

**EFFICACY OF YOGA IN MANAGEMENT OF KYPHOSIS IN SCHOOL
CHILDREN: AN EXPERIMENTAL STUDY****Bharati G Dhokrat¹, Ph. D. & G. K. Dhokrat², Ph. D.**¹*Physical Education Teacher, BMC School, Kurla, Mumbai*²*Associate Professor, BPCA, Wadala, Mumbai***Abstract**

The present study assessed the impact of three months yoga program in management of kyphosis, a postural deformity. To conduct the study 1500 school children between six to 12 years were selected from B.M.C. School Kurla and screened for presence of kyphosis. Kypholordometer was used to determine presence of kyphosis among selected subjects. Out of these 1500 school children, 24 were found to be suffering from postural deformity kyphosis. These 24 school children were selected as sample. Specific Asnas, Pranayamas and Kriya as suggested by experts make up for three month yoga intervention program. Angle of kyphosis was measured twice i.e. before commencement of study period and after 3 months yoga intervention program. Result reveal that after imparting yoga exercise program, angle of kyphosis was found to decrease significantly as compared to what it was before the commencement of study period. It was concluded that yoga training program of certain duration is beneficial in management of postural deformity such as kyphosis in school children.

Keywords: Kyphosis, Yoga, School children



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Introduction:

Modern lifestyle saw an alarming rise in postural deformities among school children. This may be due to lack of physical activity, weight of school bag, deficient food habits etc. [Haselgrove et al., 2008¹; Ramprasad et al., 2010²] These modern day habits cause muscle imbalance that leads to postural deformities. If the body segments are out of their optimal alignment for extended periods of time, the muscles eventually adapt by either shortening or lengthening (Hrysonmallis and Goodman 2001³). One such common postural deformity is kyphosis.

According to literature citation of Fon et al., 1980⁴; Voutsinas and MacEwan, 1986⁵, kyphosis or hump is abnormal excessive kyphotic curvature that may occur in cervical, thoracic and sacral regions. Postural kyphosis (M40.0), the most common type, normally attributed to slouching, can occur in both the old and the young. In the young, it can be called 'slouching' and is reversible by correcting muscular imbalances. To address this issue of

postural deformity in the form of kyphosis, yoga may be looked as therapeutic method. Greenfield et al. (2009)⁶, do Rosario (2012)⁷, Shivasharanappa (2015)⁸ have documented the role of yoga for treatment of postural deformities. Despite these efficacy of exhaustive yogic exercise program has not been observed scientifically on management of postural deformity such as kyphosis in school children. Hence to fill this void, the present study was planned.

Objective of the Study

The main objective of the present study is to assess the efficacy of yoga exercise of short duration in management of kyphosis in school boys.

Hypotheses

It was hypothesized that after imparting yoga exercise program to selected subjects, angle of kyphosis will decrease significantly as compared to what it was before the commencement of study period.

Methodology

Sample :

To conduct the study 1500 school children between 6 to 12 years were selected from B.M.C. School Kurla. Kypholordometer was used to determine presence of kyphosis among selected subjects. Out of these 1500 school children, 24 were found to be suffering from postural deformity kyphosis. These 24 school children were selected as sample.

Tools

Kypholordometer Test for Kyphosis:

Kypholordometer is an evaluation method that uses an apparatus which consists of a vertical aluminium pole (39x58mm thick by 197cm tall) that supports 39 horizontal ¼-inch rods (40cm long). These rods are mobile, unbendable, equidistant and 4cm apart. The vertical pole is fixed on an orthostatic support platform lined with adjustable, non-slip material (73x56cm). There is also a level that allows corrections to the support platform, even when the floor is not completely flat. Attached to the pole, there is a lateral support made from acrylic to hold the sheet of paper where the analyzed curve is recorded. This instrument was used to assess angle of kyphosis.

Yoga Program:

Yoga, Kriya and Pranayam i.e. Asanas in supine, prone and sitting position were incorporated in three months yoga program. The yogic practices of 1 hours for five days in week were chalked out by the researcher. Asanas and Kriya's were added a suitable time interval. The main Asanas and Kriya incorporated in this program were Savasan, Ardha

Salabhasana, Ardha Halasana, Ardha –Padmasana, Vakrasana, Tadasana, Chakrasana, Makrasana, Kapalbhathi, OM’ chanting, Ujjayi Pranayam, and Anulomvilom.

Procedure:

To make the subjects involve themselves in the yogic exercise program an orientation class was arranged. The researcher has explained the purpose of the study to the subjects and their part in the study. The subjects were verbally motivated to attend the training sessions regularly. The subjects were sufficiently motivated to perform their maximal level during testing periods. Angle of kyphosis was recorded twice i.e. prior to commencement of study period and after the completion of three months yogic program. In this single group experimental design, the pre and post test scores on kypholometer was compared with the help of paired sample 't' test. The results depicted in table 1.

Analysis and Interpretation:

Table 1 Depicting Pre and Post Test statistics on Postural Deformities in School Boys (Before and After Yoga Training Program)

Postural Deformity	N	Pre-Test Mean±S.D.	Post Test Mean±S.D.	Mean Diff.	‘r’	‘t’
Kyphosis	24	26.79±2.41	25.16±2.71	1.62	.93	8.21**

Results of the correlated ‘t’ test show that in a group of school boys, mean kyphosis angle differ before yoga exercise program (M=26.79) and after yoga exercise program of three months (M=25.16) at .01 of statistical significance. The mean difference of 1.62 shows that after imparting yoga exercise program angle of kyphosis was found to decrease significantly as compared to what it was before the commencement of study period. (t=8.21, df=23, r=.93, p<.01)

Result and Discussion:

The result indicates beneficial effect of yoga exercise program in decreasing the angle of kyphosis.

Studies on effect of yoga in reducing postural deformities also states that regular participation in yoga can be used as remedial measures to cure, control and prevent postural deformities. Jothiharan (1998) reported that postural deviations of spinal column reduced significantly after implementation of yoga and remedial exercise In view of above, the results of the present study are consistent with scientific theories of yoga stating that various asanas correct poor posture such as kyphosis.

Conclusion

On the basis of results it was concluded that yoga training program of certain duration is beneficial for management of kyphosis in school boys.

References

- Haselgrove, C., Straker, L., Smith, A., Sullivan, O.P., Perry, M. and Sloan, N. (2008). *Perceived school bag load, duration of carriage, and method of transport to school are associated with spinal pain in adolescents: an observational study. Aust J Physiother*; 54: 193-200.
- Ramprasad, M., Alias, J. and Raghuvveer (2010). *Effect of Backpack Weight on Postural Angles in Preadolescent Children. Indian Pediatrics, Vol. 47, 574-580.*
- Hrysomallis, C., & Goodman, C. 2001. *A review of resistance exercise and posture realignment. Journal of Strength and Conditioning Research, 15 (3), 385–90.*
- Fon, G.T., Pitt, M.J. and Thies, A.C. (1980). *Thoracic kyphosis: range in normal subjects. Am J Roentgenol*; 134: 979–983.
- Voutsinas, S.A. and MacEwan, G.D. (1986). *Sagittal profiles of the spine. Clin Orthop.*; 210:235–242.
- Greenfield, G.A., Mei_Hua Huang, P.H., Karlamangla, A.S., Seeger, L. and Crawford, S. (2009). *Yoga decreases kyphosis in senior women and men with adult onset hyperkyphosis: results of a randomized controlled trial. J Am Geriatr Soc*; 57(9): 1569–1579.
- do Rosário JLP (2012) *Efficiency of Modified Yoga Positions to Treat Postural Pathologies Associated Pain: A Literature Review. J Yoga Phys Ther 2:128.*
- Shivasharanappa, P. (2015). *Impact of twelve weeks selected yogasana training on postural deformities of high school boys students.*
- Jothihran, J. 1988. *Effect of yoga and remedial exercises on Postural deformities. M.Phil Dissertation, Alagappa University, Karaikudi.*