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**SECTION 4**

**MEDICAL SCIENCES**

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**PREDICTORS OF DISTAL BICEPS BRACHII TENDON RUPTURE**

The relevance of the study of ruptures of the distal biceps brachii tendon (DBBT) is of great socio-economic importance. This injury is mainly observed in men of working age [1, p 2.], often professional athletes [2, p 2], so the timing of treatment and functional outcome are of great importance. A clear understanding of the risk factors and causes of distal biceps tendon ruptures will reduce the incidence of both primary and re-tears due to treatment and rehabilitation mistakes [3, c 3].

When analyzing the causes of ruptures of the distal biceps brachii tendon, anatomical features should be taken into account. There are 3 zones of the tendon: preaponeurotic, aponeurotic, and postaponeurotic. The proximal zone receives blood supply through small branches of the brachial artery distributed within the peritendinum. The distal zone is supplied by the posterior rotary interosseous artery and nourishes the tendons at the point of attachment to the radius. The intermediate zone receives the terminal branches from the above zones through the peritendinum, but the tendon itself has no blood supply in this zone. Therefore, this zone has limited regenerative capabilities [4, p 3-5].

In addition, the biomechanics of movements in the elbow joint is of great importance. In the pronated state, there is a significant narrowing of the radioulnar interosseous space, which can cause tendon impingement [5, p 2-3]. According to CT scans, the distance between the ulnar crest and the tuberosity of the radius during pronation is reduced by approximately 50% compared to the supination position due to the “abduction” of the ulna [6, p 2].

Another important factor is degenerative and dystrophic changes at the site of potential rupture. The study by Kannus et al. demonstrated a histopathological analysis of 302 cases of biceps brachii tendon rupture and found that in 97% of cases the tendon did not have a normal structure [4, p 3-4]. It has been proven that smoking, overweight, and anabolic steroid injections significantly increase the risk of distal biceps tendon ruptures [5, p 5-7]. The study by Safran et al. notes that smoking increases the risk of tearing by 7.5 times [7, p 2]. Obesity has also been shown to have an impact on the risk of shoulder MCL tear due to increased tendon load as a result of secondary muscle gain [8, p 2-4]. Steroids have also been shown to affect tendon metabolism, which, together with muscle hypertrophy, can also increase the risk of an DBBT tear [9, p 2-6].

Conclusions: the anatomical features of the blood supply to the tendon, features of the biomechanics of the elbow joint, metabolic changes due to the use of anabolic steroids, smoking, overweight, and chronic systemic diseases should be considered as predictors of the occurrence of a tear of the DBBT.

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