

FLAT BENCH PRESS: THE GOOD, THE BAD AND THE SOLUTION

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Among those who keep up with sports science research, the standard Flat Bench Press (FBP) is fast becoming the black sheep of gym exercises – and for good reason: it is widely reported as being the most common cause of shoulder injuries in the gym. Yet despite the growing recognition of this risk, the flat bench press remains very popular with personal trainers and strength and conditioning coaches. It is time for a serious reappraisal... does it really need to be outlawed?

There is no doubt that the FBP is an extremely good way to grow a big chest (pectoralis major) – hence its abiding popularity among many gym-goers! (This also has a lot to do with the extra levels of effort generated and hormone production that occurs when a 100kg weight is precariously balanced above your neck... there is nothing like a little fear to boost a person's motivation!) .

The same levels of pectoral growth cannot be achieved with standing cable presses, or single arm dumbbell presses on swiss balls, even though biomechanically they are profoundly safer, as they spread the load across numerous body parts. So, rather than try to outlaw an exercise that is likely to remain extremely popular because it delivers what so many people want in the gym, let us look at how to overcome its dangers with some intelligent modification.

POOR BIOMECHANICS LEADS TO POOR MUSCLE DEVELOPMENT AND PAIN

The high levels of injury associated with the FBP are *primarily caused by the bench itself, and its effect on the movement of the shoulder joint*. It is relatively common to find that you or your client will experience shoulder pain with the FBP, but none if they are doing normal prone push-ups. This is because the effect of most benches is to severely restrict the movement of the scapula (also called the “socket”, or the shoulder blade), thereby artificially exaggerating the movement of the gleno-humeral (“ball and socket”) joint. It is possible to find very narrow benches, but these carry the real risk of the client falling off sideways during the exercise, especially when fatigue sets in. In addition one occasionally finds a unique type of bench that has notches cut out of it for the scapula to retract, however these are surprisingly rare in gyms.

Typically the top, lateral or anterior aspects of the shoulder will begin to ache or give stabs of pain after training, or the next day, perhaps during warm-up, under heavy loads, or with fatigue. The pain may emanate from inflamed tendon structures, or from the labrum (cartilaginous rim of the socket) or subacromial bursa, or up-regulated neural structures... In the end, the precise diagnosis matters less than an understanding of the mechanism that has caused the pain.

Alongside pain, *muscular development will be inhibited and distorted*. Pec minor will begin to dominate the press movement over pec major, preventing the chest from developing as it should. The gleno-humeral lurching will ensure that the pec major does not have a strong base from which to operate, again preventing its normal development. Instead the shoulders just become rounded, possibly with a tendency to over-develop the anterior deltoids and triceps compared with pec major.

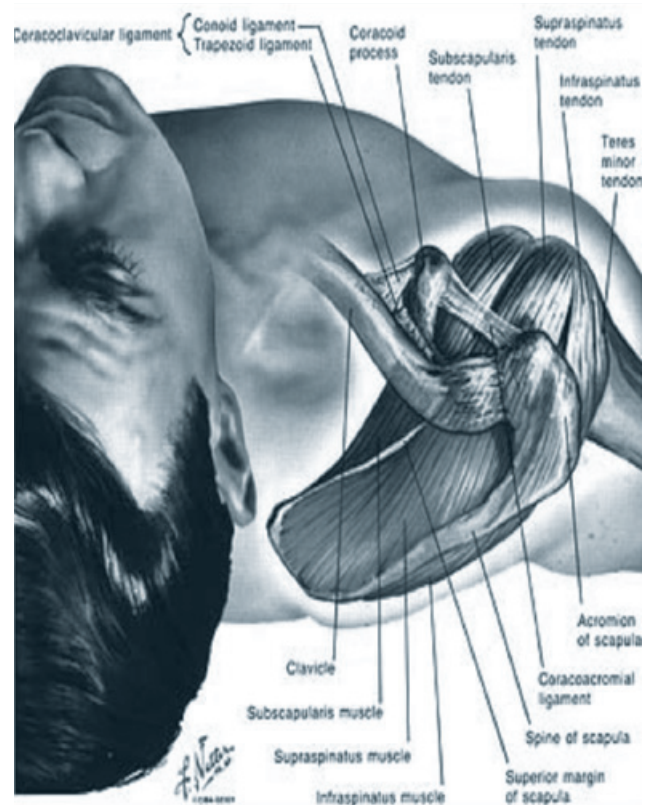
In my opinion every therapist, strength coach and personal trainer should know how to activate or enhance the protraction and retraction movements of the scapula, in order to prevent rotator cuff overload and shoulder pain.

Good push-pull biomechanics always requires synergistic movement of the scapula with the humerus. This notion may well be at odds with some schools of thought among trainers and strength coaches, where the emphasis is on “locking back” the scapula at all times, as a sign of good scapular control. However, while there may be an argument for this “locking back” early in the training regime of a client with very poor muscular development and body awareness, all the research and anecdotal evidence strongly suggests that the scapulae should not be locked if one wants to protect the fragile structures of the gleno-humeral joint and develop the muscles of the shoulder optimally.

Rather *the scapula must move synergistically with the arm*, so the rotator cuff doesn't have to over-work. As soon as the client grows in their awareness, the PT must begin to teach them how to move the shoulder and the arm together or injury will result. This is easily done with cable push machines, single arm dumbbell chest press or even the simple push-up.

It is my strong contention that *the majority of rotator cuff problems that develop in the gym are due to poor scapular movement during push-pull exercise*, not due to weakness of the rotator cuff per se. Standard “turn-out”, “turn-in” exercises for the rotator cuff are of no real and immediate help for most of these situations, as the client will simply go back to their poor technique and continue to overload the cuff tendon.

In summary, the most common cause of rotator cuff injuries in the gym is *excessive and uncontrolled* gleno-humeral movement due to partly to insufficient scapular movement and control. Too much “ball- lurching” takes place, with insufficient “socket-sliding on the ribs”.



I THE SOLUTIONS ARE EASY

The following two approaches will allow a therapist or trainer to start the process of correcting bad mechanics and enforcing good movement patterns without the need to ban the bench press from the client's exercise repertoire. The first **physically alters the bench** to give the client a chance to use their scapula; the second **gives movement feedback** to challenge the client to isolate and activate key muscles.

1 How to Improve Scapular Retraction – Protraction with the Simple Pool Noodle

The client lies supine as normal, with the noodle placed longitudinally under the length of the spine (including the head and pelvis) on the bench. Give them a set or two using just the bar to get used to the feel of it. Then gradually add weight, taking care not to allow the bar to fall sideways.

During this simple modification of the bench press, the scapulae will be able to protract and retract, which the therapist or trainer should encourage. Cues such as: "Open your chest" as the elbow travels beneath the level of the bench can be excellent. As the scapulae retract to their limit, the elbows should not descend any further, thus preventing even the slightest "lurching".

On the latter part of the push-up phase, the client may bring their scapulae somewhat further around the rib cage (protraction), but care must be taken to not allow shrugging of the shoulders (over-activity of upper trapezius and levator scapulae) or flexion of the trunk. Pure protraction of the scapulae without downward rotation is invaluable for good serratus anterior development, and minimises dominance of pec minor over the pec major muscles.

The Pool Noodle: These are standard easy-to-buy long cylindrical foam floats, widely used in aqua aerobics classes. You will need one that is 100mm or less in diameter and ideally with some "give" in it. A half-circular foam roller will do the same job; a full one is too high. The noodle needs to run the length of the client's spine, so that head to pelvis can lie on it during the exercise. If the noodle sits too high off the bench, it makes it too unstable to perform the exercise safely; if it is too soft (eg, a hollow-core pool noodle) it will not act as a stimulus to change the movement of the scapula.



Noodle located longitudinally along the thoracic spine (Noodle is preferred over the foam roller pictured here).

It is the position of Rehab Trainer that this should not be a temporary measure to "retrain" pathomechanics after which the client simply returns to the standard bench press: **they should ALWAYS perform the exercise with this modification, as the bench will always create a problem.**

2 How to Improve Gleno-humeral Stability with Simple Rubber Tubing

Set up the client to perform the bench press (with the pool noodle as well), using a low weight on the bar. Ask the client to hold on to each end of the tubing at the loop handles, or alternatively fix the ends of the tubing to the ends of the bar outside the weight plates. The therapist / trainer then positions themselves at the head-end of the bench, holding the middle of the tubing.

As the client performs their bench press, gradually increase the pulling force on the tubing, creating additional “torque” (rotary force) around the shoulder. Be careful not to pull the client’s line of push out of alignment (the forearms should remain vertical). It should be easy for the client to resist the force and continue their bench press.

The pulling force of the tubing is towards external rotation of the client’s gleno-humeral joint, so as the client resists, they have to activate their internal rotators. And because they are resisting a constant force through the movement, they are more likely to recruit the deep internal-rotation stabiliser subscapularis in preference to the “mover” muscles such as teres major and latissimus dorsi. This extra level of activation of subscapularis braces the anterior aspect of the gleno-humeral joint, preventing it from lurching forward and upwards in the socket.

Rubber tubing: Acquire some low-resistance therapeutic rubber tubing (be sure to use the round hollow core tubing, not stretchy elastic bands sheets – for this purpose they are no good). You will only need stronger resistance tubing if you are working with an extremely strong client, but start with red tubing for the average strength client. Make a loop at either end so the client can hold on.



Rubber tubing set up for L arm enhanced gleno-humeral stability.

In our experience with countless gym-goers shoulders that experience pain with pressing, this activation mechanism is frequently extremely effective in removing pain and creating a new sense of stability and "feel". Many shoulders will feel "different" in a way that equates to feeling more "safe" and "strong" in the shoulder when it is under load.

In summary go out and get some simple tubing and a pool noodle, and you're away! Start carefully to avoid injury, and progress slowly to ensure improved proprioception and movement. To begin with get into the gym and try it on yourself to see how it feels!

This article has been written and provided by Ulrik Larsen, on behalf of RehabTrainer.

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