

SHORT REPORT

Ex-professional association footballers have an increased prevalence of osteoarthritis of the hip compared with age matched controls despite not having sustained notable hip injuries

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Objective: To compare the prevalence of self reported, physician diagnosed osteoarthritis (OA) of the hip in ex-professional footballers with that in age matched controls in the general public.

Method: A questionnaire was sent to the 92 football league and premierhip managers to assess the prevalence of OA of various joints. The prevalence of OA of the hip in those managers that were ex-professional footballers was assessed. Radiographic controls were obtained and used to assess the prevalence of OA of the hip in the general population. The results of the two groups were compared statistically using χ^2 tabulation.

Results: Seventy four (80%) of the managers responded to the questionnaire. Nine of the 68 ex-professional footballers who replied had OA of the hip, and six of these had undergone a total of eight total hip replacements. Of the 18 managers who did not respond, 12 were known to be ex-professionals. In the control group of 136, two had OA of the hip. The two groups differed significantly ($p < 0.001$). The odds ratio for OA of the hip was 10.2 (95% confidence interval 2.1 to 48.8).

Conclusion: The ex-professional footballers had a significantly higher prevalence of OA of the hip than an age matched group of radiographic controls.

Various studies have shown an increased prevalence of osteoarthritis (OA) of the subtalar joints,^{1,2} knees,³⁻⁶ and spine⁷ in ex-professional footballers. OA of the hip has also been shown to be more common in groups of footballers.³⁻⁶ More recently, a questionnaire study of 515 footballers showed the prevalence of OA of the hip to be 14% of the respondents.⁸ Unfortunately this study had a poor response rate (55%). No studies, to our knowledge, have related previous injuries to reported OA of the hips.

We are undertaking a clinical study of ex-professional footballers, and this paper is a report of part of the pilot study.

MATERIALS AND METHODS

The managers of the 92 league and premierhip football clubs in England and Wales were selected as a study group for the pilot investigation. Eighty of them, at the time, were ex-professional footballers, most being 35-55 years of age. In January 2000, a questionnaire was sent to the managers asking for basic personal details, details of their playing career, any serious injuries sustained, and proven degenerative joint disease. For the purpose of the study, serious injuries were described as injuries that had necessitated more than one month out of the team, and "proven degenerative disease" was

defined as arthritis that had been diagnosed by a doctor from a radiograph. After 28 days, a second questionnaire was sent to those managers who had not responded.

Two age and sex matched controls were enrolled for each respondent. The age matches for the subjects were tightly controlled such that no control was more than three months older or younger than the subject. These were obtained from radiographs taken as part of barium enema investigations, where the hip joint is visualised incidentally. Barium enemas were chosen because the pelvic part of the investigation shows the hip joint in its entirety. Investigations performed for inflammatory bowel disease were excluded, thereby precluding any connection between OA of the hip and the pathological conditions for which barium enemas are performed. The hip joints were assessed for radiographic evidence of OA according to the method described by Croft *et al.*⁹

The results from the two groups were then tabulated and statistically analysed using the χ^2 test, and an odds ratio with a 95% confidence interval was calculated.

Ethical approval for the study was granted by the Bolton research ethical committee.

RESULTS

Replies to the questionnaire were received from 80% (74) of the managers, of which 68 were ex-professional players. Of the 18 who did not reply, 12 were known to be ex-professionals. The mean age of the ex-professionals was 44 years (range 32-59), their mean playing career length was 16 years (5-25), and the mean number of appearances was 474 (1-850).

Of the 68 ex-players, nine (13%) reported having OA of the hip, and six of these had undergone eight total hip replacements including one revision total hip replacement. The mean age of these six ex-players was 50 years (38-57). None of these players reported having any hip injuries during their playing career.

Of the 136 controls, two showed radiographic evidence of OA. There were no controls with total hip replacements.

The two groups were significantly different ($\chi^2 = 12.3$, $p < 0.001$), and the odds ratio for the players against the controls for OA of the hip was 10.2 (95% confidence interval 2.1 to 48.8). Even if the 12 ex-players who did not respond were included and assumed not to have OA of the hip, the groups would still be significantly different ($\chi^2 = 9.97$, $p = 0.002$), with an odds ratio of 8.49 (95% confidence interval 1.8 to 40.4).

DISCUSSION

Our pilot study confirms the findings of Turner *et al.*⁸ with regard to the prevalence of OA of the hip among ex-professional footballers in the United Kingdom. Our study shows a manifold increase in prevalence of OA of the hips

Take home message

Ex-professional footballers have a higher prevalence of OA of the hip than age matched controls, despite apparently having not suffered any serious hip injuries. Elite footballers may sustain repetitive, minor injuries to their hips throughout their career.

among ex-professional footballers, compared with age matched members of the general public. Interestingly, the ex-professional footballers with OA of the hip had not sustained any recognised hip injury nor had undergone previous hip surgery. This is in contrast with OA of the knee, which is associated with previous knee surgery or injury. In view of this, we speculate that some groin injuries sustained by football players are actually repetitive minor hip joint injuries rather than soft tissue injuries.

We recognise that this study has limitations—for example, the fact that we have compared self reported OA with radiographically identified OA. However, the difference in prevalence rates of OA between the groups does suggest that it is worth carrying out further and more definitive studies in which radiographic evidence is used in both groups. Such a study is being performed at this time.

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