

Bench Press and the Athlete's Shoulder

by Andy Twellman

One of the most popular lifts in weightrooms and strength and conditioning facilities has always been the bench press. It has become a staple of training programs and a benchmark by which upper body strength is measured. In many cases, it becomes an obsession, which becomes evident when one sees how many different strategies and programs have been created with the sole purpose of improving the maximum bench press.

Collegiate and high school strength and conditioning programs have also utilized the bench press in an effort to improve strength in young athletes. However, despite the best intentions of the coaches, the manner and frequency with which the bench press is used often ends up causing more harm to the athletes than good. The primary concern with the bench press is the potential impact that it can have on shoulder function, which often leads to shoulder pain, which is one of the most common maladies affecting athletes today, particularly in the throwing and striking sports. Many athletes ignore the pain, mask it with anti-inflammatory drugs, or worse, are forced to miss practice or even games to allow their shoulders to rest.

The shoulder complex is comprised of four joints that link the arm to the body and allow for an incredible capacity for motion. However, the mobility comes with significantly less structural stability, meaning that the shoulder must rely on dynamic muscular control to provide stability to the joint. Under optimal functional conditions, this dynamic stabilization provides the shoulder with great ability to produce power, but the shoulder complex is also highly susceptible to altered mechanics due to changes in structure or length-tension relationships.



A pitcher and outside hitter require movement of the torso and shoulder in three planes of motion 1) Sagittal plane extension 2) Transverse plane rotation, and 3) Frontal plane sidebending

If we examine how the shoulder is used in sports such as volleyball and baseball, it is evident that both require nearly all of the available mobility of the shoulder complex. They also require the shoulder complex and surrounding joints to function together in synchronization so that the power generated in the legs and torso can be funneled through the shoulder effectively. In the loading phase of the throw and the spike, several key motions must occur for the muscles to stretch and store energy: 1) Rotation and extension of the thoracic and cervical spine 2) Retraction and upward rotation of the scapula 3) External rotation and abduction of the humerus. During unloading, the reverse actions occur. If any one of these motions are restricted, the body begins to compensate, using up available motion from other joints, often creating hypermobility (laxity) in another segment. From this disruption, the muscles begin to alter their length-tension relationships, and soon a dysfunctional pattern arises that can create chronic pain.

One of the most telling signs of an athlete at risk for shoulder pain is in their posture. What we typically see in these athletes is a slumped posture with the shoulders rounded forward and the wrists rotated forward to where the palms face back. This pattern has been termed “upper crossed syndrome”, which is characterized by **tight** pectorals, latissimus dorsi, and upper trapezius muscles and **weak** scapular retractors (rhomboids, etc.). Such a pattern has a dramatic impact on the function of the shoulder, particularly for athletes who throw or strike overhead. With tight pectoral and lat muscles, the body is no longer able to create the range of motion necessary to produce power and activate the muscles that stabilize the shoulder. These shoulder stabilizers are particularly important during the deceleration of the arm once the ball has been thrown or struck, and when they do not assist properly, an

overload is applied to the rotator cuff muscles. When the upper trapezius muscles become overactive, the mechanics of the scapulothoracic and glenohumeral joints is affected, and often any overhead movements become painful.

Traditionally, treating a sore shoulder involves attacking the symptoms of the pain rather than the underlying causes. Modalities typically include: 1) Ice 2) Anti-inflammatories such as ibuprofen 3) Rotator cuff strengthening exercises. The first two directly act to decrease inflammation, while the third is an attempt to strengthen the muscles that are most commonly afflicted with overuse injuries. The problem with most rehabilitation programs is not these techniques, but the fact that this is where many shoulder pain reduction strategies stop. Such a protocol ignores the underlying causes and does nothing to insure that the problem will not recur.

With any athlete, regardless of whether or not he/she suffers from shoulder pain, it is important to examine the function of the shoulder joint and examine whether the shoulder has the necessary mobility and dynamic stabilization necessary to stay healthy. The training program an athlete undertakes should promote a well-functioning shoulder, but in many cases, do not. Some of the most common training mistakes athletes make are:

- 1) Overtraining with pressing exercises such as the bench press and incline bench press. Often athletes do these exercises every time they lift because of the emphasis placed on performing these exercises well. The training time devoted to the presses often ends up taking away from other movements involving pulling and rotation, resulting in unbalanced training that creates altered movement patterns.
- 2) Not maintaining the mobility of the muscles surrounding the shoulder complex. Many athletes do a great deal of strengthening using the pectorals and other anterior shoulder muscles and virtually no stretching of those same muscles. The combination of excessive pressing in training and the effects of gravity and poor posture acts in feed-forward fashion to restrict the ability of the scapula, humerus, and clavicle to move properly.
- 3) Training muscles in isolation. Even programs that target proper balance in the shoulder complex sometimes fall short in this respect. In order to truly optimize shoulder function, one must stretch, stabilize, and strengthen the shoulder using integrated movements such as those used in the athlete's sport. Isolating movements that only allow movement at the shoulder such as exercises in which the athlete sits, lays down, or stands still do not train the shoulder in the manner in which it is used in sport.

To truly improve shoulder function, we must have a full appreciation and understanding of what the rest of the body is doing – and should be doing – while the shoulder performs. We must appreciate how rotation at the hip drives the lumbar and thoracic spine above, and how this movement can either enhance or impair the ability of the shoulder to function properly. A dysfunction at any of these levels can cause pain, compensation somewhere else in the chain, a reduction in the power and speed that can be created by the arm whip, or all of the above. In order to train a throwing or striking athlete, we must incorporate triplanar mobility and stability exercises that address any limitations in the body that we find upon thoroughly evaluating the athlete.

When one examines the movements required of the shoulder, it is clearly evident that there can be many causes of shoulder pain besides “too much bench press.” An athlete may have restricted movement, strength or balance from many other places in the body that can impact the shoulder in a negative way. However, the concept of training for athletic performance being different from that of training for bodybuilding or powerlifting should be the take home message. When we decide what exercises to do, how often to do them, how heavy to go, etc., we should step back and take a look at how well our training prepares athletes for **performance**. More importantly, we should look at how applicable a particular training movement is to the sport we play. If we find that it is not very applicable, or that it may actually hinder performance, it would be wise not to center our weight training around that movement.

References

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