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Three-Year Prospective Cohort Study of Patients Treated for Anterior Cruciate Ligament Injury: Epidemiological Findings

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Summary:
Systematic acquisition of clinical data is essential for individualized care of ACL injured patients. According to age, 3 different categories of patients were identified per gender. These categories presented different individual and injury characteristics and can be the basis for individualized treatment and prevention strategies in ACL injured patients.

Abstract:
INTRODUCTION
Systematic acquisition of clinical data allows for a precise description of anterior cruciate ligament (ACL) injuries. It helps identifying group of patients with similar individual and injury characteristics. Its ultimate goal is to individualize and improve the treatment of ACL injuries and gain further knowledge for future prevention strategies. The objective of the present study was to present the 3-year results of an intra-hospital cohort study for ACL injuries describing the affected population and injury characteristics.

MATERIAL & METHODS
A systematic standardized and prospective follow-up of operated and non-operated patients admitted for an ACL injury was set up in March 2011 . The study was approved by the national ethics and data protection committees. Epidemiological data were acquired based on questionnaires. For operated patients, arthroscopic findings were collected via a standardized surgeon report. Chi-square tests were used for statistical comparisons of proportions. The level of significance was set at $p<0.05$.

RESULTS
During the first 3 years, 581 patients visited our setting for an ACL rupture. 347 gave their consent agreement. Patients were divided into 3 age categories (I :< 21; II: 21-35; III: > 35 years old). In cat II, a higher proportion of men was injured compared to women (50 versus 35%). In cat II, women were proportionally more affected by ACL injuries than men (37 versus 27%). 87% of ACL injuries occurred during sports. In cat I and II, males were more likely to be injured in basketball and football and females in handball. In group III, both genders were more likely to get injured during recreational alpine skiing. Overall, 74% of patients were operated. Male patients received proportionally more operative treatments than women (81% versus 66%). Surgical treatments were more frequent in the younger age groups (cat I: 89%, cat II: 81%, cat III: 54%). Patellar tendon graft was preferred in males compared to females (67% versus 40%). Forty percent of medial and 41% of lateral meniscus lesions were observed under arthroscopy. Patients had 43% of medial meniscus injuries when injured during football, 30% during handball, 50% during basketball and 20% while skiing ($p=0.04$). Overall, 21% patients were concerned by a previous ACL. In the operated group, 10% of recurrent tears were observed. Patients with revision surgery had less often isolated tears (8%) than patients undergoing a first surgery (27%). More specifically, patients undergoing revision surgery were more likely to have a medial meniscus tear (72% vs 36%). The revision group was less likely to be operated with a semitendinosus and/or gracilis graft (20% vs 38%) and more likely with a quadriceps tendon (20% vs 4%).

Paper #138

DISCISSION
Three main age- and gender-dependant categories of patients could be identified, showing group-specific features with respect to injury pattern, sports activity and type of treatment. Furthermore, the analysis showed that data from large cohort studies including non-operatively treated patients differ from classical ACL reconstruction registries.

CONCLUSION
The presented classification approach of ACL injured patients may serve as a basis for future individualized treatment strategies.