New insights into soft tissue injuries around the elbow joint

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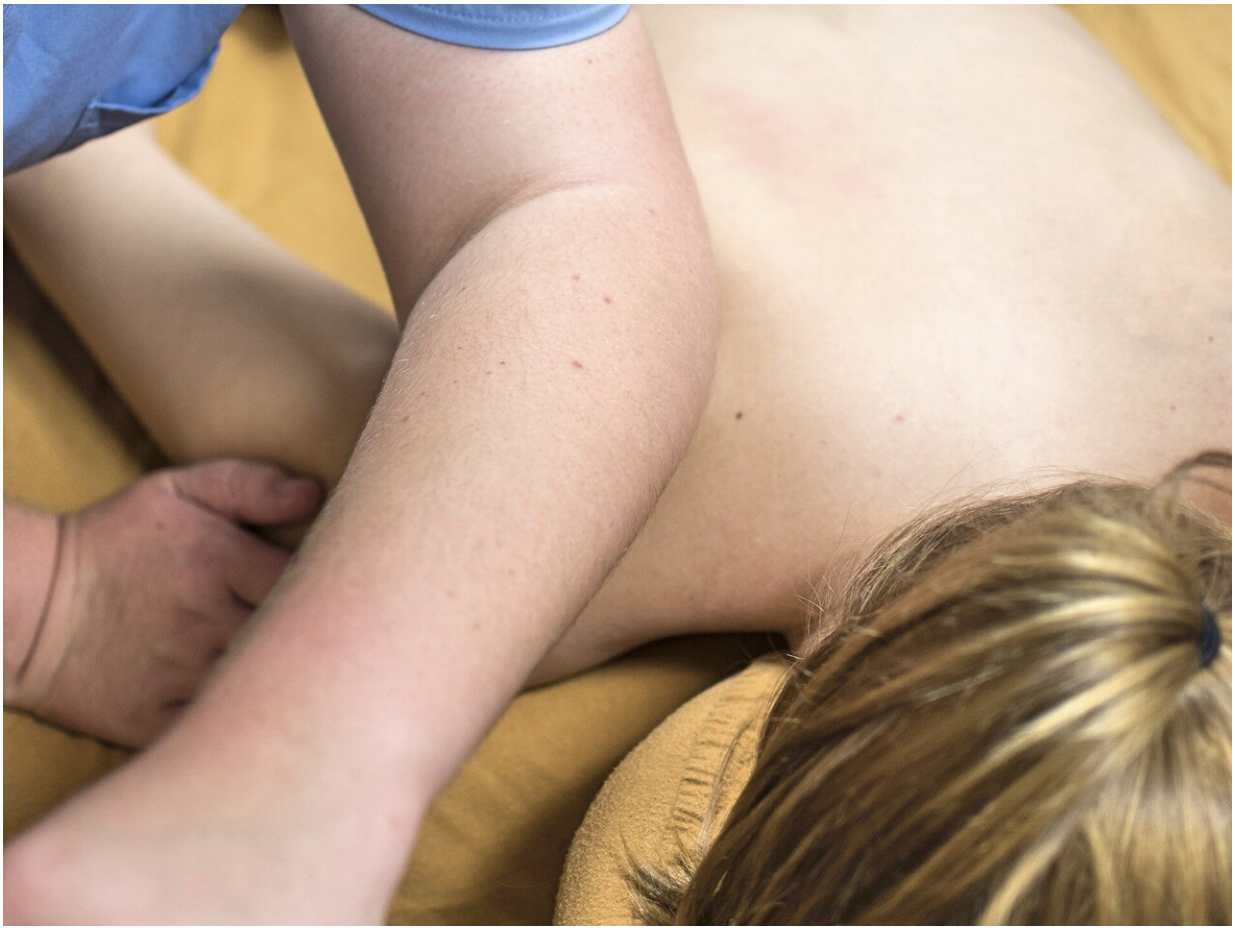

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In his Ph.D. study, Toni Luokkala investigated the soft tissue injuries

related to elbow collateral ligaments and distal biceps tendon tears.

The elbow is the second most commonly dislocated joint after the glenohumeral joint. The extent of soft tissue injuries has an effect on the choice of treatment, rehabilitation and prognosis. Instability of the elbow is considered to be a symptom of looseness or laxity which may cause the elbow to slide or pop out of place either partially or completely in certain upper limb positions or under a certain load. However, the injury mechanism, related soft tissue injury pattern, and the role of the soft tissue structures in acute dislocation or chronic instability are based on limited data.

Distal biceps tendon tears (DBTTs) cause pain, bruising and swelling in the acute phase, followed by the loss of elbow flexion and forearm supination force, which may significantly impair daily living and work capacity.

In the first part of the study, Luokkala investigated the distribution of soft tissue injuries seen after acute simple elbow dislocations and investigated the contribution of posterolateral elbow ligamentous and capsular structures to posterior radial head stability on simulated posterior draw in a cadaver model.

The second part of the study investigated the demographics, prodromal symptoms and complications of 234 consecutive acute and chronic DBTT cases operated in a single center within a seven-year period. Also evaluated was the sensitivity of the distal biceps hook test in diagnostics of the injury and its ability to predict the need for tendon graft reconstruction.

Luokkala's dissertation shows that no single mechanism explains simple elbow dislocations, and that instead of one universal underlying injury pattern, different grades of soft tissue injury exist. Contrary to the

existing theory, the most severe injuries may more commonly be located on the medial side of the joint. The study also shows that a specific type of posterolateral side instability occurs after an experimental lesion. These findings prompt reconsideration of the theoretical models of injury patterns and methods of assessment of acute injuries.

In addition, this study shows that DBTTs mainly occur in middle- aged men and elite athletes. LABCN neurapraxia is the most common complication after repair. Long delay to surgery and subsequent need for a graft does not seem to be a significant risk factor for a complication. Furthermore, in 10% of cases, prodromal symptoms are present and may be a warning sign of a rupture. The sensitivity of the hook test was 80% in this sample, and thus distinctly different from the 100% described by the test developers. This study shows that a negative test does not exclude DBTT and that further imaging is required in cases of doubt. However, the hook test remains a useful clinical test in suspected DBTT, as it may be used in counseling patients on the risk of graft reconstruction in delayed cases.

The doctoral dissertation of Toni Luokkala, Licentiate of Medicine, titled "Soft tissue injuires around the elbow," will be examined at the Faculty of Health Sciences.

More information: Public examination online (in Finnish): www.uef.fi/fi/tapahtuma/ll-ton … -laaketiede-verkossa

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