The inclusion of the standing push press in thrower training will contribute directly to optimal performance in the shot put.

The shot put is a highly explosive event requiring the utmost in ballistic strength and speed. Producing an outstanding throwing performance is dependent to a great degree on the athlete’s ability to properly direct and utilize the large muscular forces the body’s “power zone” is capable of generating. Muscle groups comprising the power zone are the hip flexors and extensors, spinal erectors, quadriceps, and hamstrings. Consequently, the power zone provides the greatest potential to favor both strength and speed production and contributes most to throwing performance.

Analysis of the shot put shows that speed, quickness, and mobility are critical factors in peak performance throwing. Unfortunately, these are the factors most often neglected in training. A thrower must learn to quickly exert forces in various directions utilizing multiple-joint action. To accomplish this, throwers need to concentrate more on developing explosive, reactive ballistic strength through a full range of multiple-joint movements and less on absolute strength.

Ballistic torso-rotational lifting movements are the key to the development and transfer of power zone strength to the shot put as well as to the discus and hammer. They are athletic-type total-body lifts that require the thrower to concentrate on strength, acceleration, and speed. Athletic-type lifts meeting this criteria are the power snatch, power clean, high pull, parallel squat, and standing push press.

Noticeably absent from this list is the bench press. Many developing throwers have been falsely led to believe that heavy bench pressing is the key to good throwing. In reality, bench pressing is not an athletic-type lift and does not contribute to the development of the power zone. In fact, too much bench pressing can have a negative influence on throwing by contributing to excessive upper-body muscular bulk in the chest and shoulders. Throwing speed depends on functional full-body movement, and bulky, overdeveloped muscles interfere with the thrower’s range of motion and decrease flexibility and speed.

From a functional standpoint, the standing push press is superior to the bench press. As a free-standing, full-body lift, the push press requires the generation of high torso kinetic energy in the power zone, and its ballistic nature provides the proper development for excellent transfer of strength and power to throws. The standing push press is also good preparation for other sports requiring instantaneous high power output.

In executing a push press, the thrower is duplicating many of the biomechanical demands of throwing. For instance, the push press involves the application of stored kinetic energy, which is vital to the instantaneous power output required in throwing. The initial dip of the knees in push pressing involves a strong eccentric contraction of the hip and quadriceps, resulting in the generation of stored kinetic energy in the large extensor muscles of the power zone. Stored kinetic energy plays a key role in the transition from the knee dip to the upward ballistic thrust of the bar from the chest; it facilitates the bar thrust and assists in producing a powerful upward drive (concentrate contraction) of the hip and quadriceps.
extensors. This same rotational hip action is required in throwing (Table 1).

Push pressing also greatly assists in maximizing upper-body power. Once the bar reaches eye level, its continuous upward movement requires strong action from the spinal erectors, trapezius, deltoids, triceps, and forearms. These are virtually the same muscles used in throwing. During the execution of a push press, there occurs a summation of forces, through which the powerful muscular forces generated at the knee and hip joints are transmitted through the musculoskeletal system to the upper-torso muscles. In turn, these muscles transmit this force to the bar to maintain its upward acceleration. In throwing, effective technique is also dependent upon the summation of forces. Therefore, it makes good sense to train with athletic-type lifts like such as the standing push press that duplicate to a large degree the throwing movement.

By now it should be quite evident why throwers, as well as other athletes who need a powerful and mobile body, should utilize the standing push press more and the bench press less in their training. Granted, the bench press is both technically and physically easier to perform than the standing push press. If that is what one is looking for, fine. Remember, though, that the easy way out is not the road to athletic success.

Table 1

<table>
<thead>
<tr>
<th>Push Press Versus Bench Press:</th>
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<td>Compared to the bench press, the push press offers:</td>
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<tr>
<td>• Utilization of free-standing body movement patterns as required in throwing.</td>
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<td>• Technical challenge requiring speed, acceleration, timing, and coordination.</td>
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<td>• Accommodation of a wide range of rapidly changing leverage positions.</td>
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<td>• High demand on the muscular forces generated by large muscles of the power zone.</td>
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<tr>
<td>• Generation of full-range, multiple-joint power, utilizing torso-kinetic and torso-rational energy.</td>
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<tr>
<td>• Duplication of the basic thrusting and driving movements as required in shot putting.</td>
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Mechanics of the Standing Push Press

Start Position

With the hands spread slightly wider than shoulder width, clean the bar from floor to the chest. In the standing position, the head is up, chest out, elbows high, knees locked. Feet are parallel and spread hip width or slightly wider, toes turned out at about 15 degrees.

Immediately prior to execution of the push press, make a strong isometric contraction of the thigh and torso muscles. This action facilitates the stretch reflex mechanism, which produces a strong eccentric contraction in the flexor-dominant power zone muscles used in the initial driving phase of the push press.

Execution (Figure 1)

Simultaneously take a deep breath and make a slight knee dip (1/5 squat). Without pause, vigorously straighten the knees together with a forceful upward thrust of the hips, driving the bar to eye level or slightly higher. With shoulder and arm strength, press the
bar out to the overhead position. To maintain a strong leverage posi-
tion during execution, keep the bar close to the face.

Maximizing the summation of forces involved in the push press
depends on making a smooth, quick transition from one step to
the next. When performing the push press, think of strength,
speed, and technique.

**Recovery**

Once the bar is fixed overhead, lower it back to the chest (Figure
2). In doing so, unlock the knees, allowing them to serve as shock
absorbers, thus reducing the stress on the lower back as the bar
lands back on the chest.

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