COMPARISON OF ANTHROPOMETRIC AND GRIP STRENGTH BETWEEN WHEELCHAIRSAND NON-WHEELCHAIRS BASKETBALL PLAYERS

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ABSTRACT

The statement of the problem hereby stated as comparison of anthropometrical and hand grip strength between wheelchair and non-wheelchair basketball players. The study under investigation was intended to compare the anthropometrical and grip strength between wheelchair and non-wheelchair basketball players. It was concluded that there was significant difference on selected anthropometric measurements of weight and arm length and hand grip strength between non wheelchair basketball players and wheelchair basketball players. To achieve this purpose of study, 12 non wheelchair basketball players were selected from Bishop ambrose college of arts and science, Coimbatore and 12 wheelchair basketball players from Coimbatore were selected. The subjects (N=24) were randomly assigned in to two groups namely group-1 non wheelchair basketball players(N=12), group-2 wheelchair basketball players (N= 12) of subjects each. Based on the analysis of data, the wheelchair basketball players group was having better mean values on hand grip strength variable values than the non-wheelchair basketball players group. Based on the analysis of data, the wheelchair basketball group was having better mean values on weight and arm length variable values than the non-wheelchair basketball players group.

Keywords: Comparison, anthropometric, Grip strength, wheel chair, Basketball.

INTRODUCTION

In early December 1891, Canadian Dr. Naismith, a physical education professor and instructor at the International Young Men's Christian Association Training School (YMCA) (today, Springfield College) in Springfield, Massachusetts invented the game of basketball in order to keep his students occupied and at proper levels of fitness during the long New England winters. In the game of basketball all the movements are involved like passing, throwing, changing the direction quickly, and sudden stop, jumping for rebound, feinting, maneuvering the opponent while going for offensive move and guarding the opponents in the defensive. All

these require rapid movements demanding frequent changes in direction. For one to respond to such situation a player should possess good motor fitness and psychological qualities.

Changes in body dimensions reflect the overall health and welfare of individuals and populations. Anthropometry is used to assess and predict performance, health and survival of individuals and reflect the economic and social wellbeing of populations. Anthropometry is widely used in inexpensive and non-invasive measure of the general nutritional status of an individual or a population group. Recent studies have demonstrated the applications of anthropometry to include the prediction of who will be benefited from interventions, identifying social and economic inequity and evaluating responses to interventions. Specific anthropometric characteristics are needed to be successful in certain sporting events. It is also important to note that there are some differences in body structure and composition of sports persons involved in individual and team sports.

Singh (2014) revealed that Height, Weight, Arm length, Leg Length, Chest girth and Calf girth were useful to predict basketball playing ability. Anthropometric body composition and maturity characteristic of the selected athletes should be determined to assess their performance ability.

METHODOLOGY

The statement of the problem hereby stated as comparison of anthropometrical and hand grip strength between wheelchair and non-wheelchair basketball players. The study under investigation was intended to compare the anthropometrical and grip strength between wheelchair and non-wheelchair basketball players. It was concluded that there was significant difference on selected anthropometric measurements of weight and arm length and hand grip strength between non wheelchair basketball players and wheelchair basketball players. To achieve this purpose of study, 12 non wheelchair basketball players were selected from Bishop ambrose college of arts and science, Coimbatore and 12 wheelchair basketball players from Coimbatore were selected. The subjects (N=24) were randomly assigned in to two groups namely group-1 non wheelchair basketball players(N=12), group-2 wheelchair basketball players (N= 12) of subjects each. Based on the analysis of data, the wheelchair basketball players group was having better mean values on hand grip strength variable values than the non-wheelchair basketball players group. Based on the analysis of data, the wheelchair basketball group was having better mean values on weight and arm length variable values than the non-wheelchair basketball players group. The collected data was statistically analyzed by independent‘t’ test in all the cases 0.05 was fixed as the level of significance.

SELECTION OF VARIABLES AND TEST ITEMS AND UNIT OF MEASUREMENT ON CRITERION MEASURES

S.No	Variables	Test item	Unit of measurement
1.	Weight	Weighing machine	kilogram
2.	Arm length	Measuring tape	centimeters
3.	Grip strength	Hand grip dynamometer	kilograms

Table-1

COMPUTATION OF 't' RATIO BETWEEN THE TEST SCORES OF NON WHEELCHAIR BASKETBALL PLAYERS AND WHEELCHAIR BASKETBALL PLAYERS ON WEIGHT

GROUPS	MEAN	SD	Mean Difference	't'
Non wheelchair Basketball Players Group	71.92	4.01	4.33	2.49*
Wheelchair Basketball Players Group	76.25	4.47		

*level of significance was fixed at 0.05 with df 11 table value is 2.20.

Table- I show that the mean values of weight between non wheelchair basketball players group and wheel chair basketball players group were 71.92 and 76.25 respectively.

The obtained "t" ratio value of 2.49 was higher than the required table value of 2.20 for significant at 0.05 level of confidence. The result of these study showed that there was a significant difference between the non-wheelchair basketball players group and wheel chair basketball players group on weight.

The mean value of non-wheelchair basketball players group and wheel chair basketball players group on weight were graphically represented in figure - 1.

FIGURE - 1

BAR DIAGRAM SHOWING THE MEAN VALUES OF THE TEST SCORES OF NON WHEELCHAIR BASKETBALL PLAYERS AND WHEELCHAIR

BASKETBALL PLAYERS ON WEIGHT

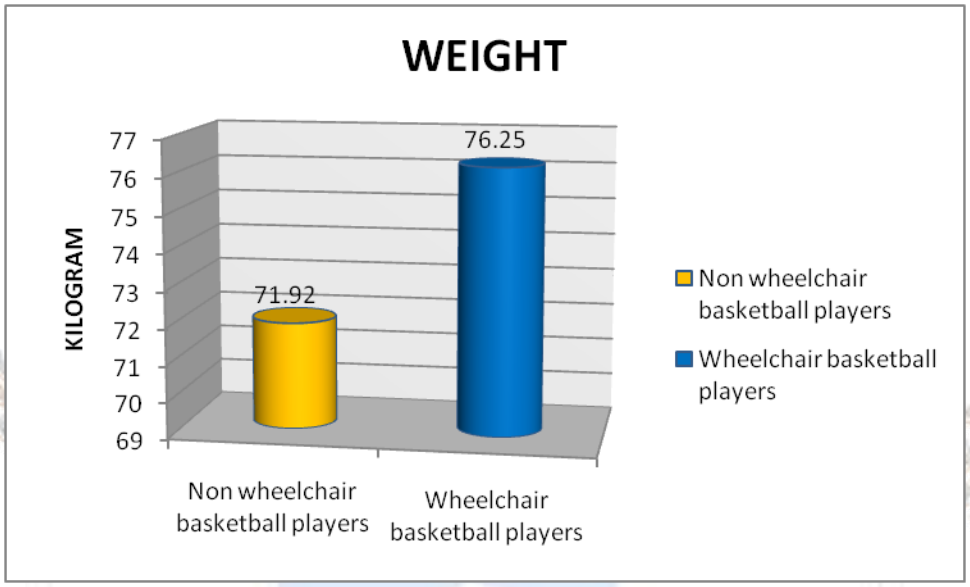


Table- II

COMPUTATION OF't' RATIO BETWEEN THE TEST SCORES OF NON WHEELCHAIR BASKETBALL PLAYERS AND WHEELCHAIR BASKETBALL PLAYERS ON ARM LENGTH

GROUPS	MEAN	SD	Mean Difference	't'
Non wheelchair Basketball Players Group	**48.00**	**4.75**	**12.83**	8.35*
Wheelchair Basketball Players Group	**60.83**	**2.40**		

*level of significance was fixed at 0.05 with df 11 table value is 2.20.

Table- II shows that the mean values of arm length between non wheelchair basketball players group and wheel chair basketball players group were 48.00 and 60.83 respectively.

The obtained "t" ratio value of 8.35 was higher than the required table value of 2.20 for significant at 0.05 level of confidence. The result of these study showed that there was a significant difference between the non-wheelchair basketball players group and wheel chair basketball players group on arm length.

The mean value of non-wheelchair basketball players group and wheel chair basketball players group on arm length were graphically represented in figure - 2.

FIGURE - II

BAR DIAGRAM SHOWING THE MEAN VALUES OF THE TEST SCORES OF NON WHEELCHAIR BASKETBALL PLAYERS AND WHEELCHAIR BASKETBALL PLAYERS ON ARM LENGTH

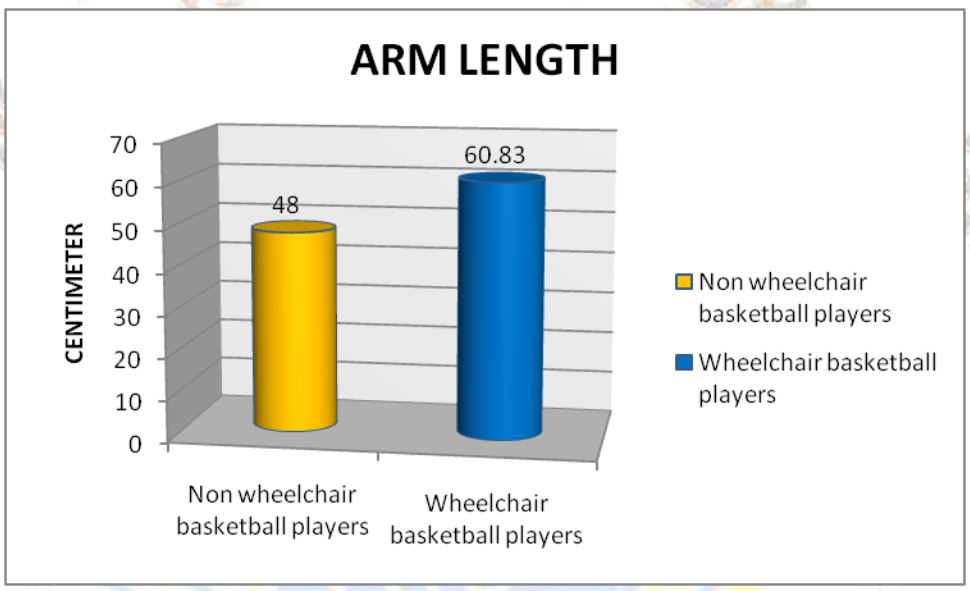


Table-III

COMPUTATION OF 't' RATIO BETWEEN THE TEST SCORES OF NON-WHEELCHAIR BASKETBALL PLAYERS AND WHEELCHAIR BASKETBALL PLAYERS ON HAND GRIP STRENGTH

GROUPS	MEAN	SD	Mean Difference	't'
Non wheelchair Basketball Players Group	52.75	3.36	18.58	9.23*
Wheelchair Basketball Players Group	71.33	6.11		

*level of significance was fixed at 0.05 with df 11 table value is 2.20.

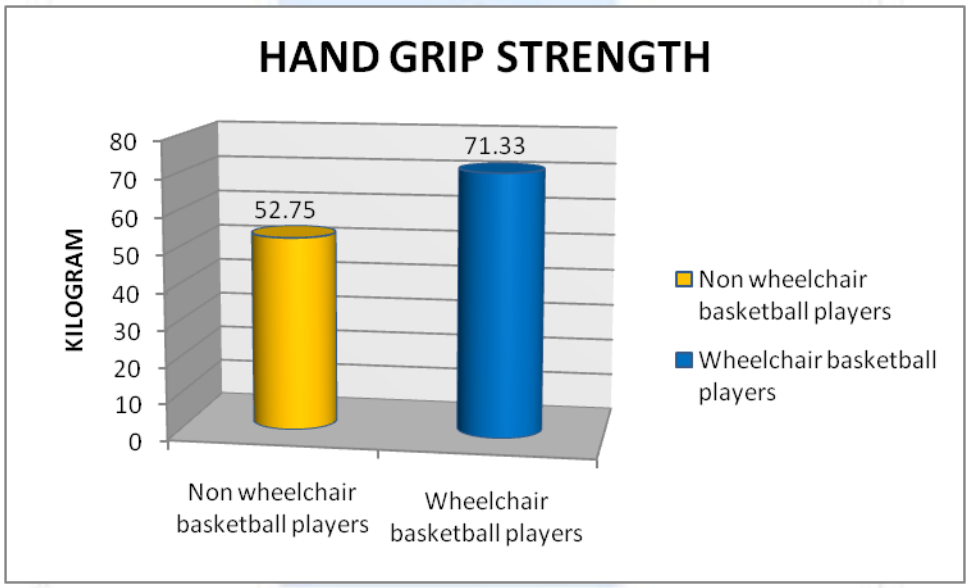
Table- III shows that the mean values of hand grip strength between non-wheelchair basketball players group and wheel chair basketball players group were 52.75 and 71.33 respectively.

The obtained "t" ratio value of 9.23 was higher than the required table value of 2.20 for significant at 0.05 level of confidence. The result of these study showed that there was a significant difference between the non-wheelchair basketball players group and wheel chair basketball players group on hand grip strength.

The mean value of non-wheelchair basketball players group and wheel chair basketball players group on hand grip strength were graphically represented in figure - 3.

Figure-III

BAR DIAGRAM SHOWING THE MEAN VALUES OF THE TEST SCORES OF NORMAL BASKETBALL PLAYERS AND WHEEL CHAIR BASKETBALL PLAYERS ON HAND GRIP STRENGTH



4.3 DISCUSSION ON FINDINGS

The result of the study indicated that there was a significant difference between non wheelchair basketball players and wheel chair basketball players selected variables of anthropometric variables (weight, arm length) and handgrip strength.

The result of this study is in consonance with research done by **Velentina cavedon(2018)** on the topic Anthropometry, Body Composition, and Performance in Sport-Specific Field Test in Female Wheelchair Basketball Players

5.2 CONCLUSIONS

Based on the result of the study, the following conclusions were drawn.

1.It was concluded that there was significant difference on selected anthropometric measurements of weight and arm length between non wheelchair basketball players and wheel chair basketball players. On the basis of the analysis of data, the wheel chair basketball group was having better mean values on weight and arm length variable values than the non wheelchair basketball players group.

2.It was also concluded that there was significant difference on hand grip strength between non wheelchair basketball players and wheel chair basketball players. On the basis of the analysis of data, the wheelchair basketball players group was having better mean values on hand grip strength variable values than the non-wheelchair basketball players group.

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