Effects of Selected Yoga Exercises on Correcting Idiopathic Scoliosis in Secondary School Students

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Abstract

Purpose: Scoliosis means side deviation in spinal column. This deformity may be strauctive (an eternal change in the bones or Soft tissue) or just a temporary disorder which was created because of reflexity in the muscles of spinal column. The goal of this study was to understand the effects of selected yoga exercises on correcting idiopathic scoliosis in high school students.

Materials and Methods: For this reason, 20 girls with idiopathic scoliosis (Average Age 15.55±1.5, Height 152.5±5.80 C.M, Weight 55.80 K.G) participated in this study as volunteers) were divided and Matched based on Scoliosis were divided into two experimental group (N=10) with (Average Age 15.70±0.94, Height 152.80±5.94 C.M, Weight 56.10±7.15 K.G) and the control group (N=10) with (Average Age 15.40±1.17, Height 152.20 ±6.39 C.M, Weight 55.50±7.79K.G). The method was in a way that they measured idiopathic scoliosis at first, and then experimental group did yoga exercise for 8 weeks, three sessions in week, and every session was 45-60 minute, but control group did no exercises. At the end idiopathic scoliosis was measured once more.

Results: The results show that idiopathic scoliosis has a significant effect on girl student in high-school and of post test a significant different was seen between two experimental group and control group. Amount of idiopathic scoliosis was better in experimental group than the control group. We analysis the data by correlated T and independent T test by SPSS 18 in ≤0.05 meaningful level.

Keywords: Idiopathic scoliosis, Girl student, yoga exercises.

Introduction

Scoliosis means side deviation in spinal column. This deformity may be strauctive (an eternal change in the bones or Soft tissue) or just a temporary disorder which was created because of reflexity in the muscles of spinal column (John et al., 2001). Structural scoliosis, can be created prior (without any recognizable reason) or in the field of another recognizable disorder such as hemi vertebra (The absence of a half a congenital vertebral) In any case, the spine structure is changed the spine structure is changed, while there are no changes in non-structural type. But this type untreated scoliosis may ultimately prove to be converted. There are so many types of scoliosis may occur in a certain age. The most common type is idiopathic adult (80 percent), the age group 10 years to skeletal maturity are included (Benetti, 1991; Emans, 1984).

So unfortunately, this anomaly occurs mostly at students. Formation and evolution of musculoskeletal conditions occur at this time Musculoskeletal abnormalities gradual change into Severe complication and makes their body poor and disproportionate (Hawes, 2003) If scoliosis is not treated in time can cause back pain, impaired lung function, psychosocial and social effects, increase the arch and improper function of muscles, bone structure bollix, fatigue, joint deformation, a biomechanical imbalance, nerve and muscle aches and Finally, psychosocial problems are created due to lack of fitness (Cannell, 2002; Knapp et al., 1992). Although idiopathic scoliosis in adults are diagnosed and treated all over the world, but the treatment is different in different countries.
In patients who are still in the developmental age, if the initial angle would be above 25 degrees and below 45 degrees, one of the most important and most common methods is using brace which is so popular in north of America (Kesling and Reinker, 2009; Parent et al., 2005) but if the initial deviation would be less than 25 degrees and above 10 degrees, one of the best ways is to do exercise and corrective actions which is done by Germany, Russia, France and Spain (Negrini et al., 2001; Negrini et al., 2005). In this context Otman et al (2005) examined the effects of correctional movements of idiopathic scoliosis concluded that corrective actions are effective in increasing muscle strength in patients.

Research results of Zakati et al (2010) as the effect of 8 weeks of spinal curvatures practice yoga on women with mechanical low back pain on 24 subjects 25 to 50 years indicated, there is a significant difference between lumbar Lordosis and thoracic in experimental and control group before and after yoga practice. But there was no significant difference in control group. Yoga and aerobic exercises is non-drug proposed methods which are considered (Pozzili et al., 2006). Yoga as a complementary treatment methods need to be evaluated in different populations due to cultural differences and the impact of these differences on the acceptance of this method. Yoga means unity and harmony of mind, body and soul, or in other words, the control of mind signals (Rafer, 2003) which Can contribute to the overall feeling of wellness by increasing Compatible of mental, neurological, immunological, cognitive devices (Parshad, 2004).

Yoga exercises have with no specific complication, if done by professionals with regard to patient conditions. But the effect of yoga on patients with idiopathic scoliosis is a question that more research needs to be done about it.

Teens are as future generations of our country, So unfortunately idiopathic scoliosis has spread in Iran among the teens (Saremi, 2010). These abnormalities may cause problems for all sports and even everyday life. On the other hand, with respect to the use of yoga in improving muscle strength and Decreased muscle imbalance, This study influence of conducted on a modified idiopathic scoliosis and some fitness factors of secondary school student.

Considering the above facts concerning the effectiveness of yoga in the treatment of idiopathic scoliosis because of research has been done on the subject, Therefore, a quantitative study is necessary on this topic. According to the results of such studies could be more confident in the choice of treatment in patients with idiopathic scoliosis. As a result, physicians can ensure patients that how much this treatment can be helpful. So given that there is little data in this case, doing this investigation is necessary.

Materials and Methods

This study is a clinical trial, based on Semi-empirical method with two experimental and control groups. The population of the study is all female high school students in Tehran have deformity of idiopathic scoliosis. Among them, 20 people were targeted. The method was in this way, the investigator visited a school in Tehran, 15 districts and after complete description of the study goals and procedures, coordination with education officials and teachers partnership identified suspected students suffering from scoliosis. Then for accurate diagnosis, scoliosis rates were measured using Scoliometer. Because scoliosis angle of 10 to 25 degrees can be removed with corrective movements and exercise, So all the people who have scoliosis in this range and between 18-16 years old were considered as the target population.

Then the 20 people who participated in the study Voluntary, matched based on Scoliosis amount were divided into two Experimental (N=10) and control (N=10) groups. At first The consent form completed by parents to their children, then The background questionnaire and clinical data were collected The following experimental group did yoga exercises for 8 weeks, 3 session a week and each session lasting 45 to 60 minutes and The control group did no exercise. At the end after 8 weeks the amount of scoliosis was measured once more. The data described by Measures of central tendency (Average) and Scattering (Standard deviation) and Descriptive Statistics. We analysis the data by correlated T test and independent T test by SPSS 18 in ≤0.05 meaningful level. Excel software was used for drawing the tables.

Results

Eight weeks yoga practice has a significant effect on the scoliosis of the girl students in high school. Also there is a significant difference between the amount of scoliosis in two experimental and control group and the amount of scoliosis in experimental group was less than control group.

Table 1: The amount of correlated T test about the amount of scoliosis

<table>
<thead>
<tr>
<th>Group</th>
<th>average</th>
<th>SD</th>
<th>df</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scoliosis experimental group in pretest</td>
<td>17.40</td>
<td>2.06</td>
<td>9</td>
<td>6</td>
<td>0.000</td>
</tr>
<tr>
<td>Scoliosis control group in pretest</td>
<td>15.40</td>
<td>1.34</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Scoliosis we are facing with vertebral.


Given that yoga can stretch shorted bones, so in this way can be effective. Yoga also pays attention to meditation, too. People with mental focus and try to adopt the correct position can be effective (yahyaei, 1997). On the other hand, it was characterized that there is significant difference between experimental group and control group in amount of scoliosis. Scoliosis rate in experimental group was significantly less than control group after exercises. In this case we can say yoga practice probably relieve muscle tightness and also strengthen the muscles bulge in experimental group and the control group did not exercise. Therefore, there is a significant difference between these two groups.

Para spinal muscle disorder is one of the main reasons for the creation of scoliosis (Rahnama et al., 2009) So it seems that developing the muscles of both sides of the spine can be effective in deleting a cause of creating scoliosis. So prescribe Strengthening exercises for weak muscles. Stretching exercise for the short muscles, Kinetic exercises for Joints with limitation of motion and Help people as possible to do sports which have both aspects, joyful and therapeutic, are the most important cases of treating scoliosis (Alizadeh et al, 2004). Also, as a general rule can be expressed, Arc occurred in teenagers is more flexible and less rigid than middle-aged people. These arcs in teenagers are not associated with pain and neurological symptoms unlike the middle-age people (Heary and Albert, 2007). So react quickly to an exercise program. Also in Yoga stretching exercise is done by emphasizing on Centralization (Zahedi, 2003). Thus improving the scoliosis in subjects as a result of yoga exercises seems logical.

Table 2: The amount of independent T test about scoliosis amount in both groups

<table>
<thead>
<tr>
<th>Group</th>
<th>average</th>
<th>SD</th>
<th>df</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scoliosis experimental group</td>
<td>15.40</td>
<td>1.34</td>
<td>18</td>
<td>3.67</td>
<td>0.003</td>
</tr>
<tr>
<td>Scoliosis control group</td>
<td>19.10</td>
<td>2.88</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Discussion and conclusion

By a review of previous studies we get that no research has been done to investigate the effects of yoga on idiopathic scoliosis. This study showed a good significant effect of yoga in participant, in a way that after exercises the amount of scoliosis was less significantly. The result was consistent with these researchers result: Zakati et al (2011), Rahnama et al (2009) and Etman et al (2005). In Scoliosis we are facing with vertebral rotation and lateral bending of the spine. Given that yoga can stretch shorted bones, so in this way can be effective. Yoga also pays attention to meditation, too. People with mental focus and try to adopt the correct position can be effective. In this case we can say yoga practice probably relieve muscle tightness and also strengthen the muscles bulge in experimental group and the control group did not exercise. Therefore, there is a significant difference between these two groups.

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References


