercises on physical performance. The data was then analyzed by using mean, standard deviation, the statistical treatment was given, ‘t’ test. The hypothesis was tested at 0.5 level of significance.*



KEY WORD: static stretching, dynamic stretching, ballistic stretching.

INTRODUCTION

Stretching is a type of physical activities in which particular muscle or ligament (or muscle gathering) is purposely flexed or extended so as to enhance the muscle's felt flexibility and accomplish agreeable muscle tone. The outcome is a sentiment expanded muscle control, adaptability, and scope of movement. Stretching is likewise utilized remedially to lighten issues. In its most fundamental shape, extending is a characteristic and intuitive action; it is performed by people and numerous different creatures. It can be joined by yawning. Extending frequently happens intuitively in the wake of waking from rest, after long stretches of latency, or in the wake of leaving limited spaces and zones. Expanding adaptability through extending is one of the fundamental principles of physical wellness. It is regular for competitors to extend when practice so as to diminish damage and increment execution Stretching as it identifies with physical wellbeing and wellness, is the way toward setting specific parts of the body into a position that will protract,

or prolong, the muscles and related delicate tissues. After endeavor a consistent extending program various changes start to happen inside the body and particularly inside the muscles themselves. Different tissues that start to adjust to the extending procedure incorporate the sash, ligaments, tendons, skin and scar tissue

MANY DIFFERENT WAYS TO STRETCH

Similarly as there are a wide range of to quality prepare, there are likewise a wide range of approaches to perform, Stretching exercise. Be that as it may, it is essential to take note of that despite the fact that there are various approaches to extend, nobody way, or nobody sort of extending is superior to another. Each compose has its own favorable circumstances and burdens, and the way to getting the most out of extending lies in having the capacity to coordinate the correct kind of extending to the reason, or objective you are endeavoring to accomplish. For instance, PNF and inactive extending are incredible for making changeless enhancements in adaptability; however they are not extremely helpful for warming up or setting up the body for movement. Dynamic extending, then again, is awesome for warming up however can be unsafe if utilized as a part of the underlying phases of damage recovery.

THE BIOMECHANICS OF STRETCHING

The biomechanical impact of extending practices on skeletal muscles. While there is a long history of clinical research on the impact of extending on adaptability, there have just been a couple of years of research on the intense and incessant impacts of extending on the biomechanical parameters of muscle work. The intense impact of extending has all the earmarks of being a huge increment in scope of movement principally because of expanded extend resilience and huge diminishment in most all types of strong execution. Extending additionally makes critical intense diminishment in latent pressure (push unwinding) in the muscle, however does not seem to influence its solidness/versatility. Stretch training significantly increases range of motion, but it also tends to increase the passive tension and stiffness of the musculature. Future research of human muscle in vivo amid extending and typical development utilizing ultrasound guarantees to help clear up the impacts of extending on the dynamic and aloof parts of muscle and the numerous biomechanical factors of solid execution.

Objectives of the study

1. To compare the strength between active and passive of stretching groups
2. To compare the endurance between active and passive of stretching groups.
3. To compare the flexibility between active and passive of stretching groups.
4. To compare the speed between active and passive of stretching groups.
5. To compare the agility between active and passive of stretching groups

Limitations

- The sample size of only 24 students was taken due to time and resources.
- Socio economic of the students was not be considered.
- Heredity and potential of students was not being taken into consideration.
- Daily habits, diet of the students was not being considered.

Delimitations

- The present study was delimited to only M.p.ed students.
- The study was delimited to only Kashmir university M.p.ed students.

HYPOTHESIS

On the basis on the available literature and the scholar's own understanding of the problem the following hypotheses were stated:-

- It was hypothesized that there will be no significant difference between active and passive stretching on strength.
- It was hypothesized that there will be no significant difference between active and passive stretching on endurance.
- It was hypothesized that there will be significant difference between active and passive stretching on speed.
- it was hypothesized that there will be significant difference between active and passive stretching on agility.
- It was hypothesized that there will be significant difference of between active and passive stretching on flexibility.

METHODOLOGY

- A methodology is usually a guideline system for solving a problem, with specific components such as phases, tasks, methods techniques and tools.
- Sampling: - in the sampling the total 30 subjected were selected as sample from the deptt. Of physical education & sports of Kashmir university.
- Research design: - quasi experimental design

01	X	02
03	C	03

Sampling method

Subjects were selected by purposive sampling method.

Selection of variables

1, flexibility2, speed3, agility4, endurance 5, strength

Selection of tools

For the data collection following tests were used:

A. Shuttle runb. Sit and reach testc.standing broad jumpd. Coopers 12 minutes run and walk test.E. 50 meter dash

Procedure for the collection of data

For the collection of data the test was demonstrated to the subjects by the researcher and explained the given test for getting best results.

Statistical treatment of the data

In order to give the statistical treatment of the data, mean, standard deviation was applied. Then 't' test was used in order to know the assessment of stretching exercises to the subjects.

TEST AND ELEMENTS TESTED

S.no	Test items	Elements tested
1.	50 meter dash	speed
2.	Board jump	Explosive strength of legs
3.	Sit and reach	flexibility
4.	Bent knee Sit-ups	Abdominal Muscular Strength and Endurance (Trunk).
5.	Shuttle run (10 meter)	Agility
6.	900 meter Run-Walk	Cardio-vascular endurance

Analysis and interpretation

a total 30 subjects were selected as a sample by purposive sampling method, out of which 3 subjects were injured due to the other activities and we removed 3 subjects due to their absence, then 24 subjects were given the training to seek effects of stretching exercises on 6 variables namely **explosive strength, flexibility, speed, agility, cardio-vascular endurance, abdomen muscular endurance (ame)**, which gave us data regarding the study and subjects were divided into two groups active and passive groups which composed 12 and 12 subjects respectively, they were given 16 sessions of active and passive stretching exercises. In these 16 sessions after the warming-up for 15 minutes stretching was given for 20 minutes to each group. Then we conducted a pre- test before training and post-test after training between two groups then we compared these two groups and see their performance as well, so statistically we get a result of these two groups.

Table 1. 't' test the comparison explosive strength between active and passive groups.

Group	N	Mean	SD	MD	df	't' value
Active	12	2.0317	.26125	0.1250	22	.122
passive	12	2.0192	.23873	-	-	-

'T' TEST (TAB) = 2.07 (DF=22)

The above table no. 1 shows that the mean value of active and passive is 2.03 and 2.01 and sd value of active and passive group is .26 and .23 respectively .the calculated 't' value (0 .122) is smaller than the tabulated value as shown above, hence the null hypothesis is not rejected at 0.05 level of significance. Thus, it may be interpreted that there is no significant difference between active and passive on the strength factor.

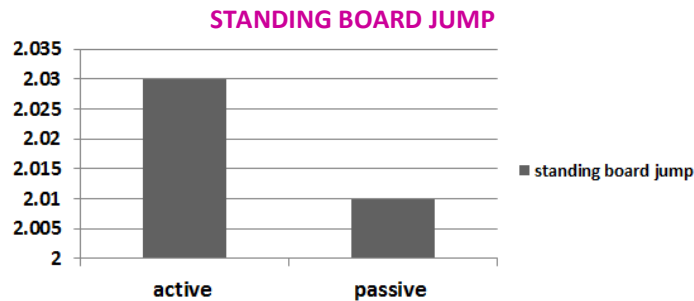


Fig 1. Graphical representation mean of explosive strength between active and passive.

Table 2. 't' test the comparison of sit-ups between active and passive groups.

Group	N	Mean	SD	MD	df	't' value
Active	12	34.3333	4.24978	4.08333	22	1.577
Passive	12	30.2500	7.89850	-	-	-

'T' TEST (TAB) = 2.07 (DF=22)

The above table no 2. Shows that the mean value of active and passive is 34.33 and 30.25 and sd value of active and passive group is 4.2 and 7.8 respectively .the calculated' value 1.57 is smaller than the tabulated value as shown above the null hypothesis is not rejected at any level of significance. It may be interpreted that there is no significant difference between active and passive group the obtained difference is attributable with sample error or chance factor.

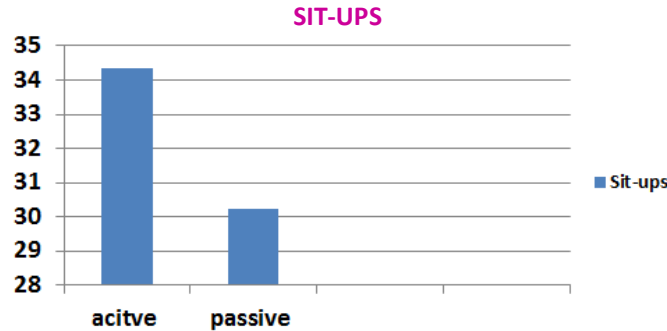


Fig 2.Graphical representation mean of abdominal and hip-flexors strength and endurances between active and passive groups.

Table 3.'t' test the comparison of flexibility between active and passive groups

Group	N	Mean	SD	MD	df	't' value
Active	12	5.9833	1.87947	-.77500	22	-1.186
Passive	12	6.5783	1.26020	-	-	-

'T 'TEST (TAB) = 2.07 (DF =22)

The above table no 3. Shows that the mean value of active and passive is 5.98 and 6.57 and sd value of active and passive group is 1.8 and 1.2 respectively .the calculated' value 1.18 is smaller than the tabulated value as shown above the null hypothesis is not rejected at any level of significance. It may be interpreted that there is no significant difference between active and passive group the obtained difference is attributable with sample error or chance factor.

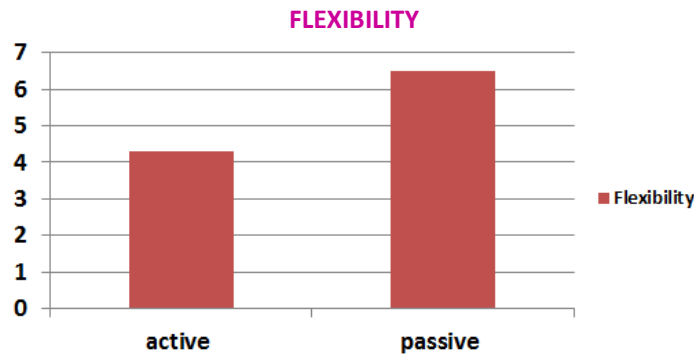


Fig 3. Graphical representation mean of flexibility between active and passive groups

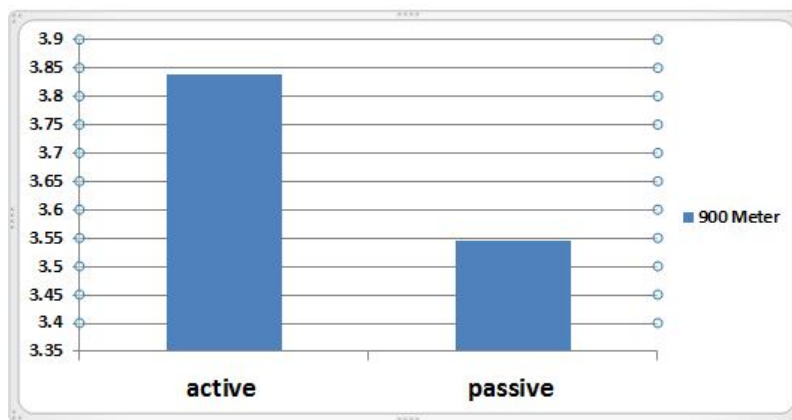
Table 4. 't' test the comparison of cardio-vascular endurance between active and passive groups.

Group	N	Mean	Std.deviation	MD	df	't'value
Active	12	3.8383	.39993	.29417	22	1.996
passive	12	3.5442	.31753		-	-

' T' TEST (TAB) = 2.07 (DF=22)

The above table no 4. Shows that the mean value of active and passive is 3.8 and 3.5 and sd value of active and passive group is .39 and .31 respectively. The calculated 't' value 1.9 is smaller than the tabulated value as shown above. The null hypothesis is not rejected at any level of significance. It may be interpreted that there is no significant difference between active and passive group. The obtained difference is attributable with sample error or chance factor.

900 METER

**Fig 4. Graphical representation mean of speed between active and passive****Table 5. 't' value shows the comparison of speed between active and passive groups.**

Group	N	Mean	SD	MD	df	't'val ue
Active	12	7.4183	.60863	.11833	22	.419
Passive	12	7.3000	.76727		-	-

T 'TEST (TAB) = 2.07 (DF =22)

The above table no 5. Shows that the mean value of active and passive is 7.4 and 7.3 and sd value of active and passive group is .60 and .76 respectively. The calculated 't' value 0.4 is smaller than the tabulated value as shown above. The null hypothesis is not rejected at any level of significance. It may be interpreted

that there is no significant difference between active and passive group the obtained difference is attributable with sample error or chance.

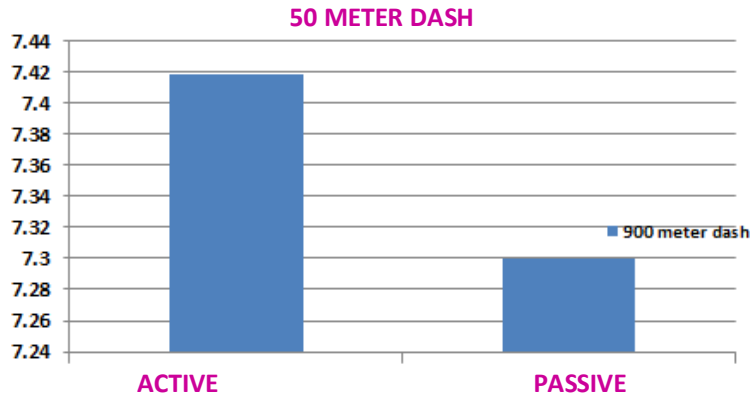


Fig 5. Graphical representation mean of speed between active and passive.

Table 6. 't' value the comparison of agility between active and passive groups.

Group	N	Mean	Std.deviation	MD	Df	't' value
Active	12	10.7608	.90095	.24417	22	.751
Passive	12	10.5167	.67613	-	-	-

T' TEST (TAB) = 2.07 (DF=22)

The above table no 6. Shows that the mean value of active and passive is 10.7 and 10.5 and sd value of active and passive group is 0.90 and 0.67 respectively .the calculated 't' value .75 is smaller than the tabulated value as shown above the null hypothesis is not rejected at any level of significance. It may be interpreted that there is no significant difference between active and passive group the obtained difference is attributable with sample error or chance factor.

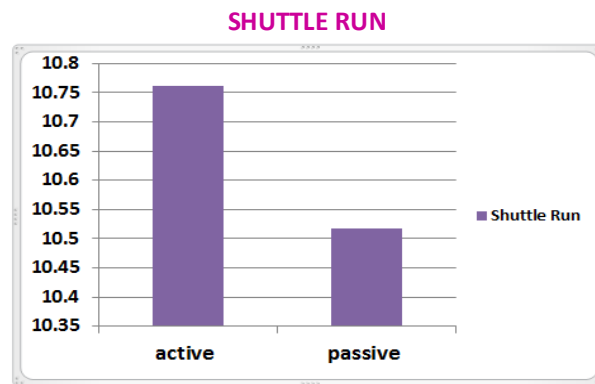


Fig 6 graphical representation mean of agility between active and passive

DISCUSSION AND FINDINGS

The purpose of the investigation was to determine the effect of active and passive stretching exercise on the various physical parameters on physical fitness performance a sample of M.p.ed (1st semester) students from the department of physical education and sports kashmiruniversity. Results revealed that there is no significant difference in the static and dynamic exercises in 20 minutes. These results are consistent with the finding of keisukeshibate (2013) and carvahio (2012) that showed no significant effect active and passive stretching exercises on performance in contrast to the previous studies that have shown no significant increase in various parameter of physical fitness performance following dynamic stretching (ds) static stretching (ss) and passive stretching (ps). Investigators find that there is no significant difference between dynamic stretching, static stretching and passive stretching for strength, endurance, speed, agility, flexibility, cardio-vascular endurance. The disparity between the aftereffects of past examinations and those of the present investigations might be credited to the few variables including convention choice, estimation instrument, expertise level of the subject, and span of instructional course.

The primary factor might be identified with the extending convention. The current study used in a single set of 07 to 10 seconds, whereas previous studies used a single or multiple set of greater than (20 21, 23, 31 seconds). Another factor may be related to the test batteries used in the present study and then the same subjects were participated in other sports related activities. In the present study, reason for the lack of significance in various parameter of physical fitness performance between active and passive stretching group were unclear. Subjects selected for the study were also involved in physical activity. In addition to the above mentioned points the lack of significance may be attributed that both group were given 20 minutes of stretching exercises passive group were not getting sufficient time to stretch all parts of the body because one person has to support to his/her other partner as compared to dynamic group.

investigators find that the training session should be the factor because there were only 32 sessions of training were held, it might be lacking which obviously demonstrates that there is no huge distinction between two stretching groups

CONCLUSIONS

Based on the work carried out following conclusion were drawn.

- It is concluded that out of 30 subjects only 24 subjects were selected for the post test because 3 were injured and 3 were not regular in training sessions.
- It is concluded that mean, s.d.md of active stretching group was .26, .125 and mean, s.d, m.d of passive stretching exercise group on strength was.23,.21 on the basis of statistical analysis there was no significant difference between active and passive stretching on strength.
- Similarly after statistical analysis it is concluded that there was no significant difference found between active and passive stretching on flexibility and endurance
- It is concluded that there was no significant difference between active and passive stretching on other parameters of performance on agility and speed.
- It is concluded that the difference which was not found between active and passive stretching on various parameters reason is that both groups were given 20 min of stretching exercises passive group were not getting sufficient time to stretch all parts of the body because one person had to support his partners as compared to active group.
- It is concluded that only 32 sessions of stretching exercise were given which might not be sufficient to get the difference active and passive stretching on various parameters of performance.

RECOMMENDATION

- The present study was limited to only mpe.d (ist semester) students of kashmir university now it is suggested that in future the similar study can be conducted in the whole jammu and kashmir region youth.
- To make the study detailed and valid, the study may be repeated on the large sample.

- The investigators investigated male and females together, now it is suggested in future studies male and females should be separately taken into consideration.
- Similar study may be undertaken with other balance battery tests with different age group.
- similar study can be conducted among the college and higher secondary school students.
- Similar study can be conducted on other concerns which are not mentioned in the study.

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