

Relationship of Coordinative Abilities to Playing Ability in Combative Sports

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Abstract: Physical activity has been a part of the lives of all people. Human evolution started with movement and the development of the homo-sapiens was largely dependent on the action of muscles. It must be conjectured that the primitive physical activity was primarily a survival activity due to the incessant search for food, clothing, shelter or protection from the hostile environment. Secondly, it becomes a means of preparing youth for adult life, as games are taken from life activities, and become a recognized way to improve strength, speed and skill and other qualities necessary for survival. Performance sports aim at high sports performances and for that the physical and psychic capacities of sportsmen are developed to extreme limits. This normally does not happen in other areas of human activity. In past five motor abilities were recognized as components of physical fitness. These were strength, endurance, speed, flexibility and agility. But since one and a half decade the term agility has been gradually replaced by the term co-coordinative abilities (Martin 1979, Matweyew 1981, Hirtz 1985, Harre 1986, Meinel and Schnabel 1987). It was increasingly felt that if the concept of agility can be discarded and replaced by the concept of co-ordinative abilities, it will be more scientific and practical and this will help in clearing the confusion. Blume (1978) in his path breaking effort suggested that in place of agility there should be seven coordinative abilities which are important in sports. For the purpose of this study a total of 40 male students (20 each from judo and wrestling) were selected from Lakshmbai National Institute of Physical Education, Gwalior. All the selected subjects were University level players. The purposive sampling method was adopted to select the subjects for the study. All the subjects were in the age category of 18-25 years. The data was collected by administering various coordinative abilities test as suggested by Peter Hirtz. All the five tests were administered to 40 subjects from Judo and Wrestling. After the completion of the coordinative abilities test, the subjects were tested on their specific playing abilities tests for Judo and Wrestling, subjective judgment by a panel of experts in the respective area of specialization. In order to find out the relationship of Coordinative Abilities to Playing Abilities in Judo and Wrestling, Spearman's Rank correlation was employed. The objective of the study was to investigate the relationship of Coordinative Abilities to Playing Ability in Combative Sports. The level of significance was set at 0.05. There was a significant relationship of Balance Ability with the Judokas Playing Ability. Whereas insignificant relationship in case of Differentiation, Orientation, Reaction and Rhythm Coordinative Abilities with Judokas Playing Ability. There was a significant relationship of Balance and Differentiation Abilities with the Wrestlers Playing Ability, while there was no significant relationship in case of Orientation, Reaction and Rhythm Abilities with Wrestlers Playing Ability.

Keywords: Coordination abilities, Playing abilities, Combative Sports, Rank correlation

I. Introduction:

Physical activity has been a part of the lives of all people. Human evolution started with movement and the development of the homo-sapiens was largely dependent on the action of muscles. It must be conjectured that the primitive physical activity was primarily a survival activity due to the incessant search for food, clothing, shelter or protection from the hostile environment. Secondly, it becomes a means of preparing youth for adult life, as games are taken from life activities, and become a recognized way to improve strength, speed and skill and other qualities necessary for survival. Performance sports aim at high sports performances and for that the physical and psychic capacities of sportsmen are developed to extreme limits. This normally does not happen in other areas of human activity. As a result, performance sports yield valuable knowledge about the limits to which human performance and various performance factors can be developed. It also leads to discovery of means and methods for improving various physical and psychic capacities (performance factors) to exceptionally high levels. This knowledge can be fruitfully applied to other areas of sports and human activity. In past five motor abilities were recognized as components of physical fitness. These were strength, endurance, speed, flexibility and agility. But since one and a half decade the term agility has been gradually replaced by the term co-coordinative abilities (Martin 1979, Matweyew 1981, Hirtz 1985, Harre 1986, Meinel and Schnabel 1987).

It was increasingly felt that if the concept of agility can be discarded and replaced by the concept of co-ordinative abilities, it will be more scientific and practical and will help in clearing the confusion. Blume (1978)

in his path breaking effort suggested that in place of agility there should be seven coordinative abilities which are important in sports.

The objective of the study was to investigate the relationship of coordinative abilities to playing ability in Combative sports.

II. Methods And Materials:

For the purpose of this study a total of 40 male students (20 each from judo and wrestling) were selected from Lakshmibai National Institute of Physical Education, Gwalior. All the selected subjects were University level players. The purposive sampling method was adopted to select the subjects for the study. All the subjects were in the age category of 18-25 years.

Keeping in mind the feasibility criteria and the specific purpose of the present investigation the below mentioned variables were found appropriate and worthy of investigation.

Dependent Variables :

- Differentiation ability
- Orientation ability
- Reaction ability
- Balance ability
- Rhythm ability

Independent variables

- Playing ability of Combative Sports.

The criterion measure adopted for the present study playing ability of each subject was obtained on the basis of panel of three judges' evaluation. The average of three judges was considered as the final score. i.e. Judo and Wrestling, .

Tests Used:

Coordinative ability tests

- Numbered Medicine Ball Run Test for Orientation ability.
- Backward Medicine Ball Throw Test for Differentiation ability.
- Ball Reaction Exercise Test for Reaction ability.
- Long Nose Test for Balance ability.
- Sprint at the given rhythm test for Rhythm ability

Specific playing ability tests

Subjective judgment by panel of experts for Judo and Wrestling was used.

The necessary data was collected by administering various coordinative abilities tests as suggested by Peter Hirtz. All the five tests were administered to 40 subjects from Judo and Wrestling. After the completion of the coordinative abilities tests, the subjects were tested on their specific playing abilities tests for Judo and Wrestling, subjective judgment by a panel of experts in the respective area of specialization. In order to find out the relationship of Coordinative Abilities to Playing Abilities in Judo and Wrestling, Spearman's Rank correlation was employed. The level of significance was set at 0.05.

III. Results:

All the results and findings of the study have been reported as follows :

Table – 1 Descriptive Statistics of Judokas Coordinative Abilities and Playing Ability

	Mean	Std. Deviation
Balance Ability	7.90	1.73
Differentiation Ability	5.60	1.19
Orientation Ability	11.01	0.91
Reaction Ability	1.77	0.15
Rhythm Ability	9.17	1.69
Judokas Playing Ability	40.23	2.12

Table-1 reveals the descriptive statistics as mean and standard deviation of selected Coordinative Abilities. The mean and standard deviation of the Reaction ability (1.77±0.15) was found to be the lowest among the Judo players, whereas the mean and standard deviation of Orientation ability was (11.01±0.91) highest. The mean and standard deviation for Balance ability, Differentiation ability and Rhythm ability were 7.90±1.73, 5.60±1.19 and 9.17±1.69.

Table – 2 Correlation of Different Coordinative Abilities with Judokas Playing Ability

	Judokas Playing Ability
Balance Ability	-.627**
Differentiation Ability	.195
Orientation Ability	-.225
Reaction Ability	-.007
Rhythm Ability	-.245

*Significant at 0.05 level,

$r_{.05} (18) = 0.444$

Table-2 showed a significant relationship of Balance Ability with the Judokas Playing Ability as calculated value was greater than tabulated value at 0.05 level of significance with 18 degree of freedom, while there was no significant relationship in case of Differentiation, Orientation, Reaction and Rhythm Ability with Judokas Playing Ability.

Table – 3 Descriptive Statistics of Wrestlers Coordinative Abilities and Playing Ability

	Mean	Std. Deviation
Balance Ability	7.80	0.55
Differentiation Ability	4.85	1.23
Orientation Ability	15.40	1.15
Reaction Ability	2.03	0.19
Rhythm Ability	16.48	1.14
Wrestlers Playing Ability	39.40	3.55

Table-3 reveals the descriptive statistics mean and standard deviation of selected Coordinative Abilities. The mean and standard deviation of the Reaction ability (2.03 ± 0.19) was found to be the lowest among the wrestlers, whereas the mean and standard deviation of Rhythm ability was (16.48 ± 1.14) highest. The mean and standard deviation for Balance ability, Differentiation ability and Orientation ability were 7.80 ± 0.55 , 4.85 ± 1.23 and 15.40 ± 1.15 respectively.

Table – 4 Correlation of Different Coordinative Abilities with Wrestlers Playing Ability

	Wrestlers Playing Ability
Balance Ability	-.977**
Differentiation Ability	.619**
Orientation Ability	.072
Reaction Ability	.457*
Rhythm Ability	-.229

*Significant at 0.05 level,

$r_{.05} (18) = 0.444$

Table-4 reveals that there was a significant relationship of Balance, and Differentiation Ability with the Wrestlers Playing Ability as calculated value was greater than tabulated value at 0.05 level of significance with 18 degree of freedom, while there was no significant relationship in case of Reaction, Orientation and Rhythm Coordinative Abilities with Wrestlers Playing Ability at 0.05 level of significance with 18 degree of freedom.

IV. Findings:

The data was analyzed in the light of set an objective which was to investigate the relationship of Coordinative Abilities to Playing Ability in Combative Sports (Judo and Wrestling). All the five Coordinative Abilities (Balance Ability, Differentiation Ability, Orientation Ability, Reaction Ability and Rhythm Ability) were tested for each category of sport i.e. Judo and Wrestling.

To test the Research Hypothesis Spearman's Rank Correlation was applied between the Playing Ability scores and each of the five Coordinative Abilities.

Under Combative sports there were two sports i.e. Judo and Wrestling. The analysis revealed that, there was a significant relationship of Balance Coordinative Ability with the Judokas Playing Ability.

This positive finding was quietly expected as the game is depending heavily on the Balancing ability of a judokas. If the balance breaks the judoka may lose the bout and fear of losing the bouts makes the judoka practice hard for enhancing the balance. While, there was no significant relationship in case of Differentiation, Orientation, Reaction and Rhythm Ability with Judokas Playing Ability.

In Wrestling there was a significant relationship of Balance and Differentiation with the Wrestlers Playing Ability, while there was no significant relationship in case of Orientation, Reaction and Rhythm Coordinative Ability with Wrestlers Playing Ability. The structure of technical preparation of Wrestler is understood to have a long-term process of acquiring and reinforcing motor habits, and an important role is played by Coordination Abilities (Daug & Blischke, 1995). They form a basis for effective learning of new motor skills as well as expand the area of their implementation in sports competitions. A number of authors claim that there exist essential correlations between Coordinative Abilities and technical skills (Hirtz, 1985;

Sadowski & Gierczuk, 2007). They suggest that achieving a high level of sports technique without simultaneous orientational development of Coordinative Abilities will be hindered. However, views on this subject are not unanimous (Sadowski, 2003). Some authors maintain that the importance of Coordinative Abilities increases together with the increase in sports technique, while others do not share this opinion (Sikkut, 1987).

The outcomes of the present study pertaining to the Combative sports Coordinative Abilities, is more varied. It has obtained a significant relationship with Playing Ability only in some aspects of coordination; there are many more aspects in which no significant relationship was found. This outcome may be attributed to the individual difference owing to the level of achievement and the growth and development state the subject was going through at the time.

V. Conclusion:

The objective of the study was to investigate the relationship of Coordinative Abilities to Playing Ability in Combative Sports. There was a significant relationship of Balance Ability with the Judokas Playing Ability, whereas insignificant relationship in case of Differentiation, Orientation, Reaction and Rhythm Coordinative Abilities with Judokas Playing Ability. There was a significant relationship of Balance and Differentiation Abilities with the Wrestlers Playing Ability, while there was no significant relationship in case of Orientation, Reaction and Rhythm Abilities with Wrestlers Playing Ability.

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