

INJURY MECHANISMS FOR ACL INJURIES IN TEAM HANDBALL - A VIDEO ANALYSIS

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ACL injuries are very common in Norwegian team handball, in particular among female players. The purpose of this study was to analyze the injury mechanisms for ACL injuries in female players, not only based on player recall, but also analysis of video-taped injury situations.

Methods: ACL injuries in 60 semi-professional or amateur teams (920 players) in the three upper divisions for women in Norwegian team handball were recorded during the 1998-99 season. The 32 injured players were interviewed based on a standardized questionnaire. Twelve videos of ACL injuries from Norwegian or international competition from the period 1988-99 were also collected through a systematic search of Norwegian TV station archives and through handball contacts. Five of these were from the last season. Three knee experts (MDs with ACL research experience) and three handball experts (national team coaches) analyzed the videos independently in order to describe the injury mechanisms and playing situations. Results: Of the 32 interviewed players, 24 (75%) occurred during competition, 27 (84%) in the attacking phase, 19 (59%) in a plant & cut fake movement, and six (19%) when landing from a jump shot. Of these 12 injuries, 11 (92%) occurred in the attacking phase. Two main injury mechanisms were identified from video analysis, nine injuries (75%) resulted from a plant & cut fake movement and two (17%) when landing from a jump shot. Thus, the videos appear to be a representative sample when compared with the questionnaire data. In all the video cases the foot was planted on the floor at the time of injury, and in ten cases the foot was planted far outside the knee. The coaches described eight of the playing situations as unusual. Five of the players were in opponent contact just before the injury occurred (four were pushed), and four were in opponent contact at the time of injury (three were pushed). In all the nine plant & cut fakes, the knee was in slight flexion (5-15°) and valgus at the time of injury, combined with external rotation of tibia in five cases and internal rotation in four cases. In both of the two jump shot landing injuries take-off and landing were done using the injured leg, and both landed with the knee in full extension, valgus, and forceful external rotation of the tibia.