



## Analysis of the muscular activity of anticipation of the deltoid in a fall reception movement: Pilot Study

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### Abstract:

**Introduction :** Anticipation is one of the mechanisms to limit the risk of injury upon receipt of a fall by reducing impact forces. In this anticipation, the Deltoid muscle in particular plays an important role, but its activity has not been studied in this context.

**Objective :** The purpose of this study is to investigate the anticipatory activity of the three Deltoid heads in a falling recovery movement, the hypotheses tested are that there is a correlation between the Deltoid anticipatory activity and the impact forces, and that bilateral differences between the studied parameters exist.

**Materials and Methods :** 4 subjects performed a forward fall simulation, from which the impact forces and muscle activity of the Deltoid heads were measured with electromyography

**Results :** This study shows that the anticipation activity of the anterior Deltoid is positively correlated to the impact forces, this correlation is not found on the anticipation of the other two heads, on the other hand there is an increased impact force associated with an early impact time on the left side, in accordance with the international literature.

**Conclusion :** The results suggest that Deltoid plays a major role in falls anticipation and reception, and features an asymmetric motor pattern with a first contact of the non-dominant limb to improve the damping phase.

### Biography:

Jean Mazeas is a physiotherapist specializing in rehabilitation in traumatology and orthopedics. He works in



the functional exploration unit of the Clinic of Domont where he evaluates 150 patients per year after shoulder surgery. He is specialized in the field of electromyographic analysis and return to sport assessment after shoulder surgery. He is also teacher in several institutes in various fields of rehabilitation and publishes many articles on rehabilitation..

### Publication of speakers:

1. Implication of Biomechanical Factors in the Knee Dynamic Alignment: Case of Femoropatellar Pain Syndrome
2. Identification of Methods for Estimating Knee Rotation Axis
3. Identification des critères de retour au sport après chirurgie ligamentaire de la cheville
4. Integration of Postural Alterations in the Assessment and Neuromotor Rehabilitation after Anterior Cruciate Ligament Surgery: A Narrative Review
5. Influence of Anterior Cruciate Ligament Surgery with Semitendinosus and Gracilis Graft on Static Postural Balance at 3 Months Postoperatively: Randomized Controlled Study

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