

## Executive

**Editor:** Chris Colton

**Authors:** Pol Rommens, Peter Trafton

## Humerus shaft

### Search



### Shortcuts

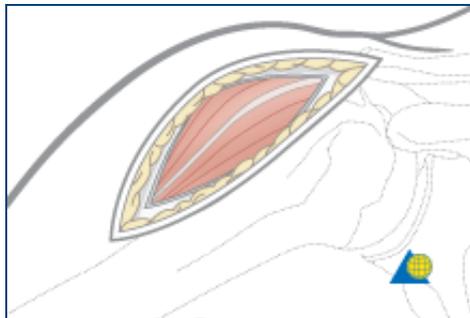
[All Preparations](#)

[All Approaches](#)

[All Reductions &](#)

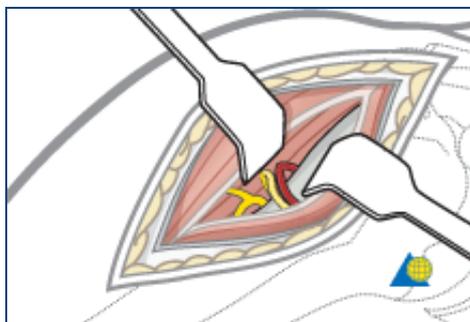
[Fixations](#)

## Limited approaches for MIO



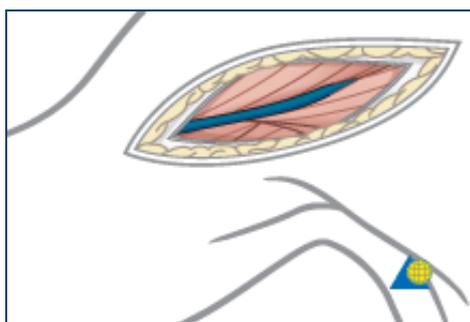
### Proximal (extended anterolateral acromial)

Expose the anterior deltoid raphe through an incision made distally from the anterolateral acromial tip.



Carefully dissect through the raphe, finding and protecting the axillary nerve and its accompanying vessels. The proximal humerus lies beneath these. Mobilize this neurovascular bundle for

extraperiosteal access to the proximal humerus.

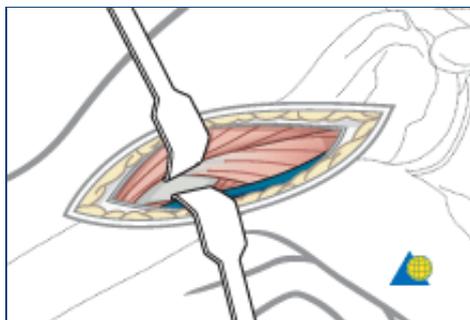


### Delto-bicipital (limited)

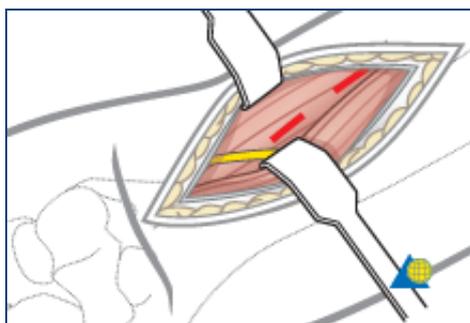
The humerus can also be approached for minimally invasive surgery through the interval between the deltoid and biceps. The cephalic vein lies in this interval.

Identify the vein and protect it while dissecting through the interval.

Dissect bluntly to the periosteal surface. Develop an area on the periosteal surface approximately 5 cm long. It is possible to release the anterior part of the deltoid



insertion, if necessary, as this area of deltoid insertion is both long and broad.



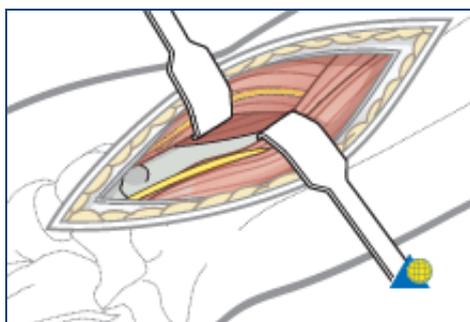
**Distal incision**

Distal access is gained through the brachialis muscle, splitting apart its medial and lateral portions for approximately 5 cm to reveal the anterior humeral

surface. The lateral antebrachial cutaneous nerve lies between biceps and brachialis. It should be identified and protected by medial retraction. The radial nerve lies laterally, protected by the lateral portion of brachialis.



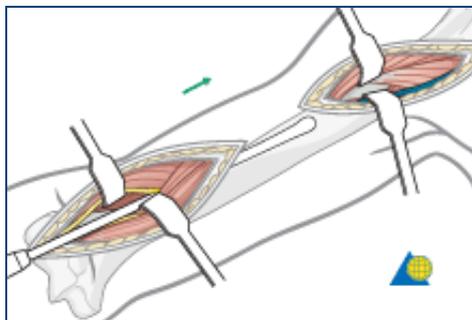
Brachialis has been identified posterior to biceps. Its fibers have been split longitudinally, providing extraperiosteal access to the anterolateral distal humeral shaft.



For more distal fractures, purchase on the lateral humeral column can be gained through a slightly more distal incision beginning at the joint crease and extending 5-6 cm

proximally. Develop the interval between biceps and

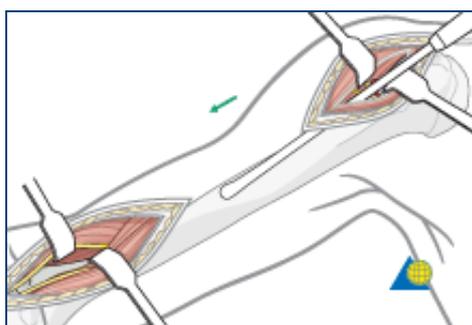
brachioradialis medially and the "mobile wad" (brachioradialis, ECRL, ECRB) laterally. The radial nerve must be protected here. Retract or incise the brachialis, as needed, to gain extraperiosteal access to the anterior aspect of the lateral column of the distal humerus.



### Creating the tunnel

For the middle and distal humerus, the deltobicipital entry is used proximally, together with either of the distal variations, depending on fracture location. The

extraperiosteal tunnel is created under brachialis with an instrument passed from the distal to the proximal incision.



If the fracture is more proximal, the subacromial, raphe-splitting entry will be used. An instrument is passed carefully under the axillary nerve and its vessels, gently to elevate

them and create a plane deep to them.

The illustrated large probe is then used to pass distally beneath the deltoid and slid medially at the deltoid insertion, continuing deep to brachialis as far as the distal entry site.

Take great care not to stretch or injure the axillary nerve and its accompanying vessels.

- 0
- 
- 0

v1.0 2006-09-14