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## Effect of extensive and intensive training load on speed, leg strength and agility of kho-kho players

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### Abstract

Researcher studied on the effect of extensive and intensive training load on speed, leg strength and agility of Kho-kho Players. The purpose of the study to find out the effect of extensive and intensive training load on Speed, Leg Strength and Agility of Kho-kho players. Researcher hypothesized that, there might be significant effect of extensive and intensive training load on Speed, Leg Strength, Agility and muscular strength of Kho-kho players. The study was also delimited to 30 Kho-kho players. The study was delimited to the inter-collegiate male players only. The age of the subjects ranged between 18-25 years. To find out the effect of extensive and intensive training on speed, leg strength, and agility only. 30 Kho-kho male players were selected as subjects. The subjects selected for the study was from those who represented inter-collegiate tournaments and inter-university trials of SGB Amravati University by using simple random sampling method. On the basis of pre-test, researcher formed three homogeneous groups namely 1) Extensive Training group, 2) Intensive Training group and 3) Control group after six weeks training on the Experimental groups again post-test data was collected on physical variables i.e. 50 yard dash (Speed), Standing Broad Jump (leg strength) and Shuttle Run (agility). The data were analysed by applying One Way Analysis of Variance (ANOVA) in order to determine the significant difference among the three tests score of both the groups for each dependent and independent variable. When the difference was found to be significant, the LSD Post Hoc Test was applied to assess the significance of difference between the paired means of the selected variables. Level of significance was set at 0.05 level. Findings of the statistical analysis have been shown in the following tables. Significant difference found in speed, agility, leg strength, abdominal muscular strength among the pre-test and post-test of Extensive Training group, Intensive Training group and Control group of Kho-kho Players. Also mean difference in speed, agility, leg strength, abdominal muscular strength among the pre-test and post-test of all the selected variables and post-test of all variables of Extensive Training group, Intensive Training group and Control group of Kho-kho Players because all the mean differences are greater than the critical difference.

**Keywords:** Kho-kho, extensive and intensive training, speed, agility, strength

### Introduction

Kho-Kho is a game where two sets of players i.e. chasers and runners, play the game. The result of the game depends upon the time spend by the runners and the points scored by the chasers. For getting point or to play better in Kho-Kho, players should be very much physically fit. Physically fit, in the sense, that he should be able to run fast, more agile, need of co-ordination, good strength, endurance etc. and to be a good Kho-Kho player good speed, agility, flexibility and quick speed of movements are required. If these qualities are improved by any means then the overall Kho-Kho playing ability can be improved.

### Statement of the Problem

The problem is stated as, "Effect of Extensive and Intensive Training Load on Speed, Leg Strength and Agility of Kho-kho Players".

### Purpose of the Study

The purpose of the study to find out the effect of extensive and intensive training load on Speed, Leg Strength and Agility of Kho-kho players.

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**Hypothesis**

Researcher hypothesized that, there might be significant effect of extensive and intensive training load on Speed, Leg Strength, Agility and muscular strength of Kho-kho players.

**Delimitations**

1. The study was also delimited to 30 Kho-kho players.
2. The study was delimited to the inter-collegiate male players only.
3. The age of the subjects ranged between 18-25 years.
4. To find out the effect of extensive and intensive training on speed, leg strength, and agility only.

**Methodology**

30 Kho-kho male players were selected as subjects. The subjects selected for the study was from those who represented inter-collegiate tournaments and inter-university trials of SGB Amravati University by using simple random

sampling method. On the basis of pre-test, researcher formed three homogeneous groups namely 1) Extensive Training group, 2) Intensive Training group and 3) Control group after six weeks training on the Experimental groups again post-test data was collected on physical variables i.e. 50 yard dash (Speed), Standing Broad Jump (leg strength) and Shuttle Run (agility).

**Analysis of Data**

The data were analysed by applying One Way Analysis of Variance (ANOVA) in order to determine the significant difference among the three tests score of both the groups for each dependent and independent variable. When the difference was found to be significant, the LSD Post Hoc Test was applied to assess the significance of difference between the paired means of the selected variables. Level of significance was set at 0.05 level. Findings of the statistical analysis have been shown in the following tables.

**Table 1:** Summary of One Way Analysis of Variance for the Data on Speed, Leg Strength, Agility, Abdominal Muscular Strength of Pre-test and Post-test among the Extensive Training Group, Intensive Training Group and Control Group of Kho-kho Players

|                             | Source of variation | D.F.                 | SS      | MSS    | F-ratio |
|-----------------------------|---------------------|----------------------|---------|--------|---------|
| Speed                       | Between the groups  | K - 1<br>6-1 = 5     | 3.418   | 0.684  | 4.683*  |
|                             | Within the groups   | N - K<br>90 - 6 = 84 | 12.361  | 0.146  |         |
| Leg Strength                | Between the groups  | K - 1<br>6-1 = 5     | 236.456 | 47.291 | 4.853*  |
|                             | Within the groups   | N - K<br>90 - 6 = 84 | 818.533 | 9.744  |         |
| Agility                     | Between the groups  | K - 1<br>6-1 = 5     | 6.756   | 1.351  | 5.558*  |
|                             | Within the groups   | N - K<br>90 - 6 = 84 | 20.422  | 0.243  |         |
| Abdominal muscular strength | Between the groups  | K - 1<br>6-1 = 5     | 125.167 | 25.033 | 5.756*  |
|                             | Within the groups   | N - K<br>90 - 6 = 84 | 365.333 | 4.349  |         |

\* Significant at 0.05 level

Tabulated  $F_{0.05}(5, 84) = 2.323$

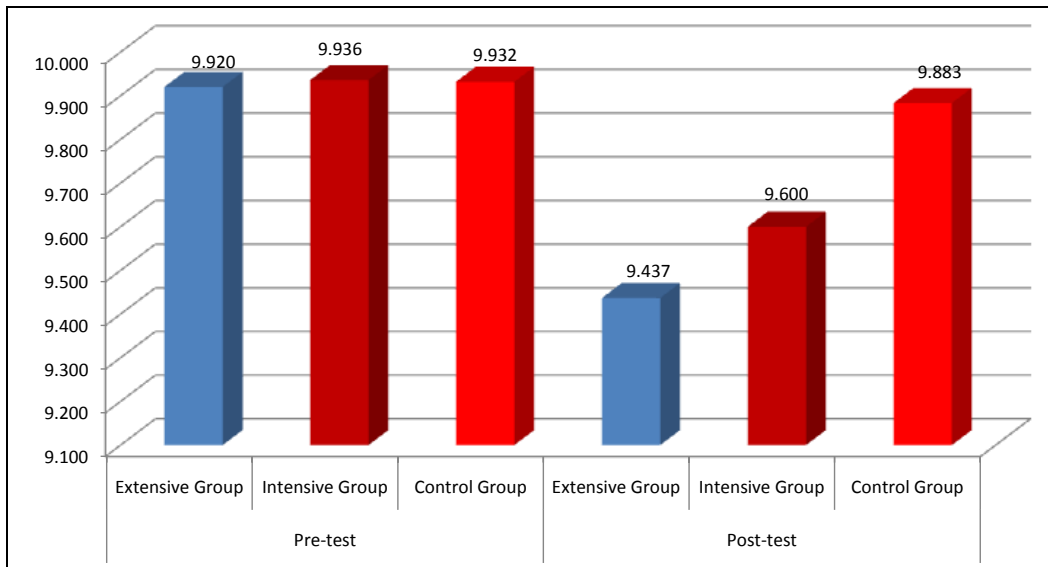
The table reveal that there is significant difference in speed ( $F = 4.683$ ), agility ( $F = 4.853$ ), leg strength ( $F = 5.558$ ), abdominal muscular strength ( $F = 5.756$ ) among the pre-test and post-test of Extensive Training group, Intensive Training

group and Control group of Kho-kho Players are greater than the required tabulated F-value of 2.323 at 0.05 level and 5, 84 degree of freedom. All the values are found to be significant to see the pair mean difference the Post Hoc test was applied.

**Table 2:** Paired Mean Difference For The Data on Speed of Pre-test and Post-test among the Extensive Training Group, Intensive Training Group and Control Group of Kho-kho Players

| Pre-test        |                 |               | Post-test       |                 |               | Mean Difference | Critical Difference |
|-----------------|-----------------|---------------|-----------------|-----------------|---------------|-----------------|---------------------|
| Extensive Group | Intensive Group | Control Group | Extensive Group | Intensive Group | Control Group |                 |                     |
| 9.920           | 9.936           |               |                 |                 |               | 0.016           | 0.277               |
| 9.920           |                 | 9.932         |                 |                 |               | 0.012           | 0.277               |
| 9.920           |                 |               | 9.437           |                 |               | 0.483*          | 0.277               |
| 9.920           |                 |               |                 | 9.600           |               | 0.320*          | 0.277               |
| 9.920           |                 |               |                 |                 | 9.883         | 0.037           | 0.277               |
|                 | 9.936           | 9.932         |                 |                 |               | 0.004           | 0.277               |
|                 | 9.936           |               | 9.437           |                 |               | 0.499*          | 0.277               |
|                 | 9.936           |               |                 | 9.600           |               | 0.336*          | 0.277               |
|                 | 9.936           |               |                 |                 | 9.883         | 0.053           | 0.277               |
|                 |                 | 9.932         | 9.437           |                 |               | 0.495*          | 0.277               |
|                 |                 | 9.932         |                 | 9.600           |               | 0.332*          | 0.277               |
|                 |                 | 9.932         |                 |                 | 9.883         | 0.049           | 0.277               |
|                 |                 |               | 9.437           | 9.600           |               | 0.163           | 0.277               |
|                 |                 |               | 9.437           |                 | 9.883         | 0.447*          | 0.277               |
|                 |                 |               |                 | 9.600           | 9.883         | 0.283*          | 0.277               |

\* Significant at 0.05 level

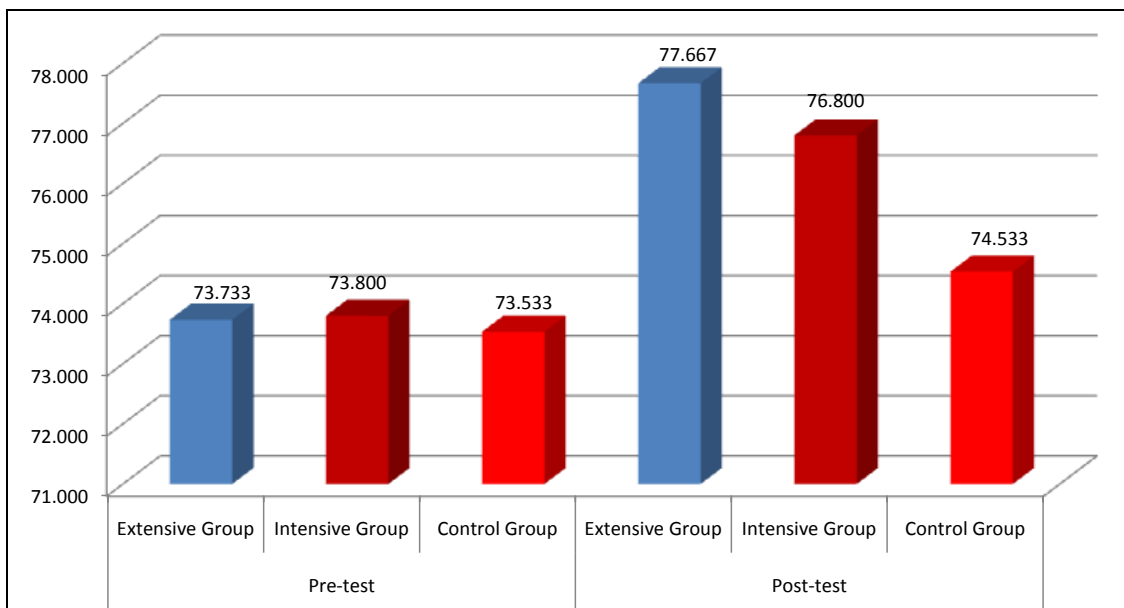


**Fig 1:** Means for the Data on Speed of Pre-test and Post-test among the Extensive Training Group, Intensive Training Group and Control Group of Kho-kho Players

**Table 3:** Paired Mean Difference For The Data on Leg Strength of Pre-test and Post-test among the Extensive Training Group, Intensive Training Group and Control Group of Kho-kho Players

| Pre-test        |                 |               | Post-test       |                 |                 | Mean Difference | Critical Difference |
|-----------------|-----------------|---------------|-----------------|-----------------|-----------------|-----------------|---------------------|
| Extensive Group | Intensive Group | Control Group | Extensive Group | Extensive Group | Intensive Group |                 |                     |
| 73.733          | 73.800          |               |                 |                 |                 | 0.067           | 2.266               |
| 73.733          |                 | 73.533        |                 |                 |                 | 0.200           | 2.266               |
| 73.733          |                 |               | 77.667          |                 |                 | 3.933*          | 2.266               |
| 73.733          |                 |               |                 | 76.800          |                 | 3.067*          | 2.266               |
| 73.733          |                 |               |                 |                 | 74.533          | 0.800           | 2.266               |
|                 | 73.800          | 73.533        |                 |                 |                 | 0.267           | 2.266               |
|                 | 73.800          |               | 77.667          |                 |                 | 3.867*          | 2.266               |
|                 | 73.800          |               |                 | 76.800          |                 | 3.000*          | 2.266               |
|                 | 73.800          |               |                 |                 | 74.533          | 0.733           | 2.266               |
|                 |                 | 73.533        | 77.667          |                 |                 | 4.133*          | 2.266               |
|                 |                 | 73.533        |                 | 76.800          |                 | 3.267*          | 2.266               |
|                 |                 | 73.533        |                 |                 | 74.533          | 1.000           | 2.266               |
|                 |                 |               | 77.667          | 76.800          |                 | 0.867           | 2.266               |
|                 |                 |               | 77.667          |                 | 74.533          | 3.133*          | 2.266               |
|                 |                 |               |                 | 76.800          | 74.533          | 2.267*          | 2.266               |

\* Significant at 0.05 level

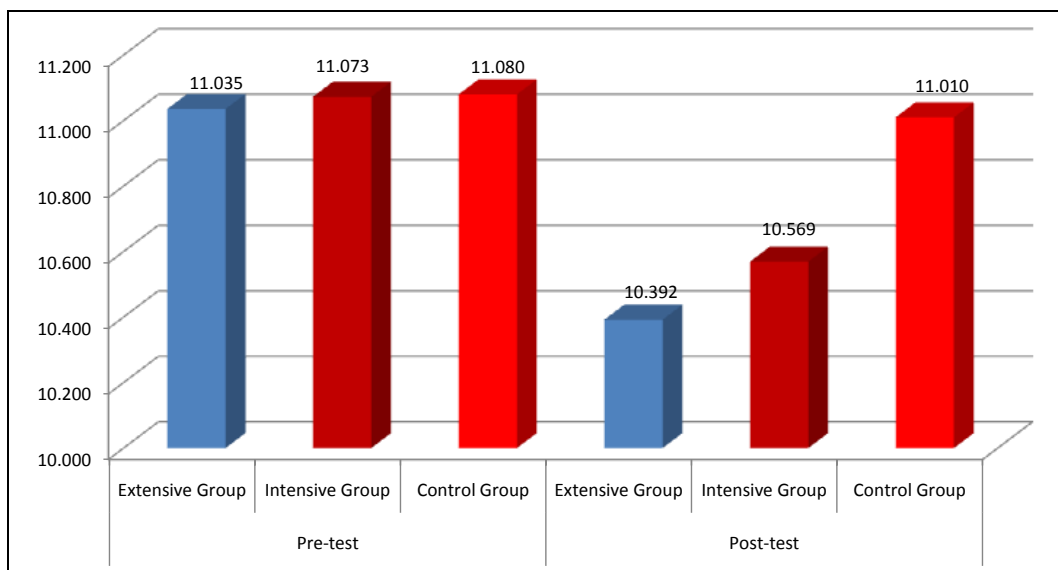


**Fig 2:** Means for the Data on Leg Strength of Pre-test and Post-test among the Extensive Training Group, Intensive Training Group and Control Group of Kho-kho Players

**Table 4:** Paired Mean Difference For The Data on Agility of Pre-test and Post-test among the Extensive Training Group, Intensive Training Group and Control Group of Kho-kho Players

| Pre-test        |                 |               | Post-test       |                 |               | Mean Difference | Critical Difference |
|-----------------|-----------------|---------------|-----------------|-----------------|---------------|-----------------|---------------------|
| Extensive Group | Intensive Group | Control Group | Extensive Group | Intensive Group | Control Group |                 |                     |
| 11.035          | 11.073          |               |                 |                 |               | 0.037           | 0.358               |
| 11.035          |                 | 11.080        |                 |                 |               | 0.045           | 0.358               |
| 11.035          |                 |               | 10.392          |                 |               | 0.643*          | 0.358               |
| 11.035          |                 |               |                 | 10.569          |               | 0.466*          | 0.358               |
| 11.035          |                 |               |                 |                 | 11.010        | 0.025           | 0.358               |
|                 | 11.073          | 11.080        |                 |                 |               | 0.007           | 0.358               |
|                 | 11.073          |               | 10.392          |                 |               | 0.681*          | 0.358               |
|                 | 11.073          |               |                 | 10.569          |               | 0.503*          | 0.358               |
|                 | 11.073          |               |                 |                 | 11.010        | 0.063           | 0.358               |
|                 |                 | 11.080        | 10.392          |                 |               | 0.688*          | 0.358               |
|                 |                 | 11.080        |                 | 10.569          |               | 0.511*          | 0.358               |
|                 |                 | 11.080        |                 |                 | 11.010        | 0.070           | 0.358               |
|                 |                 |               | 10.392          | 10.569          |               | 0.177           | 0.358               |
|                 |                 |               | 10.392          |                 | 11.010        | 0.618*          | 0.358               |
|                 |                 |               |                 | 10.569          | 11.010        | 0.441*          | 0.358               |

\* Significant at 0.05 level

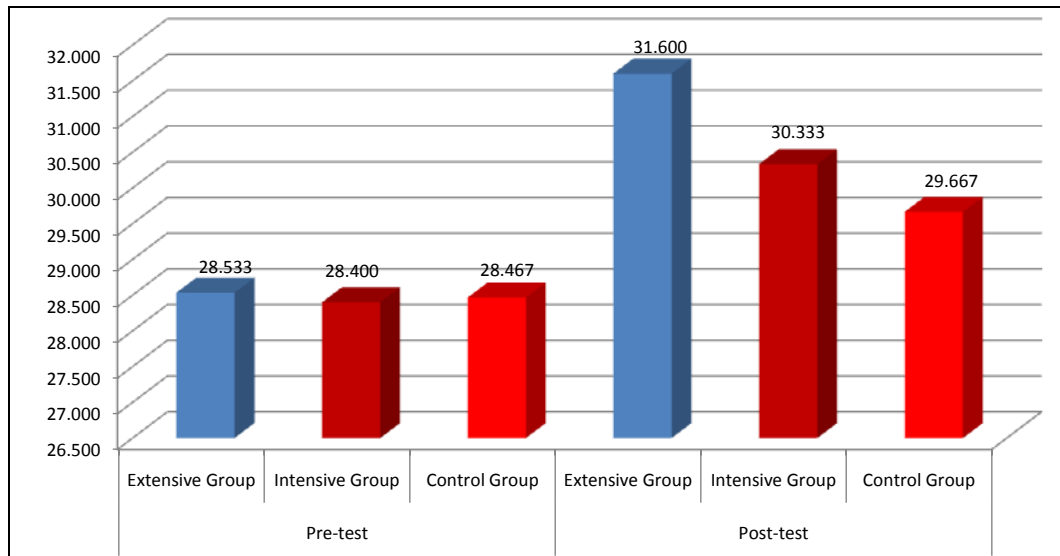


**Fig 3:** Means for the Data on Agility of Pre-test and Post-test among the Extensive Training Group, Intensive Training Group and Control Group of Kho-kho Players

**Table 5:** Paired Mean Difference For The Data on Abdominal Muscular Strength of Pre-test and Post-test among the Extensive Training Group, Intensive Training Group and Control Group of Kho-kho Players

| Pre-test        |                 |               | Post-test       |                 |               | Mean Difference | Critical Difference |
|-----------------|-----------------|---------------|-----------------|-----------------|---------------|-----------------|---------------------|
| Extensive Group | Intensive Group | Control Group | Extensive Group | Intensive Group | Control Group |                 |                     |
| 28.533          | 28.400          |               |                 |                 |               | 0.133           | 1.514               |
| 28.533          |                 | 28.467        |                 |                 |               | 0.067           | 1.514               |
| 28.533          |                 |               | 31.600          |                 |               | 3.067*          | 1.514               |
| 28.533          |                 |               |                 | 30.333          |               | 1.800*          | 1.514               |
| 28.533          |                 |               |                 |                 | 29.667        | 1.133           | 1.514               |
|                 | 28.400          | 28.467        |                 |                 |               | 0.067           | 1.514               |
|                 | 28.400          |               | 31.600          |                 |               | 3.200*          | 1.514               |
|                 | 28.400          |               |                 | 30.333          |               | 1.933*          | 1.514               |
|                 | 28.400          |               |                 |                 | 29.667        | 1.267           | 1.514               |
|                 |                 | 28.467        | 31.600          |                 |               | 3.133*          | 1.514               |
|                 |                 | 28.467        |                 | 30.333          |               | 1.867*          | 1.514               |
|                 |                 | 28.467        |                 |                 | 29.667        | 1.200           | 1.514               |
|                 |                 |               | 31.600          | 30.333          |               | 1.267           | 1.514               |
|                 |                 |               | 31.600          |                 | 29.667        | 1.933*          | 1.514               |
|                 |                 |               |                 | 30.333          | 29.667        | 0.667           | 1.514               |

\* Significant at 0.05 level



**Fig 4:** Means for the Data on Muscular Strength of Pre-test and Post-test among the Extensive Training Group, Intensive Training Group and Control Group of Kho-kho Players

### Discussion on Findings

- Significant difference found in speed ( $F = 4.683$ ), agility ( $F = 4.853$ ), leg strength ( $F = 5.558$ ), abdominal muscular strength ( $F = 5.756$ ) among the pre-test and post-test of Extensive Training group, Intensive Training group and Control group of Kho-kho Players.
- Also mean difference in speed, agility, leg strength, abdominal muscular strength among the pre-test and post-test of all the selected variables and post-test of all variables of Extensive Training group, Intensive Training group and Control group of Kho-kho Players because all the mean differences are greater than the critical difference.

### Justification of Hypothesis

From the findings it is observed that significant difference was found in pre and post-test of experimental groups in speed, agility, leg strength and abdominal muscular strength. Hence the researcher hypothesis is accepted.

### Conclusion

On the basis of findings and statistical analysis it is concluded that

- Significant difference observed between the pre-test and post-test of extensive and intensive groups in speed, agility, leg strength and abdominal muscular strength.
- Also mean difference in speed, agility, leg strength, abdominal muscular strength among the pre-test and post-test of all the selected variables and post-test of all variables of Extensive Training group, Intensive Training group and Control group of Kho-kho Players because all the mean differences are greater than the critical difference.
- It is also concluded that, Extensive training showed greater improvement than intensive training and control group in speed, agility, leg strength, abdominal muscular strength.

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