

## Surgical Rehabilitation After Gunshot Wounds Around the Elbow Joint

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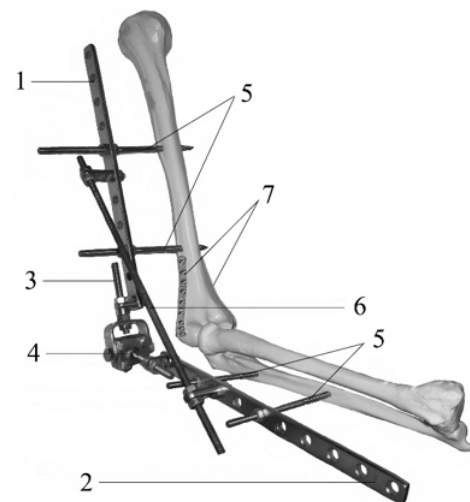
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Today, the soldiers' equipment means that their extremities are less protected, leading to wounds in this area in up to 80% of cases [1-2]. Anatomic and biomechanical peculiarities of the elbow joint are associated with the complex anatomic structure of the joint and the presence of a kinematic axis with a changing trajectory, which leads to the development of heterotopic ossification, contractures, ankylosis, delayed union, non-union and mal-union after gunshot fractures due to mistakes in surgical rehabilitation [3].

The aim of this work was to improve approaches to surgical rehabilitation after gunshot wounds around the elbow joint to reduce the number of complications.

To reduce the number of complications of surgical rehabilitation in this contingent of wounded people it is recommended to carry out rehabilitation treatment according to the following stages: 1. Restoration of skin and soft tissue structures (up to 4 weeks from the moment of injury). 2. Restoration of bone structures (up to 3-4 months after the wound). 3. Reconstruction of muscles and nerves (after 3-4 months after injury).

The effectiveness of stage 1 of surgical rehabilitation is determined by adequate surgical treatment during primary care with adherence to aggressive debridement tactics and the use of VAC systems. In stage 2 of surgical rehabilitation, we widely use the hinged external fixation device to stabilize bone structures and ensure early mobilization of movements in the elbow joint (Figure) [4].



**Figure 1:** External fixation device for the elbow joint: 1 - Humeral component, 2 - Forearm component, 3 - Distraction rod at the level of the elbow joint, 4 - Hinge, 5 - Intraosseous pins, 6 - Distraction rod between the components of the external fixation device, 7 - metal constructions for fixation (if necessary).

The design of the external fixation device can be varied, but an important condition for successful mobilization of the elbow joint is the presence of a hinge (4) located in the axis of elbow joint movement, which provides the ability to reproduce the physiological range of motion in the elbow joint [4]. At the stage 3 of surgical rehabilitation it is recommended to widely use transposition of muscles and nerves, plastic replacement of defects of neuromuscular structures, etc.

## Conclusions

1. Gunshot wounds of extremities in the structure of modern military conflicts account for up to 80% of all injuries.
2. For successful surgical rehabilitation after gunshot wounds around the elbow joint, it is recommended to follow the principle of stages and use external fixation devices with a hinge to reproduce physiological movements in the elbow joint.

## References

1. Nosivets DS. (2022). Principles of Surgical Treatment of Gunshot Wounds of Extremities. *Acta Scientific Orthopaedics*. 5(8): 1-2.
2. Stewart L, Shaikh F, Bradley W, et al. (2019). Combat-Related Extremity Wounds: Injury Factors Predicting Early Onset Infections. *Mil Med.*; 184(Suppl 1): 83-91.
3. Nosivets DS. (2022). Causes of Unsatisfactory Results of Elbow Fracture Treatment. *Journal of Orthopaedic and Trauma Care*. 3(1): 1-2.
4. Naumenko LYu, Nosivets DS. (2009). The Advantages of Uniplanar External Fixator with a Ball-And-Socket Hinge in Treatment of Patients with Intraarticular Fractures of Distal Humeral Meta-Epiphysis. *Genij Ortopedii (the Genius of Orthopedics)*.; 2: 99-103.

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