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**SONAL ATREYA**

Indian Institute of Technology Roorkee, India

## **EDUCATING CHILDREN ON THE NEGATIVE EFFECTS OF CARRYING A SCHOOLBAG INCORRECTLY**

### **Abstract:**

Children worldwide carry their books, notebooks, stationery and lunch box in a schoolbag. Since there are no prescribed limits to the weight of the bag, children carry up to 9 Kg load in their schoolbag as per our studies. Heavy weight in the bag as well as poor lifestyle and minimal physical exercise leads to obesity and backaches in children, among other discomforts. These patterns often are carried forward into the adult life thereby decreasing the quality of life. Doctors and parents all over the world are concerned regarding the negative impact the schoolbag imposes on children. Therefore, it becomes very important to educate children as well as parents on how to choose a bag wisely as well as to wear it in the correct manner to avoid any injuries. This paper studies the negative effects of the schoolbag on children and also proposes a methodology for investigating the relationship between design, load and effect on the body and the evaluation of a new schoolbag design concept. The human spine is made up of thirty three vertebrae. When one places a heavy bag incorrectly on the shoulders, the force pulls the wearer backward. One tends to bend forward at the hips to maintain the centre of gravity and this process can compress the spine unnaturally. This leaning forward behaviour over time can lead to rounding of the shoulders and may induce curvature in the spine. Some students prefer to carry the schoolbag unilaterally, as a result of which the body leans to one side to offset the extra weight, which can lead to back pain and posture related problems. This paper looks at the different types of backpacks and the different modes of carrying the backpack and the force induced by them on the body, and proposes a methodology to design an ergonomic backpack and also educating on children on how to use the bag effectively to their advantage in order to avoid any potential injuries.

### **Keywords:**

School bag, Children, Injury, Design, Ergonomics