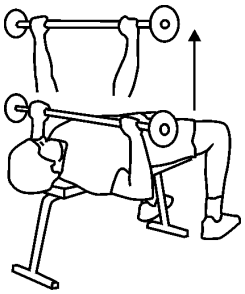
Overhead sport and resistance training

Overhead sports are more likely to develop muscular discrepancy, even more when athletes start at a young age. They will be more likely to experience bad posture and continued errors in technique, which would put them more at risk for injuries. The best way to avoid any complication is prevention, which is why technique and exercise choice are paramount in resistance training and cannot be done randomly.

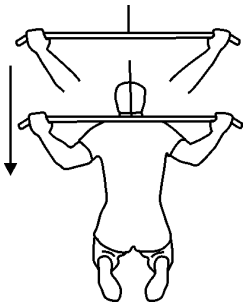
First, we are going to review the training exercises that require particular attention for the shoulders and need reconsideration during implementing a resistance training program for overhead athletes with a view to avert problems. See Dr Dale J. Buchberger who does not recommend doing "Bench press with bar, Lat pulldown behind the head, Up-right rows, Overhead press behind the neck, Empty- can exercise" for overhead athletes.



Straight bar bench press (Caution!)

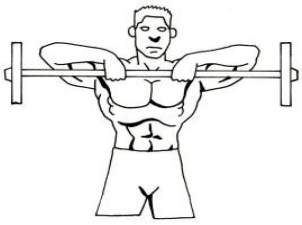
I would recommend avoiding doing the straight bar bench press. It can weaken the rotator cuff and damage the acromioclavicular joint. The reason is that the straight bar with a lot of weight causes the glenohumeral joint to become weight bearing, which results in premature degradation. In particular, if you work outside the weak link and if you bench press 200 lbs for 1RM (1 maximal repetition) and you cannot perform a flat press with tow dumbell of 100 lbs, something is wrong.

Instead I would recommend using dumbells but with a perfect technique (do not drop the elbow and keep them same level as the armpits). It strengthens the rotator cuff and develops the proprioception (balance) of the shoulders even more if done on a Swiss ball. Using dumbells instead of a bar does not fix the problem but helps to avert any problems if done properly.



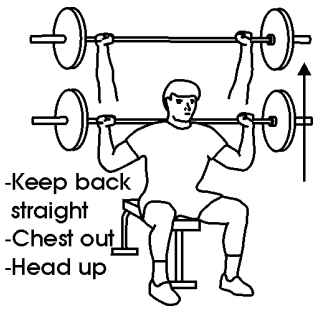
Lat pulldown behind the head (Caution!)

The next risky exercise is the lat pulldown behind the head because it puts the shoulder at risk of a 90 degrees abduction and a 90 degrees external rotation with the neck in flexion. This can result in anterior shoulders instability, neck pain and impingement. So it is better to do a front lat pulldown with a good technique. This means bar to the chest, with scapula centered, keeping the natural curve of the back.



Up-right Row (Caution!)

I do not recommend the upright row because the exercise requires an abduction and internal rotation, whereas the normal shoulder motion requires external rotation and abduction. Again it can result in shoulder impingement with breakdown of the rotator cuff and acronioclavicular joint. Instead it is better to perform a seated row, bent over-one arm row with perfect technique.

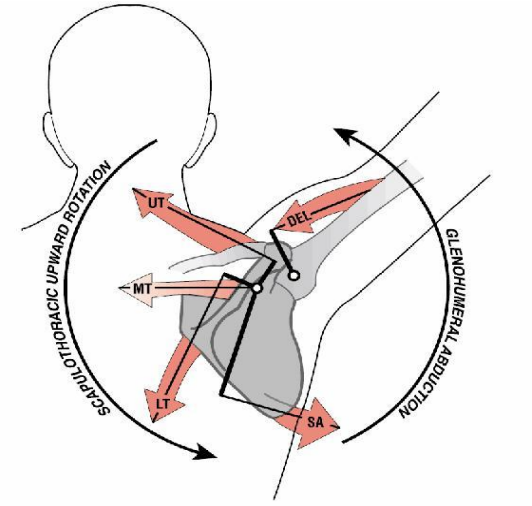


Overhead presses behind the neck (Caution!)

I do not recommend overhead presses behind the neck in a (90- 90 position) as it creates anterior instability with impingement of the

shoulders, which will likely result from repeating this position too many times.

I recommend being careful in general with overhead exercises and making sure the athlete has a perfect mobility and positioning at the scapula and the humeral head before any overhead exercises are started.



Upward rotation of the scapula

SA = Serratus Anterior muscule

For example, a complete shoulders abduction (raise the arm on the side) requires a 120 degrees of rotation (abduction) of the humeral head in the socket and a 60 degrees of upward rotation of the scapula in the thorax, i.e. a total of 180 degrees. For instance if the scapula does not rotate completely for different reasons (serratus anterior is weak for example), the humerus will raise, but the body will compensate to be able to raise the arm fully at 180 degrees , therefore leading to dysfunction and potential injuries.

A  **B** 

Forearm Wall Slide

Do a posteriorly tilted scapula and slide forearms and at the same time upward rotation the scapula.

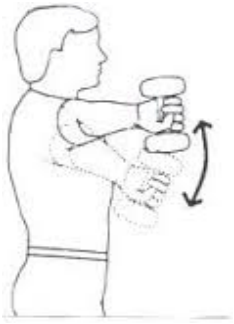
Strengthening of the upward rotation of the scapula will be mandatory in this case and will prevent scapular winging as well. Therefore, I would start with the Forearm Wall Slide exercises after staged progression of scapular push-up similar to those that we do in the Academy.

The other recurrent problem we see is the lack of flexibility of the latissimus dorsi and . When raising the arm in flexion, the back can curve to compensate. So for such exercises, mobility would be required, as for stretching the lats musles. Wall glide can help as well in this case.

Another issue: with someone with a kyphotis (round upper back), the range of motion during full shoulders abduction or flexion (raising the arm) will be restricted due to the bad positioning of the scapula tilted anteriorly. Therefore mobility and posture exercises can be done, such as yoga push-ups modified.

Yoga Push-ups modified.

Start in push up position. Drive your hips back and keep a straight back and try to keep your heels on the ground.

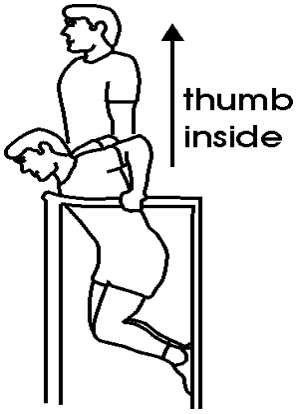


Empty can exercises (lateral raise thumbs-down) **(Caution!)**

I do not recommend the empty can exercise (lateral raise thumbs-down). This exercise requires internal rotation with abduction of the shoulder. This causes impingement in the shoulders (subacromial impingement) and can

damage the rotator cuff. Instead I would do the Modified Empty Can that we do at the Academy. If the athlete requires it, other full can exercises can be done alternatively (with thumbs-up).

With overhead athletes, I would be careful with exercises which bring the shoulders in hyperextension due to their tendency for most of them towards Humeral Anterior Glide . In other words, they have excessive anterior or insufficient posterior glide of the humeral head during shoulder motion. It is associated with laxity of the anterior structures of the glenohumeral joint (shoulders joint) and stiffness of the posterior structures.



Dips (Caution!)

To hyperextend the shoulders joints makes the humeral head glide forward. Therefore I would not give exercise such as the dips. Many other exercises can be done to work the chest and triceps without hyperextending the shoulders.

To conclude, many errors in weight training can be made when designing a resistance training program, even more for overhead athletes due to their bad posture and muscle imbalance which put them at high risk of injuries. Following are a few points to bear in mind for the resistance training program:

- ✓ Before any weight training, I would recommend the athlete consults a health practitioner such as a physiotherapist before starting any resistance training to make sure he/she is clear.
- ✓ The program should comprise 5 to 10 exercises of posture, joint mobility and flexibility to be done on a daily basis. Emphasis should be given when off season. Mobility exercises can be incorporated during the warm-up.

- ✓ The strength coach has to design and chose proper exercises with a focus on prevention, taking any discrepancies in consideration. And remember always weight risk versus benefit.
- ✓ Kids should have a diversified training approach in the early stages of development to practice different sports (such as rock climbing, swimming, track and field, etc.) to develop smooth muscles and great motor skills which will result in less risk of overuse injuries. Specialization should only come in late adolescence to optimize success.

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