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# Influence of physiological variables to skill performance of Hockey players

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**Abstract**
The present study was an attempt to evaluate the Effect of Physical Training on Physiological variables on hockey girl players. To carry out this study, 100 girl hockey players has selected. The age limit of players was ranged between 14 to 17 years. The samples were taken from the Sanganabasava Residential School, Kawalgi in Vijayapur district, Karnataka. Physiological variables Vital Capacity and Pulse Rate and hockey skill variables Dribbling and Shooting were chosen research variables to assess their effect and impact on hockey plying ability. To assess the significance impact of training on physiological and motor and skills performance of hockey players and see significant difference between pre& post training effect on research variables t- test was applied. Significant effect was noticed in physiological variables of school hockey players.

**Keywords:** influence, physical training physiological variables, skill performance, Hockey players

## Introduction
"Sport performance is the unit of execution and result of a sports action or a complex sequence of action measured or evaluated according to socially determined and agreed norms."Today we found that human beings have come to understand the importance of raining has also increased to a game and sports in daily life and because of this importance of sports training has also increased to a considerable extent. But this kind of thinking is not new in any way .It is said that around 300 years back, people of Greeks also felt the need to provide training to the player's participatining in Olympic Games in effective and efficient manner. How were, this tendency has become world famous since 1950's and from then people come to realize that sports training is not only important and required for outstanding Players but also for beginning also.
Importance of effective sports training can be measured by the fact. That all other kinds of facilities provide to players may prove to be futile if they are not provided with efficient sports training. No sports man can fulfill his or her potential unless provided with proper training. It can be said that producing the skillful high performers, comprehensive sports training programmed is one of the key factors

## Hockey
It is defined as hockey is a dynamic game played by both sex, requiring high level of skills, excellent conditioning and well co-ordinate team effort. (Horst wein, 1981).
Field hockey is played with 11 players on each tea muses their hooked hockey sticks to control, dribble and hit the ball. The object is to score goals by putting the ball in the opposing team's goal. The team to score the most goals wins the match.

## Vital Capacity
The largest volume of air that can be exhaled after the deepest possible inhalation

## Pulse Rate
The number of beats of a per minute or number of beats of the heart and entries per minute.

## Hockey Skills
### Dribbling
To proceed further full control over the ball in a required speed and towards some directions preferably towards the opponent's goal line. It is mostly used by forwards to carry the ball into the opponent area.

### Shooting
An attempt to score a goal in the main object of the hockey game is to shoot the ball into opponent's goal and to score a goal. However the defends will always to their best to prevent the opponent to score a goal. Hence a good hockey player should master the skill of shooting

## 1. Hypotheses
1. There would be significant improvement in Physiological Variables and skills performance of Hockey playing ability due to the results of experimental training.
2. It was hypothesized that there would not be a significant difference their physiological, variables of hockey players.

## 2. Delimitations
1. The study was delimited girls and hockey players.
2. The study is delimited to the age of 14 to 17 years.
3. The sample was delimited to residential school of vijayapur Dist only.
4. The study was delimited to 100 girl hockey players.
5. The study was delimited physiological variables.

## 3. Limitations
1. Since the subjects were motivated verbally during testing and training periods No attempt was put to differentiate

their level of motivation.
2. The psychological stress and other factors, which affect the metabolic function were not taken into consideration.
3. The hereditary of the subjects and its influence on the selected criterions Variables were not taken into consideration.

**Table 1:** Comparison of Two Groups With Respect To Post-test Scores of Vital Capacity of Hockey Players By Analysis Of Covariance (ANCOVA)

| Groups | Pre-test | | Post test | | |
|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Adjusted mean |
| Control group | 694.00 | 87.85 | 701.00 | 75.25 | 704.48 |
| Experiment group | 704.00 | 83.20 | 870.00 | 67.76 | 866.52 |
| F-test | 0.3415@ | | 407.7201# | | |
| P-value | 0.5603 | | 0.0001* | | |

*$p$<0.05, @one way ANOVA applied, # ANCOVA applied

The results of the above table clearly show the following:

- A non significant difference was observed between two groups i.e. control group and experiment group with respect to pre-test vital capacity scores of hockey players (F=0.3415, $p$>0.05) at 5% level of significance. It means that, the pre-test vital capacity scores of hockey players are homogenous and similar in control and experiment group.
- A significant difference was observed between two groups i.e. control group and experiment group with respect to post-test vital capacity scores of hockey players (F=407.7201, $p$<0.05) at 5% level of significance. Hence, the null hypothesis is rejected and alternative hypothesis is accepted. It means that, the post-test vital capacity scores of hockey players are different in two groups i.e. control and experiment group.

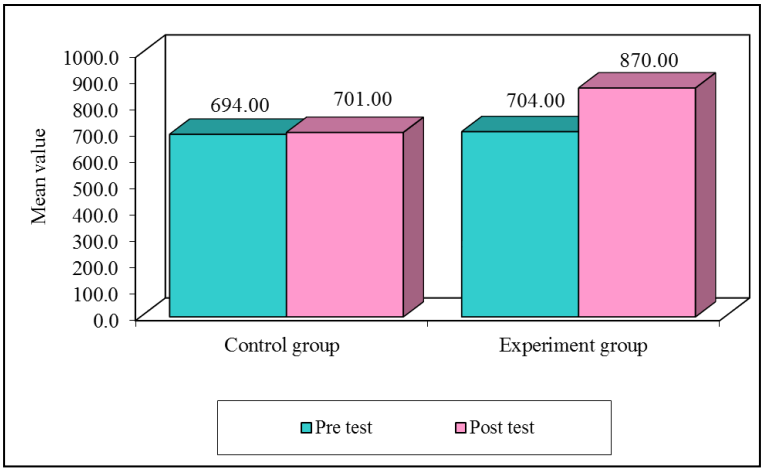


**Fig 1:** Comparison of control and experiment groups with respect to pre-test and post-test vital capacity scores of hockey players

The above figure indicates that Vital Capacity in both the groups i.e. Experimental and control indicates the influence of Vital Capacity more on Experimental group. In pre-test mean was 807.00. And 704.00 Increased in post-test where control as group showed very little change in pre-test as well as in post-test i.e. 694.00 to 701.00 Hence the training for 16 week training influenced on the Vital Capacity of subject

**Table 2:** Comparison Of Two Groups With Respect To Post-test Scores Of Pulse Rate- Of Hockey Players By Analysis Of Covariance (Ancova)

| Groups | Pre-test | | Post test | | |
|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Adjusted mean |
| Control group | 79.38 | 5.21 | 76.42 | 5.10 | 76.44 |
| Experiment group | 79.44 | 4.87 | 69.12 | 4.14 | 69.10 |
| F-test | 0.0035@ | | 111.4068# | | |
| P-value | 0.9527 | | 0.0001* | | |

*$p$<0.05, @one way Anova applied, # Ancova applied

The results of the above table clearly show the following:

- A non-significant difference was observed between two groups i.e. control group and experiment group with respect to pre-test pulse rate- horde word steps scores of hockey players (F=0.0035, $p$>0.05) at 5% level of significance. It means that, the pre-test pulse rate- horde word steps scores of hockey players are homogenous and similar in control and experiment group.
- A significant difference was observed between two groups i.e. control group and experiment group with respect to

post-test pulse rate- horde word steps scores of hockey players (F=111.4068, $p<0.05$) at 5% level of significance. Hence, the null hypothesis is rejected and alternative hypothesis is accepted. It means that, the post-test pulse rate- horde word steps scores of hockey players are different in two groups i.e. control and experiment group.

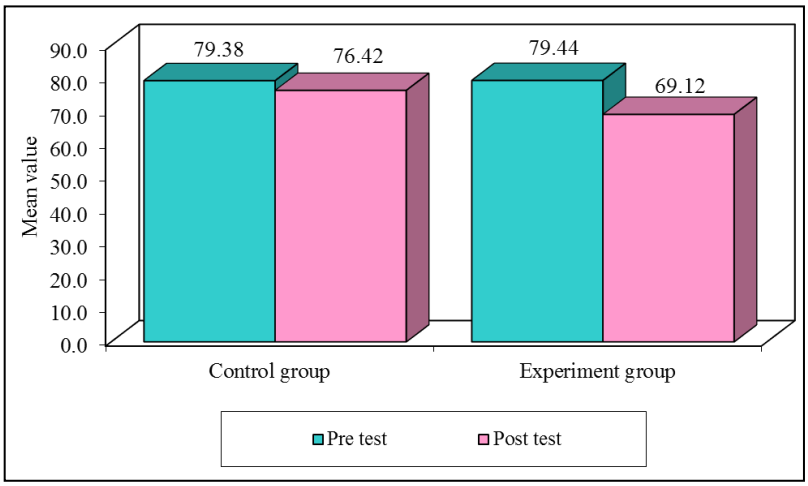


**Fig 2:** Comparison of control and experiment groups with respect to pre-test and post-test pulse rate- scores of hockey players

The above figure indicates that Pulse Rate in both the groups i.e. Experimental and control indicates the influence of Pulse Rate more on Experimental group. In pre-test mean was 79.42. And 69.12 Increased in post-test where control as group showed very little change in pre-test as well as in post-test i.e.79.38 to 76.42 Hence the training for 12 week training influenced on the Pulse Rate of subject.

**Table 3:** Comparison of Two Groups With Respect To Post-test with Dribbling Skill Scores of Hockey Players by Analysis of Covariance (Ancova)

| Groups | Pre-test | | Post test | | |
|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Adjusted mean |
| Control group | 14.61 | 2.94 | 14.63 | 4.12 | 14.63 |
| Experiment group | 14.62 | 2.97 | 14.37 | 4.19 | 14.37 |
| F-test | 0.0006@ | | 0.0115# | | |
| P-value | 0.9809 | | 0.9149 | | |

*$p<0.05$, @one way ANOVA applied, # ANCOVA applied

The results of the above table clearly show the following:

- A non significant difference was observed between two groups i.e. control group and experiment group with respect to pre-test with Dribbling skill scores of hockey players (F=0.0006, $p>0.05$) at 5% level of significance. It means that, the pre-test with Dribbling skill scores of hockey players are homogenous and similar in control and experiment group.
- A non-significant difference was observed between two groups i.e. control group and experiment group with respect to post-test with Dribbling skill scores of hockey players (F=0.0115, $p>0.05$) at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected. It means that, the post-test with Dribbling skill scores of hockey players are similar in two groups i.e. control and experiment group.

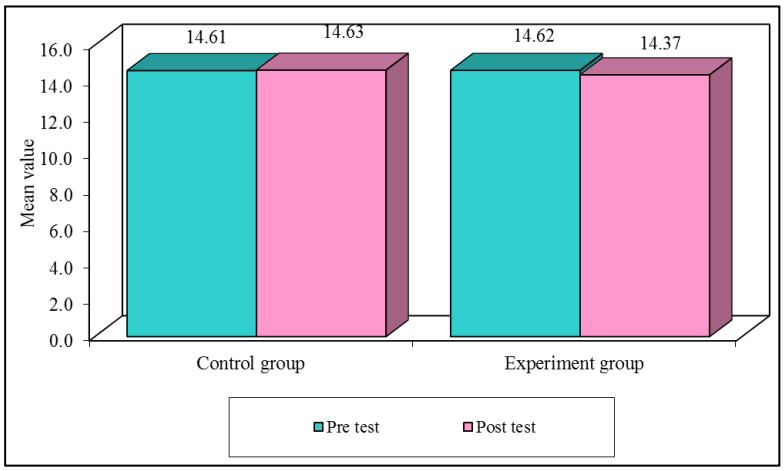


**Fig 3:** Comparison of control and experiment groups with respect to pre-test and post-test dribbling skill scores of hockey players

The above figure indicates that Dribbling in both the groups i.e. Experimental and control indicates the influence of Dribbling more on Experimental group. In pre-test mean was 14.67 And 14.37 Increased in post-test where control as group

showed very little change in pre-test as well as in post-test i.e.14.63 to 14.61 Hence the training for 12 week training influenced on the of Dribbling subject

**Table 4:** Comparison Of Two Groups With Respect To Post-test With 16 Yard Shooting Skill Scores Of Hockey Players By Analysis Of Covariance (ANCOVA)

| Groups | Pre-testz | | Post test | | |
|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Adjusted mean |
| Control group | 3.98 | 0.91 | 4.59 | 0.67 | 4.59 |
| Experiment group | 4.00 | 0.90 | 5.40 | 0.49 | 5.39 |
| F-test | 0.0119@ | | 161.9162# | | |
| P-value | 0.9135 | | 0.0001* | | |

*$p$<0.05, @one way ANOVA applied, # ANCOVA applied

The results of the above table clearly show the following:

- A non significant difference was observed between two groups i.e. control group and experiment group with respect to pre-test with Shooting skill scores of hockey players (F=0.0119, $p$>0.05) at 5% level of significance. It means that, the pre-test with shooting skill scores of hockey players are homogenous and similar in control and experiment group.
- A significant difference was observed between two groups i.e. control group and experiment group with respect to post-test with Shooting skill scores of hockey players (F=161.9162, $p$<0.05) at 5% level of significance. Hence, the null hypothesis is rejected and alternative hypothesis is accepted. It means that, the post-test with shooting skill scores of hockey players are different in two groups i.e. control and experiment group.

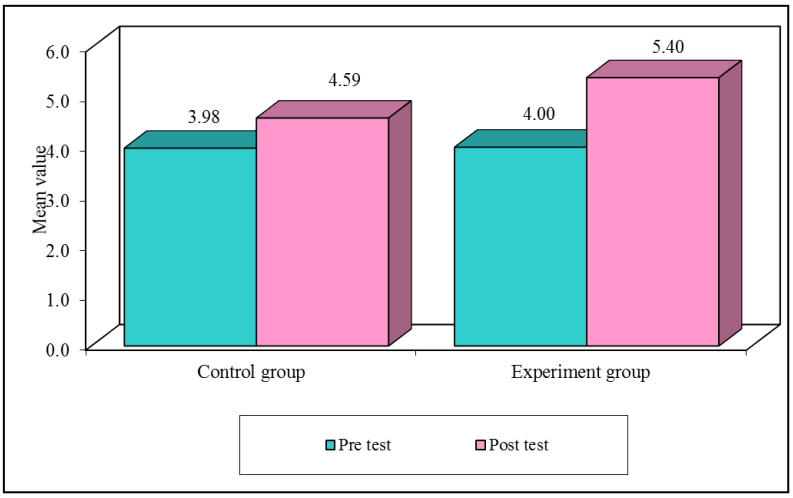


**Fig 4:** Comparison of control and experiment groups with respect to pre-test and post-test shooting skill scores of hockey players

The above figure indicates that shooting Skill in both the groups i.e. Experimental and control indicates the influence of Shooting Skill more on Experimental group. In pre-test mean was 4.00 And 5.40 Increased in post-test where control as group showed very little change in pre-test as well as in post-test i.e.3.98 to 4.59 Hence the training for 16 week training influenced on the of Shooting Skill subject

## Conclusion

1. The vital capacity has noticed smaller changes in experimental group of hockey players comparing to the counterpart.
2. The Pulse rate has improved due to the training effect comparing to the control group.
3. The Hockey dribbling performance has improved due to the training effect in experimental group comparing to the counterpart.
4. The experimental group has exhibited improved performance in 16 yards shooting skill ability comparing to counterpart group.
5. The experimental group has shown higher result in Hockey skill test comparing to the counterpart.
6. From the above fact in could concluded that scientific and systematic training would lead to bring certain lasting changes in the performance of physiological and skills exhibited ability among the training group, hence training should be place and implemented as part of the school curriculum.

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