



UNIVERSITY OF GOTHENBURG

THE INFLUENCE OF MATCH EVENTS ON INJURY INCIDENCE DURING MALE WORLD CUP FOOTBALL

**Epidemiological studies and
video analysis of injuries**

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ABSTRACT

The aim of this thesis was to assess the effect of game-related match events on the variation in injury incidence in top-level male football. Specifically, the primary aims were to investigate: (1) a possible relationship between injury incidence and changes in the (goal) score, playing position and recovery time, (2) differences between foul play injuries and non-foul play injuries with regard to the match circumstances in which they occur, (3) the relationship between the number of fouls and injuries per match, as well as (4) a possible relationship between injury incidence and goals, injuries, as well as red and yellow cards. In addition, a secondary aim was to use video analysis of contact injuries to describe match circumstances in which contact injuries occur and to investigate possible independent predictors of contact injuries.

The material consisted of team physicians' post-match injury reports on 441 injuries (from men's FIFA World Cups in 2002, 2006 and 2010), FIFA's official match statistics from all matches and full video recordings of all matches. Data on the type and location, the time and the circumstances and consequences of injury were collected prospectively. From the match statistics, the time (minute) and number of goals, as well as red and yellow cards, were obtained, in order to calculate and compare the injury incidences during different match periods. Moreover, the total number of fouls per match was obtained in order to evaluate the association between the number of injuries and fouls. The full video recordings were reviewed and all identified contact injuries and contact injury risk incidents were analysed

according to variables describing the match circumstances at the moment of injury.

These studies showed that the variation in injury incidence during a match was related to both changes in the score ($p=0.026$) and teams' drawing/losing/winning status ($p=0.008$), with players in winning teams running the highest risk of injury. There were also statistically significant differences in injury incidence between playing positions ($p<0.001$), with forwards having the highest injury incidence. A significant association between an increasing number of recovery days between matches and an increasing injury incidence was also found ($p=0.043$). Other findings were that the injury incidence increased within the five minutes following a goal, injury, or a red or yellow card ($p<0.001$) and that there was a correlation between the number of injuries and fouls in a match ($p<0.001$). The thesis also highlights some concerns relating to the widely applied video analysis methods.

In conclusion, these studies show that the injury incidence during a match in international football tournaments is affected to some degree by match events that are an essential part of football. Furthermore, these studies demonstrate that match statistics can be used successfully in combination with injury report data in epidemiological research on football injuries.

Keywords: Epidemiology, Sporting injuries, Football

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Akademisk avhandling

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Fakultetsopponent:

Professor Harald Roos
Institutionen för kliniska vetenskaper
Lunds universitet, Lund, Sverige.

AVHANDLINGEN BASERAS PÅ FÖLJANDE DELARBETEN

I. The effect of changes in the score on injury incidence during three FIFA World Cups.

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