

# Repairing a muscle tear

A young man feels a sharp pain and something give in his shoulder while lifting weights

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**By Dr Doron Sher |**

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***A young man feels a sharp pain and something give in his shoulder while lifting weights.***



Ben is a 27-year-old carpenter who plays recreational rugby on the weekends. He trains twice a week at the gym to maintain his strength and muscle bulk.

A week ago, he was doing a bench press near his maximum lifting ability when he felt pain and something give in his shoulder. His friend had to put the weight back on the rack for him and he was unable to continue training. He iced his shoulder thinking that he had strained something.

The next day, the front part of his shoulder and chest wall were swollen, and bruising developed over about 24 hours.



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He was able to keep working, but had difficulty using his arm overhead. He tried to play rugby on the weekend, but had no strength to tackle.

He knew he had not dislocated his shoulder and only decided to seek treatment when he was unable to play effectively. He is seen on Monday afternoon after work.

### Examination

On removal of Ben's shirt, his shoulder looks normal. He is wearing a singlet, which he is asked to remove as well. There is still some bruising on the chest wall and the area is swollen, but it also looks like there might be a difference in the shape of his axillary folds and the direction his nipple is pointing.

This is easy to miss if you focus on the shoulder, rather than the chest wall, and if the patient does not remove his clothing completely.

The range of motion in Ben's shoulder is actually quite normal with only slight loss of forward elevation. Internal and external rotation power are close to normal, but significantly painful.

When asked to press his hands against his hips the clinical deformity is exacerbated and the diagnosis of a pectoralis major tear becomes more likely.

### Investigation

A series of plain X-rays are normal. Ultrasound can be unreliable in diagnosing muscle injuries, so an MRI scan is arranged, which confirms a pectoralis major rupture.

Ben is immediately referred to an orthopaedic shoulder surgeon for urgent treatment.

## **Discussion**

The diagnosis of pectoralis major rupture can be difficult early on because the swelling may mask the loss of the anterior axillary fold that is characteristic of this tear. It is also easy to focus on the shoulder instead of the chest wall. In addition, the chest wall asymmetry can be missed if the patient does not undress completely.

If the patient presents late or the diagnosis was missed initially, then the chest wall swelling will no longer be present.

They may complain of weakness and some loss of shoulder range of motion, but they usually don't have any problems with activities of daily living.

Patients may some have difficulty at work and certainly are unable to lift heavy weights at the gym.

Often, they are not happy with the cosmetic appearance of the 'pec', with the nipple pointing somewhat laterally, and the 'breast' often looking bigger medially and sunken in laterally.

Rupture of the pectoralis major is a relatively uncommon event, but is increasing in frequency with heavier weights being lifted at the gym and the use of anabolic steroids and supplements. It is seen, almost exclusively, in young, athletic males lifting weights or during contact sports.

The pectoralis major muscle is a powerful shoulder adductor, but also helps with internal rotation and forward flexion of the shoulder.

The origin of the muscle is from the clavicle and the sternum, and it has two heads that run in slightly different directions. The tendons twist around each other to insert on the front of the humerus over a rather long, thin area.

## **Management**

The best results of repair are achieved within six weeks of the injury. It is usually done under general anaesthetic with an overnight stay in hospital.

A small incision is made over the upper arm, and the tendon is controlled with strong sutures and reattached to the bone. The patient wears a sling for six weeks and does not return to full weight-lifting or sport for six months.

Surgical repair should be followed by a well-supervised physiotherapy program. If the rehabilitation is effective, they will get back to normal or near-normal strength.

Chronic tears are much more difficult to deal with. The tendon and muscle are usually scarred and shortened, and cannot be reattached to the bone. Any improvement achieved is usually cosmetic and the person will have a non-functioning scar over the area instead, so is rarely pursued.

### **Conclusion**

Pectoralis major injuries can be missed if you focus solely on the shoulder.

This is mainly a clinical diagnosis, with normal X-rays, which is confirmed on MRI scanning. The best results are achieved with early surgical repair by an experienced shoulder surgeon.

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