Clinical measurements of proprioception, muscle strength and laxity in relation to function in the ACL-injured knee

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Setting the scene:

The purpose of this study was therefore to investigate how and to what extent proprioception, laxity and strength affect knee joint function and evaluate if the methods commonly used for estimating these factors clinically seem to be relevant.

What did they do?

A knee injury with anterior cruciate ligament (ACL) rupture may cause deficits in proprioception, increased laxity and decreased muscle strength. Although it may be common knowledge that these factors affect knee function, only a few studies have been performed where this has been investigated in the clinical situation, and the results are not conclusive. The study encompassed 36 patients with ACL deficiency. A single- leg hop test for distance and subjective rating of knee function were defined as dependent variables and analyzed separately in stepwise linear regression models where proprioception, knee joint laxity, hamstrings and quadriceps strength, age and sex were defined as independent variables. Higher threshold values (poorer proprioception), increased side-to-side difference of anterior laxity and poorer strength significantly predicted shorter length of the hop test. Higher rating of subjective function corresponded to female gender, lesser side-to-side difference of anterior laxity and better proprioception.

Takeaway message:

To our knowledge, no clinical protocol for knee examination has been presented where these factors are assessed together in a standardized way. It will be a future task to develop such a method, considering these factors and also other factors of importance, which can be of clinical use in the individual case. That would hopefully increase our ability to prognosticate the outcome early after ACL injury and thereafter individualize treatment with respect to the morphological and physiological defects