

## BACKPACKS: Are they causing you back pain?



Backpacks are one of the best ways to carry books, binders, lunch, running shoes and other items, whether for school or recreation. However, carrying an overloaded backpack or wearing one improperly can lead to poor posture, over-stretching of the soft tissue in your neck and back, and unnecessary strain on muscles and joints, according to the Canadian Physiotherapy Association (CPA).

Teenagers and children are particularly vulnerable to injury. They are growing and developing, and harmful or unnecessary strain on their bodies can affect their health, long term. Over time, the physical strain of carrying heavy loads can result in:

- Harmful strain and fatigue in the muscles and soft tissues of the back from overuse. Leaning to one side can result in an adaptive curve in the spine. Leaning forward may affect the natural curve in the low back, and increase the curve of the upper back and shoulders.
- Spinal compression and/or improper alignment that may hamper the proper functioning of the disks between the vertebrae that provide shock absorption. This leaves the back more vulnerable to injury.
- Stress or compression to the shoulders and arms. When nerves are compressed it can cause tingling or numbness in the arms and eventual weakness in arms or hands.

Reduce strain by using and fitting a backpack that works for you rather than against you. CPA recommends the selection and use of backpacks with the following features:

- **Padded back** – to reduce pressure and prevent the pack's contents from digging into your back.
- **Padded, contoured, shoulder and chest straps** – to help reduce pressure and balance the weight. Look for a backpack with thickly padded adjustable shoulder straps (2 inches wide)

and an extra hip strap. Adjust the shoulder straps so the bottom of the pack sits two inches above your waist;

- **Waist belt or hip strap** – to help distribute some of the load to the pelvis. The waist belt sends the weight of your pack down through your legs. Since your legs are more used to carrying weight, you won't get tired as quickly.
- **Compression straps** – on the sides or bottom of the backpack to help compress the contents of the backpack and stabilize the articles. Pack by weight, not size. Instead of folders or binders, put the heaviest books closest to your back.
- **Reflective material** – for visibility to drivers at night.

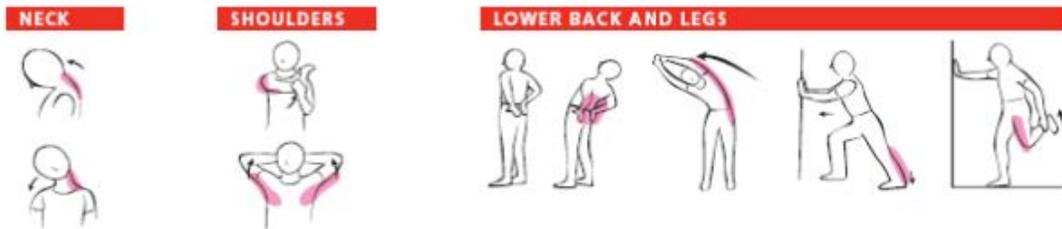
Backpacks are designed to distribute the load evenly. Worn correctly and not overloaded, a backpack is supported by some of the strongest muscles in the body: the back and abdominal muscles. These muscle groups work together to stabilize the trunk and hold the body in proper balance and postural alignment. CPA recommends the following tips for safe backpack use:

- **Use both shoulder straps** to help distribute the weight of the pack evenly and to promote a more normal posture. Using only one strap loads the entire weight of the bag over one shoulder. Over time, leaning to one side can result in lower and upper back pain, as well as strain to the neck and shoulder. Stand tall with your head and neck aligned with your shoulders
- **Make sure the backpack isn't too heavy.** When choosing a backpack, look for one made of lightweight materials, like canvas, to reduce the weight you will be carrying. A full backpack should never weigh more than 15 per cent of your body weight. For example, if you weigh 52 kg (115 lbs.), the backpack should not weigh more than 7.8 kg (17 lbs.). If you can't carry your backpack and talk without getting out of breath, you're carrying too much.
- **Fit the backpack to the person, not the person to the backpack.** When buying a backpack, make sure it is not oversized 'to carry more'. The shoulder straps should fit comfortably and not dig in to the shoulder or arm, allowing the arms to move freely. The bottom of the pack should rest in the contour of the lower back. The pack should "sit" evenly in the middle of the back, not "sag down" toward the buttocks. Backpacks for hiking and camping provide additional support through frames and special straps. Be sure to buy the right backpack for your body.

CPA recommends parents ensure their children do not carry their 'whole world' around with them every day. Teach them how to wear a backpack properly (and why) and look for the following signs:

- Pain when wearing the backpack;
- Tingling or numbness in the arms; and
- Red marks on the shoulders.

Above all, parents should encourage children to say if they have any pain or discomfort before it becomes a serious problem. CPA recommends the following stretches that will keep your child's muscles flexible and relaxed, their joints mobile, and relieve tension and strain.



Physiotherapists are healthcare professionals who help people of all ages and lifestyles gain and maintain their desired level of active living and physical mobility. With their applied knowledge and understanding of the human body in action, physiotherapists are able to help you to increase your mobility, relieve pain, build strength and improve balance and cardiovascular function. Physiotherapists not only treat injuries, they also teach you how to prevent the onset of pain or injury that can limit your activity.