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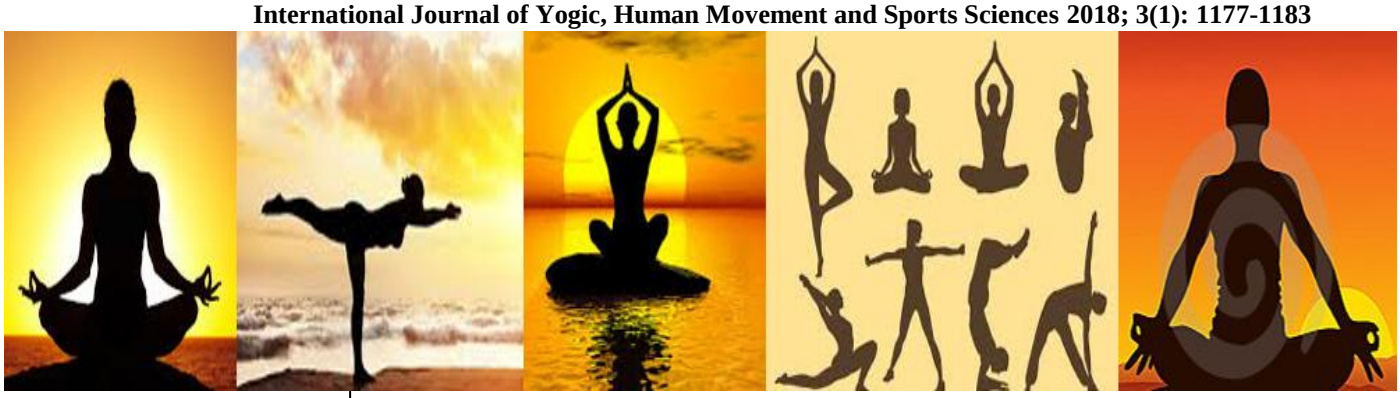

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Constructions of objective skills test battery in soccer

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Abstract
The study was conducted for the purpose of constructions of objective skills test battery in soccer as well as to prepare norms for the selected test items. For the purpose of this study a total of 50 male soccer players were selected from Lakshmibai National Institute of Physical Education, Gwalior. The purposive sampling method was adopted to select the subjects for the study. All the subjects were in the age category of 16-25 years. The data was collected by administering various test batteries. To construct a test battery the basic fundamental soccer skill was selected i.e. Kicking, Dribbling, Receiving, Tackling, Heading, Feinting and Ball Sense. Statistical analysis consisted of multiple correlation and regression analysis technique were used for selecting the optimum number of skill test items on the basis of players high magnitude of co-efficient with playing ability. Findings of the study reveals the significant relationship between independent variables and the criterions. The highest value of correlation for different components namely, kicking the ball along the ground for accuracy (r=.299), kicking the rolling ball along the ground for accuracy (r=.308), shooting in goal (r=-.375), Figure of 8 dribbling (r=.289), receiving the ball with chest (r=.358), receiving the rolling ball with foot (r=.322), receiving an Arial ball with foot (r=-.408). The combined contribution of these seven-battery test shows higher significant relationship on soccer playing ability. The soccer test batteries developed by the researcher has the ability to predict the objective skill test of soccer player.

Keywords: Soccer, soccer skills, objective skills test battery, soccer playing ability

Introduction
The game of soccer requires tremendous physical fitness as the duration of the game is Ninety-minutes. In which basic movements such as the skills include kicking, running, jumping, throwing, dodging, etc are used very frequently. Endurance plays a vital role to perform these movements continuously for ninety-minutes. Strength is also essential for taking powerful kicking, tackling, throwing, heading and so on. For dribbling and frequent change of direction agility is essential. Whereas, flexibility plays a major role in reducing the chances of injury as well as perfection of skill, speed and coordination. With the constant demand of "High sports performance" the concept of soccer has been changed today. The concept of total soccer applies skill development, technical development, tactical development and as well as development of all motor components which contributes to high performance in soccer.

Sportsmen are trained scientifically with the latest training method and sophisticated instrument for the improvement in their performance in different spheres of sports. Sports science has enabled modern youth to develop physical capacities beyond anything imagined. Sports have become highly competitive and records are being broken with great rapidity. The developing tendencies in an International sport specially in a team game are identified as the increase in game tempo, tougher body game & greater variability in technique and tactics. All great soccer players spent much of their lives training alone, in addition to practicing with a team, even before they ever joined one. To improve at the game of soccer, not only a player needs to practice with a team, but he also needs to focus on developing skills on his own in the backyard or on an empty pitch. For assessing their general soccer playing ability and predicting their performance a definite and appropriate evaluating procedure is needed. A soccer skills test battery serves this purpose in a meaningful way.

Skill test battery may be used as an aid to evaluate the skill of a particular game or sports. Sometimes an individual may excel in the skill test but may fail in the actual situation or vice-versa. Therefore, skill test batteries must be constructed keeping the game situation in view.

Modern soccer is vigorous, faster, where the game require acceleration, sprint, rough tackling, power in kicking and endurance to sustain skilful play for 90 minutes. A skill test battery in soccer indicates the ability of the participants to play the game. The scores obtained by the individual can be used by the teacher to evaluate the performance as well as to identify the areas to work. Though various studies have emphasized to relative importance of skill to playing ability in soccer. Hence the researcher intents to construct an objective skill test battery for soccer players.

Methodology

Selection of Subjects

To achieve this aim, a total of 50 male soccer players having age group of 16 to 25 years was purposively selected from Lakshmibai National Institute of Physical Education, Gwalior.

Selection of Independent Variables (Specific Skills Test Item)

The specific skill test items are selected on the basis of their importance on the game. These items are:

Kicking

a) Passing

1) Kicking the ball along the ground for accuracy
2) Kicking a rolling ball along the ground for accuracy
3) Kicking a stationary ball for distance

b) Shooting

1. Shooting at the goal

Dribbling

1. Zig-zag run with ball (for agility)
2. 30-meter Run with ball (for speed)
3. Figure '8' dribbling (for dribbling ability)

Receiving

1. Receiving the ball with chest
2. Receiving a rolling ball with foot
3. Receiving an aerial ball with foot

Tackling

1. Tackling 1vs1 in limited area

Heading

1. Standing heading for distance
2. Jumping heading for distance

Feinting

1. Feinting the flags

Ball sense

1. Juggling

Playing ability test

Administration of the test

1. Kicking the ball along the ground for accuracy

Purpose: To measure the ability of passing the ball accurately.

Equipment required: Soccer ball. 10 flag post, lime powder to mark the area.

Procedure: 10 flag posts were fixed in straight line as a target. The distance between 2 middle flag post is 1 meter. The remaining flag post was fixed in an equal distance on each side of the middle flag post with a gap of 50cm in between. A restraining line was drawn parallel to the flag post at a distance of 20 meter, from where the ball was kicked towards the target as shown in the figure no. 1. To start the test subject has to stand behind the restraining line and start passing the ball towards the target along the ground. The subject may use any part of his foot. 10 trails were given to each subject.

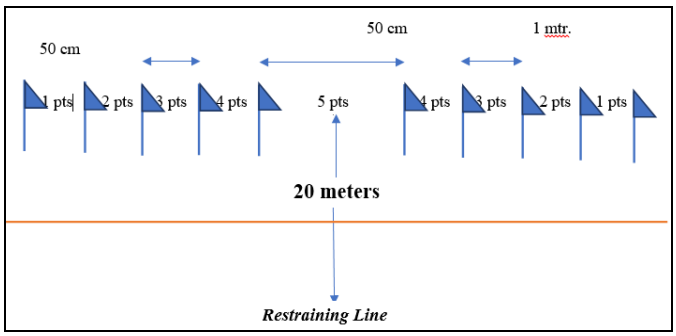

Fig 1: Kicking the ball along the ground for accuracy

Instructions

If the ball does not pass inside the target zoe, 0 point was given to subject. The ball must roll along the ground, otherwise the trial was not counted.

Scoring

The point was given according to area, where the ball passes through, as shown in fig. 01. If the ball hits any of the flag posts, the adjacent higher point was given. The total points of ten trials were taken as a score of the subject.

2. Kicking a rolling ball along the ground for accuracy

Same as test no. 1 (Kicking a ball along the ground for accuracy), but to start the test, instead of keeping the ball in a stationary position, the ball should be rolled 3-4 meters forward by the subject himself and must kick the ball before the ball crossing the restraining line.

3. Kicking a stationary ball for distance

Purpose: To measure kicking ability for distance.

Equipment's required: soccer balls, measuring tape and line powder for marking of the test.

Procedure: A restraining line was drawn on one end of the ground as shown in fig. 02. To start the test, subject keeps the ball behind or on the restraining line. After that a subject took a short approach run towards the ball and kick it in the air as far as he can. The distance between the restraining line and the spot where the ball was landed, were measured. The subject can use any part of his foot. 3 trials were given to each subject.

Scoring: The distance between the restraining line and the spot where the ball was landed, were measured in the nearest meters and the best performance of 3 trials was recorded as the score of the subject.

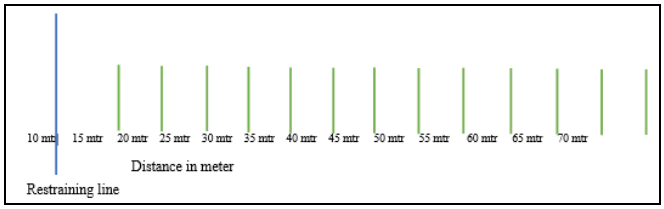

Fig 2: Kicking for distance

4. Shooting a stationary ball for accuracy

Purpose: To measure the ability of kicking the ball with power and accuracy.

Equipment's required: Soccer ball, soccer goal post and rope.

Procedure: The whole goal was divided by ropes in 6 parts as shown in fig. no. 03. A 20 meters wide restraining line was drawn 20 meters away from the goal post. 5 shooting spots were marked in a restraining line (2 was in the line of goal area, 2 was in the line of both vertical posts and 1 was in a line at the centre of the post).

To start the test, the subject runs forward towards the ball to kick the ball in a goal, which is kept on the restraining line. Each subject got 2 kicks from each spot. The subject was only allowed to use instep part of the foot.

Scoring: 3 different points as 5, 3, 1 was given according to the area where the ball goes through as shown in the fig. no. 03. If the ball hits a rope higher points of that area was given to the subjects. The total number of points from 10 successive kicks was recorded as a score of the subject.

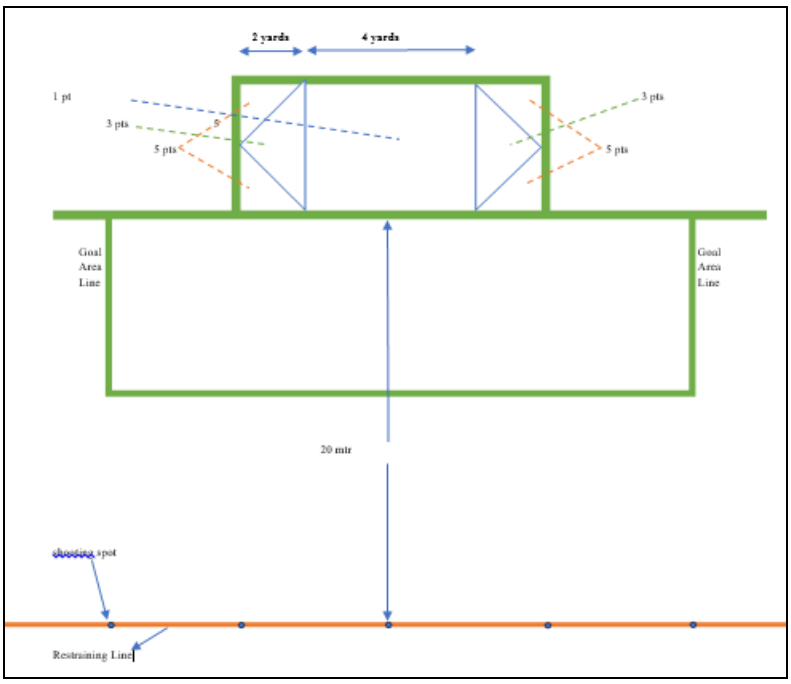

Fig 3: Shooting for accuracy

5. Zig-Zag Run With Ball

Purpose: To measure the agility in dribbling.

Equipment Required: Stop-watch, 5 Flag post, Soccer balls and line powder for marking of the area.

Procedure: 5 flag post was fixed on 5 spots, as shown in fig. no. 04. At the command "Go", the subject begins dribbling a ball form behind the starting line and follows the course for 3 complete laps, as shown in the figure. The time from the command "go" till the subject crosses the finishing line after 3 laps was recorded.

Instruction: If the ball goes out of control, the subject must retrieve the ball and continue from there. The subject must hold the flag posts during turning and also should not miss any of the flag posts. If the subject does mistake the trial was repeated again.

Scoring: The best timing of 3 trials, recorded in the 1/100th of a second, was the final score of the test.

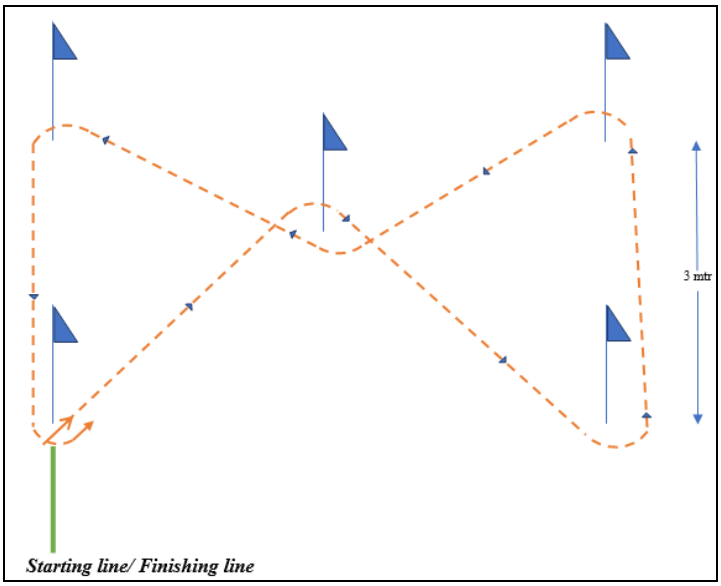

Fig 4: Zig-Zag Run with Ball

6. Meter Run with Ball

Purpose: to measure the speed while dribbling.

Equipment's required: Stop watch, soccer Ball and lime powder for the marking of area.

Procedure: A starting line and finishing line with 30 mtr. Distance in between was marked. A minimum of two subjects can be tested at a time. The subjects were permitted to take standing start with a ball. At the command "go" the subjects run with the ball to cover the distance of 30 meter or to cross the finishing line in the shortest possible time. The subject has to run as fast as he can, across the finishing line.

Instructions: Each subject must touch the ball at least 4 times during the course, otherwise the trial was repeated again.

Scoring: The timing from the starting line till the subject crosses the finishing line was recorded in 1/100th of a second. The best of three trials was recorded and were taken as a score of the subject.

7. Figure of "8" Dribbling:

Purpose: to measure the dribbling ability and controlling the ball while dribbling.

Equipment's required: 5 Flag posts, soccer Balls, stop watch and lime powder.

Procedure: A starting line was marked and 5 flag posts (A, B, C, D and E) were fixed in a straight line with a distance of 3 meter in between. The line of flag posts was perpendicular to the starting line as shown in fig.no. 05. On the signal "go" the subject start dribbling from the starting line and have to dribble the post in a Zig-zag manner as shown in the figure. The subject than turn around the Post E and return back in the same manner till he crossed the starting/finishing line. Each subject was given 3 trials and the time of subject between the starting line and finishing line were recorded.

Instructions: If the ball goes out of control the subject must retrieve it and continue from there itself. If the subject missed any of the flag post the trial was repeated again.

Scoring: The time of 3 trials was recorded in 1/100th seconds and the best was taken as the score of subjects.

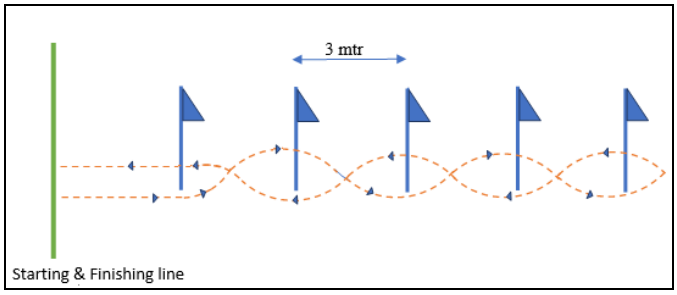

Fig 5: Figure "8" Dribbling

8. Receiving the Ball with Chest

Purpose: To measure the ability of receiving the ball with chest.

Equipment's required: Soccer ball, measuring tape and lime powder.

Procedure: To start the test, the ball was thrown form a serving line to the subject, who stands 10 meters away from the serving line, and the subject has to receive the ball from chest. The area of distance between the place where the ball has been received and the place where the ball has landed after the contact, was measured in the nearest meters and the points were given according to the distance.

Scoring: The area between the places where the ball has been received and has landed, if is less than 1 meter–5 points was given, between 1 to 1.5 meter–3 points was given, and between 1.5 to 2 meters – 1 point was given. A total of ten trials were given and the final score was recorded accordingly.

9. Receiving a Rolling Ball with foot

Purpose: To measure the ability of receiving the ball with foot.

Equipment's required: Soccer balls, measuring tape and lime powder to mark the area.

Procedure: The test was started with passing the ball along the ground by the server to the subject, who is standing 10 meters away from the serving line. The subject was allowed to receive the ball with any part of the foot. The distance between the place where the ball has been received and the place where the ball lay after the contact was measured in the nearest meters and the points was given according to the distance.

Instructions: The server should serve the ball in the same speed and manner to all the subject as similar as he can.

Scoring: The area between the places where the ball has been received and the ball has lay, if is less than 1 meter – 5 points was given, between 1 to 1.5 meter – 3 points was given, and between 1.5 to 2 meter – 1 point was given. The total points of ten trials were recorded.

10. Receiving an aerial ball with foot

Same as the test no. 8 (receiving the ball with chest), but here, the subject has to receive the ball with any part of his foot before the ball touches the ground. The distance between the places where the ball has been received and where the ball has been landed after receiving was measured and the points were given accordingly.

11. Tackling "1 vs 1" in limited area

Purpose: To measure the ability of tackling.

Equipment's required: Soccer ball, stopwatch and line powder for marking of the area.

Procedure: A 20 meters wide and 30 meters long, a rectangular grid was marked. At the centre of the grid, a circle of 50 cm. diameter was drawn, which was considered as a starting position of the subject (defender), as shown in figure no. 06. The attacker has to stand with ball on an attacking line, before starting the test. At the signal "go", the attacker moves inside the grid with ball. The task of the attacker is to dribble past the subject within the grid and cross the end line with ball, within 30 seconds. Whereas, the task of the subject is to fail the attempt of attacker and put the ball outside the grid. 10 trails were given to each subject with different attacker.

Scoring: 1 point will be given to the defender if he is able to send the ball outside the grid, if not than 0 point will be given to subject. The total number of points of 10 trials was recorded as the score of each subject.

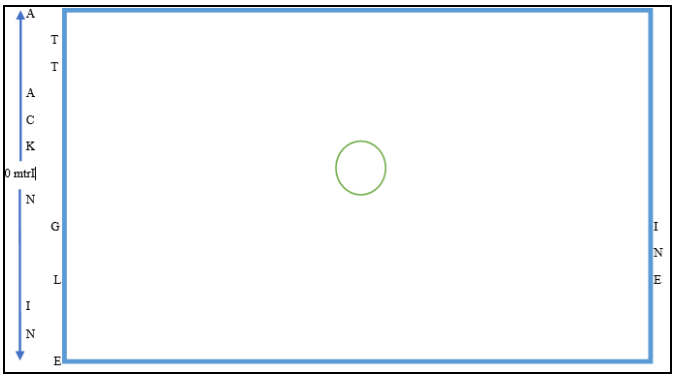

Fig 6: Dribbling against the opponent

12. Standing Heading for distance

Purpose: To measure the heading ability for distance.

Equipment's required: Soccer ball, measuring tape and line powder for marking of the area.

Procedure: A restraining line was drawn on one side of the ground as shown in figure no. 06. A server has to throw the ball to the subject from a serving line, which is 10 meters away from the subject. The ball was thrown at such a height and in such a manner so that a subject can head the ball comfortably. The subject must head the ball from behind the restraining line as far as possible. The spot where the ball has landed was measured and recorded in a nearest meters.

Instructions: if the subject does not satisfy with the height or manner of the ball, he can take another chance. But, once he touched the ball with his head, the trial was counted. The server should serve the ball in a same speed and manner to all the subject as similar as he can. The subject may take approach run, so that he can apply a maximum force. If the subject crosses the restraining line during the heading is being made, the trial was recorded as missed.

Scoring: The distance between the restraining line and the spot where the ball has been landed after heading was recorded in the nearest meter. The best of three trials were taken as a score of the subject.

13. Jumping Heading for Distance

Same as the test no. 12, but in this item the subject performs the activity with jumping to head the ball.

14. Feinting between Flags

Purpose: To measure the feinting ability.

Equipment's required: 4 flag posts, stopwatch and lime powder for marking the area.

Procedure: 4 Flag posts (A, B, C & D) was fixed in a line with a distance of 1 meter between two flag posts, as shown in fig. no. 07. A starting line was drawn 12 meters away from the first flag post (A) and a finishing line was also drawn 5 meters away from the last flag post (D), which is parallel to the starting line. At the command "go", the subject has to run forward from a starting line and run through in-and-out of 4 flag post and crosses the finishing line with running, as shown in the figure. The time from the command "go" till the subject crosses the starting line were recorded.

Instructions: If the subject misses any of the flag posts, he must return and start from that flag post and continue the course, otherwise the trial was retaken.

Scoring: The best timing of 3 trails was recorded in 1/100th seconds and were taken as a score of the subjects.

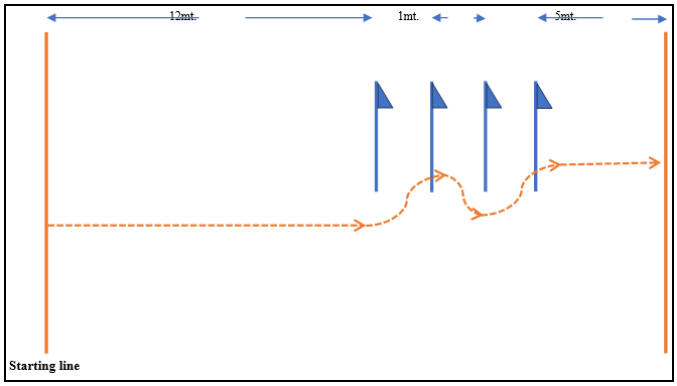

Fig 7: Feinting between Flags finishing line

15. Juggling

Purpose: To measure the ball sense of the players.

Equipment's required: Soccer Balls.

Procedure: On the command "start", the subject starts to juggle the ball in the air with repeated touches with any part of the body other than the hands and arms, till the ball touches the ground. The number of touches with any part of the body was counted. 3 trials were given to each subject.

Scoring: The number of touches for the best of three trials was recorded as the score of the subject. For scoring following norms was followed: -

Below 5	-	0 points
5 – 9	-	1 point
10 – 14	-	2 points
15 – 19	-	3 points
20 – 24	-	4 points
25 – 29	-	5 points
30 – 34	-	6 points
35 – 39	-	7 points
40 – 44	-	8 points
45 – 49	-	9 points
50 & above	-	10 points

Selection of Criterion Variables

16. Playing Ability

All the test items i.e., skill tests, are validated with the criterion measures "Playing ability" for the development of objective skill test battery in soccer. The scoring of the playing ability was graded by the three experts. The maximum marks of each judge were 10. The average of the marks of three judges were taken as a score of the playing ability.

Criterion Measures

The following criterion measures are chosen for the administration of skill test items for constructing objective skill test for soccer players:

The following criterion measures are chosen for the administration of skill test items for constructing objective skill test for soccer players

Sr. no.	Skill	Test	Criterion measures
1.	Kicking	Kicking the ball along the ground for accuracy	Number of scores/points
		Kicking a rolling ball along the ground for accuracy	Number of scores/points
		Kicking a stationary ball for distance	Meters
		Shooting a stationary ball for accuracy	Number of scores/points
2.	Dribbling	Zig-Zag Run with Ball	Seconds
		30-meter Run with Ball	Seconds
		Figure of "8" Dribbling	Seconds
3.	Receiving	Receiving the Ball with Chest	Number of scores/points
		Receiving a Rolling Ball with foot	Number of scores/points
		Receiving an aerial ball with foot	Number of scores/points
4.	Tackling	Tackling "1 vs 1" in limited area	Number of scores/points
5.	Heading	Standing Heading for distance	Meters
		Jumping Heading for Distance	Meters
6.	Feinting	Feinting between Flags	Seconds
7.	Juggling	Juggling	Number of scores/points

Administration of the test &Collection of data

Administration of the test

The test was administered to the subjects of Lakshmibai National Institute of Physical Education, Gwalior. Prior to the actual administration of the testing program all the subjects were properly instructed regarding the procedure of the test. All the subjects had been also informed about the objective of the study.

Collection of data

For the collection of data 50 male soccer players were purposively selected from Lakshmibai National Institute of Physical Education, Gwalior. The data was collected for each skill by administering their respective tests. The test was administered for soccer skills and playing ability at football field with proper equipment & supervision of experts.

Statistical Procedure

For the construction of soccer playing ability test, multiple correlation and regression analysis was used for selecting the optimum number of skills test items on the basis of player's high magnitude of correlation co-efficient with playing ability.

Analysis of data

On the basis of collected data seven independent variables were correlated by means of product moments correlation with criterion variables (playing ability) in order to find out the relationship of each independent variable to the criterion variables i.e. soccer playing ability. The multiple correlation was computed to find out the combined effect of independent variables on the criterion variable. The multiple regression equation was developed in order to assess the contribution of each item separately.

Findings of the study

Relationship of test items to the criterion

Table 1: The correlation of all the selected test items and the criterion variable has been presented in

Table 1: Indicates that the seven skill test items, have the significant relationship with the criterion variables.

Sr. no.	Variable correlated	Correlation coefficient
1.	Kicking the ball along the ground for accuracy	.299*
2.	Kicking a rolling ball along the ground for accuracy	.3088
3.	Kicking a stationary ball for distance	-.122
4.	Shooting a stationary ball for accuracy	-.375*
5.	Zig-Zag Run with Ball	-.120
6.	30-meter Run with Ball	.037
7.	Figure of "8" Dribbling	.289*
8.	Receiving the Ball with Chest	-.358*
9.	Receiving a Rolling Ball with foot	.321*
10.	Receiving an aerial ball with foot	-.408*
11.	Tackling "1 vs 1" in limited area	-.307
12.	Standing Heading for distance	.042
13.	Jumping Heading for Distance	.080
14.	Feinting between Flags	-.154
15.	Juggling	.096
16.	Playing ability	1.0

*****Correlation is significant at the 0.05 level

Development of test battery

In order to analyse the objective skill test battery for soccer players, the data was analysed by using the wherry Doolittle method of multiple correlation to assess the combined contribution of independent variables towards the criterion. The multiple correlation coefficient computed between criterion variable and correlated seven independent variables have been presented in table no. 02

Table 2: revealed that the combined contribution of Var1, Var2, Var4, Var7, Var8, Var9 and Var10 to the criterion variable is significant at 0.05 level of confidence as the computed value. 699 (1, 2, 4, 7, 8, 9, 10) for multiple correlation was greater than the tabulated value (0.46) required for the multiple correlation coefficient to be significant at 0.05 level.

Criterion	Independent variables	Multiple correlation	Coefficient of multiple correlation
Playing ability	VAR1	1,2,4,7,8,9,10	0.699*
	VAR2		
	VAR4		
	VAR7		
	VAR8		
	VAR9		
	VAR10		

*significant at 0.05 level

Multiple regression analysis

The multiple regression equation for assessing the objective skill test of soccer players on the basis of relative contribution of seven test items of soccer players.

Equation of regression analysis: 6.5 (playing ability) ± 0.40 (Var1) + 0.94 (Var2) + 0.94 (Var4) + 0.117 (Var7) – 0.062 (Var8) + 0.045 (Var9) – 0.085 (Var10).

The above-mentioned regression equation shows that the objective skill test for soccer players depends upon the Var1, Var2, Var4, Var7, Var8, Var9 and Var10 in a diminishing order.

Results and findings

The statistical analysis of data reveals that Var1, Var2, Var4, Var7, Var8, Var9, and Var10 contribute significantly towards the skill ability of soccer player. Modern soccer demands that the player should not be only be technically proficient but also fit enough to contribute ones best for the overall performance of the team.

Results of multiple regression analysis indicates that it is possible to construct an objective skill test battery for soccer players on the basis of selected test items related to the game.

Though the game of soccer is a team game, there are certain players who are more gifted so as to contribute their talent to the success of their team. It is generally seen that soccer players have typical characteristics, but these characteristics varies from player to player. A player who is low in some characteristics must compensate by high proficiency in others. The ideal combination involves more emphasis on kicking, dribbling, receiving, tackling, heading, feinting and ball sense.

References

1. Gil SM, Gil J, Irazusta A, Ruiz F, Irazusta J. Anthropometric and physiological profile of successful young soccer players. In Science and Football V: The Proceedings of the Fifth World Congress on Sports Science and Football, 2005, 449.
2. Matta MDO, Figueiredo AJB, Garcia ES, Seabra AFT. Morphological, maturational, functional and technical profile of young Brazilian soccer players. Revista Brasileira de Cineantropometria & Desempenho Humano. 2014; 16(3):277.
3. Faina M, Gallozzi C, Lupo S, Colli R, Sassi R, Marini C. Definition of the physiological profile of the soccer player. Science and football. 1988; 1:158-163.
4. Muniroglu S, Koz M. The physical and physiological properties of football players from a Turkish Professional First-Division Football League. The sport journal, 2006, 9(4).
5. Verdú NP, Orbea Palacios JA, Martínez Carbonell JA, Jove Tossi MA. Analysis of physical and physiological requirements in soccer trainings in young soccer players (under-10 years). Journal of Human Sport and Exercise, 2015, 10(2).
6. Darrall-Jones JD, Jones B, Till K. Anthropometric and physical profiles of English academy rugby union players. The Journal of Strength & Conditioning Research. 2015; 29(8):2086-2096.
7. Slimani M, Nikolaidis PT. Anthropometric and physiological characteristics of male Soccer players according to their competitive level, playing position and age group: a systematic review. J Sports Med. Phys. Fitness. 2017; 10:0022-4707.
8. Metaxas TI, Koutlianos N, Sendelides T, Mandroukas A. Preseason physiological profile of soccer and basketball players in different divisions. The Journal of Strength & Conditioning Research. 2009; 23(6):1704-1713.
9. Anthony A Annarino. A comparison of the Relative Effectiveness of the Two Methods of Soccer Instruction" Complete Research in Health, Physical Education and Research. 2009-1962; 4:41.