

Guidelines on schoolbag use: Messaging to inform the stakeholders

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Despite the extensive research in the area of schoolbag carriage, there is a lack of evidence on the dissemination of information to the stakeholders or the acquisition of knowledge by the stakeholders about the topic. For example, few studies have involved the parents/guardians of the children. Yet, they are highly influential in their children's behaviours and central to the development of their children's lifestyle habits. Furthermore, they control the expenditure and play a significant role in the decision making on the type of schoolbag that is purchased. The compliance or adherence of children to schoolbag weight limit guidelines has been the focus of much of the research in this area. Poor compliance has been reported consistently [1–4], however, there is little documented evidence that children, or their parents, have ever received information or advice about the guidelines. Although a provision of specific weight limit guidelines is not advocated here, there is a need for some guidance to enable schoolbag carriage to be undertaken in the optimum way, to the benefit of the child.

The guidelines for schoolbag carriage that are presented in this document aim to provide a knowledge base for stakeholders, including users (children), providers (parents, retailers) manufacturers of schoolbags, and other stakeholders such as teacher organisations, health care professionals, and

policy makers. The intention is to disseminate the information to as many people in the target populations as possible.

Given the diversity of the potential target audiences for these guidelines, the emphasis on the relevant content may alter from one population to another. Additionally, the most appropriate and effective method(s) of delivery of the information to a target population may be different in each situation. Therefore a number of possible methods of delivery of the information are included in this document. A number of options have been provided, but other alternatives may also be appropriate for specific populations. It is hoped that knowledge transfer to the stakeholders involved in schoolbag carriage will enable them to focus on the relevant factors that promote safe, efficient and optimal schoolbag carriage, while limiting the potential for schoolbag-related discomfort.

1. Introduction

Globally, carrying a schoolbag is a common and necessary activity for school-aged children. Schoolbag carriage is an activity that is often associated with musculoskeletal pain or discomfort. However, the adverse effects of schoolbag carriage can be decreased if there is awareness of basic ergonomic principles. Consider the type of school bag, the contents and method of lifting and carrying the bag. The

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Table 1
Messaging about schoolbag use

Target population	Content of the messaging	Possible methods of delivery
Who to message?	What is the message?	How will the message be delivered?
Parents	What type of schoolbag to buy What size schoolbag to buy What features it should have What are the contents of the schoolbag How to put the schoolbag on and off How to use the schoolbag features How to carry the schoolbag How long to carry the schoolbag for	Information leaflet Text Email Phone App School website Social media Information seminar Podcast Poster at school entrance or classroom
Primary school children	What type of schoolbag to have What size schoolbag to have What features it should have What to put in the schoolbag How to put the schoolbag on and off How to use the schoolbag features How to carry the schoolbag How long to carry the schoolbag for	Information leaflet Information seminar/quiz Art project/competition Poster at school entrance or classroom Assembly
Post primary school children	What type of schoolbag to have What size schoolbag to have What features it should have What to put in the schoolbag How to put the schoolbag on and off How to use the schoolbag features How to carry the schoolbag How long to carry the schoolbag for	Information leaflet Text Email Phone App School website Social media as appropriate Information seminar Poster on class notice board Assembly
Teachers/Teacher organisations	What type of schoolbag to recommend What size schoolbag to recommend What features it should have What to put in the schoolbag How to put the schoolbag on and off How to use the schoolbag features How to carry the schoolbag How long to carry schoolbag for	Information leaflet Information seminar Teacher training In service training Conference exhibition stand Assembly School website DOE* website Teacher organisation website Social media Webinar Podcast
Health professionals (Primary care; public health)	What type of schoolbag to recommend What size schoolbag to recommend What features it should have What to put in the schoolbag How to put the schoolbag on and off How to use the schoolbag features How to carry the schoolbag How long to carry schoolbag for	Information leaflet Information seminar In service training Conference exhibition stand Professional website DOE* website Webinar Podcast
Manufacturers	What type of schoolbag to produce What sizes of schoolbag to provide What features the schoolbags should have What information to provide to customers	Information leaflet Information seminar Conference exhibition stand DOE* website Social media
Retailers	What type of schoolbag to recommend What size schoolbag to recommend What features it should have What to put in the schoolbag What information to provide to the customer	Information leaflet Conference exhibition stand DOE* website

(Continued)

Table 1
(Continued)

Target population	Content of the messaging	Possible methods of delivery
Who to message?	What is the message?	How will the message be delivered?
Policy makers	What type of schoolbag to recommend What size schoolbag to recommend What features it should have What to put in the schoolbag How to put the schoolbag on and off How to use the schoolbag features How to carry the schoolbag How long to carry schoolbag for	Information leaflet Conference exhibition stand Social media DOE* website

*Department of Education.

aim is to eliminate or minimise discomfort, similar to the approach used in risk assessment in the workplace, and make the most from the exercise that children can get when walking to and from school with their bags.

2. Schoolbag weight

The most frequently asked question about schoolbag carriage is, "What is the recommended weight that a child should carry in their schoolbag?" The response to this question is that there is no universal recommended weight for all children. A schoolbag load limit guideline that is based on the (i) absolute weight of the schoolbag or (ii) the relative weight of the schoolbag to the child's bodyweight does not predict schoolbag-related musculoskeletal discomfort or pain [5]. Furthermore, given the changing pattern of obesity in children [6], a guideline schoolbag weight that is based on the child's bodyweight is not appropriate. In the light of this, guidelines should focus on factors other than schoolbag weight as detailed in this document.

3. Guidelines for schoolbag carriage

- Use a backpack style bag with adjustable padded shoulder straps to fit the size of the child's back. *A bag that is too big, or that has not been adjusted to fit correctly will hit against the child's buttocks as they walk. The bag will move out of step with the child's normal gait pattern, resulting in a feeling of discomfort and a greater feeling of effort.*
- Look for a padded back and hip strap if possible. *The padded back protects the back and is more comfortable to use and the hip strap distributes the weight of the schoolbag.*
- Put the heaviest items in the backpack close to your back
This means that there will be less strain on the spine when the bag is carried.
- Wear the bag on the back with the straps on both shoulders.
This method of carriage has been shown to require less effort and encourages better posture than carrying the schoolbag over one shoulder or carrying it in one hand.
- Carry only what is needed. Think ahead and only carry books and other items as required. If there is a locker available in school, you should make good use of it.
- Carry only when you have to.
It has been found that the length of time that the schoolbag is carried and the combination of length of time and schoolbag weight may be relevant for back discomfort or pain. However, further investigation using objective measures of time would be required before more conclusive recommendations could be made. For now, children should be advised to wear the schoolbag only when they have to. For example, if standing around or waiting for a bus, leave the schoolbag on the bench or ground while waiting.
- Avoid swinging the schoolbag around and lifting it on the back.
Swinging the schoolbag onto the back applies a combination of twisting and side bending of the spine, which could cause excessive stress or strain on the spine. It is better to place the bag on a surface and with the child's back to the bag, put the arms through the straps. Or, another person could help by holding the bag while the child puts their arms through the straps.
- Where possible involve the school, maybe encourage better timetabling of classes to minimise the need for all books to be brought to school every day.

4. Conclusions

Exercise and movement are critical to healthy child development and to maintaining a healthy quality of life. Current physical activity guidelines state that children should perform at least 60 minutes of moderate-to-vigorous physical activity every day [7]. Walking to and from school while carrying a schoolbag could count as moderate activity and may be the only form of exercise that some children take. Therefore it should be encouraged, and not discouraged. Promoting the factors to limit the potential schoolbag-related discomfort and to apply best practice is the best way forward to ensure we get the balance right. In spite of the available evidence about schoolbag carriage there remains a dearth of knowledge among the principal stakeholders. Suggestions regarding knowledge transfer to the wide range of stakeholders are outlined in Table 1.

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