

# BACK PACK AND POSTURAL CHANGES! IMPACT OF PHYSIOTHERAPIST'S AWARENESS PROGRAM ON SCHOOL GOING CHILDREN

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## ABSTRACT:

School children are prone for various musculoskeletal issues because of the load they are carrying through their backpack. They are not aware of the impact of the load which they are carrying on their health. The mode of carrying plays a significant role where a student usually neglects to attain proper posture. In India schools are focusing on students posture and growth. Although most of the schools are focusing on this still there are various schools which lacks this awareness the result is postural changes in children. If these postural changes are not corrected in the younger age, they will cause numerous musculoskeletal issues in future. We aimed at creating awareness among school going children regarding the carrying of backpack and its impact on postural changes by an educational program which was proved to be beneficial. We conclude by saying that all the schools should have awareness programs for children which help them in attaining optimal posture and prevent future postural malalignments.

**KEY WORDS:** Backpack, Posture, Gait, Spine mechanics,

## INTRODUCTION:

Growth and Development is a natural process which occurs in all the children but the manifestations will be more when the child starts going to school. This is the period where a child musculoskeletal system is prone for changes and if it is not follow a path it leads to structural changes which can affect the child in future.<sup>1</sup>

School going children's health has gained lot of attention in the recent years. As prevalence of spinal disorders are proven to be more in adolescents the researchers are trying to find out the cause by performing research in children.<sup>2</sup>

The effects of school bag weight on back pain, and evidence suggests that carrying a school bag weighing more than 15% of body weight increases the risk of back pain. School bag carriage are mainly concerned with reducing bag weight and optimizing bag design in order to minimize postural changes when carrying a school bag.<sup>1</sup>

Incorrect postural habits developed since elementary school can generate irreversible changes in children as ligaments and intervertebral discs suffer a degenerative process throughout life and do not have regeneration mechanisms. Preventive training programs that combine education and movement have good repercussion as a form of improving posture. Sleep, pain, balance, exercise tolerance, mobility of bones or joints, stability of bones or joints, muscle power, gait, and proprioceptive function. Structural impairments may include: posture, muscular limitations, structure of trunk, lower extremity, and Scoliosis, lordosis and kyphosis structural related problems.<sup>2</sup>

Children are introduced to the concept of carrying a backpack as early as two years of age when day care attendees carry a change of clothing, lunch, toys and more in their own backpack. The carrying of backpacks is associated with kinematic and physiological changes, as well as complaints of neck and back pain.

Studies of children and adolescents indicate a clear association between backpack load and measurable kinematic responses including modification of gait, posture, balance as well as physiological responses including cardiovascular, pulmonary, metabolic and nerve function changes and changes in lung volume.<sup>3</sup>

The purpose of the study was to examine the effects of backpack weights on children's posture, subjective complaints of pain and perceived exertion, and endurance. Our Objective was to evaluate the changes in the load carrying in the model of backpack use, in the way of carrying the school bag, subjective complaints and postural changes after the implementation of an educational program among the School going children.

## **METHODOLOGY:**

We identified schools near to our hospital. After attaining permission, the heads of the schools, and our institutional research approval, we have chosen 150 children by lottery method, after obtaining consent from parents we took video recordings in the school premises when they get down the transport system and get into the class by camera to film the children at the moment of their arrival for 5 consequent days. The footage will be classified according to the transport (unilateral shoulder, bilateral shoulder, manual, wheel transport.) Backpack was recorded by camera whether it is single strap or double strap. We have taken awareness program for all the five days to the students and to the teachers. The awareness Program included the video recordings to show

normal and abnormal postures clarifying doubts and taking videos. The presence of back pain will be assessed by VAS scale. We measured pain by VAS and postural changes by observation.

## RESULTS:

	Pre-VAS	Post VAS
At Shoulder Level	6	4
At Mid Back	7	4
At Low Back	7	5

Table 1: shows the pain scores pre and post awareness program.

After awareness program, the VAS score was decreased. Child's Walking was free enough without much deviations in posture and there was a drastic decrease in fatigue levels which we observed in recordings. The class teacher gave information regarding child's active participation in the class.

Postural changes were observed post awareness program with the help of the class teacher who helped us in study. We noticed decrease in drooping of shoulders, decrease in forward lean of trunk. Strain while carrying backpack decreased

## DISCUSSION:

The results of this study revealed significant changes in the school children's backpack use before and after the intervention in terms of backpack model, mode of transport and mainly in the backpack load. Immediate and significant changes in the children's posture, pain complaints, distance walked and ratings of perceived exertion. Subjective complaints of pain and functional endurance were impacted by the backpack weights. VAS pain scores reported after walking increased with increased weights. The changes in the backpack model and mode of transport are related to the instructions received in the educational session, which emphasized comfort and body symmetry during load bearing and recommended the bilateral shoulder use of double-strap backpacks.

## CONCLUSION:

After the awareness program, in Post evaluation, children are aware of their way of carrying, maintaining their posture erect, and importance of physical activity in daily life to avoid subjective complaints of pain and postural deformities. We have planned high quality study in future where we are going to perform a long term evaluation and follow up with the help of objective measures and 6 minutes' walk test

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**CONFLICT OF INTERESTS:**None

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