The Bench Press
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The Bench Press Apparatus

The bench press is done using a bench that is sufficiently stable and wide enough (10" to 12") so both of the scapulae rest on the bench while lying down. It is very important that the bench be strong enough to withstand both the weight of the lifter plus the weight on the rack.

This exercise may be done using free weights or a standard weight machine. Free weights have an advantage of providing equal resistance bilaterally. For example: If an athlete with a strength deficit in his/her left arm attempts to lift 120 lbs. on a weight machine, where right and left vertebral motions occur simultaneously, then the dominant arm will compensate for the deficit in the weaker arm and the lift will still be completed. However, when using free weights, equal efficiency is demanded from both sides in order to complete the lift. Weight machines, on the other hand, reduce the risk of injury from loss of control of the weight, on the part of the lifter. For reasons of simplicity, the following content will deal only with the aspects of benching with free weights.

Positioning

The lifter is positioned supine with the head and scapula supported by the bench. The lifter’s legs are flexed at the knee with the feet flat on the floor. The back should remain in contact with the bench throughout the lift. Proper position on the bench is very important for safety reasons and efficiency of movement while executing the lift. The hands should be held equidistant from the middle of the bar, using a standard hand grip with the forearm in supination.

Instructions

The athlete is usually assisted by a liftoff from a spotter who positions himself behind the bench. A good spotter gives a three count cadence in order to allow the athlete to ready himself for the weight.

With arms fully extended, the athlete holds a bar so that if a perpendicular line were dropped from the middle of the bar, it would hit the athlete in the middle of the sternum at about the level of the second rib. The athlete inhales, lowers the bar, and touches the chest on the imaginary apical line, then exhales as the bar is returned back to the starting position. It is very important that the weight not be dropped so quickly that the bar bounces off the chest. In addition to being dangerous, the athlete sets up a condition of conservation of momentum, and does not get full benefit from the lift.

Biomechanics

Use of a wide hand position selectively taxes the clavicular portion of the pectoralis major. Though the triceps brachii and sternal portion of pectoralis major are active, they are more selectively trained through use of a narrow hand grip. Thus the lifter is able to isolate two different portions of the pectoralis major by adjusting the hand position. Since the sternal portion of the pectoralis major is at a greater mechanical disadvantage than the clavicular portion, greater effort is required to lift the weight using a narrow hand grip.

The lifter imitates the bench press in resting position, with the elbows locked in extension and the weight directly over the chest. Muscular effort is not required to hold the weight in resting position since the force is transmitted through the long bones of the upper extremity, however, balance must be maintained by contraction of muscle components to stabilize the wrists and shoulders.

During the eccentric or lowering, the shoulder moves through horizontal extension, while range of motion at the elbow is from complete extension to about 120° of flexion. The weight must be lowered slowly, and this is achieved primarily by a lengthening contraction of the pectoralis major and minor, anterior deltoid, coracobrachialis, and triceps brachii.

Likewise, the same muscles act as prime movers during the concentric, or lifting phase. Many other muscles in the body, especially trunk and leg musculature act as skeletal stabilizers to allow the upper extremities to work more efficiently. It must be remembered that the resting position aligns the bar superior to the imaginary apical line, therefore, the lifter must not only push up, but also at a slight angle toward the head to complete the lift.
Above is the massive pectoralis major, the key muscle group of the bench press. Below, the pectoralis minor is shown in its deep position.