The Use and Abuse of Weightlifting Belts

Avery D. Falgenbaum, EdD, CSCS
Dept. of Exercise Physiology
Lasell College

Nicholas S. Liatsos, PT, CSCS
Wellington Circle Physical Therapy & Sports Medicine
Medford, Massachusetts

WEIGHTLIFTING BELTS HAVE been used by competitive lifters for many years. Now it is commonplace to find this device around the waist of recreational weight trainers as well. This increase in popularity is due in part to several recent publications (1, 3, 4) in which the salutary effects of weightlifting belts are noted, and perhaps to creative advertising tactics.

Weight trainers of all abilities appear to be using weightlifting belts in order to improve their lifting capacity and decrease the potential for injury. However, the overuse—or abuse—of weightlifting belts may actually increase the potential for injury in weight trainers. This article explains the functions of a weightlifting belt, discusses its use and abuse, and recommends “prehabilitation” exercises for the muscles of the abdomen and lower back.

Purpose of a Weightlifting Belt

Historically, weightlifting belts gained popularity as a device for reducing stress during overhead lifts in which force was directed toward hyperextension of the trunk. This was particularly the case for the Olympic press, and to a lesser extent the jerk. Interestingly, many Olympic-style weightlifters do not wear a belt during the snatch, a lift in which forces are normally not directed toward hyperextension of the trunk.

The general purpose of a weightlifting belt is to provide support for the lower back region. By increasing intra-abdominal pressure (IAP), a weightlifting belt may actually decrease the compressive forces on the lumbar discs (1, 3, 4). It has been hypothesized that IAP during a lift may result in the formation of a rigid tube-like structure that limits spinal flexion, thereby decreasing the forces placed upon the supporting structures of the lower back (1).

If used appropriately, a weightlifting belt will increase IAP by compressing (4)—or preventing the protrusion of (1)—the abdominal compartment. By helping to support the spine, IAP reduces the forces required of the lower back muscles to perform a lift. Because spinal erector muscle forces tend to compress the spinal discs, the reduction of such forces has been said to reduce the likelihood of compressive injury to the spinal discs (1).

Furthermore, weightlifting belts prevent the back from arching excessively during overhead lifts, and weight trainers often note a greater sense of support when wearing weightlifting belts.

Proper Use

Weightlifting belts are manufactured by dozens of companies and come in a variety of materials, shapes, and sizes. The leather weightlifting belt is the most common, but belts made of other materials are also becoming popular. The standard weightlifting belt, commonly used by recreational weight trainers, is 4 in. wide in the center and tapers to 3 in. near the buckle. It is often made with a single layer of leather approximately 4 to 7 mm thick. In comparison, weightlifting belts used by competitive power lifters are 4 in. wide all around and are often made with three layers of leather, forming a thickness of 11 mm.

Although appearance and cost are noteworthy considerations, the real purpose of a weightlifting belt is to provide support for the lower back region. Thus, whatever

© 1994 National Strength & Conditioning Association
type of weightlifting belt is worn, it must be centered over the lower back (typically the buckle is placed over the navel) and sufficiently tightened during the lift. High IAP and intrathoracic pressures created during the lift may impede blood flow back to the heart, so it is important to remind weight trainers to breathe between every repetition and to loosen the weightlifting belt between every set (4).

It must also be understood that blood pressure and heart rate may be elevated while wearing a tightly cinched belt. Hunter et al. (2) found significantly elevated blood pressures and heart rates during a number of different exercises while subjects were wearing a weightlifting belt. Individuals with a comprised cardiovascular system would appear to be at greater risk when undertaking exercises with a back support.

It is generally agreed that a weightlifting belt should be worn during maximal or near maximal lifts. Lander et al. (4) have suggested the use of such belts with loads at or above 80% of the one-repetition maximum (RM). But weightlifting belts are not needed for all exercises, even if heavy loads are being lifted.

As previously noted by Harman et al. (1), this type of "belt-less" training should be of great value to athletes involved in sports in which weightlifting belts are not worn. Furthermore, it makes sense to encourage weight trainers of all abilities not to become too dependent on the support of weightlifting belts for every set of every exercise. In fact, a person who routinely wears a belt for every set should be extremely cautious when lifting without a belt, and when performing vocational and recreational activities that require muscular strength.

In support of this suggestion, Reddell et al. (6) observed that airline baggage handlers who used weightlifting belts and then discontinued their use had higher lost-day case injury incident rates.

Trainers and coaches may want to begin weaning an individual off his or her dependence on weightlifting belts by having him or her perform a very light warm-up set without the aid of a belt. Over a period of weeks or months, heavier resistances of up to 80% 1-RM may be employed without a...
weightlifting belt, as long as the supporting structures have adapted and the individual feels confident.

**Prehabilitation Exercises for the Abdomen and Lower Back**

Given the prevalence of lower back pain in the U.S. (5) and the potential for injuries to the postural soft tissues when performing a lift improperly, prehabilitation exercises for the abdominal and lower back musculature should be incorporated into a weight trainer's workout. Although the completion of one or more warm-up sets without a weightlifting belt is exercise specific and highly recommended, the postural muscles typically perform an isometric contraction during most lifts.

However, in many sports and activities of daily living, the postural muscles perform dynamic concentric/eccentric contractions at varying angles and varying amounts of force. Thus the following floor exercises for the abdomen and lower back should be incorporated into the exercise regimen of weight trainers. The number of sets and repetitions would depend on one's ability level. Generally beginners should progress from one set of 10 reps to three sets of 20 or more reps.

1. Partial sit-up (trunk flexion): Lie on back with knees bent and feet flat on floor; place hands behind head or across chest, and only raise shoulder blades off floor; relax and repeat.

2. Diagonal partial sit-up (trunk flexion with rotation): Lie on back with knees bent and feet flat on floor; place hands behind head, raise right shoulder blade off floor toward left knee; relax and repeat with opposite side.

3. Kneeling arm and leg raise (trunk extension): While on hands and knees, raise opposite arm and leg until they are parallel to the floor; relax and repeat.

4. Prone back raise (trunk extension): Lie face down on floor with a pillow under hips and abdominals; clasp hands behind head and raise chest off floor; relax and repeat.

**Summary**

Recent evidence (1, 3, 4) suggests that a weightlifting belt may aid in the performance of certain lifts and decrease the potential for injury by increasing intra-abdominal pressure. Although the additional support from a belt is strongly recommended for maximal or near-maximal lifts on some exercises, it may also be wise to use a belt during submaximal lifts that are performed to failure.

However, it is also important to perform one or two relatively light sets of an exercise without a belt in order to strengthen the postural musculature, thereby limiting one's dependency on such a device. Exercises for the abdominal and lower back region are highly recommended as part of a total conditioning program. ▲

**References**


**Avery D. Faigenbaum** is Director and Assistant Professor of Exercise Physiology at Lasell College in Newton, Massachusetts. He received his doctorate from Boston University and is certified by the NSCA and ACSM. He has published several articles on the benefits of strength training for various populations.

**Nicholas S. Liatsos**, a former strength coach, is now Director and Senior Physical Therapist at Wellington Circle Physical Therapy & Sports Medicine in Medford, Massachusetts. He is a certified strength and conditioning specialist and a competitive power lifter in the New England area.