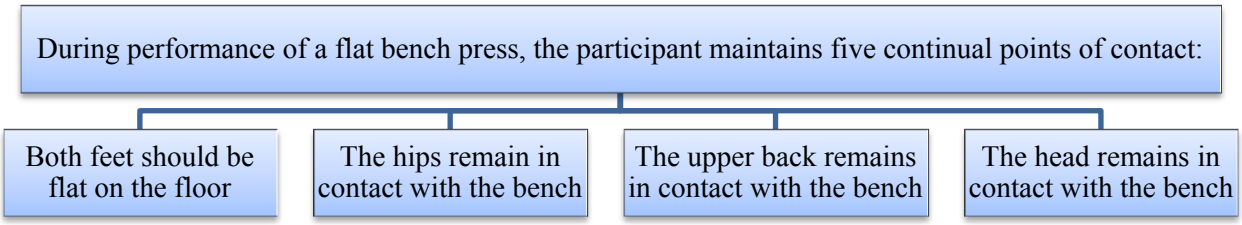
Lift Correctly, Optimize Gains: Volume 1 – Bench Press

Any resistance training activity, regardless of complexity, can be performed in one of two ways: (a) correctly, and in a manner that optimizes potential adaptation and muscle activation, or (b) incorrectly, and in a manner that increases the risk for injury and reduces intended muscle activation due to biomechanical compensations. For the purpose of this discussion we will review common compensatory actions associated with one of the most popular recreational lifts - the bench press. Even with a relatively stable, single-plane and straightforward activity like a chest press, numerous actions can be performed that reduce the transfer of force, or place joints/bodily segments in positions that minimize the workload of the prime and assistive movers for the movement.

Flat Barbell Bench Press



The barbell is lowered to the chest (above the xyphoid process) under control, and pressed back to the starting position via shoulder horizontal adduction and elbow extension; making the pectoralis major and triceps brachii the primary and secondary movers, respectively. The deltoid serves as a guiding neutralizer and assistive mover, while various scapular and glenohumeral joint stabilizers also have a part to play in the effective transfer of force and segment stability.

If there are any unwarranted modifications to the five-point stance and basic actions just described, the exercise is most likely being performed incorrectly and the load may need to be reduced.

- Novice lifters commonly error by lifting one or both feet upward during the concentric phase which changes the stability system. Lifting a foot off of the ground reduces stability, while maintaining both feet flat on the ground can increase stability and the transfer of force – but this action must not promote hip extension which is evident by the gluteals lifting off of the bench. Some lifters intentionally place their hips and knees in a flexed position in the air. The intention conceivably is to flatten the back, but the natural curvature of the spine means it is held neutral. If a lifter has a stability issue or a person bumps the bar, the last place they would want their feet is in the air.

- High hips represent the most frequent movement error during the bench press, and is usually seen among the “heavy lifters”. Lifting the hips up off the bench provides mechanical advantage and aids in moving the barbell off of the chest during the concentric phase. This action changes the joint angle of the lift to resemble a decline position. Excessive hip drive produces increased compressive forces on the discs of the vertebrae (excessive lordosis) and can reduce muscle work in the pectoralis major. Hip extension is often combined with a bouncing effect to create momentum forces that help accelerate the barbell back to the starting position.

- Some individuals lift their head from the bench which undesirably changes the spinal position and reduces the effectiveness of stability. The thoracic spine should be extended, not flexed, to optimize the use of the pectoralis musculature. Furthermore, cervical flexion impedes scapular function.
- Another common error is uneven pressing that leads to visible tilting of the barbell. This is common with lack of stability and function in one of the glenohumeral joints. Visual observation often identifies one arm as more abducted than the other. Strengthening the rotator cuff and ensuring muscle balance at the shoulder complex can assist with this issue.

The bench press exercise is certainly effective for developing strength and muscle hypertrophy in the upper body. The open chain environment and mechanical efficiency of the pectoralis muscles allow for heavy loading. To ensure the bench press is used safely, it is important to observe proper form and technique during all lifts. Due to the limitations in scapular movement and risk of humeral head translation, individuals using the bench press exercise with a level of regularity should also perform adjunct work to maintain shoulder complex health. Strengthening the rotator cuff muscles, ensuring the scapular plane maintains function, and stretching the joint capsule and related musculature is very important. A basic litmus test of shoulder joint efficiency is the Apley Back Scratch Test. It is easily performed by raising one arm upward, outwardly rotating the shoulder and reaching to the middle of the back with an open hand. At the same time, reach the contralateral arm backward and internally rotate the shoulder to connect the open hands in the middle of the back. An inability to attain finger contact suggests ROM issues. These issues can be worsened by heavy bench pressing.

The bench press can also increase risk for impingement syndrome and is commonly associated with AC separations. To avoid these issues be sure to perform a balance of pressing exercises with pulling exercises for the back and deltoids and use full ROM during all lifts. Shortening the range and adding load particularly with momentum increases risk for injury. Programming for proper muscular balance will help reduce the risk for upper cross syndrome, which commonly precipitates acromion impingement. IYT exercises and rotator cuff strengthening and stretching again will help significantly.

Lifting one or both feet upward

Arching the back

Lifting the head

Uneven bar