

# How Upper Limb Orthoses Help with Movement

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## Introduction

{1} Above elbow orthoses (AEOs) externally applied device used to compensate for impairments of the - structure and function of the neuro muscular and skeletal systems in this explanation, I will discuss how elbow and wrist orthoses help with movement by providing biomechanical support.

## Biomechanical Support in Elbow Dislocation

{2} **what is Elbow Dislocation ?** It's a condition When the bones in the elbow move out of their normal alignment, Elbow dislocations can be complete or partial, In a complete dislocation the joint surfaces are completely separated In partial dislocation, the joint surfaces are only partially separated. {3} **how it happens ?** when the bones of the elbow joint are forced out of place, often due to falls or accidents or when a football player rotates their body with their hand planted on the ground, these injuries cause severe pain, and loss of movement. AEOs play an essential role in recovery by keeping the joint stable, reducing pain, and helping patients Restore strength and flexibility .

**1- Provide elbow stability :** after an elbow dislocation , patient need to make less move on the joint l to restore the normal alignment of the bones .

**2- support and protection for the elbow :** by covering the elbow all the way to fingertips provides protection to the whole limp

**3- Manage deformities:** The prevention of contractures and alignment maintenance in elbow injuries is describeda

**4- Resist external forces on the elbow**

**5- Control biomechanical alignment of the elbow**

## {4} Types of Elbow Braces:

**1- Ligament stability :** They help the bones stay where they need to be while you move. If you hurt your elbow , like in a dislocation , the ligaments may get stretched or torn. So stabilizing and protection the joint is very important to healing .

**2- Range of Motion (ROM):** are all about getting the elbow to move again. Initially, a therapist might do some **passive ROM** (where they move the joint

for you). Later, as you heal, you'll start doing **active ROM** (moving the joint on your own). This process can take time, but it's crucial for getting back to normal function.

## **{5} Factors to Consider while making AEOs :**

**1- Materials:** The prosthetist and orthotist must choose the appropriate materials for the patient's condition and know if he is allergic to any of the materials that will be used.

**2- Structural design:** Of course, creativity is required in the field of prosthetics and assistive devices, but there are international standards for manufacturing prosthetics so that no harm occurs to the patient when making new designs.

**3- Daily Activities:** The orthosis should match the patient's activity level and lifestyle. For example, an active patient might need a more durable design redesign .

## **Conclusion**

upper limb orthoses, especially above elbow orthoses (AEOs), play a crucial role in helping people recover from elbow injuries like dislocations. These devices help stabilize the elbow, protect it from further injury, and prevent deformities, all while supporting the return of strength and flexibility.

## **Reference**

**{1}** Al Qaroot, B. (2025). *Introduction to prosthetics and orthotics* [Unpublished educational material]. University of Jordan. Slide 5.

**{2}** [www.orthoinfo.org](http://www.orthoinfo.org)

**{3}** Dr. Hani Bseiso, Master of Orthopedic Surgery in Gaza

**{4}** <https://www.aaos.org> and <https://www.albertaoadp.com>

**{5}** Al Qaroot, B. (2025). *Introduction to prosthetics and orthotics* [Unpublished educational material]. University of Jordan. Slide 28

