

Prevalence of coxarthrosis in former soccer players

286 players compared with matched controls

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We compared the occurrence of coxarthrosis in 286 male former soccer players in Malmö with a mean age of 55 years with an age-matched control group. During the last decades about one fifth in both groups had been referred to hip radiography. Coxarthrosis occurred in 5.6 percent of the former soccer

players and in 2.8 percent of the control group (P 0.04). Among the 71 élite soccer players the prevalence of coxarthrosis was 14 percent compared with 4.2 percent in age-matched controls and non-élite players. Élite soccer players apparently run an increased risk of developing coxarthrosis.

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Recent studies have demonstrated an increased prevalence of coxarthrosis in some occupations (Vingård et al. 1991). However, running does not seem to be a risk factor in coxarthrosis (Puranen et al. 1975, Sohn and Micheli 1985, Lane et al. 1986, Panush et al. 1986), but Klünder et al. (1980) have reported an increased prevalence of coxarthrosis in former soccer players.

The aim of the present epidemiological study was to compare the prevalence of coxarthrosis in former soccer players with a randomly selected control group.

Material and methods

The study included 286 former male soccer players representing 10 different soccer clubs in Malmö. 71 of the soccer players were regarded as élite players—representing the 2 football clubs which had been playing in the 2 first divisions. The mean age of the former soccer players was 55 (40–88) years, and all had been playing soccer to at least the age of 25 and were still living in the city of Malmö.

A random age-matched sample of 572 men was taken from the population records of the city of Malmö. Former soccer activity is unknown in this group.

In the Department of Diagnostic Radiology at Malmö General Hospital there is a file containing all referrals and reports for individual residents from 1950 on—2 private radiography units started in the city in the 1960s. These roentgen facilities were evaluated with regard to radiographic examinations of the hip in

the 858 men included in the present study. The examinations were reviewed and classified concerning the absence or presence of coxarthrosis; the diagnosis was accepted if there was a reduction of the joint space to < 4 mm in patients younger than 70 years and to < 3 mm in patients older than 70 or a reduction > 1 mm, as compared to the contralateral side in unilateral hip disease. The hips with arthrosis were subdivided into lateral, medial or mixed types, and the severity was further classified with regard to the severity of osteophytosis, structural changes, the occurrence of double floor and joint space changes. All classifications were made according to the method of Danielsson et al. (1964). The statistical methods used were chi square and odds ratio, with 95 percent confidence interval.

Results

Approximately one fifth of all the subjects had had a hip radiography during the period 1950–1988. Coxarthrosis was more common in the group of former soccer players—5.6 percent compared with 2.8 percent among the controls, odds ratio 2.1 (1.0–4.2). Bilateral coxarthrosis was equally common among soccer players and controls (25 percent), and there was no difference between the soccer group and the controls concerning type and severity of coxarthrosis (Table 1). The mean age at diagnosis was 47 years among the soccer players and 50 years in the control group.

The mean age of the élite soccer players was higher than in the non-élite group and the control group.

Table 1. Prevalence of coxarthrosis in soccer players and controls

	Soccer players	Controls
n	286	572
Mean age (range)	56 (40-88)	56 (40-88)
Radiographic hip examination	20%	17%
Coxarthrosis patients	16 (5.6%)	16 (2.8%)
Bilateral coxarthrosis	4	4
Lateral coxarthrosis	13	9
Patients with total hip replacement	5	1

Accordingly we age-matched a part of the non-élite players and the controls to the élite soccer players to eliminate the age difference.

In the group of former élite players, coxarthrosis was 3 times as common as in the age-matched non-élite soccer player group, odds ratio 3.7 (1.4-10.1). Coxarthrosis was equally common in the group of non-élite players and controls (Table 2). Concerning different age-groups, the élite players had an increased prevalence of coxarthrosis, compared with the non-élite players in the younger group, odds ratio 5.6 (2.5-20).

Discussion

In a prevalence study of coxarthrosis in Malmö (Danielsson et al. 1984) the expected prevalence in men aged 55 was about 1.5 percent and 2.5 percent in men aged about 65. In a study of shipyard workers in Malmö—mean age 66 years—(Lindberg and Danielsson 1984), the prevalence of coxarthrosis was 3.3 percent vs. 2.3 percent among the age-matched controls. That study was designed in the same manner as the present study. Thus we know fairly well the expected prevalence of coxarthrosis in men in various age-groups in Malmö; there is an increased risk of developing coxarthrosis in some occupations—e.g., farmers, construction workers, food processing workers and fire-fighters (Jacobsson et al. 1987, Axmacher and Lindberg 1991, Vingård et al. 1991). Overweight does not seem to be an important risk factor (Danielsson 1964).

A Danish study of 57 former soccer players with a mean age of 56 years (Klunder et al. 1980) demonstrated a prevalence of coxarthrosis of 49 percent in the soccer players and 26 percent in the age-matched control group. These very high prevalence data for coxarthrosis are not in conformity with the studies from Malmö (Danielsson 1964, Danielsson et al. 1984, Lindberg and Danielsson 1984, Axmacher and Lind-

Table 2. Prevalence of coxarthrosis in élite soccer players and age-matched controls

	Élite players	Non-élite players	Age-matched controls
<i>All</i>			
Mean age	63	61	63
n	71	71	142
Coxarthrosis	10	3	6
		<i>P</i> 0.04	
<i>Older group</i>			
Mean age 71 (64-88)			
n	34	32	132
Coxarthrosis	5	1	8
<i>Younger group</i>			
Mean age 50 (40-64)			
n	37	183	440
Coxarthrosis	5	5	8
		<i>P</i> 0.004	

berg 1991)—suggesting other diagnostic criteria for coxarthrosis.

The prevalence of coxarthrosis in 44 ballet dancers (Andersson et al. 1989)—men and women, mean age 57 years—is almost the same as in the élite soccer players. Concerning ballet dancers, hereditary factors could be of etiological importance.

Élite soccer players seem also to run an even higher risk of developing coxarthrosis than farmers (Axmacher and Lindberg 1991). The increased risk of former élite soccer players developing coxarthrosis is supported by studies of Salter and Field (1960) and Radin (1976) who postulated that compression of the joint surfaces and sudden shock to the joints can cause degeneration of the cartilage. Marti et al. (1989) demonstrated an increased risk of coxarthrosis in former top athletes. Vingård et al. (1991) have also demonstrated that soccer is a risk factor for developing coxarthrosis.

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