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An Association between Explosive Strength and Agility of Physical Education Students

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Abstract
Purpose: -The purpose of the study was to find out correlation between Explosive Strength, and Agility of physical education students.
Methodology: - The subjects for this study were selected from Department of Physical Education, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G). A total of 40 male physical education students (B.P.Ed) were selected. Age of the subjects was ranging between 20 to 25 years. Selected Variables were Explosive Strength, and Agility. The selected variables were measured by different items of JCR test. To find out correlation between Explosive Strength, and Agility of physical education students, Product Moment Method of correlation was used.
Findings: - There exists a significant relationship between Explosive Strength, and Agility of physical education students ($r = .618$, $p < .05$).

Keywords: Explosive Strength, Agility, Physical Education.

Introduction
In professional colleges of physical education, the curriculum has both theory and activity courses. The activity courses offer opportunities to the trainees which are structured around systematic routine of learning, practicing and training of various activities and games and sports. This routine puts lot of demands on the performance capacity of trainees especially the fresher bringing about a marked change in their physique, movement qualities, musculature etc.
The primary objective of a course of study in physical education is to understand the nature and function of human movements in sports, dance, physical recreation and adopted movement activities. The competent professional should be well versed in the body of numerous sub disciplines (Kilen Kreighbavm and Ktharine M. Bartheless, 1985) [5].
Strength of muscle is necessary if one is to perform normal daily activities in an efficient manner. Strength is excess of this amount enables the student to perform them more easily an effectively. This excess over daily demands is needed for two reasons. First it is needed for emergency situations where survival is a factor, second, after daily normal activities are completed. The students should have sufficient strength to line life more fully and completely in leisure time pursuits. Strength can be measured by such test items as the chins, dips, pushups and standing broad jump (H. Harrison Clarke, 1976) [2]. Explosive Strength refers to the ability to exert strength or force as rapidly as possible in a given action (Siff). Explosive Strength is dependent on Rate of Force Development (RFD), which simply stated means the speed at which force can be produced (vpxsports.com).
One of the most important factors influencing movement is agility, involved in co-ordinating quickly and accurately the big muscles of the body in a particular activity. These rapid changes in movement pattern by the whole body or by some of its parts have been measured by such test items as obstacle run, zig zag run, side step and squat thrust. One's level of agility is probably a result of both innate capacity and training and experience (Harold M. Barrow, Rosemary Mcgee. 1979) [3].

Objectives of the study
- To find out the relationship between Explosive Strength and Agility of physical education students.

Methodology

Selection of Subjects

A total of 40 male students of B.P.Ed class were randomly selected from Departments of Physical Education, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G). Age of the subjects was ranging between 20 to 25 years.

Selection of Variables

Keeping the feasibility criterion in mind, the researcher selected the following variables for the present study:

- Explosive Strength
- Agility

Criterion Measures

- Explosive Strength was measured by the help of vertical jump and recorded in cm.
- Agility was measured by 10x10mt. Shuttle run in seconds.

Statistical Analysis

For determining the relationships of selected variables, descriptive statistics and the Pearson's Product Moment Correlation was used, the data analyzed with the help of SPSS (16.0 version) software and the level of significance was set at 0.05 level of confidence.

Result and Findings of the Study

Descriptive statistics was applied on all data. After determining normal distribution of the test variables, Pearson's Product Moment correlation was used to identify relationship between test variables.

Table: 1: Descriptive statistics of Explosive Strength and Agility of Physical Education Students

Variable	N	Mean	SD	Std. Error Mean	Min.	Max.
Explosive Strength	40	42.4500	6.34863	1.00381	30.00	52.00
Agility	40	30.4448	2.95206	.46676	26.55	38.56

Table 1 indicates that the descriptive statistics i.e. Mean, SD, Sdt. Error Mean, Minimum and Maximum values of explosive strength and agility of physical education students.

Table 2: Correlation Coefficient of Explosive Strength and Agility of Physical Education Students

Variables		Correlation coefficient (r)	Sig.
Explosive Strength	Agility	-.618*	.000

*P <0.05, Statistically Significant.

Table 2 clearly indicates that there exists a significant relationship between Explosive Strength and Agility of Physical Education Students (r= .618), as the p-values were less than 0.05. It is observed that there is negative correlation between performance of vertical jump (in cm) and shuttle run (in seconds).

Fig. 1
Graphical representation of correlation between Explosive Strength and Agility Physical Education Students

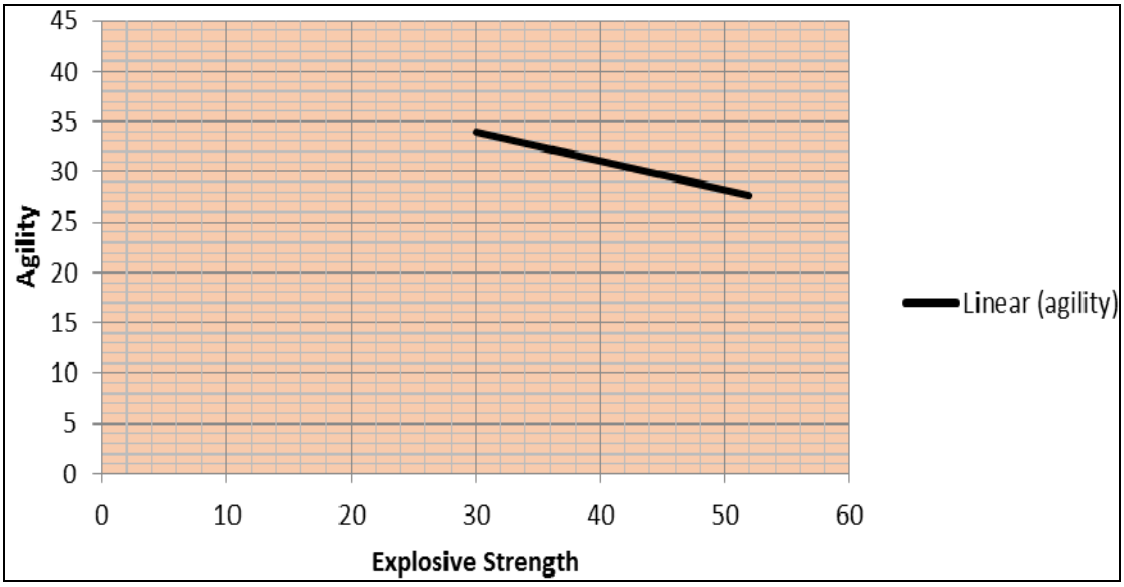

Fig 1: shows that the linear relationship between Explosive Strength and Agility Physical Education Students

Discussion of the Findings

The data gathered were analyzed by appropriate statistical techniques. The results of the analysis of the gathered data revealed that the variables selected for the purpose of the study were had significant in relationship. There are numerous studies which is supported the result of this study i.e. Thour, Mandeep. (2014) [9] who conducted a study on Relationship of Explosive Strength and Agility among Basketball Players. A significant relationship was also found between explosive strength and agility of basketball players. She has also found a negative correlation between these variables.

This study also supported by Castillo-Rodríguez, Alfonso *et. al*. (2012) [1] they conducted a study on Relationship between Muscular Strength and Sprints with Changes of Direction. They also found a significant relationship Between Muscular Strength and Sprints with Changes of Direction. Another study conducted by Nimphius, Sophia., Mcguigan, Michael. R. & Newton, Robert. U. (2010) [7] on Relationship between Strength, Power, Speed, and Change of Direction Performance of Female Softball Players had also supported the results of this study.

On the basis of previous studies and result of present study we

can say that the explosive strength is most dominating variable for the improvement of agility of an individual.

Conclusion

Within the limitation of the present study and on the basis of findings of the result of the study, it can be concluded that there is a significant difference between explosive strength and agility of physical education students ($r = 0.618$, $p < 0.05$). Findings also shows that the negative correlation between explosive strength and agility of physical education students.

References

1. Castillo-Rodríguez, Alfonso. Relationship Between Muscular Strength and Sprints with Changes of Direction. Journal of Strength & Conditioning Research. 2012; 26(3):725-732.
2. Harrison Clarke H. Application of Measurement to Health and Physical Education, 5th Ed., Englewood Cliffs N.J.: Prentice Hall Inc, 1976, 12.
3. Harold M. Barrow Rosemary Mcgee. A Practical Approach to Measurement in Physical Education, 3rd Ed. Philadelphia, Lea and Febiger, 1979, 112-113.
4. Khalil Khoyambashi. Effect of Approaches and take –off on the vertical jump in volleyball. SNIPES Journal, 1986, 9.1.
5. Kilen Kreighbavm, Ktharine Bartheless M. Biomechanics- A Quantitative Approach for standing human movement. Callier McMillian Publishers: London, 1985, 1.
6. Mishra, MK. Relationship of badminton performance with strength and agility of male players. In proceeding of national seminar on Fit and healthy India vision 2020, Excel India Publishers: New Delhi. 2015, 104-107.
7. Nimphius Sophia, Mcguigan Michael R, Newton Robert U. Relationship Between Strength, Power, Speed, and Change of Direction Performance of Female Softball Players. Journal of Strength & Conditioning Research. 2010; 24(4):885-895.
8. Singh Hardayal. Science of Sports, Training, D.V.S. Publications Inc. : New Delhi, 1991.
9. Thour M. Relationship of Explosive Strength and Agility among Basketball Players. Indian Journal of Movement Education and Exercises Sciences (IJMEES), 2014; 4(2):59-62.
10. Twist PW, Benicky D. Conditioning Lateral Movements for Multisport Athletes: Practical Strength and Quickness Drills. Strength and Conditioning, 1995; 17(6):43-51.
11. Verma Prakash J. A Text Book on Sports Statistics, Venus Publication Inc: Gwalior, 2000.
12. Verstegen M, Marcello B. Agility and coordination. In B. Foran (Ed.), High Performance Sports Conditioning Champaign, IL: Human Kinetics. 2001, 139-165.
13. Yadav SK, Prajapati SK, Mishra MK. Agility of high and low achievers male hockey players of Banaras Hindu University: A comparative study. International Journal of Physical Education, Sports and Health. 2015; 1(5):23-24.
14. Young WB, Hawken M, McDonald L. Relationship between speed, agility, and strength qualities in Australian rules football. Strength and Conditioning Coach, 1996; 4(4):3-6.
15. www.vpxsports.com/article-detail/training/develop-your-explosive-strength