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Investigation of physical variables of female junior national hockey players of Gwalior academy

Nidhi Rai**Abstract**

The purpose of this study was to describe the Physical variables Grip strength (Right and left hand), Endurance, Agility, Static balance of female junior national hockey players of academy, Gwalior. The analysis of facts accumulated on the overall number of subjects for this study, (N=50) female players of junior national level, from female hockey academy Gwalior. The training age of the subjects was of minimum 3 years. Subjects was provide written, voluntary, informed consent prior to participation and all players were regular and accustomed to high levels of exertion. Physical variables Grip strength (Right and left hand), Endurance, Agility, Static balance. The statistical analysis of data collected female hockey players of junior national level, from female hockey academy Descriptive Statistics was used to mean score, were applied. The data analysing tools SPSS- 21 software was used. The level of significance was set at 0.05 level. There was significance Mean score of physical variables (Grip strength (Right and left hand), Endurance, Agility, Static balance) for the female junior nation hockey players of hockey academy, Gwalior. The strongly indicate that there were significant relationship in relation to the selected physical variables, four variables Left and right, cardiovascular endurance 600 meter, Agility Shuttle run, and Static Balance and no significant relationship of Grip strength with hoc key performance, for the female junior nation hockey players of hockey academy, Gwalior.

Keywords: Hockey, academy, Gwalior, physical etc.**Introduction**

Hockey is a technical recreation in which overall performance is primarily based on capabilities and strategies in which unique difficult factors are concerned such as excessive degree of bodily and psychological abilities. Sports psychology helps a lot in assessing the overall performance of hockey players. Though bodily and physiological variables play an essential position in improving hockey overall performance however ultimately it is the psychological element that decides the triumphing and dropping off the team. Hockey is a skilful recreation and because strategies and methods are modified very often and hence it will become a thought game. Presently coaches and bodily educators and involved in the psychological and sociological factor of sports activities instead of relying on only physiological health and capabilities of a range of activities. They realized that the physiological and sociological traits of the participant make contributions greater closer to their success than mere bodily fitness. Serves to realign the lift.

Physical variables

physical fitness video we're going to be talking about the five health-related components of physical fitness the firestone is your cardiovascular system your cardiovascular fitness this is the ability of the circulatory system to supply oxygen to working muscles during exercise this is our stamina this is howling we can keep going without collapsing it is amazing just how far we can push the human body the more we can train this part the more efficient our bodies become a delivering oxygen and clearing out lactic acid lactic acid by-product of oxygen consumption it can build up in our muscular system and cause the muscles to cease and stop working we generally as humans stop exercise before our muscles come to this point in addition to burning fat and keeping a lean body cardiovascular fitness helps reduce levels of stress in our bodies as well second component of physical fitness is body composition this is the relative percentage of body fat compared to lean body mass which is made up of muscles

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bones and water sofa versus your lean body it is important to maintain a healthy weight to decrease the amount of strain that is put on your joints and muscles as they carry around a heavier frame the third component of physical fitness is flexibility this is the range of movement possible at various joints if we are not flexible in our joints they become stiff and our movement decreases flexibility also helps to prevent injuries improve posture and reduce lower back pain the fourth component of physical fitness and the fifth are muscular strength and muscular endurance muscular strength is the amount of force that can be produced by a single contraction of a muscle it is important to be strong to power through sports movements sustain a physical hit and avoid injuries muscular endurance is the ability of the muscle group to continually contract over an extended length of time there are six skill related components of physical fitness the first is speed this is the ability to move quickly from one point to another in a straight line not just your body speed but in some sports it requires more speed from certain body parts like in golf and baseball this wing the hands or in football the speed of kicking the ball agility is the ability of the body to change direction quickly you can use this to dodge a defender or get to a ball quicker than your opponent's third component is balance the ability to maintain an upright posture while still or moving it is linked to agility and that in order to move quickly and efficiently your body has to be on balance in different postures the fourth skill related component is coordination this is the integration with your hands or your foot movements and an input of the senses the fifth is reaction time this is the amount of time it takes to get moving its how quickly your brain can respond toe stimulus and initiate that response and the sixth is power this is the ability to do strength work at an explosive pace it is the product of both strength and speed put together English (auto-generated).

Objectives of the study

1. To describe the Physical variables Grip strength (Right and left hand), Endurance, Agility, Static balance of female junior national hockey players of academy, Gwalior.
2. To relationship the Physical variables Grip strength (Right and left hand), Endurance, Agility, Static balance of female junior national hockey players of academy, Gwalior.

Methodology

The analysis of facts accumulated on the overall number of subjects for this study, (N=50) female players of junior national level, from female hockey academy Gwalior. The training age of the subjects was of minimum 3 years. Subjects was provide written, voluntary, informed consent prior to participation and all players were regular and accustomed to high levels of exertion. Physical variables Grip strength (Right and left hand), Endurance, Agility, Static balance. The statistical analysis of data collected female hockey players of junior national level, from female hockey academy Descriptive Statistics and Pearson correlation coefficient (Multiple correlations) was used to mean score, and relationship with the hockey performance were applied. The data analyzing tools SPSS- 21 software was used. The level of significance was set at 0.05 level.

Criterion measure

Procedure of testing and collection of data

The subjects was instructed about all the test items was used

in the study to measure the entire variable and give demonstration how to perform test items. After that the tests was administered and data was collected. The test was conducted three times and mean score of three trial was taken and best result was considered.

Physical variables

Grip strength

Purpose: To measure the grip strength.

Equipment: hand grip dynamometer, record sheet and pencil.

Procedure: The subject holds the dynamometer in the hand to be tested, with the arm at right angles and the elbow by the side of the body. The handle of the dynamometer is adjusted if required - the base should rest on first metacarpal (heel of palm), while the handle should rest on middle of four fingers. When ready the subject squeezes the dynamometer with maximum isometric effort, which is maintained for about 5 seconds. No other body movement is allowed. The subject should be strongly encouraged to give a maximum effort.

Scoring: The grip strength was recorded in kilogram.

Cardiovascular endurance

(600 metres Run)

Purpose: To measure the cardiovascular endurance.

Equipment: Track or area marked according to Figures 11-13 and stopwatch. Description Pupil uses a standing start. At the signal "Ready? Go!" the pupil starts running the 600-yard distance. The running may he interspersed with walking. It is possible to have a dozen pupils run at one time by having the pupils pair off before the start of the event. Then each pupil listens for and remembers his partner's time as the latter crosses the finish. The timer merely calls out the times as the pupils cross the finish. RULES walking is permitted but the object is to cover the distance in the shortest possible time.

Scoring: Record in minutes and seconds.

Agility

Shuttle Run

Purpose: To measure the agility.

Equipment: two wooden blocks for each runner (each block should measure 10 x 5 x 5 cm), marker cones or marking tape, measurement tape, stopwatch, flat non- slip surface, with two lines 10 meters apart., record sheet and pencil.

Procedure: Mark two lines 10 meters apart using marking tape or cones. The two blocks are placed on the line opposite the line they are going to start at. On the signal "ready", the participant places their front foot behind the starting line. On the signal, "go!" the participant sprints to the opposite line, picks up a block of wood, runs back and places it on or beyond the starting line. Then turning without a rest, they run back to retrieve the second block and carry it back across the finish line. Two trials are performed.

Scoring: Record the time to complete the test in seconds to the nearest one decimal place.

Stork stand test of static balance

(D.K. Kansal, 1996)

Objective: To measure the static balance on the ball of the foot.

Equipment: Stop-watch

Administration and directions: The performer was asked to stand on the foot of the dominating leg and to place the ball of the other foot on the inside of the supporting knee. The subject was instructed to place the hands on the respective sides of the waist. The subject was informed that he had to stand on the ball of the foot by raising his heel from the floor on the signal 'Start'. The tester then announces, ready, steady, Start! On the signal 'Start', the subject raises the heel from the floor to maintain the balance as long as possible without moving the ball of the foot from its initial position, and the tester starts the stopwatch. As soon as the subject loses the balance, either by touching heel to the floor or by the

movement of the foot from initial position, the tester stops the stopwatch.

Scoring: The score was recorded in seconds for the duration of the maintenance of the balance on the ball of foot.

Statistical technique

In this study Descriptive statistics and Pearson correlation coefficient (Multiple correlations) for physical variables (Grip strength (Right and left hand), Endurance, Agility, Static balance.) with hockey performance of female junior national hockey players of academy, Gwalior.

Table 1: Descriptive statistics of physical variables for the talent identification of female junior national hockey players of hockey academy Gwalior

S.N.	Physical variables	Mean	Std. Deviation	Minimum	Maximum
1	Grip strength left	43.040	6.3018	30.0	51.0
2	Grip strength Right	59.100	3.9448	48.0	65.0
3	Cardiovascular Endurance (600mts)	1.6560	.23335	1.42	2.13
4	Agility shuttle run	9.8408	.44395	9.12	10.80
5	Balance	77.140	12.6830	40.0	89.0

Table-1. This study was carried results Physical variables for the talent identification of female hockey players of hockey academy Gwalior. The heights mean and standard deviations let me lean this up here standard deviations are extremely helpful in analysing the data sets, hence, that 1 table, group Statistics, this table includes descriptive statistics mean and standard deviations for each physical variables (Grip strength (Right and left hand), Endurance, Agility, Static balance.) of female junior national hockey players of academy, Gwalior. In detail table includes that the mean and standard deviations of Physical variables for the show Grip strength Right (43.0±6.3), Grip strength left hand (59.1±3.9), Endurance (1.6±.23), Agility (9.8±.44), Static balance (77.1±12.6).

Agility, Static balance of female junior national hockey players. The reason of these differences can be associated with above results this is probably due to the different nature of the physical components training and pre-requisite for students. Number of participation and level of participation. The reason may be attributed that the physically trained student or level of achievements and taken deferent types nutrition food. These results may be due to a small sample of size and other factors such as different types of body, differences in body composition. These results may be nutrition diet schedule deference. The reason may other Psychological variables like stress, sports fear, self-confidence, attention concentration etc.

Table 2: Relationship of selected physical variables of female junior national hockey players of hockey academy, Gwalior

S.N.	Physical Variables	Hockey Performance
1	Performance	1
2	Grip strength left	.215
3	Grip strength Right	-.312*
4	Endurance600mts	-.291*
5	Agility shuttle run	-.468**
6	Balance	.304*

*Significant at 0.05 level

From the correlation results, we found that coefficient between hockey performances and selected physical variables (Grip strength, Left and right, cardiovascular endurance 600 meter, Agility Shuttle run, and Static Balance) Independent variables. The relationship of Grip strength right (-.312*), cardiovascular endurance 600 meter (-.291*), Agility Shuttle run (-.468**), and Static Balance (.304*) tabulated value 0.273, (df is 49, 1) and p-value for two-tailed significance set at 0.05 level. Thus, we can conclude that there is positively strong significant correlation for this independent variables with the hockey performance dependent variable.

Discussion of Findings

After the data analysis to find out the Mean and Standard Deviation score of identify, recruit and develop talented female hockey players in hockey academy in Gwalior who are potential junior A medal standard athletes for future World Championships and Olympic Games. The selected Physical variables: Grip strength (Right and left hand), Endurance,

Conclusions

According to objectives of the study the following conclusions were drawn

- There was significance Mean score of physical variables (Grip strength (Right and left hand), Endurance, Agility, Static balance) for the female junior nation hockey players of hockey academy, Gwalior.
- The strongly indicate that there were significant relationship in relation to the selected physical variables, four variables Left and right, cardiovascular endurance 600 meter, Agility Shuttle run, and Static Balance and no significant relationship of Grip strength with hoc key performance, for the female junior nation hockey players of hockey academy, Gwalior.

Recommendations

In the light of the conclusions drawn; the following recommendations are made:

- Similar types of study may be conducted on male players or Students.
- Similar types of study may be conducted for different games and sports, body composition and other anthropometric measurements, skinfold measurements where the important role of players such as different games and sports inter college, intervarsity, all India University etc.
- The study may be conducted utilizing the college level students of different university of other states.
- Similar types of study may be conducted for different games and sports, where the body composition and

biomechanical variables, skinfold measurements and BMI role of players such as different games and sports and deferent level of achievements or college, intervarsity, senior National and International level players etc.

5. Similar types of study may be conducted for different games and sports, where the group body composition and anthropometric measurements, skinfold measurements role of players such as different games and inter college, all India university etc.

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