EFFECT OF STRETCHING EXERCISES ON THE PERFORMANCE OF 100 METER FEMALE NOVICE HURDLES”.

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Abstract:-
Objectives of the study were to find out the effect of stretching exercises on the performance of 100 meter. Female athletes. For that purpose 30 female athletes from Bhatinda district of Punjab were selected with the help of simple random sampling method. Sample was divided in to two groups i.e. experimental and control group. Given training programme was provided to experimental group where as pseudo training was given to control group. Pre test was taken before starting the training programme. After three weeks a mid test was taken to know the effectiveness of training programme. After six week post test was taken and it was found that significant difference found in pre and post test of both the group i.e. control and experimental group.

Key Words: Stretching exercise, performance, novice hurdlers
INTRODUCTION:
“Play is naturally to a child as leaves are to a tree. Human life, especially childhood sans play is a drab as dust. Play involves activity both physical and mental. Running, holding, pulling, pushing, handling and manipulating toys and others projects form household articles to balls and bats are all essential ingredients of man’s play activities. From infancy through adolescence or even childhood play assume various forms. From its individualistic nature in infancy to the team play in later childhood and formal games and sports in adolescence, play activities change like the kaleidoscopic spectrum. Through play the child strengthens and develops the motor mechanism which is so important for the acquisition of skills not only for sports but also for life.

Sports competition is nothing but the “violence of the cultured man” a war on nerves. The players lets himself go with in a legitimate code of conduct as he would dare to do anywhere, but at the same time he remains master of himself. As a matter of fact, phenomenal changes have occurred in the use of methods of teaching, training, coaching and handling sportsmen. More and more specialization is creeping in and now it is not a Childs play for everyone to become an elite athlete without having an excellent combination of genetic endowment, generally good environment and highly specialized training.

Significance of the Study:
1. The study would be helpful for hurdlers to improve their performance.
2. The study would be helpful for 100 mtr. female novice hurdlers to know the importance of some selected stretching to improve their performance.
3. The result of the study would motivate follow the particular training programme.
4. The study would be helpful to Physical Education Teachers to find out the new athletes for hurdling at college level.
5. This study would help to guide the new researchers who want to do research about the hurdling event and of the flexibility.
6. The main effect of this study was to draw more attention of coaches, players, enthusiasts towards the flexibility of 100 mtr. hurdlers.

1.1 Objectives of the Study:
The objectives of the study were as follows:
1. To study the effectiveness of the speed (50 Yard Dash) on students through ground exercises.
2. To study the effectiveness of the power (Standing Broad Jump) on students through ground exercises.
3. To study the effectiveness of the Agility (Shuttle Run) on students through ground exercises.
4. To study the effectiveness of the flexibility (Hip Flexion and Extension) on students through ground exercises.
5. To study the effectiveness of the endurance (600 Yard Run and Walk) on students through ground exercises.

Hypothesis:
“It was hypothesized that there would be no significant effect of stretching exercises on the performance of 100 mtr. Female novice hurdles.”

Scope of The Study:
Delimitations:
The scope of the present study was delimitated to the following aspects:
1. Only female subjects were taken for the study.
2. The present study was delimited only upto stretching exercises for 100 mtr. female novice hurdlers.
3. The considered age group was between 18-25 years.
4. The study would be delimited to Bhatinda District only
5. The study was delimited to the following exercises.
   a. Ground hurdle exercises.
   b. Ground hurdle rolling for dynamic stretching.
   c. Front-to-Rear splits.
   d. Side sit-ups or lateral stride stretching for dynamic stretching.

Limitations:
The following aspects were not under the control of the researcher:
1. There was no control on diet of subjects.
2. Environment factors were not under control.
3. Present Study was based on the facts given by the subjects.
4. Inherent potentialities of the subjects were not considered.
5. Researcher had no control over the leisure time activities of the subjects.
6. The weight and height of the subjects were not be considered.
Design of the study:
Sources of Data:
The students participated in 100 mtr. hurdlers from the selected college of Bhatinda district, was the sources of the data for the present study.

Sampling Procedure:
With the help of simple random sampling method 30 students were selected. Age group of selected subjects was ranging from 18 to 25 years, who used to practice 100 mtr. hurdle and participated in the college level competition of Bhatinda district.

Grouping of Subject:
After selecting the subjects from the different colleges of Bhatinda district, the researcher divided the subjects into two groups of fifteen players in each groups. Out of two groups one was ‘A’ Experimental group and second was ‘B’, kept as Control group.

Tools used for Collection of Data:
The following tools were used for collection of data:
1. 50 Yard Dash to measure the speed.
2. Standing Broad Jump to measure the leg power.
3. Shuttle run to measure the agility.
4. Hip flexion and extension to measure the flexibility.
5. 600 yard run and walk to measure the endurance.

Administration of Training Programme:
Training program was conducted on the Ground of Guru Kashi University Talwandi sabho, district Bathinda. In the beginning of the training programme all the subject of both the groups were given three trials of 100 mtr. hurdle with the time duration of approximately 2 minutes between the two trials to check the initial timing or the initial performance of subject, before giving the training programme. Average timing of three trials of all the subjects was noted separately in seconds.

Group ‘A’ of experimental group followed the stretching exercises during the training programme -
1. Front to Rear Splits.
2. Side Sit-ups or Lateral Stride Stretching
4. Ground Hurdle Rolling Exercises.
Whereas for control group pseudo programme was given.

Administration of the Test:
1) Pre - Test
2) Mid - Test
3) Post - Test

STATISTICAL ANALYSIS
Table No. – 1
Table showing the effectiveness of the Speed (50 Yard Dash) on Students through ground exercise

<table>
<thead>
<tr>
<th>Tests</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>SEM</th>
<th>t obtained</th>
<th>ttable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Test</td>
<td>Experimental Group</td>
<td>15</td>
<td>11.32</td>
<td>0.47</td>
<td>0.12</td>
<td>0.21</td>
<td>2.048</td>
</tr>
<tr>
<td></td>
<td>Control Group</td>
<td>15</td>
<td>11.37</td>
<td>0.48</td>
<td>0.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-Test</td>
<td>Experimental Group</td>
<td>15</td>
<td>10.73</td>
<td>0.29</td>
<td>0.07</td>
<td>4.73</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control Group</td>
<td>15</td>
<td>11.44</td>
<td>0.33</td>
<td>0.08</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

28 df at 0.05 level of significance.

From the above table no. 1, it can be revealed that the mean scores of Pre-test Experimental group and Control group are 11.32 and 11.37. Where as calculated value of ‘t’ 0.21 was less than the table value of ‘t’ i.e. 2.048 which shows that there is no significant difference found in Pre-test of 50 Yard Dash between Experimental group and Control group.

Similarly the mean scores of Experimental group and Control group are 10.73 and 11.44 where as calculated value of ‘t’ 4.73 was greater than the table of ‘t’ i.e. 2.048 at 0.05 level of significance there is significant difference found in 50 Yard Dash between Experimental Group and Control Group.
Graph NO. – 1
Table showing the effectiveness of the Speed (50 Yard Dash) on Students through ground exercise

<table>
<thead>
<tr>
<th>Tests</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>SEM</th>
<th>Obtained</th>
<th>ttable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Test</td>
<td>Experimental Group</td>
<td>15</td>
<td>1.67</td>
<td>0.14</td>
<td>0.4</td>
<td>0.048</td>
<td>2.048</td>
</tr>
<tr>
<td></td>
<td>Control Group</td>
<td>15</td>
<td>1.65</td>
<td>0.1</td>
<td>0.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-Test</td>
<td>Experimental Group</td>
<td>15</td>
<td>1.92</td>
<td>0.15</td>
<td>0.038</td>
<td>4.83</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control Group</td>
<td>15</td>
<td>1.64</td>
<td>0.10</td>
<td>0.02</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

28 df at 0.05 level of significance.

From the above table no. 2, shows that the mean scores of Pre-test Experimental group and Control group are 1.67 and 1.65. Whereas calculated value of ‘t’ 0.048 was less than the table value of ‘t’ i.e. 2.048 which shows that there is no significant difference found in Pre-test of Standing Broad Jump between Experimental group and Control group.

It can also be revealed from the above the table shows that there is significant difference between the mean scores of Post-test Experimental group and Control group are 1.92 and 1.64. The calculated value of ‘t’ 4.83 was greater than the table of ‘t’ i.e. 2.048 at 0.05 level of significance which shows that there is significant difference found in Standing Broad Jump between Experimental Group and Control Group.

Graph showing the effectiveness of the Power (Standing Broad Jump) on Students through ground exercise

Graph showing the effectiveness of the Power (Standing Broad Jump) on Students through ground exercise Mean
Table No. – 3
Table showing the effectiveness of the Agility (Shuttle Run) on Students through ground exercise

<table>
<thead>
<tr>
<th>Tests</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>SEM</th>
<th>t obtained</th>
<th>t table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Test</td>
<td>Experimental</td>
<td>15</td>
<td>7.14</td>
<td>0.4</td>
<td>0.10</td>
<td>0.3</td>
<td>2.048</td>
</tr>
<tr>
<td></td>
<td>Control Group</td>
<td>15</td>
<td>7.20</td>
<td>0.39</td>
<td>0.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-Test</td>
<td>Experimental</td>
<td>15</td>
<td>6.06</td>
<td>0.21</td>
<td>0.05</td>
<td>1.57</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control Group</td>
<td>15</td>
<td>7.02</td>
<td>2.15</td>
<td>0.56</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

28 df at 0.05 level of significance.

From the above table it can be revealed that the mean scores of Pre-test Experimental group and Control group are 7.14 and 7.20. Whereas calculated value of ‘t’ 0.3 was less than the table value of ‘t’ i.e. 2.048 which shows that there is no significant difference found in Pre-test of Shuttle Run between Experimental group and Control group.

Similarly the mean score of Post-test Experimental group and Control group are 6.06 and 7.02. The calculated value of ‘t’ 1.57 was less than the table of ‘t’ i.e. 2.048 at 0.05 level of significance there is significant difference found in Shuttle Run between Experimental Group and Control Group.

Graph showing the effectiveness of the Agility (Shuttle Run) on Students through ground exercise Mean

Table No. – 4
Table showing the effectiveness of the Flexibility (Hip Flexion) on Students through ground exercise

<table>
<thead>
<tr>
<th>Tests</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>SEM</th>
<th>t obtained</th>
<th>t table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Test</td>
<td>Experimental</td>
<td>15</td>
<td>34.2</td>
<td>2.43</td>
<td>0.63</td>
<td>1.60</td>
<td>2.048</td>
</tr>
<tr>
<td></td>
<td>Control Group</td>
<td>15</td>
<td>36.73</td>
<td>3.66</td>
<td>0.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-Test</td>
<td>Experimental</td>
<td>15</td>
<td>27.53</td>
<td>1.85</td>
<td>0.48</td>
<td>0.28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control Group</td>
<td>15</td>
<td>30.40</td>
<td>3.59</td>
<td>0.93</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

28 df at 0.05 level of significance.

From the above table it can be revealed that the mean scores of Pre-test Experimental group and Control group are 34.2 and 36.73. Where as calculated value of ‘t’ 1.60 was less than the table value of ‘t’ i.e. 2.048 which shows that there is no significant difference found in Pre-test of Hip Flexion between Experimental group and Control group.

The mean scores of Experimental group and Control group are 27.53 and 30.40. obtained ‘t’ value of 0.28 was less than the tabulated value of ‘t’ i.e. 2.048 at 0.05 level of significance. Which shows that there is significant difference found in Hip Flexion between Experimental Group and Control Group.
Conclusions:

Findings of the study were as follows:

Table No. – 5
Table showing the effectiveness of the Flexibility (Hip Extension) on Students through ground exercise

<table>
<thead>
<tr>
<th>Tests</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>SEm</th>
<th>Obtained</th>
<th>Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Test</td>
<td>Experimental</td>
<td>15</td>
<td>232.6</td>
<td>16.05</td>
<td>4.14</td>
<td>2.08</td>
<td>2.048</td>
</tr>
<tr>
<td></td>
<td>Control Group</td>
<td>15</td>
<td>221.47</td>
<td>4.56</td>
<td>1.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-Test</td>
<td>Experimental</td>
<td>15</td>
<td>239.33</td>
<td>3.36</td>
<td>0.86</td>
<td>3.82</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control Group</td>
<td>15</td>
<td>232.4</td>
<td>3.38</td>
<td>0.87</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

28 df at 0.05 level of significance.

Table – 5 shows that the mean scores of Pre-test Experimental group and Control group are 232.6 and 221.47. Where as calculated value of ‘t’ 2.68 was greater than the table value of ‘t’ i.e. 2.048 which shows that there is significant difference found in Pre-test of Hip Extension between Experimental group and Control group.

Similarly the mean scores of Post-test Experimental group and Control group are 239.33 and 232.4, obtained ‘t’ value of 3.82 was greater than the tabulated value of ‘t’ i.e. 2.048 at 0.05 level of significance, which shows that there is significant difference found in Hip Extension between Experimental Group and Control Group.

Table No. – 6
Table showing the effectiveness of the Endurance (600 Yard Run & Walk) on Students through ground exercise

<table>
<thead>
<tr>
<th>Tests</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>SEm</th>
<th>Obtained</th>
<th>Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Test</td>
<td>Experimental</td>
<td>15</td>
<td>1.80</td>
<td>0.29</td>
<td>0.07</td>
<td>0.91</td>
<td>2.048</td>
</tr>
<tr>
<td></td>
<td>Control Group</td>
<td>15</td>
<td>1.90</td>
<td>0.15</td>
<td>0.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-Test</td>
<td>Experimental</td>
<td>15</td>
<td>1.16</td>
<td>0.18</td>
<td>0.47</td>
<td>1.26</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control Group</td>
<td>15</td>
<td>1.82</td>
<td>0.19</td>
<td>0.05</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

28 df at 0.05 level of significance.

Table – 6 shows that the mean scores of Pre-test Experimental group and Control group are 1.80 and 1.90. Where as calculated value of ‘t’ 0.91 was less than the table value of ‘t’ i.e. 2.048 which shows that there is no significant difference found in Pre-test of 600 Yard Run & Walk Pre-test between Experimental group and Control group.

There is no significance difference between the mean score of Post-test Experimental group and Control group are 1.16 and 1.82, obtained ‘t’ value of 1.26 was less than the tabulated value of ‘t’ i.e. 2.048 at 0.05 level of significance, which shows that there is significant difference found in 600 Yard Run & Walk between the mean of both groups Experimental Group and Control Group.

Findings:

Findings of the study were as follows:

1. It was found that the calculated value of ‘t’ for effectiveness of speed for pre-test was 0.21 where as for post-test it was 4.43 which shown significant difference in post-test between experimental group and control group.
2. It was found that the calculated value of ‘t’ for effectiveness of the power for pre-test was 0.048 where as for post-test it was 4.83 which shown significant difference in post test between experimental group and control group.
3. The calculated value of ‘t’ for effectiveness of the agility for pre-test was 1.6 where as for post-test it was 1.57 which shown no significant difference in pre-test and post-test between experimental group and control group.
4. It was also found that the calculated value of ‘t’ for effectiveness of the flexibility (hip flexion) for pre-test was 1.60. Where as for post-test it was 0.28 which shown no significant difference in pre-test and post-test between experimental group and control group.
5. It was found that the obtained value of ‘t’ for effectiveness of the flexibility (Hip extension) for pre-test was 4.95 where as for post-test it was 3.82 which shown significant difference in pre-test and post-test between experimental group and control group.
6. Calculated value of ‘t’ for effectiveness of the endurance for pre-test was 0.91 where as for post-test it was 1.26 which shows the no significant difference in pre-test and post-test between experimental group and control group.

Conclusions:

1. It can be concluded that there was significant difference in effectiveness of speed between post test of experimental and control group. The difference may be due to effect of six weeks training program to given them.
2. There was significant difference in effectiveness of the power between post test of experimental and control group.
3. Conclusion is that there was no significant difference in effectiveness of the agility post-test of experimental group and control group.
4. There was no significant difference in the flexibility of hip flexion in between pre-test and post-test.
5. It can be concluded that there was significant difference in effectiveness of the flexibility of hip extension between post-test of experimental group and control group.
6. There was no significant difference in 600 yard run and walk between pre-test and post-test.

References: