



## Fenton Physical Therapy

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## Girls, Wait For Me!

On a recent vacation to Wyoming, my wife, two daughters, and I hiked all over Grand Teton National Park. During these excursions, I am the designated Sherpa—I carry the rain gear, water, snacks, lunches, sunscreen, and other assorted necessities in a backpack. We hike between twelve and fifteen miles a day, up and down the mountain trails. I was surprised at how much extra stress a twenty pound backpack had on my 200 pound body. In our physical therapy clinics, we often treat children and teens with neck, shoulder, and lower back pain. I am now more convinced than ever that the use of school backpacks contributes to many of their pain problems.

### ***Should Your Child's Backpack Be Expelled?***



Research at Simmons College in Boston found that over 55% of the children surveyed carried a backpack that weighed more than 15% of their bodyweight. Of that group, one third of the children reported pain that had caused them to visit a doctor, miss school, or abstain from physical

activities over the course of the school year. The ergonomic experts recommend 10% of bodyweight as the maximum safe weight for a student's backpack.

Research sponsored by the American Physical Therapy Association has demonstrated significant increases in energy expenditure, postural changes, and gait alterations with pack loads as light as 10% of body weight. The sizing, fitting, and proper use of backpacks has also been found to play a significant

role in safe backpack use.

### ***How do you know if your child is at risk for backpack problems?***

Is the weight of the pack greater than 10% of the child's body weight?

Does the child complain of pain?

Does he or she struggle to put the pack on?

Does the child carry the pack over one shoulder?

Is the child's posture or gait altered when using the pack?

Does the child report numbness or pins and needles in the arms or legs?

Are red areas or pressure indentations present over the shoulders or back?

### ***What to look for in a backpack***

Proper fit: The pack should fit over the mid part of the back and not over the lower back. It should not block the movement of the arms when walking. Many students carry packs that are too long. This places excessive load below the beltline and alters body mechanics.

Multiple compartments: Spread the load side to side and at various levels so contents do not rest in one area of the back. Compartments prevent shifting of the load when the student moves.

Padded straps: The pack should have wide, padded straps and a padded back. Wider straps with substantial padding decrease the pressure points across small shoulders, armpits, and back. If your child is going to do any prolonged walking with the pack, then the shoulder straps should have a connecting chest strap. The pack should be carried with both straps and not slung over a single shoulder

*Michael S. O'Hara, P.T., O.C.S., C.S.C.S.*

## Backpack Preparation

Most students spend the summer playing video games, watching television, and using the computer. They develop a slouched over posture with tight muscles in the front of the shoulders and weak core stabilizers. The first thing they do with the start of the school year is to throw a fully loaded pack on an unprepared body. Along with using a properly fitted and appropriately loaded backpack, a degree of physical preparation can go a long way to preventing injuries and pain problems. Three exercises are listed below to help students get ready.

### Four Point Ball Shoulder Stretches

A shoulder that is tight in the front and weak in the back is set up for a fall when you throw a backpack on it. Slouched sitting posture creates the ideal environment for muscles and ligaments to tighten up in the front of the shoulder. Try this exercise to improve shoulder mobility. Get on the floor on all fours, and position a physioball just outside the right shoulder. Place the right arm on the ball with the elbow bent to 90 degrees. Lower the body down until you feel a stretch across the front of the shoulder. Hold a gentle stretch for ten seconds, and then release the stretch. Perform six, ten second stretches on each shoulder.



### Shoulder Taps

Endurance with shoulder girdle and core stability are needed in order to carry a backpack for any distance. The Shoulder Tap will develop both of these attributes and can be scaled to any fitness level. Start in a push up position with the arms extended and the abdominal muscles braced. Place your feet at least shoulder width apart. Lift one arm up and touch the opposite shoulder. Repeat on the other side, and alternate Shoulder Taps for ten to twelve repetitions. The exercise can be made easier by raising the upper body and using a counter or table under the hands. To make it more challenging, place the feet on a bench.



### Belly On Ball "Y"s

This exercise will improve torso and shoulder girdle strength. Place a physioball under your stomach, and position your legs long and wide. Dig the toes into the ground to stabilize the body, and brace the abdominal muscles. Keep the elbows straight and point the thumbs up. Keep your eyes gazing down at the ground and the neck long. Raise the arms up overhead to create a "Y" body configuration. Hold for three counts and then lower slowly. Perform ten repetitions.



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## Fumble Free

Bradley was having a great year in football. He played tailback and defensive back on his freshman football team. After the third game of the season, he started to develop numbness in his right hand and pain in his right upper back. Bradley went to see his family physician and was referred for physical therapy.

Bradley could not remember any incident of injury on the football field. He stated his pain was often worse at the end of the day and it woke him from sleep. Bradley is an avid video gamer, and he used a backpack to carry his schoolbooks and gear. His sitting posture was terrible, and he did not feel his backpack use contributed to his pain. His right shoulder mobility was limited and he had pain with passive shoulder stretching.

We had Bradley bring in his pack on his second visit to therapy. Bradley weighed in at a bodyweight of 143 pounds, and his full pack tilted the scale at 23

pounds. His backpack was 17% of his bodyweight. The straps on the pack had minimal padding and it hung well below his hips. Bradley stated that he usually carried the pack on his right shoulder only.

Brad began a program of postural correction exercises and foam roll shoulder mobility drills. His physical therapist stretched out his shoulder and upper back. His mother purchased a padded and properly fitted backpack for him. He reduced the weight of the pack and consistently used both shoulder straps. Bradley's symptoms were eliminated in ten days, and his Mom reported he was doing well in football.



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Friday: 5:30am-9:00pm  
Saturday 8am-5pm  
Sunday 8am-2pm

## Sprintability

Last month, I wrote about integrating sprint based training into fitness programming. We went over all of the benefits and how it can improve many aspects of performance. Physical Therapist and Strength Coach, Martin Rooney has written and lectured on the value of utilizing the principles of sprint training with fitness clients. I have stolen some of his ideas and added few of my own suggestions for beginners. If you are just getting back to fitness, please lay a foundation of mobility, stability, and proper sprint mechanics for four weeks before starting on sprint training.

### **Sprint Mobility: Alternate Posterior Lunge**



Sprinters need big excursions of motion at the hips, spine, and shoulders. The Alternate Posterior Lunge helps train the joint motion pattern necessary to sprint. You can perform this drill in a stationary position, and as you get better, try moving across the room with each posterior lunge.

You reach the arms overhead and away from the lunging leg. Start with ten repetitions on each side.

### **Sprint Stability: TRX Fall Outs**



Sprinting involves moving the arms and legs and keeping the spine stable. The TRX fall out is a dynamic stabilization drill that can be

scaled to suit any fitness level. Kneel on a mat, and adjust the TRX so that the handles fall at chest level. Keep the torso muscles tight and move the hips and arms simultaneously. Fall out to a point you feel challenged and then hold for three seconds. This exercise can be made harder by lowering the handles closer to the ground and easier by elevating the handles. Perform two sets of eight to ten repetitions.

### **Sprint Mechanics: Skipping**

Skipping emphasizes the movement mechanics and neurological connections you need to sprint. Concentrate on popping off the ball of the foot and pushing the leg backward. Good drive from the arms moves the legs, so throw the opposite arm to the sky as you push with the leg. Two sets of twenty skips on each leg is a good start.



### **Sprint Training**

You should be able to perform the posterior lunge, TRX fall outs, and skips with some degree of proficiency before you begin sprinting. Start slowly with sprint training, and resist the temptation to do too much too soon. You have to go outside to sprint train, as running fast on a treadmill is not sprinting. When you sprint, you must move the arms so that the palms are open and the fingers touch the cheek on your face and then down to your gluteal muscles. Pumping your arms quickly from “cheek to cheek” moves your legs quickly. You sprint on the balls of your feet and not on your heels. Keep your neck relaxed and chest up. Start with a straight one hundred yard distance. Build speed up gradually, so the last forty yards is at eighty percent of your maximal speed. Allow sufficient time to recover and repeat for four to six sprints.

Michael S. O'Hara, P.T., O.C.S., C.S.C.S.