

## Joint replacement and health-related quality of life amongst former rugby players

MD, AJ, AD, SK, KS, JN, NA.

Despite global participation in rugby union, and the increasing growth and popularity of the sport, little is known about the health of former players after their retirement. Several studies have previously alluded to post-traumatic osteoarthritis being a burden amongst former rugby players; this has not previously been examined, nor the risk presented in comparison to the general population.

**Purpose:** The aim of this study is to establish the prevalence of joint replacement, hip and knee replacement, and health-related quality of life amongst elite former rugby players, and to compare this with data from nationally representative population-based surveys.

**Methods:** A cross-sectional questionnaire study was carried out amongst former university and International rugby players. Players were asked a brief medical history of physician-diagnosed morbidity, questions surrounding their sporting exposure, experience of injury and current health. Players' health-related quality of life was assessed using the EQ-5D-5L. The English Longitudinal Study of Aging (ELSA) was used as a representative population comparator group for joint replacement. The Health Survey for England (HSE) was used as a representative population comparator group for health-related quality of life.

Standardised morbidity ratios were used to report the age and gender-standardised difference in joint replacement between former players and ELSA participants. From the EQ-5D-5L, the number of any problems (2+) and no problems (1) was derived as a binary variable, for comparison between the sporting and general populations.

Joint replacement was only reported for individuals aged 60 and over in ELSA, and therefore the inclusion criteria within rugby for this outcome were players aged 60 and above. As HSE was not restrictive of age and included children, HSE participants outside the age ranges of rugby participants were excluded (n=1363).

**Results:** Rugby players (n=259) demonstrated a higher prevalence of joint replacement. Amongst players aged 60 and above and eligible for SMR analyses (n=135), almost one in four rugby players reported a joint replacement (24%), compared with 6% of eligible ELSA participants (n=5186). The majority of joint replacements were seen at the hip (15%), followed by the knee (9%). Amongst ELSA participants, the prevalence of hip and knee replacement was seen to be 4%

and 3% respectively. When calculated as a standardised morbidity ratio, players were seen to present over 6 times the risk of joint replacement (OR 6.02), with the highest risk at the hip (OR 6.42), followed by the knee (OR 5.64).

In terms of health-related quality of life, the domain with the least reported problems was self-care for both HSE participants (n=2981) and former players (n=259). The highest prevalence of problems (2+) amongst former players was reported for the domains of pain/discomfort (78.3%) and mobility (47.4%). Reported problems were twice as prevalent amongst former players compared with HSE participants for the domains of pain/discomfort, mobility and usual activities.

Conclusion: This study suggests that the prevalence of joint replacement differs between former rugby players and ELSA participants. The odds of joint replacement, particularly hip replacement, were significantly higher for former players than for ELSA participants. Health-related quality of life also differed between participants, notably in the domains of pain/discomfort, mobility and usual activities. These findings suggest that end-stage severe osteoarthritis is a more significant burden for rugby players than for the general population, potentially with some degree of functional impairment demonstrated by the reported problems according to the EQ-5D-5L. Proactive management of osteoarthritis should be encouraged for this population, and risk factors for osteoarthritis, particularly injury, should be minimised amongst current players in order to promote better musculoskeletal health for players after their playing career.