

[IMAGE]

## Your Backpack Is Stressing Your Spine

By Editorial Staff

When we think about who wears a backpack, we often think first of students and members of the military. But these days, backpack wearers increasingly transcend age and occupational categories. Who wears a backpack? The businessman who wants to avoid checking a bag at the airport. The mom preparing for a family day at the park. The senior staying active by hiking. The list goes on and on...

Backpacks serve a valuable purpose, but they're also risky when worn incorrectly or overpacked – particularly risky to the spine. In fact, according to recent research, a backpack can exert stress forces on the spine ranging from seven to 11-plus times the weight of the backpack, depending on whether the backpack is worn with the spine in a neutral position or 20 degrees of forward flexion (tilted-forward posture, as is often the case when carrying a heavy backpack – otherwise you would fall backward).

According to the study, published in *Surgical Technology International*, adding 1-100 lbs to backpacks in 25-lb increments revealed that with incremental weight increases, stress forces on the spine increased incrementally as well (again, from seven to 11-plus times the additional weight). Total stress forces were identical whether wearing the backpack with one or two straps, although it is important to note that using a single strap will distribute the force unequally to one side of the body, potentially causing postural and other compensations / injuries.

kids with backpacks - Copyright â Stock Photo / Register Mark Previous research links backpack use to back pain, spinal disc compression, neck pain, altered posture and walking mechanics, and even foot pressure. It's easy to understand why, considering the magnitude of force delivered to the spine and the fact that spinal health – for better or worse – influences the health of the entire body. Your doctor can tell you more about spinal health, backpack safety, and the appropriate weight and position (e.g., single- vs. double-strap, etc.) that will minimize injury risk when wearing a backpack.

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