Effect of yogic activities on lordosis of school students

Monika Saini

Abstract
The term lordosis refers to the normal inward lordotic curvature of the lumbar and cervical regions of the human spine. Generally imbalanced diet, improper environment improper development of muscles, obesity and diseases affecting vertebrae and spinal muscles are such causes which result in lordosis. In addition to these causes, not performing exercises and taking excessive food are also major causes of lordosis. Forty school Girls in the age group of 12 to 16 years were selected from Saini Girls High school Rohtak by using purposive sampling method as subjects for this study. Two groups were made each comprising of twenty subjects. After initial tests of the subjects, they were divided in two homogeneous groups by equating their performance. Yogic practice programme was administered to the experimental group whereas no treatment was given to control group. It was hypothesized that there would be significance effect of yogic activities on lordosis of school students. The findings of the statistical treatment showed the significant effect training upon the lordosis deformity hence, the hypothesis states earlier is accepted for above mentioned statement.

Keywords: Posture deformity, Lordosis, yoga

Introduction
The term lordosis refers to the normal inward lordotic curvature of the lumbar and cervical regions of the human spine. The term comes from the Greek lordosis, from lordos (bent backward). Lordosis is a condition where there is an increased inner curvature of the spine. The spine has a natural curve which is very mild and it helps the spine in its proper function. This natural curve is formed due to the shape of the individual vertebrae that make up the spine. If this spinal curvature increases, then it puts a lot of pressure or strain on the other regions of the spine resulting in pain. Hyper lordosis is an exaggerated lumber curve in the spine, in which the lower back curves inwards more than it would naturally do.

Postural Deformities
The Spine or backbone is made up of small bones stacked along with discs- one on top of another. A healthy spine when viewed from the side has gentle curves to it. The curves help the spine absorb stress from body movement and gravity. The spine should run straight down the middle of the back. When abnormalities of the spine occur, the natural curvatures of the spine are misaligned or exaggerated in certain areas, as occurs with lordosis, kyphosis and scoliosis.
Types of spine curvature disorders
There are three main types of spine curvature disorders including:

- **Lordosis:** Also called S wayback, the spine of a person with lordosis curves significantly inward at the lower back.
- **Kyphosis:** Kyphosis is characterized by an abnormally rounded upper back (more than 50 degrees of curvature).
- **Scoliosis:** A person with scoliosis has a sideways curve to their spine. The curve is often S-shaped or C-shaped.

Causes of Lordosis
Generally imbalanced diet, improper environment, improper development of muscles, obesity and diseases affecting vertebrae and spinal muscles are such causes which result in lordosis. In addition to these causes, not performing exercises and taking excessive food are also major causes of lordosis.

Statement of Problem
**EFFECT OF YOGIC ACTIVITIES ON LORDOSIS OF SCHOOL STUDENTS**

Hypothesis
- It was hypothesized that there would be significance effect of yogic activities on lordosis of school students.

Objectives of the Study
- The find out the effect of Yogic activities on lordosis of school students.

Significance of the Study
- The study would be helpful to aware the school authorities and parents of the students regarding lordosis postural deformity.
- The study may provide guidelines to the yoga teacher, physical teacher and coaches who prepare the students for upcoming events.
- The study would be also helpful for physiotherapists and yoga therapists to improve the deformity intensity among patients.

Delimitations
The present study was delimited as follows:-
1. The study was delimited the school students with the age range from 12 to 16 years.
2. The study was delimited only lordosis postural deformity.
3. The study was delimited only girls students.

Limitations
Following were considered as limitations of the study:
1. The diet and food habits of subjects were remained unknown to researcher.
2. There was no control over their daily routine.
3. No motivational techniques were used during collection of data by researcher.
4. The economical status was remained unknown to researcher.
5. The family background of the subjects was not being taken into consideration.
6. The living standard of the selected subjects was remained unknown in researcher.

Design of Study
Two groups were made each comprising of twenty subjects. After initial tests of the subjects, they were divided in two homogeneous groups by equating their performance. Yogic practice programme was administered to the experimental group whereas no treatment was given to control group.

<table>
<thead>
<tr>
<th>S.no</th>
<th>Name of Group</th>
<th>No. of Students</th>
<th>Exercise given</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Experimental</td>
<td>20</td>
<td>Yogic asana</td>
</tr>
<tr>
<td>2</td>
<td>Control</td>
<td>20</td>
<td>Nil</td>
</tr>
<tr>
<td></td>
<td>total</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

Tools used
Spondylometer

Procedure
The curve was taken as a criterion for lumber thoracic region for lordosis. After briefing every student for the use of Spondylometer, marked pegs was fixed in the holes made at distance of 3 inches on the Spondylometer. The subject was asked to stand with only bare footed on Spondylometer, on marked base with feet apart back were touch the pegs and hand were in relaxing positions and they keep the neck straight. The subject was asked to stand with his body in erect position as standing against a wall. The curves in the lumber region were marked on graph paper and angle of the curvature were measured and we noted down for lordosis. The intensity of angle was taken as score.

Administration of yogic asana practice program
The yogic asana practice was conducted for one month (Monday to Saturday) in a week.

Schedule of Yogic Asana Practice Programme

<table>
<thead>
<tr>
<th>S. No</th>
<th>Yogic Asana Practice</th>
<th>Pose Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Padahastasan</td>
<td>5-15 Seconds 3 times</td>
</tr>
<tr>
<td>2</td>
<td>Vakrasana (Left Twist)</td>
<td>5-15 Seconds 3 times</td>
</tr>
<tr>
<td>3</td>
<td>Vakrasana (Right Twist)</td>
<td>5-15 Seconds 3 times</td>
</tr>
<tr>
<td>4</td>
<td>Tadasana</td>
<td>5-15 Seconds 3 times</td>
</tr>
<tr>
<td>5</td>
<td>Paschimotanasana</td>
<td>5-15 Seconds 3 times</td>
</tr>
<tr>
<td>6</td>
<td>Sarvangasana</td>
<td>5-15 Seconds 3 times</td>
</tr>
<tr>
<td>7</td>
<td>Pawanmukatasana</td>
<td>5-15 Seconds 3 times</td>
</tr>
<tr>
<td>8</td>
<td>Halasana</td>
<td>5-15 Seconds 3 times</td>
</tr>
<tr>
<td>9</td>
<td>Naukasana</td>
<td>5-15 Seconds 3 times</td>
</tr>
<tr>
<td>10</td>
<td>Sawasana</td>
<td>5-10 mints</td>
</tr>
</tbody>
</table>

Analysis and Interpretation
The nature of the problem and objectives of the study the researcher to use mean (M), Standard Deviation (S.D) and t-test to calculate the effectiveness of Yogic activities on experimental and control groups. The hypothesis were tested by calculating the significant difference at 0.05 and 0.01 level on confidence.

The result of pre and post test conditions of experimental and control group have been presented the table no 1 & 2.

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>S.D</th>
<th>t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>65.479</td>
<td>1.998</td>
<td>0.090</td>
</tr>
<tr>
<td>Control</td>
<td>65.389</td>
<td>2.022</td>
<td></td>
</tr>
</tbody>
</table>

T=2.02 is significant at .05 level
T=2.71 is significant at .05 level
Table 2

<table>
<thead>
<tr>
<th>Experimental Group</th>
<th>Mean</th>
<th>S.D</th>
<th>t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>65.479</td>
<td>1.998</td>
<td>2.095</td>
</tr>
<tr>
<td>Post-test</td>
<td>63.384</td>
<td>1.464</td>
<td></td>
</tr>
</tbody>
</table>

**Conclusion Discussion**

This chapter presents the analysis and interpretation of data and results obtained through the pertinent statistical analysis. The data has no utility unless they are analyzed and interpreted by statistical techniques, analysis of data means, and mathematical treatment of the tabulated material in order to determine inherent facts and to draw comprisal information. It was hypothesized that there would be a significant effect of yogic activities on lordosis of school students. The findings of the statistical treatment showed the significant effect training upon the lordosis deformity hence, the hypothesis states earlier is accepted for above mentioned statement.

**References**

6. https://www.webmd.com