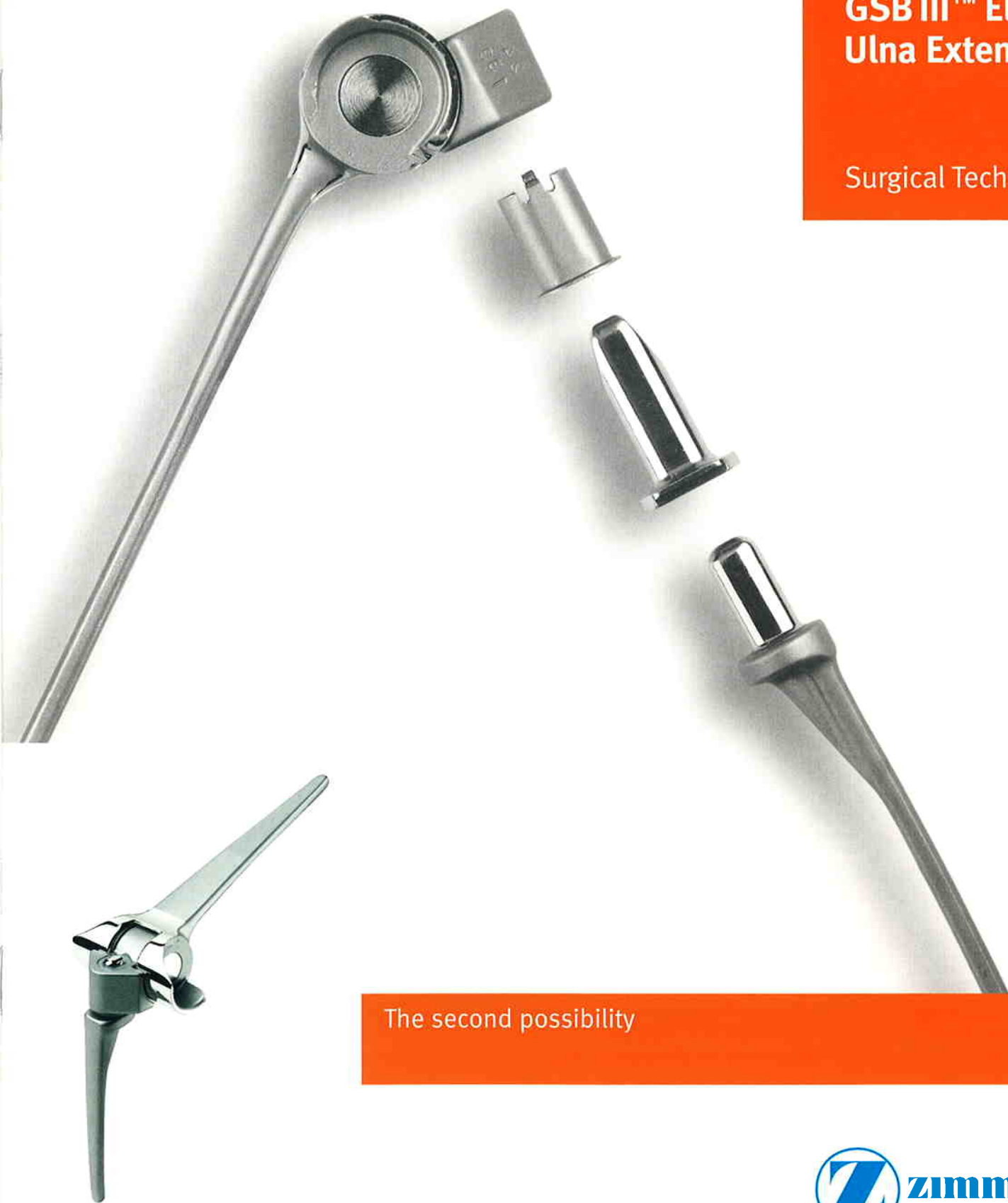




GSB III™ Elbow Ulna Extension

Surgical Technique



The second possibility

GSB-III ELBOW – ULNAR EXTENSION N. GSCHWEND

Decoupling of the two components of the prosthesis was one of the most frequent complications especially in the early days. Since then we have learned how this risk can be reduced to a minimum:

First, it is important to determine the centre of rotation of the elbow that is to be operated as accurately as possible. This is greatly facilitated by the correct use of our instruments. With a certain degree of retention of the anatomical structures after resection of the intercondylar bone mass, we see the centre of rotation at the site of the retained radial condyle. It is exactly at this site that the centre of rotation (axial centre) of the humeral component of the prosthesis has to lie.

It is more difficult with large condylar defects. In these cases, we orient ourselves on the healthy, that is, the better preserved, contralateral elbow, in that by means of the template, we measure the exact distances (centre of the medullary cavity and centre of the rounded surface of the radial condyle). The proximal margin of the olecranon fossa, which is almost always retained, serves as reference point for determining the distance to the centre of the rounded surface of the radial condyle.

Using the enclosed test prosthesis, when possible, the defect is filled with autologous bone and the bone chips used for this are fixed and stabilised with 3 or 4 thin Kirschner's wires (in the case of a wide zone of contact also with a compression screw, or in the case of a small area of contact, with a small plate).

Another cause of decoupling of the components is excessive detachment of the soft tissue when the operation site is being exposed. In principle, the lateral ligaments should not be detached, and even less so the musculature arising from the condyles. Only in the case of severely restricted mobility (flexion $<120^\circ$, extension deficit $>30^\circ$) can the lateral ligaments be incised distal to the condyle, or partly detached using the Ombrédanne's chisel with a thin bone scraper. However, one should first try to incise the joint capsule at, and a little distally from, the coronoid process or – as an exception – to push aside the insertion of the brachial muscle.

It goes without saying that persons with elbow prostheses should not undertake work or participate in sporting activities that place any excessive load on the elbow.

Further risks for uncoupling of the components of the prosthesis are fractures of the olecranon or insufficiencies of the triceps muscle (absence of tension banding) and fractures of one or both humeral condyles. The immediate reduction and stabilisation of such fractures is urgently recommended. Gathered sutures of the triceps tendons are useful in the presence of active, flexible musculature.

Because normal functioning of the triceps muscle is one of the preconditions for the prevention of decoupling, we advise against forced postoperative mobilisation, and particularly flexion in excess of 90° , in the first 2–3 weeks after the operation.

If possible, the use of a GSB-III ulnar extension should be avoided in a primary implantation of the GSB-III prosthesis.

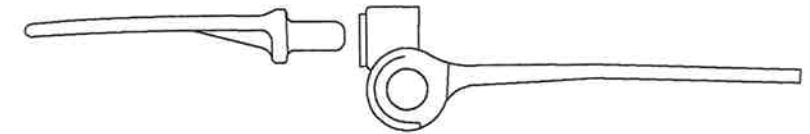
The patient must be informed that after the insertion of an ulnar extension there should be minimal loading of the joint.

FITTING THE ULNA EXTENSION

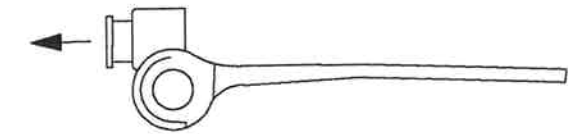
Disarticulating the prosthesis If necessary, disarticulate the ulna and humeral prosthesis.

Important:

- Carefully clean the ulna stud and the proximal bearing surface of the ulna stem.
- Check that the humerus hinge ("the protruding gliding surface") has unrestricted mobility throughout the entire area of movement of the prosthesis.



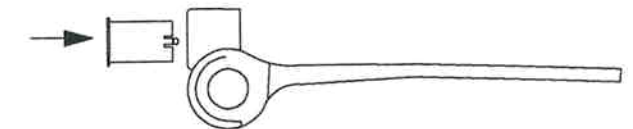
Removing the PE component The polyethylene insert is removed from the moving component of the humeral prosthesis.

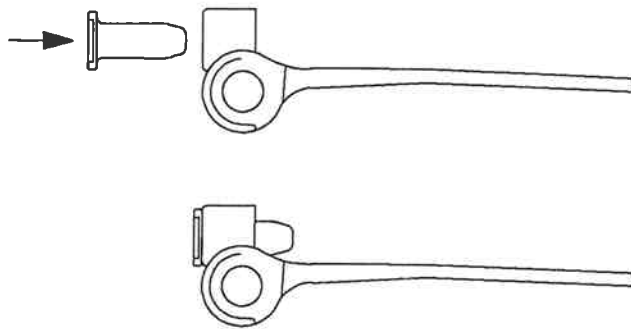


Fitting the sleeve The sliding sleeve is pushed distally into the moving component in the place of the polyethylene insert. The snap mechanism locates the sleeve proximally.

Important:

Different lengths of sleeve are required for the humeral prosthesis components 76/86 and 86 L.



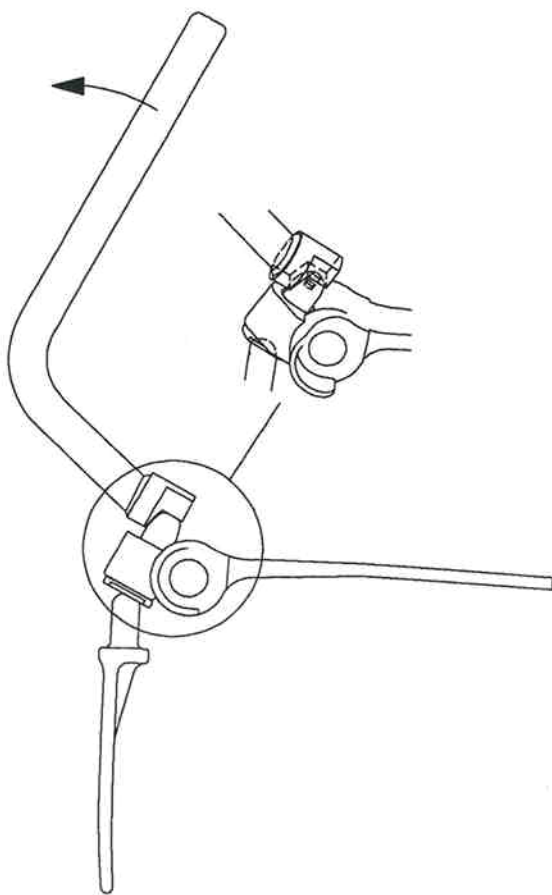


Positioning the ulna extension

The ulna extension is pushed distally into the sliding sleeve until its lower edge touches the moving component (or the sliding sleeve).

Important:

The ulna extension must not jam in the sleeve, but must slide easily.



Articulating the prosthesis

The two prosthetic components must be carefully articulated together. The ulna extension is levered over the ulna stud using the repositioner and is pressed downwards until the ulna extension is sitting securely.

Removing the repositioner

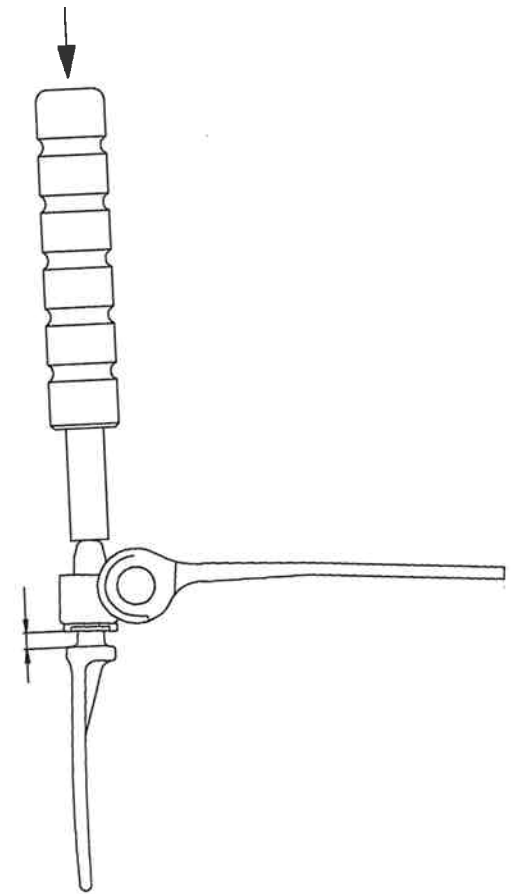
The repositioning lever can now be removed.

Final locking

of the extension The ulna extension is driven further over the ulna stud by tapping it with the help of the setting instrument until the edge of the extension is correctly positioned.

Important:

- Check that the ulna extension is sitting securely on the ulna stud.
- The ulna extension must be able to slide freely in the metal sleeve.



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