Role of Physiological Variables in Influencing the Performance of Players

Dr. Sadashiv S Kotyal & Pramod. M. Khed

Basketball Coach Youth Empowerment Office Dr B.R.Ambedkar Stadium Vijayapur Karnataka, India
Lecture Renuka college of pEducation and Sports (B. P. Ed),Hagaribommanahalli Bellary Karnataka, India

ABSTRACT

Sports and games provide a common platform where sportspersons from different regions, professing different religion and faiths, speaking different languages, having different customs and traditions interact with each other in a harmonious congenial atmosphere. Players forget all their differences and emerge as a homogenous group. Such type of thinking, insight and mental approach can play positive role in nation building. Sports and games help in creating such understanding and can play a very decisive and pivotal role in bringing about national integration.

Sports and games have been an integral part of Indian culture. The country has always admired and regarded its outstanding sportspersons as national heroes/heroines. These sportspersons have been the role models for younger generation who continued to inspire them towards the attainment of greater heights in chosen sporting endeavors. The current article highlights the physiological variables affecting the players.

KEYWORDS:

Player, Sports, Physiological

INTRODUCTION

Sports have become an important part of cultures across the globe. They have significant influence on International Affairs and have social, political, legal and educational overtones. Sports have become cultural phenomena of great magnitude and complexity during the present century. Sport is fast becoming a social institution. It has become a potent educational, social and economic force.

There is a profound cultural change with regard to the role of sports and physical recreation during present time. Sports are primarily cultural products. Sports and games propagate the feelings of nationalism and help in creating a new generation of individuals with the feelings that the differences based on caste, community and religion have no meaning. The faith, love, peace, and the feeling of goodwill and brotherhood serve to a greater extent towards humanity.

Such sportspersons aptly set their realistic long term as well as short term goals and made sincere all out efforts for their realization. Their regular process of goal setting and dedicated efforts put through rigorous training and workouts take them to the highest level of their performance.

Sports include absolute freedom of activity. The major aim of sports is recreation. Sports are in fact, the attitudes of mind. For some people sports are recreation, for others, the means to excel and achieve high standards in performance during competition. Sports are largely individual events such as athletics, archery, swimming, shooting; wrestling etc wherein the participant

tries to compete against his/her owns previous standards as well as those of others.

Organized sports nowadays are refined with activities bound by rules and regulations so that there are constant efforts for betterment of standard and perfection in performance of skills. Sport is a highly ambiguous term having different meanings. Some persons refer to sports when they are speaking of athletics competition whereas others refer to sports when they are discussing the organizational and financial status of a team. Sport is a play, a competition, an acquisition of physical skill, strategy and physical process. The major attribute that distinguishes sports from game is physical process.

India being one of the oldest civilizations boasts of one of the richest and the most diverse cultures in the world. It is an apt example of unity in diversity for the entire world to imitate. It has remarkably produced some of the most eminent and great personalities in various spheres of life that have left a profound impact and have contributed immensely in almost every field including sports. Sports and games play an important role in our life. Physical education and sports have been considered as part of education. Sports are dynamic social forces in a culture.

MATERIALS AND METHODS
Vital Capacity:

Vital capacity was measured with the help of dry spirometer, the subject allowed to sat comfortably facing the spirometer and was asked to inspire as deeply as possible to fill the lungs, while keeping the nostrils closed with a nose clip and the mouthpiece held firmly between the lips after that the subject was instructed to exhale the air as much as possible with maximum effort into the spirometer.

Systolic and Diastolic Blood Pressure and Heart Rate:

Systolic and diastolic blood pressure and heart rate of the subjects was measured with the help of fully automatic blood pressure monitor, for that subjects were allowed to sat comfortable on the chair, then push the cuff over the left upper arm in such a manner that tube points was in the direction of the lower arm.

Peak Expiratory Flow Rate:

Peak expiratory flow rate(PEFR) is a person's maximum speed of expiration, as measured with a peak flow meter, a small, hand-held device used to monitor a person's ability to breathe out air. In order to measure the peak expiratory flow rate, subjects were instructed to assure that the sliding marker or arrow on the peak flow meter was at the bottom of the numbered scale (zero or the lowest number on the scale), after that they were asked to stand up straight and took a deep breath (as deep as they can), then after subject put the mouthpiece of the peak flow meter into their mouth and closed their lips tightly around the mouthpiece to blow out as hard and as quickly as possible.

Positive and Negative Breath Holding Capacity:

Positive Breath Holding Capacity was measured during holding of the breath after full inhalation and the result was recorded in seconds. To measure the positive breath holding capacity, subjects were instructed to place the nose clip on tightly.

RESULTS

Firstly, the result was expressed in descriptive statistics as mean and standard deviation depicted in Table 1 and 2.

Table I reveals the comparison of mean values between high and low performance groups in all seven physiological variables. There was asignificant difference found between high performance and low performance groups in case of vital capacity, systolic blood pressure and resting heart rate while insignificant difference was found in rest of the variables.

Table 1: Descriptive Statistics (Means ± SD) for Data on All Physiological Variables

Variable	High Performer	Low Performer	Mean Difference
Vital Capacity	3.59 ± .41	3.0950±.55	.50*
Systolic Blood Pressure	136.75±13.05	126.95±15.99	9.80*
Diastolic Blood Pressure	83.60±12.38	81.60±9.91	2.00
Resting Heart Rate	67.30±5.03	75.30±11.15	-8.00*
Positive Breath Holding Capacity	34.10±9.74	37.35±13.23	-3.25
Negative Breath Holding Capacity	21.30±6.61	19.35±6.40	1.95
Peak Flow	530.50±58.44	518.50±57.33	12.00

* Significant at 0.05 level

Table 2: Unstandardized Canonical Discriminant Function Coefficients

	Function
Vital Capacity	1.451
Resting Heart Rate	-.074
(Constant)	.446

Table 3: Wilks' Lambda Distribution

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	.686	13.964	2	.001

Table 4: Classification Matrix

	Levels of Performance	Predicted Group Membership		
		High	Low	Total
Original Count	High	16	4	20
	Low	5	15	20
Original %	High	80.0	20.0	100.0
	Low	25.0	75.0	100.0

[1].   Table 2 shows the unstandardized canonical discriminant function coefficients. These coefficients were used to develop the discriminant function. The resulting discriminant model included only two physiological variables because these two variables were found to have a significant discriminant power.

[2].   Wilks' lambda indicates the significance of the discriminant function. Since the above table 3 reveals the value of Wilks' lambda distribution as shown in was 0.686 and therefore the discriminant model can be considered to be good enough for developing adiscriminant function. Since the value of chi-square in Table 3 was significant (p = 0.01), it may be inferred that the discrimination function developed in the model between the two groups was highly significant.

[3].   Table 4 shows classification matrix which provides the summary of correct and wrong classification of subjects in both groups on the basis of the developed discriminant model. From the above table it can be seen that the percentage of correct classification amounted to 77.5%, which is quite good and therefore it may be concluded that the discriminant model developed was efficient.

[4].   CONCLUSION

[5].   Results also showed that out of all the selected physiological variables, only vital capacity had highest discriminating power. A model so developed in this study to classify the high and low performer player was efficient as percentage of correct classification of cases was 77.5%. Hence, one should concentrate more on these variables in order to achieve excel in the performance. The implication of these sudden cardiac death", European Heart Journal, findings may helpful for physiologists in order to improve upon the physiological fitness that leads to excel in their performance.

[6].   REFERENCES

[7].   Ferraz R, Gonçalves B, Van Den Tillaar R, Jiménez Sáiz S, Sampaio J, C Marques M. Effects of knowing the task duration on players' pacing patterns during soccer small-sided games. J Sport Sci. 2017:1–7. pmid:28134013

[8].   Gabbett TJ, Walker B, Walker S. Influence of prior knowledge of exercise duration on pacing strategies during game-based activities. Int J Sports Physiol Perform. 2015;10(3):298–304. pmid:25158210

[9].   Highton J, Mullen T, Twist C. Knowledge of Task End-Point Influences Pacing and Performance

During Simulated Rugby League Match-Play. Int J Sports Physiol Perform. 2017:1–21.

[10]. Schiphof-Godart L, Hettinga FJ. Passion and Pacing in Endurance Performance. Front Physiol. 2017;8:83. pmid:28265245

[11]. Waldron M, Highton J. Fatigue and pacing in high-intensity intermittent team sport: an update. Sports Med. 2014;44(12). pmid:25047854

[12]. Skorski S, Abbiss CR. The Manipulation of Pace within Endurance Sport. Front Physiol. 2017;8:102. PMC5326767. pmid:28289392

[13]. Millet GY. Can neuromuscular fatigue explain running strategies and performance in ultra-marathons?: the flush model. Sports Med. 2011;41(6):489–506. Epub 2011/05/28. pmid:21615190.

[14]. Renfree A, Martin L, Micklewright D, St Clair Gibson A. Application of decision-making theory to the regulation of muscular work rate during self-paced competitive endurance activity. Sports Med. 2014;44(2):147–58. pmid:24113898