

ANALYSIS OF GROSS MOTOR SKILLS AMONG BASKETBALL HANDBALL AND VOLLEYBALL PLAYERS

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ABSTRACT

The purpose of the study was to investigate the analysis of Gross Motor Skills among Basketball Handball and Volleyball Players. It was hypothesized that there would have been a critical significant influence of Gross Motor Skills in Basketball Handball and Volleyball Players. For the present study 45 intercollegiate men players from Selvam institutions in Namakkal District, Tamilnadu, students were selected as subjects at random and their age ranged from above 18 to below 25 years men. The subjects had been randomly assigned to 3 equal groups of fifteen each and named as Group 'A' underwent basketball players, Group 'B' underwent Handball players and Group 'C' underwent volleyball players. The following data on Throw for Distance, Throw for Accuracy and Jump for Distance were compared for the three groups different existed among the players using statistical tool ANOVA. The study proved through there was a significant difference in Throw for Distance comparative of three groups of handball basketball and volleyball players the handball players shown a better result, then in the Throw for Accuracy analysis of three groups of players basketball players shown a better result, and in the Jump For Distance analysis over three groups the volleyball players shown a better result. Hence it was concluded that the Gross Motor Skills had a significant difference between the basketball, handball and volleyball players.

Key Words: Gross Motor Skills, Throw for Distance, Throw for Accuracy and Jump for Distance.

1. Introduction

Gross motor skills are the abilities required in order to control the large muscles of the body for walking, running, sitting, crawling, and other activities (Liddle.). Motor skill development is an extremely significant issue in the overall development of the child, "for often a failure to manifest appropriate motor behaviour is a signal that cognitive function may be impaired" (Katz.), Keeping in mind however, that no two children are alike in the speed or extent of their motor learning (Skinner.). Motor skills are actions that involve the movement of muscles in the body. They are divided into two groups: gross motor skills, which are the larger movements of arms, legs, feet, or the entire body involved in actions like crawling, running, and jumping, and fine motor skills, which are simpler movements, such as grasping an object between the thumb and another finger or playing a drop shot in tennis. Motor skills usually develop together since many activities depend on the coordination of the gross and the fine motor skills. Gross motor skills develop over a relatively short period of time. Most development occurs during childhood. However, some athletes and others who engage in activities requiring high degrees of endurance may have to spend years to improve their level of muscle and body coordination and gross motor skills. Research has shown that school readiness is a predictor of a child's ability to benefit from academic instruction in early grades of elementary school, which also predicts the completion of high school (Doherty.). Before entering the kindergarten, the children are expected to have a certain level of motor skills. A great deal of the work in kindergarten involves painting, cutting, pasting or gluing, drawing, tracing, using a pencil, constructing with paper or blocks, etc. (Karnofsky & Weiss.). To perform these tasks, motor skills are required. Since the kindergarten is now an integral part of the elementary schools curriculum, the focus is shifted from social to cognitive and academic, thus making the quality preschool programs an essential element for the school readiness (Nurss.). Study was found Results reinforce the need for early commencement of gross motor skill promotion as this might be important for cognitive development in the early years (Sanne L C Veldman). In view of the limitations regarding methodologies and the quality and quantity of the literature in this research, more quality randomized controlled trials are needed so as to draw convincing conclusions of effect of VRG intervention on gross motor skill development of children with CP in future studies (Zhanbing Ren et al.). This study suggests that motor skills and social function are related in young boys with autism. Implications for physical therapy intervention are also discussed (Jamie M Holloway, Toby M Long, Fred Biasini). This study provides a schedule of gross motor development for children with Down syndrome derived from data collected prospectively from a large population. The gross motor development of

the child with Down syndrome can be assessed based on his or her performance relative to other children with Down syndrome enabling early identification of advanced, age appropriate or delayed development, allowing for appropriate referrals for targeted intervention (**P Winders**). In this study was found the first descriptive study to show the prevalence of below average at locomotors skills in toddlers is higher than reported in normative samples. Early commencement of gross motor skills promotion is recommended with a focus on locomotors skills and girls' object manipulation skills (**Rute Santos et al.,**). The finding of the study Hippo therapy positively affects gross motor function and balance in children with cerebral palsy of various functional levels (**Hyun Jung Chang et al.,**). Although gross motor skills were not associated with physical activity in this sample, stronger associations are apparent in older children. This study therefore highlights a potential important age to promote gross motor skills (**Rachel A Jones et al.,**) The results suggest that after controlling for information processing and lapses of attention, gross motor skills are related to aspects of executive functions that are most directly involved in, and share common underlying processes with, gross motor skills (**Joanne Smith et al.,**). Study was to found although older players performed better on each test than their younger counterparts for the raw scores (**Mustafa Sogut et al.,**).

2. Methodology

The purpose of the study was to analysis the gross motor skills among volleyball, handball and basketball players. To achieve the purpose of the study fifteen basketball, fifteen handball players, and fifteen volleyball players were selected from Selvam institutions, Namakkal, Tamilnadu, India as subjects. The selected subjects were divided into three groups Group I consist of 15 basketball players, Group II 15 handball players and Group III consist of 15 volleyball players.

3. Statistical Techniques

The analyses of variance (ANOVA) was used to find out the significant difference. The obtained 'F' ratio was significant, scheffe's test was applied as a post hoc to determine the means difference. In all the case level of confidence was fixed at 0.05 to test the significant.

4. Analysis of Data

4.1. Throw for Distance

The analysis of variance on the data obtained on throw for distance of three different groups have been analyzed and presented in Table I.

Table I
Analysis of Variance on Throw for Distance of Three Different Groups

Mean			Sources Of Variance	Sum of Square	df	Mean Squares	F-ratio
Basketball	Handball	Volleyball					
15.60	17.14	14.96	Between	30.35	2	15.18	19.46*
			Within	25.68	43	0.78	

(Throw for distance scores are in Meters)

(The table value required for significance at .05 level with df 2 and 43 is 3.23)

Table I shows that the mean values of three different groups like basketball, handball, and volleyball were 15.60, 17.14 and 14.96 respectively. The obtained F-ratio value was 19.46 which was greater than the table value 3.23 with df 2 and 43 required for significance at .05 level. Since the value of F-ratio was greater than the table value, it indicates that there was significant difference exists among the means of three different groups on Throw for distance. To find out which of the three paired means had a significant difference, the Scheffe's post-hoc test was applied and the results are presented in Table II.

Table II
Scheffe's Test for the Differences between the Paired Means on Throw for Distance among Different Groups

Mean values			Mean Differences	Confidential Interval
Basketball	Handball	Volleyball		
15.60	17.14		1.54*	0.14
15.60		14.96	0.64*	0.14
	17.14	14.96	2.18*	0.14

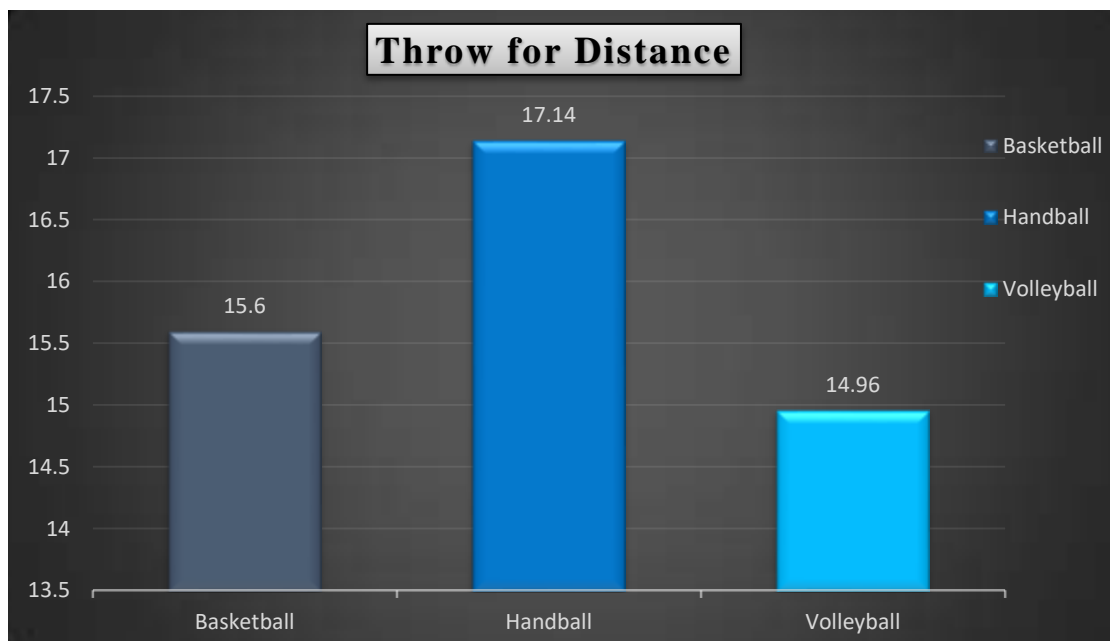
*Significant at .05 level.

The table II shows that the mean difference in Throw for distance between basketball and handball, basketball and volleyball and handball and volleyball were 1.54, 0.64 and 2.18 which were greater than the confidence interval value of 0.14 at .05 level of confidence.

The result of the study indicates that there was significant difference between basketball and handball, basketball and volleyball and handball and volleyball on Throw for distance. However, the mean value of handball was found to be higher than basketball and volleyball on Throw for distance.

The Means Values of basketball, handball and volleyball on Throw for distance were graphically represented in Figure I

Figure I
Mean Values of Basketball Handball and Volleyball Players on Throw for Distance



4.2 Throw for Accuracy

The analysis of variance on the data obtained on throw for accuracy of three different groups have been analyzed and presented in Table III.

Table III
Analysis of Variance on Throw for Accuracy of Three Different Groups

Mean			Sources Of Variance	Sum of Square	Df	Mean Squares	F-ratio
Basketball	Handball	Volleyball					
16.50	16.25	15.42	Between	7.72	2	3.86	3.98*
			Within	32.17	43	0.97	

(Throw for Accuracy scores are in Numbers)

(The table value required for significance at .05 level with df 2 and 43 is 3.23)

Table III shows that the mean values of three different groups like basketball, handball, and volleyball were 16.50, 16.25 and 15.42 respectively. The obtained F-ratio value was 3.98 which is greater than the table value 3.23 with df 2 and 43 required for significance at .05 level. Since the value of F-ratio was greater than the table value, it indicates that there was significant difference exists among the means of three different groups on throw for accuracy. To find out which of the three paired means had a significant difference, the Scheffe’s post-hoc test was applied and the results are presented in Table IV.

Table IV
Scheffe’s Test for the Differences between the Paired Means on Throw for Accuracy among Different Groups

Mean values			Mean Differences	Confidential Interval
Basketball	Handball	Volleyball		
16.50	16.25		0.25*	0.15
16.50		15.41	1.09*	0.15
	16.25	15.41	0.84*	0.15

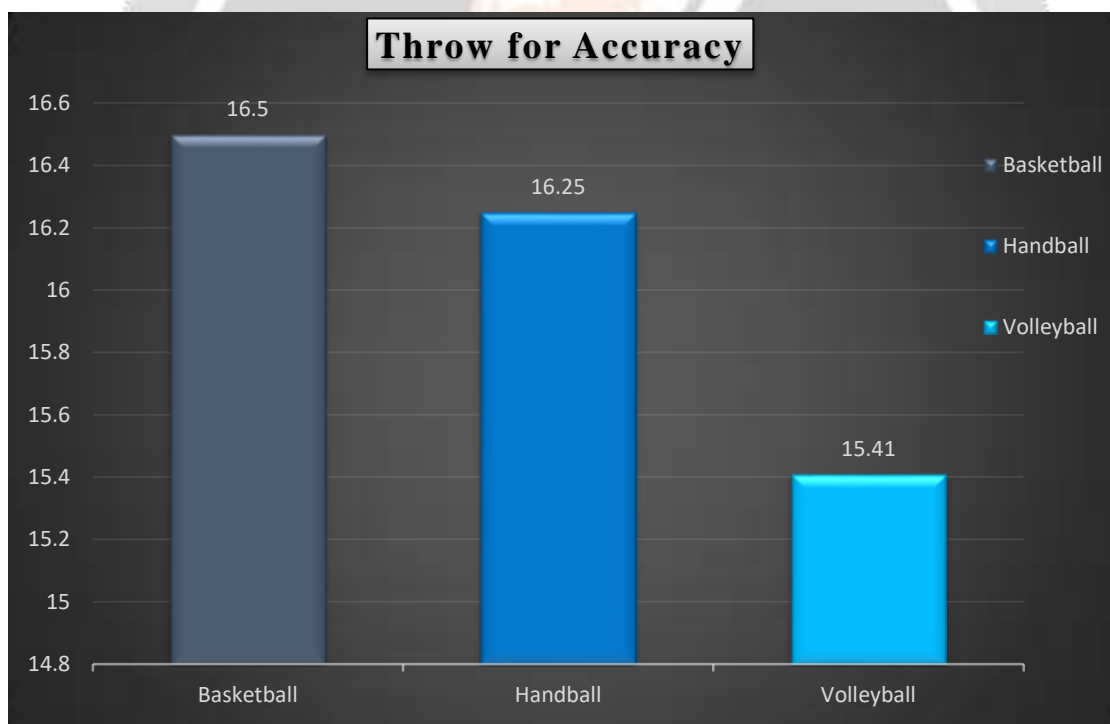
*Significant at .05 level.

The table IV shows that the mean difference in throw for accuracy between basketball and handball, basketball and volleyball and handball, volleyball are 0.25, 1.09 and 0.84 which are greater than the confidence interval value of 0.15 at .05 level of confidence.

The result of the study indicates that there was significant difference between basketball and handball and basketball and volleyball and handball and volleyball on throw for accuracy. However, the mean value of basketball were found to be higher than handball and volleyball on throw for accuracy.

The Mean Values of basketball, handball and volleyball players on throw for accuracy were graphically represented in figure II.

Figure II
Mean Values of Basketball Handball and Volleyball Players on Throw for Accuracy



4.3 Jump for Distance

The analysis of variance on the data obtained on jump for distance of three different groups have been analysed and presented in Table V.

Table V
Analysis of Variance on Jump for Distance of Three Different Groups

Mean			Sources Of Variance	Sum of Square	Df	Mean Squares	F-ratio
Basketball	Handball	Volleyball					
1.37	1.34	1.41	Between	0.016	2	0.08	8.00*
			Within	0.006	43	0.01	

(Jump for distance scores are in meters)

(The table value required for significance at .05 level with df 2 and 43 is 3.23)

Table V shows that the mean values of three different groups like basketball, handball, and volleyball were 1.37, 1.34 and 1.41 respectively. The obtained F-ratio value was 8.00 which was greater than the table value 3.23 with df 2 and 43 required for significance at .05 level. Since the value of F-ratio was greater than the table value, it indicates that there was significant difference exists among the means of three different groups on jump for distance. To find out which of the three paired means had a significant difference, the Scheffe’s post-hoc test was applied and the results are presented in Table VI.

Table VI
Scheffe’s Test for the Differences between the Paired Means on Jump for Distance among Different Groups

Mean values			Mean Differences	Confidential Interval
Basketball	Handball	Volleyball		
1.37	1.34		0.03*	0.01
1.37		1.41	0.06*	0.01
	1.34	1.41	0.03*	0.01

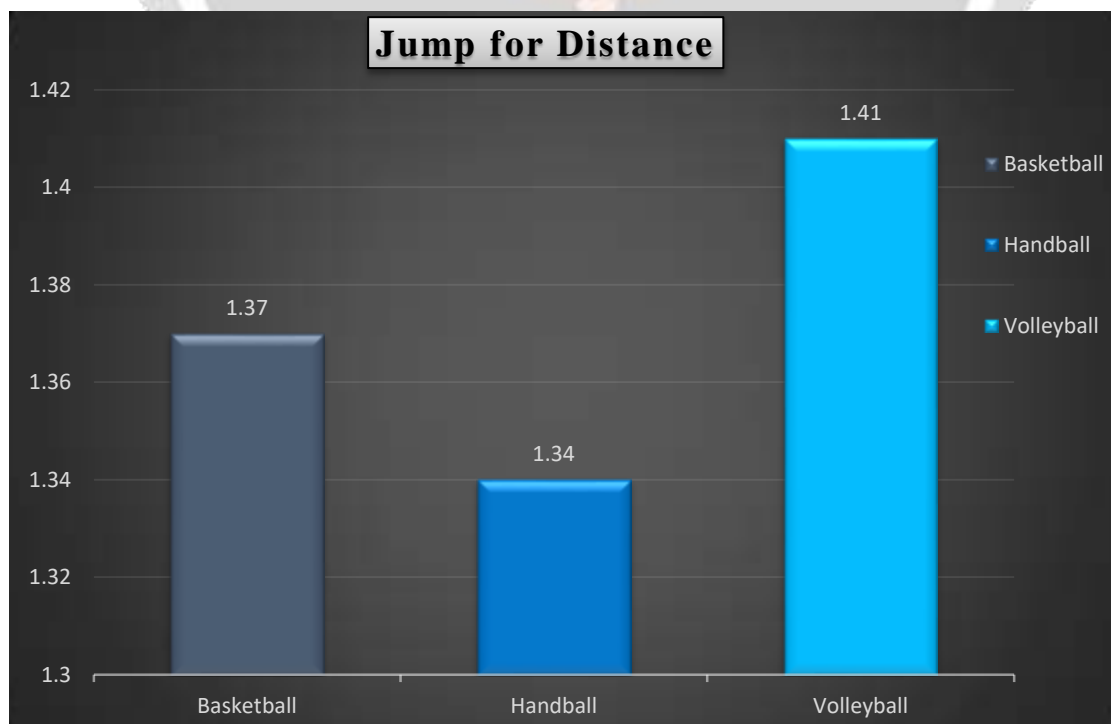
*Significant at .05 level.

The table VI shows that the mean difference in throw for distance between, basketball and handball, basketball and volleyball, handball and volleyball were 0.03, 0.06 and 0.03 which were greater than the confidence interval value of 0.01 at .05 level of confidence.

The result of the study indicates that there was significant difference between basketball and handball and basketball and volleyball and handball and volleyball on jump for distance. However, the mean value of volleyball was found to be higher than handball and basketball on jump for distance.

The Mean Values of basketball, volleyball and handball players on jump for distance were graphically represented in figure III.

Figure III
Mean Values of Basketball Handball and Volleyball Players on Jump for Distance



5. Findings of study

1. The results of the study indicate that there were significant difference among three different games on throw for distance. However handball was found to be better than basketball and volleyball on the above variables.
2. There was significant difference among three different groups like basketball, handball and volleyball players on throw for accuracy. However basketball was found to be better than handball and volleyball players on throw for accuracy.
3. There was significant difference among three different groups like basketball, handball and volleyball players on jump for distance. However volleyball was found to be better than basketball and handball players on the above variables.

6. Conclusions

1. In summary, the study proved that though there seem to be differences in basketball, handball and volleyball players. Throw for distance the handball players shown a best result, and in the throw for accuracy the basketball players shown a best result, then in the jump for distance the volleyball players shown a best result. Hence, it was concluded that the difference noted in the basketball, handball and volleyball players analyzed by the Gross Motor Skills.

7. Reference


7.1 Books

1. **Bouchard Claude, Roy J. Shepard and Thomas Stephens**, Physical Activity Fitness and Health, Champaign, Illinois; Human Kinetics Publishers, Inc., 1994
2. **Haywood, Kathaleen M.**, Life Span Motor Development, Champaign, Illinois: Human Kinetics Publishers, Inc., 1993.
3. **Stephen Mendryk**. "Reaction Time, Movement Time and Task Specificity Relationship at Age 12, 22 and 48 Years", Research quarterly.
4. **Uppal A.K.**, Physical Fitness. Delhi: Friends Publication, Inc., 1992.

7.2 Journals

5. **Sanne L C Veldman et al., (2019)** Associations between gross motor skills and cognitive development in toddlers, *Early Hum Dev*; 132:39-44. doi: 10.1016/j.earlhumdev.2019.04.005.
6. **Zhanbing Ren et al., (2019)** The Effect of Virtual Reality Games on the Gross Motor Skills of Children with Cerebral Palsy: A Meta-Analysis of Randomized Controlled Trials, *Int J Environ Res Public Health* 14; 16(20):3885. doi: 10.3390/ijerph16203885.
7. **Jamie M Holloway, Toby M Long, Fred Biasini, (2018)** Relationships between Gross Motor Skills and Social Function in Young Boys with Autism Spectrum Disorder, *Pediatr Phys Ther*; 30(3):184-190. doi: 10.1097/PEP.0000000000000505.
8. **P Winders et al., (2019)** a schedule of gross motor development for children with Down syndrome, *J Intellect Disabil Res*; 63(4):346-356. doi: 10.1111/jir.12580.
9. **Rute Santos et al., (2018)** gross motor skills in toddlers: Prevalence and socio-demographic differences, *J Sci Med Sport*; 21(12):1226-1231. doi: 10.1016/j.jsams.2018.05.001.
10. **Hyun Jung Changet al., (2015)** Effect of hippotherapy on gross motor function in children with cerebral palsy: a randomized controlled trial, *Journal Altern Complement Med*; 21(1):15-21. doi: 10.1089/acm.2014.002.
11. **Rachel A Jones et al., (2018)** Associations between gross motor skills and physical activity in Australian toddlers, *J Sci Med Sport*; 21(8):817-821. doi: 10.1016/j.jsams.2017.12.007.
12. **Joanne Smith et al., (2019)** Relations between gross motor skills and executive functions, controlling for the role of information processing and lapses of attention in 8-10 year old children, *PLoS One*;14(10):e0224219. doi: 10.1371/journal.pone.0224219.
13. **Mustafa Sogut et al., (2016)** Gross motor coordination in junior tennis players, *J Sports Sci*; 34(22):2149-2152. doi: 10.1080/02640414.2016.1211311.
14. **Reed JA, Metzker A, Phillips DA, (2004)** "Relationships between physical activity and motor skills in middle school children", *Perceptual Motor Skills*, 2004, Oct; 99(2):483-94.

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