

Research Paper :

Analysis of psychomotor quality between high and low achievers of south zone Inter University men Tennis players

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ABSTRACT

The aim of this study was to analyse psychomotor quality between high achievers and low achievers of south zone inter university men tennis players. For the purpose of the study, 44 men tennis players who participated in South Zone Inter University tennis tournament 2009-10 held at Annamalai University, were selected and divided into two groups Group – I low achievers (losers of 1st and 2nd round n= 26), Group – II high achievers (qualifiers of semi finales n=18). The collected data on whipple hand steadiness test were analyzed by using unequaled “t” test, the level of confidence was fixed at 0.05. The result showed that the high achievers were having better psychomotor quality when compared with low achievers. Hence, it was concluded that psychomotor (hand steadiness) quality may increase the achievement level in tennis.

Key words : Psychomotor quality, Hand steadiness, Tennis players

This study analyses the psychomotor quality of high and low achievers of tennis players who participated in south zone inter university tennis tournament. Psychomotor means relating to movement or muscular activity associated with mental processes. Psychomotor skill implies the ability to use the human body in responding to stimuli involving movement. As the units that make up the sports and athletic games of physical education are based on the human fundamental skills, proficiency in psychomotor skill is reflected in a person's performance in sports and games. According to Barrow and McGee (1973) “Sports skills are the heart of physical education programme and the key to future participation. Therefore, a test of sports skills is a true test of psychomotor skill.

Steadiness is an important component of skills that requires aiming and general immobility such as shooting, pistol marksmanship, archery, dart throwing and all games. Hand steadiness is the ability to hold one's arm and hand in a specific position for a relatively short period of time. This is a psychomotor phenomenon. It depends upon the combination of psychological processes as well as the motor events of the body. It determines the success in sports events like archery, shooting and racket sports (Chmura *et al.*, 2002).

As arm-hand steadiness is a psychomotor function, it is influenced by various psychological factors and anything that will affect the psychomotor system will hence affect arm-hand steadiness. Various drugs like central nervous system stimulants or depressants, artificial hormones like oral contraceptives, alter the performance

of psychomotor tasks as do the changes of physiological parameters in the body or the environmental conditions. The individual's state of mind being another important criteria that cannot be ignored. Not only the state of mind during the testing procedure like anxiety, depression, lack of concentration or disturbance of sleep-wake cycle that can affect the score but also the general mental well being of an individual (Rendi *et al.*, 2007).

The psychomotor ability have been influencing the performance of athletes in various sports and athletics such as hand steadiness, Control precision, Finger dexterity, Manual dexterity etc., for this research, the hand steadiness was taken as the psychomotor quality of low and high achievers of south zone inter university men tennis players.

METHODOLOGY

The sample of 44 men tennis players who have participated South Zone Inter University tennis tournament 2009 – 10, held at Annamalai University were selected as subjects. Their age range was between 18 to 24 years. According to their performance, the subjects were divided into two groups. Group – I low achievers (losers of 1st and 2nd round n= 26), Group – II high achievers (qualifiers of semi finales n=18). All subjects were tested for hand steadiness test of left and right hand with the help of whipple hand steadiness equipment (McCormick and Tiffin, 1974). The data collected were statistically analyzed by unequaled “t” test, to know the mean difference between the groups for significance. Level of confidence

was fixed at .05.

OBSERVATIONS AND DISCUSSION

The result of the study (Table 1) shows that there was significant difference among, high achievers and low achievers on right and left hand and hand steadiness. The high achievers were having better psychomotor quality when compared with low achievers.

The factors like life style and personality cannot be ruled out, as they affect the individual’s psychomotor performance. The association between personality and performance is based on a common neuropsychological base for both. Neural arousal affects performance in psychomotor task (Eysenck, 1965). Also as concluded by Welford (1968) extroverts gave a poorer task performance as compared to introverts. Concentration of an individual while performing any motor act affects the performance. Conscious concentration on the limb position and bodily attitudes heightens performance as stated by Brayant (1967).

Out of the many factors affecting the psychomotor performance, kinesthetic and audiovisual feedback are also of importance. All voluntary movements are influenced by perceptual processes including duration intensity, velocity of movement, accuracy of limb positioning and replication of desired limb position and steadiness (Scott, 1955). When complex tasks are performed or they are learned, they are usually visually monitored. Visual distortions affect an individual’s attempt to perform in a motor task (Smith *et al.*, 1962). So, it can be said that perception including the eyesight of an individual affected the results. Severe disruptions in the motor performance were achieved through the use of an audio

Kaur *et al.* (2007) compared the Hand steadiness for shooting perfection in armed forces and Punjab police. The study concluded that the Armed Forces were steadier than the Punjab Police personnel due to the strict selection criteria and the regular training they received. Potential application of the research included the validation of strict selection criteria and various psychomotor tests in armed forces.

Jadach (2007), examined the psychomotor functions

at various performance levels to analyze the level of their potential for an effective performance of tasks resulting from sports competition. The reaction time in a surprise situation was recorded. The reaction time of examined handball players was generally at a good level. The process of improving the reaction time should be always specific in character.

Marmon *et al.* (2008), proved that there was a significant difference observed between young and old adults for all strength, steadiness and functional tests. Performance on the game operation was significantly predicted by steadiness, grip strength and index finger steadiness

Douglass *et al.* (2000) compared the steadiness and discharge rate of motor units during the submaximal contractions performed by young and old adults. The steadiness of the isometric and slow anisometric contractions was less for the old subjects compared with young subjects. The study concluded that a more variable discharge by single motor units probably contributed to the reduced ability of old adults to perform steady muscle contractions.

The result of the study reveals that, high achievers were significantly better in right and left hand steadiness (psychomotor) quality when compared to low achievers.

Conclusion:

It was concluded that, high achievers were having more hand steadiness (psychomotor) quality (right and left) then the low achievers in south zone men tennis tournament.

Implication:

Based on the conclusion, it has been found that there was difference between high achievers and low achievers on psychomotor quality of south zone inter university men tennis players. Being good in psychomotor in sports activity is especially helpful, if you’re skills of execution. Psychomotor skill implies the ability to use the human body in responding to stimuli involving movement. In physical education, this response is manifested in fundamental skills of walking, running, jumping, throwing, catching, etc. As the units that make up the sports and

Table 1 : ‘t’ ratio for right and left hand steadiness of south zone Inter University men Tennis players			
	High achievers $\bar{x} \pm$	Low achievers $\bar{x} \pm$	“t” ratio
Right hand whipple steadiness	8.63 ± 2.26	11.30 ± 1.80	4.18*
Left hand whipple steadiness	10.28 ± 0.26	14.15 ± 2.49	7.85*

*indicates significance of values at P=0.05

The Table value required for significance at .05 level of confidence with df 42 was 2.02

athletic games of physical education are based on the human fundamental skills, proficiency in psychomotor skill is reflected in a person's performance in sports and games.

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REFERENCES

- Barrow, H.M. and McGee, R. (1973).** *Practical approach to measurement in physical education*. Lea & Febiger, Philadelphia.
- Brayant, J.C. (1967).** Individual Differences in Motor Learning. Learning and Individual Differences. Columbia, Ohio.
- Chmura, J., Nazar, K., Kaciuba-Uoeci³ko, H. and Pilis, W. (2002).** The changes in psychomotor performance during progressive endurance exercise. *J. Human Kinetics*, **7** : 3-10.
- Douglass, H. Laidlaw, Martin, Bilodeau, Roger, M. Enoka (2000).** Steadiness is reduced and motor unit discharge is more variable in old adults, Department of Kinesiology and Applied Physiology, University of Colorado at Boulder, Boulder, Colorado, **23** (4) : 600 – 612
- Eysenck, H. (1965).** Facts and fiction in psychology. Penguin. London.
- Jadach, Agnieszka (2007).** Psychomotor abilities in female handball players at various performance levels, Medsport Press, Research Yearbook, **13**(1):72-76
- Kaur, Gaganpreet, Sandhu, Shweta Shenoy and Sandhu, Jaspal Singh (2007).** Comparison of Arm-hand steadiness for shooting perfection in armed forces and Punjab Police, *Anthropologist*, **9**(4) : 299-304.
- Marmon, Adam R., Pascoe, Michal, A. and Enoka, Roger M. (2008).** Associations between force steadiness and tests of hand function across the adult life span, University of Colorado, Boulder; Department of Integrative Physiology.
- McCormick, E.J. and Tiffin, J. (1974).** *Instrumental psychology* 16th Ed., Fnglewood cliffs, Prentice Hall, New Jersey.
- Rendi, M., Szabó, A. and Szabó, T. (2007).** Relationship between physical exercise workload, information processing speedy, and affect. *Internat. J. App. Sport Sci.*, **19**(1) : 86- 95.
- Scott, M.G. (1955).** Measurement of kinaesthesia. *Res. Quarterly*, **35**: 116-125.
- Smith, K.U. and Smith, K.M. (1962).** Perception and Motion. W B Saunders, Philadelphia.
- The American Heritage Dictionary** of the English Language, Definition of psychomotor, fourth edition, 2000
- Welford, A T. (1968).** *Fundamentals of skills*. Methuen. London.

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