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Effect of Some Selected Exercises on Flexibility and Coordination of Basketball Players

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Abstract – This research measured the impact of 6 weeks of target training exercises on the flexibility and coordination of basketball players. The study included 30 basketball players, aged 18 to 25, from Guru Kashi University. Participants were randomly assigned to two equivalent groups: an experimental group and a control group. Participants were randomly assigned to experimental and control groups. The experimental group followed a lesson plan, while the control group continued as usual. Research was done using the Sit and Reach trunk flexibility and the Eye-Hand Coordination test to evaluate visual motor response, on the initial and final days of the training period. When doing the analysis of the data, the researcher used a t-test with a significance level of 0.05. The primary objective of the research was to investigate the impact that specific flexibility and coordination workouts have on the free trunk rotation and eye-hand coordination abilities of basketball players while they participate in the sport. The hypothesis that was made for the study was that aimed training designed for basketball players would positively and greatly impact both assess physical traits. This study was conducted only on male athletes at the Guru Kashi University Stadium. The subjects of the study were competing basketball players at the college, with trunk flexibility and eye-hand coordination being the variables of focus.

Keywords: Coordination, Basketball players, Training exercises, Trunk flexibility and eye-hand coordination.

1. Introduction

The different physical and technical aspects of every sport should be considered for designing optimal tactical and physical training. In basketball, some conditioning is gained from on-court activities during practices and tactical drills, but this is only a fraction of what should be done and is supplemented by off-court training. This off-court training includes activities such as resistance exercises and flexibility drills. For instance, strength workouts performed in a gym setting play a pivotal role in the overall physical development of a person. In addition, participating in physical activity or sports is a fundamental human right that aids the development of a person in all aspects and not just in physical wellness.

Physical flexibility is described as the range of mobility at a joint, or the ease of moving a muscle. Flexibility is a vital component that physical fitness is made of. Enhancing efficiency of movement is one of the benefits of flexibility that also aids in the reduction of injury potential. Flexibility can be increased by stretching regularly and more extremities should be exercised when the muscles are warm and pliable. Physical fitness in turn promotes an improved overall wellness. The field of sports science has witnessed the study of many different aspects of athletic performance including skill level, muscle structure and density, and neuromuscular coordination. All actions in basketball being rapid and explosive means athletes need reflexes and agility and power. Physical preparations should entail effectiveness in trimming limbs and core—sprint drills, and muscle shoring exercises like agility ladders. Static and dynamic stretching, essential for improving and maintaining flexibility, enables an athlete to maneuver, dive, and rotate easily.

2. Methodology

The targeted program exercises Flexibility and Hand Eye Coordination of Basketball Players. The male athletes in the age bracket of 18 to 25 years old were the focus of the study, which was conducted in the Stadium of the Guru Kashi University. Thirty inter-collegiate basketball players were divided randomly into an experimental and control group for the study. The random design was employed for the study. To gather the data for the two primary performance registers, the following were used. The Sit-and-Reach Test, which evaluates flexibility of the trunk and scores measured in centimetres. The Eye-Hand Coordination Test, which measures the timing of locking visually and of motor response.

Participants in group A, referred to as the experimental group, followed a specially designed, progressive training program for a total of six weeks, whereas group B, referred to as the control group, was kept on the status quo and was only allowed to participate in physical activities of their choice, which included recreational badminton.

Training for the experimental group was done over a period of 45 days, with participants training 6 days a week in the evenings for the entire duration of the training program. For the first two weeks, training time for each participant was set at one hour, which was then increased to 75 minutes for weeks 3 and 4, then 90 minutes for weeks 5 and 6, at which time participants spent the most time training. All participants completed a 15-20 general warm up before their sessions, which was the same for every participant, irrespective of the training group they were part of.

The control group continued doing exercises as normal while the experimental group has a structured routine that aimed to enhance key physical traits, especially flexibility and coordination.

3. Results and Tables

Table 3.1: Experimental Group Pre- and Post-test (Sit and Reach Test) Difference

Group	Mean	S.D.	M.D.	Test
Pre-test	17.27	1.87	5.86	4.75
Post-test	23.13	3.56		

Interpretation:

These figures show that the flexibility training program was successful since the mean t-value (4.75) was greater than the corresponding tabulated (2.14) value.

Graph 3.1 Graphical representation of Pre-test and Post-test of Experimental Group (Sit and Reach Test)

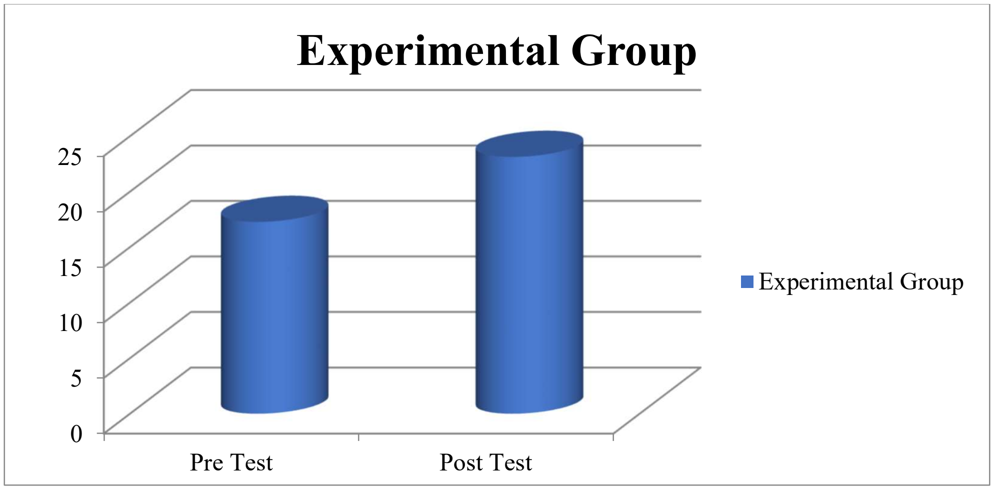


Table 3.2 Control Group Pre- and Post-test Difference (Sit and Reach Test)

Group	Mean	S.D.	M.D.	t-value
Pre-test	18.07	1.91	0.53	0.59
Post-test	18.6	3.27		

Interpretation:

Calculated t-value (0.59) is below the critical value (2.14), suggesting no significant change in flexibility.

Graph 3.2 Graphical representation of Pre-test and Post-test of Control Group (Sit and Reach Test)

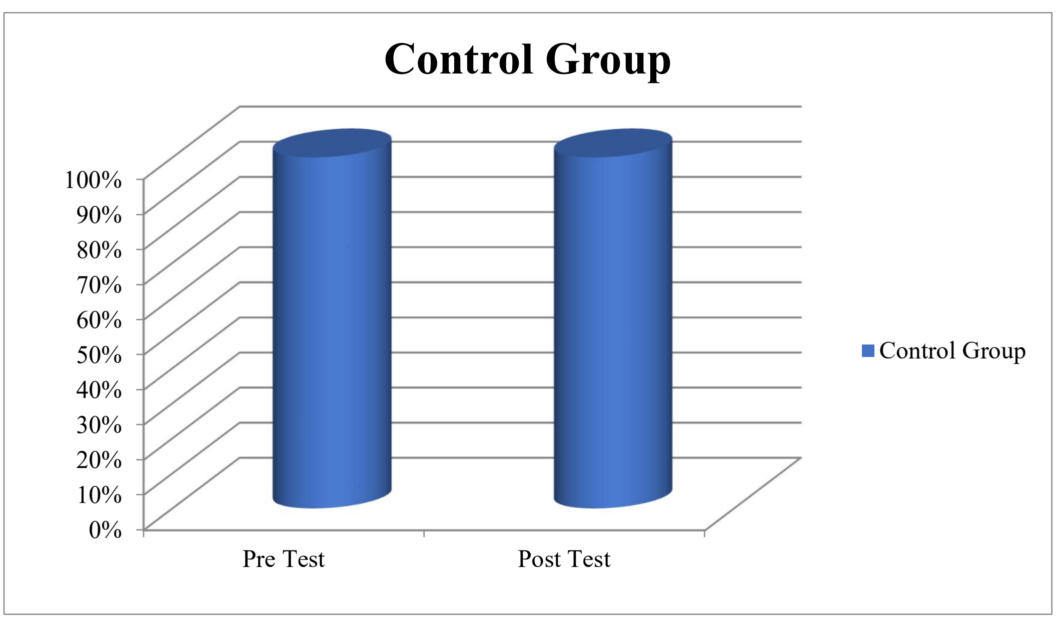


Table 3.3: Experimental and Control Group Post-test Scores (Sit and Reach Test)

Group	Mean	S.D.	M.D.	t-value
Control	18.6	3.56	4.53	9.31
Experimental	23.13	3.27		

Interpretation:

The experimental group in this case was above and beyond all expectations, and the t-value was outstanding (9.31 > 2.05) confirming all flexibility results to be accurate with the control group.

Graph 3.3 Graphical representations of Post-test Scores between Experimental and Control Groups (Sit and Reach Test)

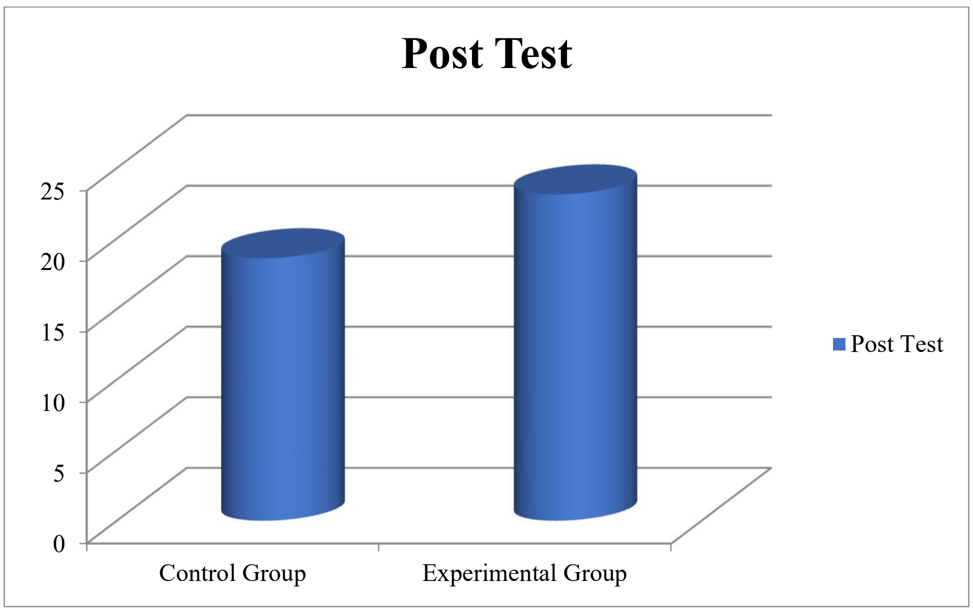


Table 3.4: Experimental Group Eye-Hand Coordination Pre- and Post-tests

Group	Mean	S.D.	M.D.	t-value
Pre-test	30.25	1.28	1.11	0.072
Post-test	29.14	1.92		

Interpretation:

After the training was pretty clear that there was no improvement in the coordination.

Graph 3.4 Graphical representations of Pre-test and Post-test Experimental Group (Eye hand coordination)

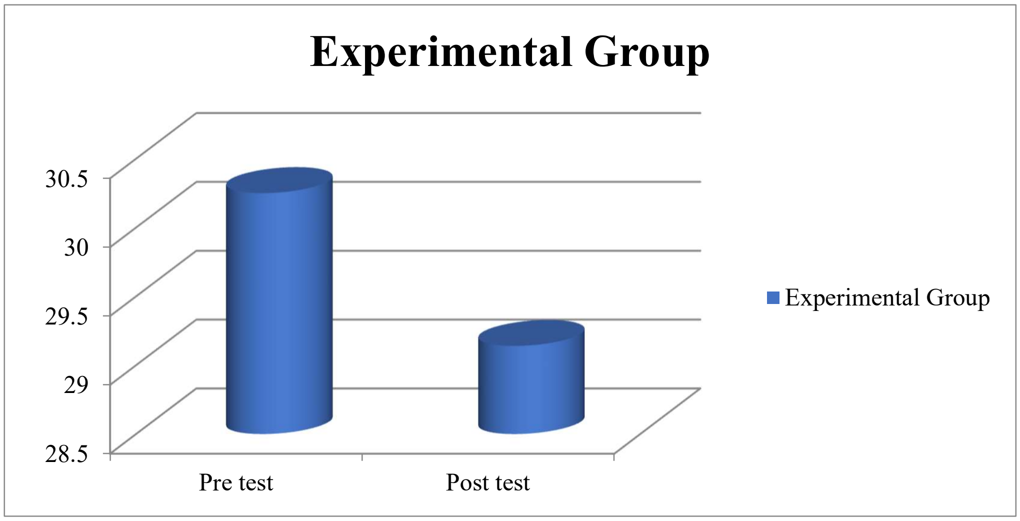


Table 3.5: Control Group Pre- and Post-test (Eye-Hand Coordination) Difference

Group	Mean	S.D.	M.D.	t-value
Pre-test	29.62	1.89	0.82	0.26*
Post-test	28.81	2.01		

Interpretation:

During this time, it became clear that there was no change in coordination, and this no change was especially disappointing.

Graph 3.5 Graphical representations of Pre-test and Post-test Control Group (Eye hand coordination)

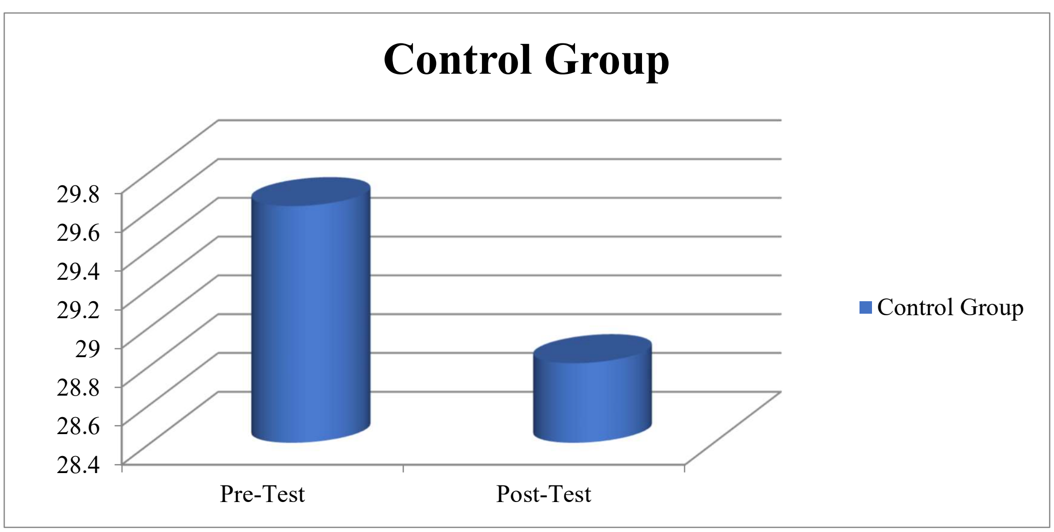


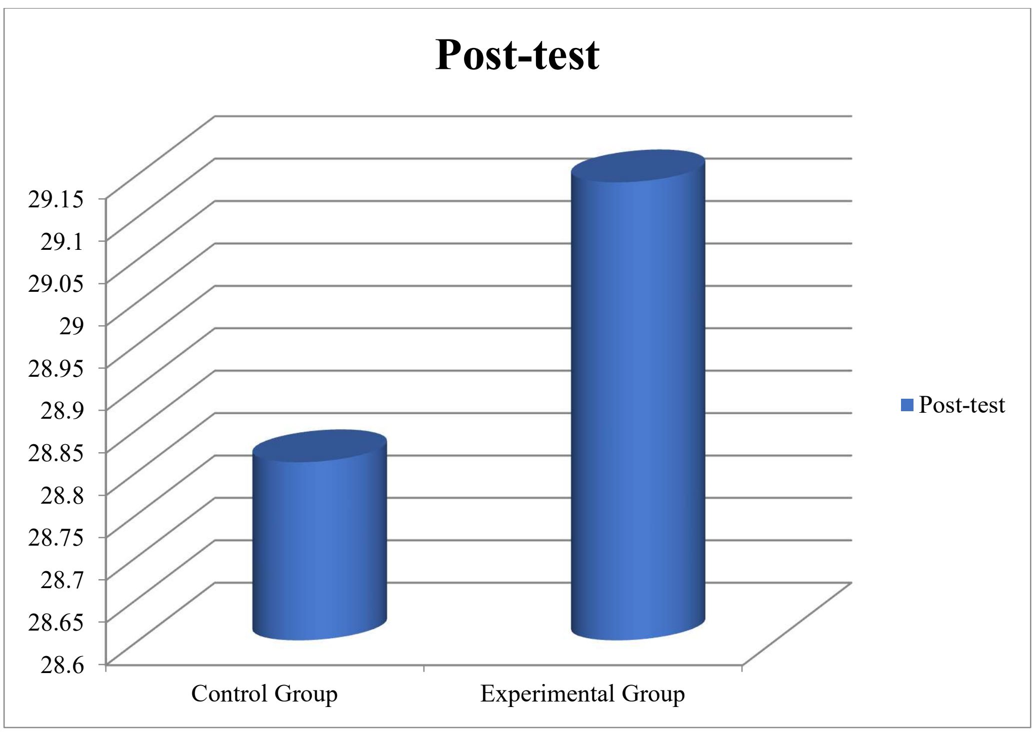
Table 3.6: Control and Experimental Group Post-test Comparison (Eye-Hand Coordination)

Group	Mean	S.D.	M.D.	t-value
Control	28.81	2.01	0.33	0.65
Experimental	29.14	1.92		

Interpretation:

The post-test coordination scores show no significant difference between the two groups.

Graph 3.6 Graphical representations of Post-test Control Group and Experimental Group (Eye hand coordination)



4. Findings

The experimental group demonstrated a notable increase in trunk flexibility following the training program. However, neither the experimental nor the control group showed any meaningful improvement in eye-hand coordination.

5. Conclusions

In summary, the present study shows that a 6-week long swimming training programme can improve cardiovascular endurance in secondary school boys. The group of swimmers, who experienced a structured swimming process, had significantly developed cardiovascular endurance in comparison to the non-training control individuals. These results suggest that swimming, as an aerobic exercise, is effective in increasing heart and lung functions and contributes to cardiovascular fitness improvement in adolescents.

And as if that weren't enough, swimming is a non-impact exercise, meaning you can strengthen and tone without risking burens or overuse injury. As such, it is great for young people and youngsters, which makes the perfect physical education equip for kids. The positive implications of this study indicate that swimming is a fun, cardiovascular-conditioning activity known to benefit health.

It is recommended that swimming participation be an added component of school fitness programs to assist students in attaining cardiovascular fitness. More studies are required to investigate the long-term effects of swimming on various age groups and both genders, particularly in relation to SW with other types of exercise that together may produce maximal cardiovascular health.

References

[1] Bary L. Johnson and Jack K. Nelson Practical Measurement for Evaluation in Physical Education 3rd EdThe original publication Minnesota Burger Publishing Company, 1969, pg 78,

[2] Boyer Robert A. (1964) "A Study to Determine the Effect of Weight Training in the Development of Leg Strength and Greater Velocity of the Ball in Soccer," in Completed Research in Health, Physical Ed. and Recreation, Volume 6, p. 1.

[3] Brown Haltz. And Joseph. (1961) "The Effect of Physical Education on Soccer class and a Wrestling class upon Static Balance and Flexibility." Completed Research in Health Physical Education and Recreation. Vol 11, p 115.

[4] Cunningham David A. (1966) "Effect of Breathing High Concentration of Oxygen on Treadmill Performance," Research Quarterly. Vol. 37, no. 1, pp. 491-494.

[5] Donald K. Mathews, Measurement in Physical Education Philadelphia W.B. Saunders Co. 1968. p 99.

[6] Dorian E. Harris (1963) "Effect of Selected Agility Activities on Badminton Ability of Women at the University of Oregon M.S. in Physical Education 1963, p 35.

[7] Edwin H.M. Gatchis, "Effect of Specialized Training on the Physical Fitness of University Competitive Swimmers," an unpublished thesis submitted to the University of British Columbia M.P.E., British Columbia, Completed Research in Health Physical Education and Recreation 1963 vol. 9, p 43.

[8] Fishman (1966) A Study of the Relationship Between Specific Conditioning Exercises and Selected Skills in Badminton and Archery of Women Physical Education Students at Amarillo College, Amarillo, Texas, p. 144.

[9] H. Sharadrao, Foundation of Physical Education, New Delhi Sports Publication 2009 p. 56.

[10] Henry J. Montave, An Introduction to Measurement Education. London Sydney Toronto Alkyn and Boston 1978. P.181.

[11] L. Cowbell. (1963) "The Effect of Supplemental Weight Training on the Physical Fitness of Athletic Squads." Research Quarterly. vol. 33 Oct, p 343.

[12] Nelson Robert P., "Effect of Hip and Ankle Flexibility on Speed in Running," Research Quarterly 35, 1964, p. 456.

[13] Ronald F. Kirby, (1967) "The Effect of Various Exercise Programs on the Development of Physical Fitness," unpublished thesis, Louisiana State University, 1966. In Completed Research in Health, Physical Education, and Recreation. Vol. 9, p. 69.

[14] Sheila Jannel Dongle (1963) "The Effect of the Minutes Period of Progressive Rope Jumping Exercise on Elements of Physical Fitness and Badminton Achievement of College Women." M.S. in Physical Education. p 100.

[15] Welsch James (1966) "The Effect of Selected Exercise on Football Endurance," in Completed Research in Health Physical Education and Recreation, p. 102.