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The relationship study of physical variables to flat serve in tennis

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Abstract

The purpose of the study was to evaluate the relationship of the selected physical variables to flat serve in tennis. Random sample was employed for reaching valid conclusion of the study. Thirty male tennis players of U.P. and M.P. who have participated in national level tournaments with age ranging between 18 to 23 were selected as a subject for the study. The following physical variables were selected for the study: arm & shoulder strength, back strength, leg strength, grip strength and back flexibility. Speed of the service ball was measured by speed radar gun while performing flat serve/ service in tennis. The speed was record in Km/hr. In order to find out the relationship of selected physical variables to flat service, Pearson product correlation was applied at 0.05 level of the significance. On the basis of research findings, it is concluded that the following physical variables i.e. arm & shoulder strength, back strength, leg strength and grip strength were significantly related to flat services of national level tennis players. Back flexibility was insignificant related to flat services of national level tennis players.

Keywords: Speed radar gun, physical variables and flat tennis serve

Introduction

There are three statistics that generally indicate a skilled tennis player. These key things to look for are unforced errors, winners, and aces. An ace is when the player scores on the serve, and their opponent does not hit the ball at all. A winner is a shot that cannot be touched or returned by the opponent. Both of these rely on the skill of the player, as opposed to mistakes made by their opponent, and thus are good indicators of a skillful tennis player. An unforced error is when a player attempts to return the ball but fails to hit it in bounds on their opponent's side of the court. Therefore, a low number of unforced errors is a good indicator of a player's skill.

On the collegiate, amateur, and high school level, it is common for competition to take place in a team setting. When two teams are competing against one another, they usually rank their players according to their skill, and match the best six against each other correspondingly. For example, the first best singles player on either team would play one another, and the second best players would play one another, etc. In addition to these six singles matches, the teams enter three doubles teams. Each match won wins the team a point; the team with the most points at the end of all the matches is the winner. Other terms that a new appreciator of the sport may hear in the commentary of a tennis match usually refer to different strokes – that is, different methods of hitting the ball. Most basically, strokes are usually either forehand or backhand. This refers to the positioning of the arms and racquet. Forehand is a shot hit on the dominant side of the body (right for a right-handed player, left for a left-handed player), while backhand is hit on the other side. Physical variables namely, arm strength, shoulder strength, grip strength, speed agility, balance etc. Play a very vital role in most of games and sports. A good fastest servicer requires a specific amount of strength flexibility and balance.

Materials and methods

Thirty male tennis players of U.P. and M.P. who have participated in national level tournaments with age ranging between 18 to 23 were selected as a subject for the study. The following anthropometric measurements were selected for the study: arm & shoulder strength, back strength, leg strength, grip strength and back flexibility.

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Arm and shoulders strength was measured with a six pound medicine ball put test and the final score was the distance of the best put measured to the nearest meter. Grip strength was measured with a grip dynamometer and the score was recorded to the nearest kilogram. Flexibility was measured by the sit and reach test, the score was recorded in inches. Back strength was measured with a back dynamometer and the score was recorded to the nearest kilogram. Leg strength was measured with a leg dynamometer and the score was recorded to the nearest kilogram. Speed of the service ball was measured by speed radar gun while performing flat tennis service. The speed was record in Km/hr. In order to find out the relationship of selected physical variables to flat tennis service, Pearson product correlation was applied at 0.05 level of the significance.

Results

The scores of each of the physical variables and flat tennis services were correlated using Pearson's Product Moment Correlation for finding out the relationship between them. The coefficient of correlation (zero order) has been presented in Table no. 1.

Table 1: Relationship of Physical Variables to Flat Tennis Service

S.No	Variables Correlated	Coefficient of Correlation 'r'
1	Arm & shoulder strength	0.803*
2	Back strength	0.713*
3	Leg strength	0.717*
4	Grip strength	0.708*
5	Back flexibility	0.240

*Significant at .05 level of significance
 $r_{0.05(28)} = 0.361$

Table-1 indicates that Flat tennis service was significantly related to arm & shoulder strength ($r = 0.803$) back strength ($r = 0.713$), leg strength ($r = 0.717$) and grip strength ($r = 0.708$) as obtained value of correlation was greater than value of correlation 0.361 required for correlation significant at 0.05 level of significant.

Table-1 indicated that there was no significant relationship between flat tennis service to back flexibility ($r = 0.240$) as their correlation value was less than the required value of 0.361 required for the correlation at 0.05 level of significance. Graphical representation of table no. 1 has been presented in figure-1.

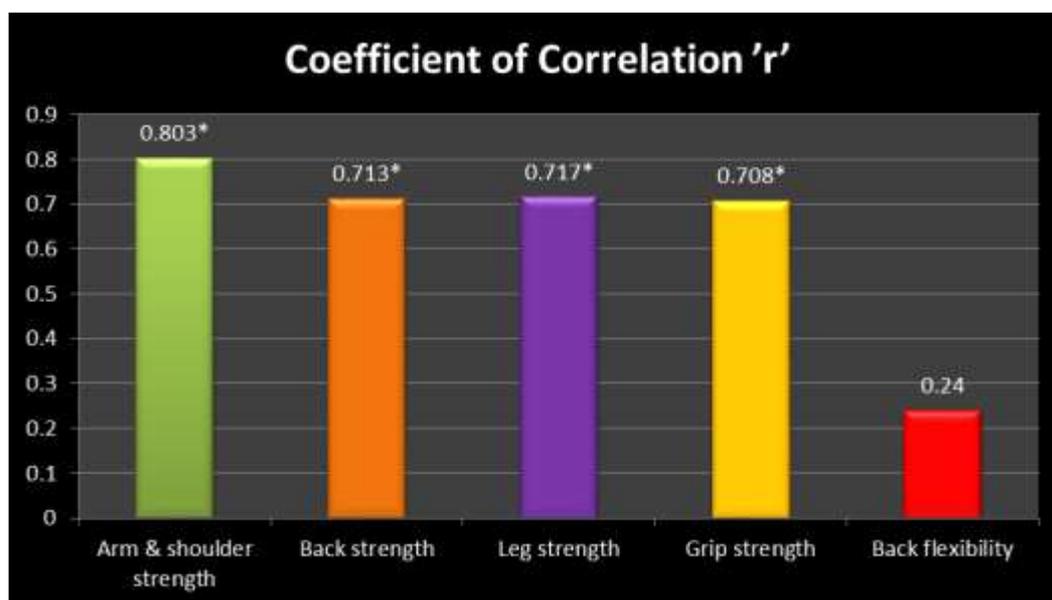


Fig 1: Relationship of Physical Variables to Flat tennis Service

Discussion and Conclusion

The result of the reveals that physical variable like Arms & shoulder strength, Back Strength, Leg Strength and Grip strength were found significant relationship with flat tennis services. In addition, when the relationship of Arm & Shoulder, Back, Leg and Grip Strength with tennis serve examined a statistical significant was detected. As being special to the tennis serve, many part of the human body is required optimal strength, flexibility, timing and coordination. The performance of the service, therefore depend on the fact that many interdependent factor are within a complex whole. One of the most important of these factors is undoubtedly muscles strength. Muscles strength at high speed which is an integral part of tennis service, need to transferred from leg, back, arm & shoulder and Grip Strength at the appropriate level and time. It has been found that Arm & Shoulder, Back, Leg and Grip Strength has an effect on service throwing speed in a positive ways. It is believed high speed of service throw, workout to improve Arm & Shoulder, Back, Leg and Grip Strength will positively contribute the performance.

References

- Hayes *et al.* The Relationship between Tennis Serve Velocity and Select Performance Measures, *Journal of Strength Conditioning Research* 2018, 10.
- Oyama, Myers JB. The Relationship between the Push off Ground Reaction Force and Ball Speed in High School Baseball Pitchers, *Journal of Strength and Conditioning Research* 2018;32(5):1324-1328.
- Ortega-Becerra M *et al.* Determinant Factors of Physical Performance and Specific Throwing In Handball Players of Different Ages, *Journal of Strength Conditioning Research* 2018;32(6):1778-1786.
- Peploe C *et al.* The Relationships between Impact Location and Post-Impact Ball Speed, Bat Torsion, and Ball Direction in Cricket Batting, *Journal of Sports Sciences* 2018;36(12):1407-1414.
- Palmer K *et al.* Relationship between Range of Motion, Strength, Motor Control, Power, And The Tennis Serve In Competitive-Level Tennis Players: A Pilot Study, *Sports Health* 2018;10(5):462-467.

6. Keller M, *et al.* How to Serve Faster in Tennis: The Influence of an Altered Focus of Attention and Augmented Feedback on Service Speed in Elite Players, *Journal of Strength and Conditioning Research* 2018, 7.
7. Verma Kumar S. Assessment of Physical Variables of Drag Flick Performance in Field Hockey, *International Journal of Physical Education* 2014;7(2):78-80.
8. Lshihara *et al.* Relationship between Attention Shifting and Tennis Performance during Singles Matches, the *Journal of Sports Medicine and Physical Fitness* 2018;58(12):1883-1888.
9. Sogut M. A Comparison of Serve Speed and Motor Coordination between Elite and Club Level Tennis Players, *Journal of Human Kinetics* 2017;30(55):171-176.