

“LAT” PULL DOWN ANALYSIS©

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“Is it safe to do a behind the neck lat pull down?” A question that should be, but is never, heard at health clubs and clinics all over “fitness land” as trainees blissfully go on doing the exercise to “hit the lats and upper back”. Lat pull downs behind the neck are potentially dangerous and always unnecessary in your fitness or rehab plan. Let’s take a look at this from a biomechanical point of view. The primary reason that this exercise is potentially dangerous is that it places the shoulder at a severe biomechanical disadvantage.

The end range of upper extremity external rotation and abduction places increased stress on the inferior glenohumeral ligament. Add resistance and repetitions and you place one of the primary stabilizers of the joint at risk. In addition, many of those who use this exercise have a tendency to pull the bar down ballistically which has the very real possibility of causing trauma to the cervical spine by impact of the bar on the spinous process. The glenohumeral joint, as we know, sacrifices stability for mobility.

The joint capsule allows for significant displacement of the joint anteriorly and inferiorly during movement. The joint is protected superiorly by coraco-acromial arch. That is comprised of the coracoid process, the acromium and their ligaments. Anteriorly the joint is protected by the three aspects of the glenohumeral ligament the transverse humeral ligament and the coracohumeral ligament. There is no major passive restraint inferiorly to the joint inferiorly.

Since the glenohumeral joint is externally rotated to about 90 degrees and more throughout both concentric and eccentric phases of the pull down there is increased stress on the external rotators of the rotator cuff (supraspinatus, infraspinatus and teres minor) to stabilize the joint. The performance of the behind the neck pull down puts the torso and cervical spine in flexion in order to place the bar behind the head. As a result, the glenohumeral joint is placed in adduction, external rotation, extension and abduction. This position places severe anterior and inferior stress on the joint while it is under load.

A serious strength trainee with currently healthy shoulders might consider the risk worth taking if it would lead to attainment of strength or hypertrophy of the involved muscles. However, as demonstrated in a recently published study, the benefit is not worth the risk! It turns out that the front pull down works the same muscle groups just as, if not more effectively, than it’s wayward cousin (the behind the neck pull down).

In this study 10 rep max pull downs were looked at using four techniques:

- close, neutral grip, front pull down
- close, supinated grip front pull down
- wide grip front pull down

- wide grip behind the neck pull down

The results are summarized as follows. Front wide grip pull downs resulted in the highest latissimus EMG activity. There was no difference in the other groups. There was no difference in any of the grips for teres major activity. (These results were the same for both concentric and eccentric portions of the lift). Rear deltoid activity was higher for all three front movements than for the behind the neck variation. (Eccentrically, the close grip had the greatest activity). Other muscles looked at were the pectoralis (close grip provided the most activity) and the triceps (wide grip front provided the most activity).

The bottom line is that you can effectively train the lats and the teres major (and to a much lesser degree the pecs and triceps) using the lat pull down. There is no evidence that the behind the neck version is superior but there is plenty of evidence of the risks. Conclusion: do pull downs to the front.

REFERENCES

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