



**ONTARIO CHIROPRACTIC ASSOCIATION  
ASSOCIATION CHIROPATRIQUE DE L'ONTARIO**

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**LONG TERM IMPLICATIONS OF IMPROPER BACKPACK USE  
BACKGROUND**

**A HEAVY BACKPACK CARRIED ON THE BACK CAN:**

- Injure the neck, shoulder, back, cause numbness in the arms, and reduce blood flow to the surrounding muscles and tissues.
- Create poor posture by encouraging the carrier to lean forward, reducing their ability to maintain balance and restrict movement.
- Distort the natural curve in the middle and lower back, which leads to muscle strain along with irritation of the spine, joints and muscles.
- Cause rounding of the shoulders.
- Put stress on neck muscles, contributing to headaches and neck pain.

**A HEAVY BACKPACK CARRIED ON ONE SHOULDER CAN:**

- Lead to muscle strain, forcing muscles to compensate for the uneven weight.
- Cause the spine to lean towards the opposite side placing stress on the mid-back and lower back. This may increase the likelihood of back problems later in life.

**EXPERIMENTS/RESEARCH**

- A Queen's University study for the Canadian military found that the choice of backpack and weight carried directly affects the comfort and spinal posture of individuals. Study author Ms. Joan M. Stevenson, PhD Professor and Co-ordinator of the Ergonomics Research Group at Queen's University noted that choosing the right backpack with the right attributes can make the difference between experiencing shoulder, neck or back pain and being pain-free.
- A scientific experiment found that carrying a backpack alters the mobility of spinal bones, leading to restricted movement—a risk factor for back pain (Spine 1999; 15; 24: 1015-22).

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## **IMPLICATIONS.../2**

- Another scientific experiment used magnetic resonance imaging (MRI) to examine the effect of backpacks on the intervertebral discs of the spine, the fluid-filled “pillow” between spinal bones. According to the findings, backpacks alter the fluid content of these discs, a risk factor for disc herniation (“slipped” disc) and osteoarthritis (Surg Radiol Anat. 1999; 21:109-13).
- By the end of the teen years, more than 50 per cent of youth experience at least one low back pain episode (Spine 1998; 23:228-34). Research indicates that this may be due in part to improper use of backpacks.

## **CHIROPRACTORS – BACK PAIN SPECIALISTS**

Chiropractors have long recognized the spinal health hazards of heavy book bags or backpacks as this alters posture and gait. Effects can be cumulative over time. Chiropractors play an important role in providing preventative education, early detection as well as providing chiropractic care in the treatment of backpack related injuries.

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### **FOR FURTHER INFORMATION PLEASE CONTACT:**

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