

# Treatment of anterior cruciate ligament deficiency

## With special emphasis on soccer injuries

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The thesis deals with the treatment of anterior cruciate ligament deficiency with special emphasis on soccer injuries. In 2 epidemiological studies the incidence of injury among 105 elite soccer players was analysed in relation to exposure risks. Further, the natural course of 132 initially non-surgically treated anterior cruciate ligament ruptures was studied prospectively in a consecutive population. In 2 studies, subjective and objective knee function were analysed in the 41 percent of the total population that still had not been reconstructed during a period of 5 years. Surgical treatment was addressed in 2 studies. The long-term effects on knee function of anterior cruciate ligament reconstruction with a synthetic Dacron high-strength ligament (Stryker) were studied prospectively in 42 patients. Autogenous patellar tendon and synthetic Leeds-Keio grafts in the reconstruction of anterior cruciate ligament ruptures were compared prospectively in 60 randomized patients.

The incidence of injury in elite female soccer players per unit exposure time was more than twice as high as in male elite players. Most injuries were minor or moderate. Of the major injuries, anterior cruciate ligament tears were the most serious. Players sustaining this injury were sidelined from the elite level for a long time, sometimes permanently. Few patients were pleased with their knee function after sustaining an anterior cruciate ligament rupture if treated non-surgically, despite a thorough rehabilitation program. Pain and functional instability were the most common symptoms. The ACL injured leg also showed an impairment in isokinetic muscle performance. The one-leg-hop performance test was shown to be a valid functional measure of isokinetic knee extensor peak torque. The eccentric knee extensor endurance test seems to reflect the patient's subjective knee function.

Among the different surgical methods selected for study, the autogenous patellar tendon graft is preferable. Because of increasing instability during the course of the study, the synthetic Dacron high-strength ligament (Stryker) and the synthetic Leeds-Keio graft cannot be recommended for ACL reconstruction.