

Backpacks: Beasts of Burden

Would you ask your child to walk to school carrying a box of rocks, a bowling ball or a bag of sand on his or her back?

Unfortunately, that is how heavy student backpacks are getting. Backpacks are not only used to carry textbooks and binders but also water-bottles, in-line skates, laptop computers, CD's, gym clothes, shoes, cell phones, coats, lunches and beverage containers. A number of problems can occur if backpacks fit improperly, are too heavy, or are worn incorrectly.

The following information will help you to safely select and use a backpack:

Common Mistakes:

- Purchasing a backpack that is too large for the child
- Overloading the backpack
- Improperly loading the pack
- Not wearing the pack correctly

Things to watch for:

- Complaints of aching in the shoulders, neck, and back
- Red marks and creases on the shoulders
- Complaints of tingling or numbness in the arms or hands
- Hunched-over posture with the head down or jutting forward; leaning over to one side
- Awkward walking, tripping or stumbling, difficulties going up stairs or small inclines
- Difficulties with balance when walking or riding a bicycle
- Signs of "hard work" or exertion ... heavy breathing, noticeable flushing of the face, slowing down, complaints of tiredness or feeling weak

Proper Fit

- The backpack should fit comfortably between the top edge of the shoulders down to the lower part of the back. A good way to locate where the bottom of the backpack should sit is to find the top of the hipbone and then follow this line around to the backbone. The backpack should sit along this area, not at the top of the back or lower on the buttocks.
- The shoulder straps should be well padded and shaped so that they are wider over the shoulder and narrower as they pass under the arms.

- A wide hip belt will help distribute the packing weight better than a narrow one. A hip belt also keeps the weight closer to the body and helps to steady the load.
- For students carrying a lot of textbooks, binders, or a laptop, look for backpacks that have a foam-padded panel that goes along the centre of the pack. This will prevent sharp edges and corners from digging into the child's back. If the load is consistently expected to be greater than 3.5-4.5 kg (8-10 lbs.), consider purchasing a backpack that has a basic internal aluminum frame.
- For children who are younger (between the ages of three and 11 years of age) or who are smaller, child-sized versions of backpacks will give a better, more comfortable fit.

Other things to consider:

- Backpacks made of coated, rip-resistant nylon are very durable, and are easy to clean by wiping them down with a damp cloth or brushing them off. Nylon fabrics hold up in all types of weather, whereas canvas bags get heavy when wet, and plastic or polyvinyl packs can crack over time and in cold weather.
- Look for sturdy zippers and clips, neat stitching, durable straps, and reinforced stress points (e.g. stabilizing materials used at the attachment points of straps, double stitching of seams). Another important safety feature is reflective materials on the backpack and the straps.
- A strong top loop or handle allows for carrying by hand, and makes it easy for a child to hang the pack on a coat hook or in a locker. This handle also helps the wearer to safely take the pack on and off.
- A large u-shaped or panel opening allows a student to easily and securely load the backpack. Top loading backpacks may be more difficult to load with large items, and the items may shift inside more than with the panel-type backpacks.
- To ensure the best fit, have the child try the backpack on fully loaded. Fill the backpack with a weight that is equivalent to the books, materials, and equipment that would normally be carried, and then check fit and comfort.

Suggestions for proper use:

- Do not over pack! The weight of the pack should not exceed 10 to 15% of the child's body weight. The 10% ratio is a guideline for elementary school children, and the 15% range can be used with junior and senior high school students. For example, a 27 kg (60 lb.) grade one student should carry no more than 2.5 kg (6 lbs.); a 55 kg (120 lb.) high school student should carry no more than 8kg (18 lbs.).
- Place heavier items on top and along the back of the pack. This puts the greatest amount of weight higher up on the back and closer to the body.
- Use your larger leg muscles when picking up your backpack to prevent back strain. If the pack is too heavy, consider using one on wheels.
- Use both straps. Wearing a backpack over one shoulder can cause back problems and muscle strain.

- Fasten the hip belt. Adjust the straps and buckles so the weight is evenly distributed between the shoulders and hips.
- Keep it simple. Pack only the items that are absolutely needed.

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References: AOTA: Backpacks & Kids-1999, AOTA: Bearing the Backpack Burden-2001.