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THE INCIDENCE AND TRENDS OF ACL INJURIES IN WORLD CUP FREESTYLE SKIING DURING A 10 YEAR PERIOD.

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Purpose of the study: The aim of this study was to investigate the incidence and the trends of ACL injuries in FIS World Cup freestyle mogul and aerial skiing during the last 10 seasons.

Material and methods: Data on ACL injuries among World Cup freestyle skiers for the 10 seasons 1992/-93 through 2001/-02 was collected in both prospective and retrospective ways. Two different surveys was carried out among World Championship freestyle skiers and all the national teams asking information on the history of the current skiers knees, as well as the knees of their current and former team-mates. We have furthermore prospectively registered all ACL injuries during World Cup freestyle skiing for two different seasons. Additionally the accident reports from TD(Technical Delegate)-reports of the World Cup events for the same ten years have been reviewed together with the results of the FIS scheduled events for the same period of time, and the skier's biographies as well, through access to the FIS data base. The diagnosis of an ACL rupture has been suggested whenever the diagnosis is reported and it additionally is either confirmed by an orthopaedic surgeon, the ACL has been reconstructed, or the skier is absent from FIS scheduled events for at least 6 months as confirmed by reviewing the results of all FIS events in the FIS data base. The number of skiers in each category and days of skiing is also captured from the FIS data base.

Results: During the 10 year period we registered 65 ACL injuries occurring within 60.048 skier days, giving an overall incidence of 1.08 ACL injuries per 1000 skier days in World Cup freestyle skiing. The overall ACL incidence in men versus women did not differ significantly. Mogul skiers had a significantly higher risk of ACL injuries (1.23 inj/1000 skier days for men, 1.41 inj/1000 skier days for women) compared to aerial skiers (0.79 inj/1000 skiers days for men, 0.60 inj/1000 skier days for women). Data from the first 5-year period compared to the last 5-year period showed an increase in the incidence of ACL injuries among mogul skiers (1.21 rising to 1.42/1000 skier days), whereas the incidence among aerial skiers stayed the same. For the mogul skiers the risk of ACL injury was 3.8 (women) to 8.0 (men) times higher in competitions compared to training. This increased risk in competitions was not seen for the aerial skiers, but the numbers in those groups are small and need to be interpreted with care.

Conclusions: The overall ACL injury rate among World Cup freestyle skiers is 1.08 injuries per 1000 skier days. There is no difference among male versus female skiers. Mogul skiing has a significant higher incidence of ACL injuries than aerial skiing. The trends of ACL injuries over the last 10 years show an increasing incidence of ACL injuries in World Cup mogul skiing.