

PROPER LIFTING TECHNIQUE AND BACK BRACE USE

Do you ask a lot of your back? Do you bend or lift a lot? Do you have recurring back pain that flares up with use? If so, proper bending, lifting, and wearing of a back brace can help you to both prevent back injury and lessen painful flare-ups.

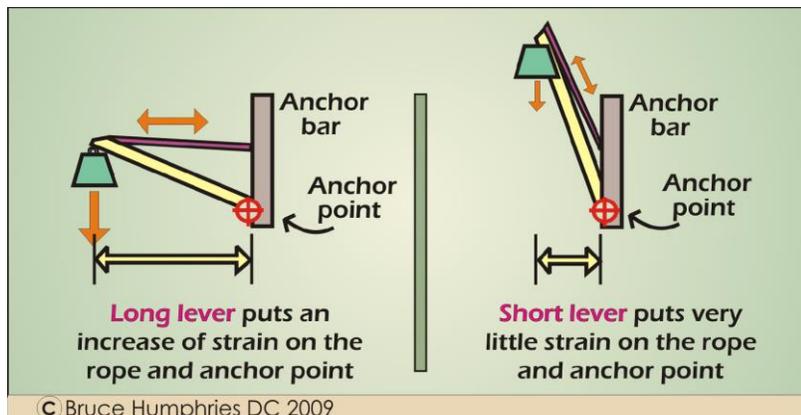
PROPER LIFTING TECHNIQUE

The mechanics of bending and lifting can be hard on the back, especially lifting with weight. There are various structures in our backs that can be injured during the lifting phase. Muscles can go into spasm, ligaments can be strained, discs (the spacers that cushion the back) can be injured and more. A person may get away with poor lifting technique for a while, especially if they are young and haven't had a previous low-back injury. However, improper repetitive use of the back leads to fatigue of these important structures. Sooner or later, the back may not be able to withstand the pressure placed upon it and injury occurs.

The laws of physics come into play with bending and lifting. If an object placed at the far end of a lever, it creates more force on the lever than it is placed at a short distance.



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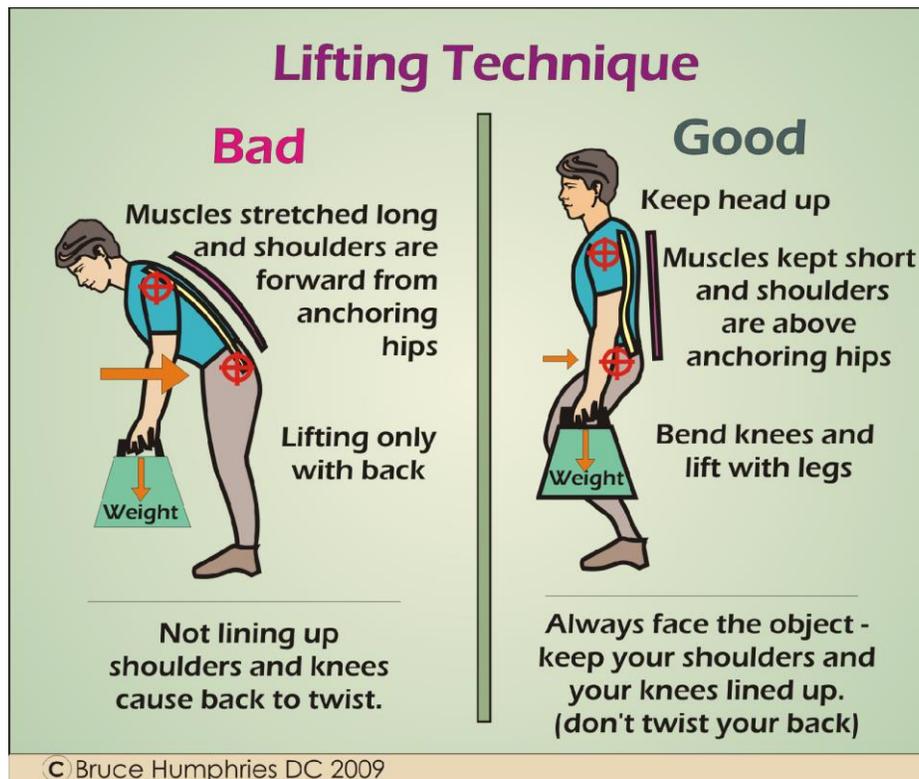
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When bending and lifting, our backs becomes a lever system. The spine is the lever, the hips are the anchor point, and the muscles of the back are the supporting rope.

Proper bending technique will create a short (and thus a strong) lever system. When bending the knees and lifting with the legs, the shoulders will be positioned over the hips, creating a short lever. As a result, a small force is created on the lever (spine) and the weight of the object travels safely down the back and hips. Additionally, the muscles are kept in their shortest and safest position.

Improper lifting can create a long (and thus a stressed) lever system. When lifting only with the back, the shoulders are positioned forward relative to the hips. With the shoulders forward, the weight of the object is further away from the hips, which creates an increased force on the lever (spine). Additionally, the muscles are stretched longer and have to contract with a greater force. This combination of a stressed spine and increased muscle contraction can cause the back to fail.

The goal of proper lifting is to keep the shoulders over the hips, keep the low back straight, and thus keep the lever systems short. This is accomplished by bending the knees and lifting with the legs.



When lifting this correct way, the back will be straight when viewed from the side. It is also important to keep the back straight when viewed from the front. This is achieved by not twisting the back to the left or right. The easiest way to accomplish this is to make sure our knees and shoulders are pointed in the same direction. In other words, the knees and shoulders should be lined up with each other.

Additional problems arise when the object to be picked up is either too heavy or shaped in such a way that a person can't bend their knees to pick it up. Getting help is often the best option for picking up heavy or odd-shaped objects.

PROPER BACK BRACE USE

Along with good lifting technique, a back brace can be used to help support the back and avoid injury. But when and how should they be used? Following is a strategy for proper use of back braces. I will discuss how often to use a brace, how to use it intermittently, what types of activities they should be used with, as well as dispel a common myth that keeps people from correctly using a brace.

How often should a person wear a back brace? This depends on whether they are in pain or not and what activities they are doing. The more pain a person is in, the more frequently they will want to use the brace.

It is very impractical to wear a brace all day long. The only time a person should wear a brace for extended periods of time is if they are currently in pain. Their pain can be acute (meaning new onset and strong), or they can have chronic pain in which their back hurts most of the time. The use of a back brace can help an injured person to get through the day, even if they aren't lifting much. Fortunately, acute pain doesn't last too long. Once in a lower level of pain, or no pain at all, they will be able to use the brace less often.

As soon as the acute pain has passed, the brace can be used as needed. It should be used when a person is going to ask a lot of their back. No one wants to wear a back brace all day long: they get sick of having it on. Most jobs, even physical ones, do not require people to bend or lift constantly. There are breaks in the action, changes in job requirements. An "on again, off again" approach keeps a person from getting tired of wearing the brace.

Most braces are tightened with two steps: first, velcro the brace across the waist, and then take the two side straps and cinch them tight. This second cinching can easily be tightened when working hard, and loosened as soon as the exertion activity is finished. This strategy will greatly target the use of the brace and thus increase how effective its use will be.

Under what circumstances should the brace be worn? Once one is out of acute pain, the brace can be worn just with bending, lifting, or sitting in a bad chair. People who do not have physical jobs may not need to wear a brace very often, but may well need to wear one when they do physical work around the house.

There is a very common misconception surrounding the use of back braces. My patients are always asking me: "Won't wearing a back brace weaken my back?" This concept is repeated over and over again. The truth is no! Let me explain. I believe this concept comes from people falsely thinking that when they are using a back brace they aren't using the muscles of their back. If they aren't using the muscles of the back, then these muscles will slowly atrophy or weaken.

An extreme but helpful example of this muscle weakening is the "disuse" atrophy a person develops when wearing a cast. We all have seen people whose arms or legs have lost size (atrophied) after having worn a cast for a prolonged period of time. Why did their arm or leg get skinny? It is because without moving and contracting their muscles they weaken and lose size and strength (with muscles, you must use it or lose it). Over a period of six to eight weeks of complete disuse (from wearing the cast), there is enough weakening to easily see the difference. So muscles weaken, or waste away, with disuse.

But there is a difference between wearing a cast on a broken arm and wearing a back brace on a strained back. The difference is muscle contraction. There is little or no use of the muscles under a cast. However, when wearing a back brace, our back muscles still contract (in other words, the muscles continue to work) just as much as when we don't wear the brace. As a result, our back muscles aren't resting and won't waste away. So don't worry about a back brace weakening your back; it simply doesn't happen—even with prolonged use.

So what is the back brace doing? It is supporting the injured muscles of the back by clamping down on them when they are in use. This support helps to keep the muscles from going into spasm and causing pain. It is the same idea a tennis player employs when wearing a tennis elbow support while playing tennis. Firm support helps an injured muscle not to go into spasm.

As we can see, wearing a back brace can be a very important tool for people with acute or chronic back pain. People with no pain or past history of pain should also use a back brace to support their back during heavy exertion as a preventative measure.

Occasionally I will have a patient who states that it hurts more to wear a brace when they are in acute pain. Some conditions respond well to back brace use, and some do not. If this happens to you, then wearing the brace may not be for you at this time. Don't be afraid to try it again when you are at a different pain level.

One last thought: don't let the fact that you are wearing a back brace give you the impression that you can lift with bad technique or that you can lift more than usual. You must wear the brace with proper lifting technique to achieve the greatest protection from injury.

Bruce Humphries DC