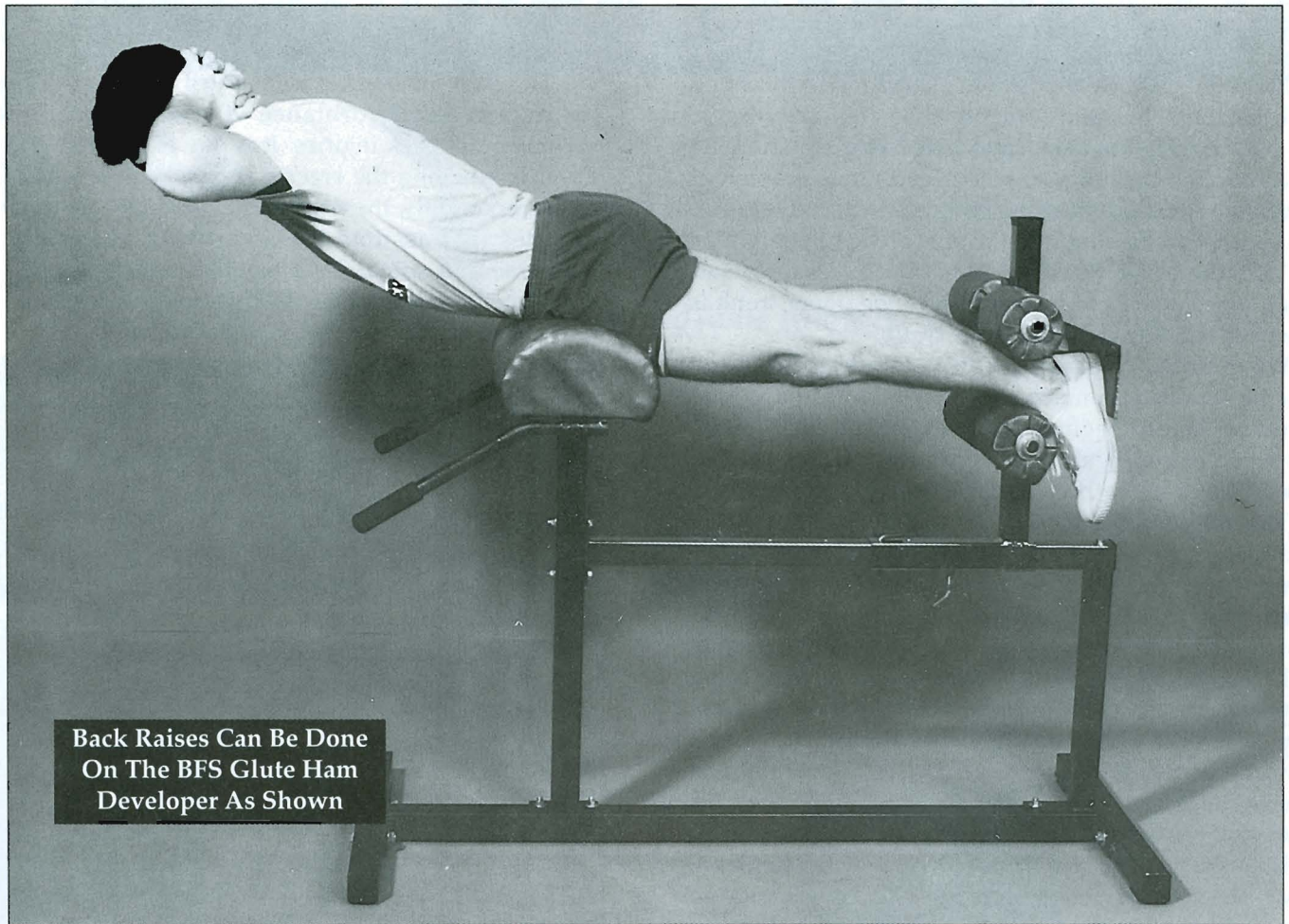


BACK RAISES



PREVENT BACK INJURIES BY DOING BACK RAISES

By Michael Yessis, Ph.D.
President, Sports Training Inc.

Every day that you pick up a newspaper it is not uncommon to read about an athlete not playing because of back injuries. These injuries are not limited to any particular sport as for example, basketball, football, baseball, track, rugby, lacrosse, ice hockey, and so on.

Athletes can usually play with minor injuries to the limbs and other body parts without too much problem. However, a minor injury to the spine can easily stop an athlete from performing. Also, because of a bad back it is not uncommon to find athletes who cannot do some of the key lifts in their training such as Squats and Deadlifts.

Thus prevention of back injuries should be foremost in the training of an athlete. However, which exercises to do is sometimes contradictory. Many people recommend strengthening the abdominals and stretching the lower back. However, in such a regime the lower back muscles do not get strengthened, but instead may become stretched and loosened. When this occurs they become even more prone to injury.

A most successful and increasingly prevalent method of strengthening the back is to do back extension exercises. This includes doing Floor Arches, Hyperextensions (in which the spine is kept in its normal lordotic position), the Pelvic Thrust, Cross-Body Lift and others. However, these exercises are very limited in range of motion. The only exercise to work the erector spinae (the main muscles of the lower back) through a full range of motion, is the Back Raise, especially when done on a Glute-Ham Developer (GHD). The reason for this is that the GHD is adjustable so that it can be made to fit athletes with long or short legs, midsections or trunks. To execute correctly the entire pelvic girdle should rest on the seat when the feet are secured between the rear pads. The upper trunk (from the lumbar vertebrae to the head) hangs over the seat so that the axis is in the waist. With the spine muscles relaxed, the spine will naturally assume a flexed (rounded) position and will be at approximately a 60 degree angle to the horizontal. It

Continued On Next Page

BACK RAISES: PREVENT BACK INJURIES

should not be vertical when this happens. The hips are over the seat and the axis is in the hips.

From this bent over position, extend (arch) the spine until the trunk is slightly higher than the lower body. Begin by raising the head and extending the thoracic spine and then the lumbar spine. Concentrate on each of these actions so that the same progression is followed on each repetition. Be sure that the legs are kept straight as you raise the trunk. Return to initial position slowly and repeat. Inhale and hold your breath as the upper trunk is raised and exhale as you lower the trunk.

When doing this exercise, it is important that the spine be rounded as much as possible (with the axis in the waist) before beginning the extension movement. This action places the muscles on stretch and provides for more effective strength and muscle mass development.

The amount of extension (hyperextension) that you do depends on whether you have a flat back or an excessively arched back (swayback). In a flat back there is very little arch in the lumbar spine. In this case, you can raise the upper trunk up to about a 30-45 degree angle above the horizontal if possible. If you have swayback, go only slightly higher than the level position. Keep in mind that in normal spinal alignment there is curvature of the lumbar spine. Thus, if you continually raise the trunk as high as possible (approximately 45 degrees), it can accentuate or develop swayback.

It should be noted that recent research in England, Australia and the U.S. indicates that extension (hyperextension) of the spine is not detrimental when the spinal muscles are responsible for the movement. In other words, when the erector spinae and the deep spinal muscles are contracted in order to perform the action, they withstand the forces involved. Major stress does not fall on the intravertebral discs or vertebrae. This is especially true when the action occurs through a range of motion above and below the horizontal plane.

When hyperextension occurs with gravity as the moving force (as when doing a back arch in a standing position), the spinal muscles are relaxed and stress falls on the vertebrae and discs. Such movements can be injurious.

When executing Back Raises, it is extremely important that you have the entire pelvic girdle situated on the seat of the Glute-Ham Developer. A Roman chair or hyperextension bench can also be used but only if it fits your body proportions, i.e., when your feet are in place the pelvis is on the seat. For most athletes especially the taller ones, it is almost impossible to be positioned correctly.

If the pelvic girdle is allowed to extend beyond the seat, the hip joint extensor muscles (gluteus maximus and hamstrings) should come into play to raise the trunk. When this happens, there is a tendency to "snap" the trunk upward with spinal extension-hyperextension as

hip joint extension takes place. This action can be injurious!

The Back Raise exercise is most important not only for improved performance of sports skills, but for prevention of back injuries. It is one of the best exercises for strengthening the erector spinae muscle group and, most importantly, the deep spinal muscles. These are the muscles that assume the major task of keeping the vertebrae and spinal discs together and in place. Thus, the erector spinae and the deep spinal muscles give you a very strong back when they are well developed.

With Tall Athletes, It Is Almost Impossible To Get Positioned Correctly Unless You Have A Glute-Ham Developer.
(see page 5 in the Catalog Section)

FOOTBALL AND JOGGING DON'T MIX

By Greg Shepard

In a pre-season practice I observed a football coach having his team jog a mile or two for time. This was part of the conditioning program to get the kids in shape. The players were working fairly hard but talked to each other during the jog. A mile was completed in about seven minutes. Now, I know coaches all over the country do this. In fact, I used to have my players jog from time to time. Is it good? Is it the best thing to do? Does it make sense physiologically? What are the pros and cons?

Jogging is great for overall general conditioning. It will aid in recovery time and improve an athlete's resting heart rate. It will also help reduce body fat. If you have set a goal to run 1 1/2 miles in 12 minutes and you make it, you can feel some pride in accomplishing a good level of general cardiovascular fitness. However, it will also develop your slow twitch muscle fibers and do nothing for the fast twitch fibers. Thus, your football players will be good at jogging but not very good sprinters. Is that what you want?

No of course not. Here's what to do. Sprint 20 yards and take a short rest interval of 10 to 20 seconds. Then sprint again. This is called sport specific training. Duplicate what happens in football as close as possible. You can do this Sprint-rest technique for 12 minutes and get the same benefits as jogging but with the development of the fast twitch muscle fibers. You can start from a football stance or run 3/4 speed for 10 yards and then sprint for 20 yards. You can also correct any faulty sprint technique form as well during this conditioning period.

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