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CLINICAL PAPER

Knowledge and prevalence of pelvic floor dysfunction in professional female footballers: a cross-sectional survey of a Barclays Women's Championship team and their support staff

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Abstract

Introduction and aims. The professionalization of women's football has brought about an increase in the physical demands placed on players, which may have implications for their pelvic floor health and functioning. To date, no research has focused on knowledge and prevalence of pelvic floor dysfunction (PFD) in professional female footballers. The aims of this exploratory study were to determine the knowledge level of female footballers and their athlete support personnel (ASP) in one team, as well as to investigate the prevalence and impact on quality of life of the PFD symptoms that the players experience.

Methods. Fourteen recently professional first-team players (age = 26 ± 4 years) and four ASP (age = 44 ± 9 years) at one Barclays Women's Championship club completed the Prolapse and Incontinence Knowledge Questionnaire (PIKQ) and Anal Incontinence Knowledge Questionnaire in order to assess their knowledge of PFD. Additionally, the players completed the Pelvic Floor Distress Inventory – Short Form 20 to assess PFD symptom prevalence and its impact on quality of life.

Results. When applying the knowledge proficiency boundaries for the PIKQ Pelvic Organ Prolapse (POP) and Urinary Incontinence (UI) subscales (≥ 50% and ≥ 80%, respectively), 50% and 57% of responding players had inadequate knowledge of POP and urinary incontinence, respectively. Average knowledge scores for ASP were better than players for all subscales: (PIKQ-POP) 9.75 ± 1.89 versus 5.93 ± 2.43; (PIKQ-UI) 10.25 ± 1.71 versus 8.57 ± 2.53; and (Anal Incontinence Knowledge Questionnaire) 5.00 ± 2.83 versus 2.86 ± 1.99). Of the 14 players who responded, only one participant was completely asymptomatic for PFD, with 57%, 93% and 50% reporting at least one POP, UI and gastrointestinal symptom, respectively.

Conclusions. The majority of this cohort of professional female footballers had inadequate knowledge of PFD, but had symptoms of the condition. Athlete support personnel and players should be educated about PFD, and players routinely screened and pelvic floor muscle exercises integrated into the training regime.

Keywords: athlete, female, gender, health, soccer.

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Introduction

The pelvic floor is comprised of muscles and connective tissues that work together to provide structural support to the pelvic organs (Jorge & Bustamante-Lopez 2022). These structures act to ensure the stability and muscle tone of the pelvic girdle, as well as prevent leakage, protrusion and other dysfunctions (Bø & Nygaard 2020; Peinado-Molina *et al.* 2023). Pelvic floor dysfunction (PFD) is a term that encompasses a range of conditions, including pelvic organ prolapse (POP), urinary incontinence (UI) and anal incontinence (AI) (Kennaway 2022). As defined by Haylen *et al.* (2010), POP involves a deviation of the pelvic organs from their normal location, sensation, structure or function, with UI being the involuntary loss of urine, and AI the involuntary loss of faeces or flatus. Globally, 40% of females will experience POP at some point (Wang *et al.* 2022), with UI affecting 50% (Milsom & Gyhagen 2019). A systematic review and meta-analysis by Mack *et al.* (2024) reported a prevalence of 9.1% for AI in women.

Pelvic floor dysfunction has a direct negative impact on quality of life (QoL) in females who, as a result of their symptoms, face multifaceted challenges that impact on various aspects of their lives (Rodríguez-Almagro *et al.* 2024). This includes detrimental impacts on physical activity (Laakkonen *et al.* 2017), psychological wellbeing (Reis *et al.* 2021), sexual function (Zhu *et al.* 2019) and social health, at times leading to self-isolation and withdrawal from social and leisure activities (Dheresa *et al.* 2018). Worryingly, females often face these issues alone, concealing their struggles because of embarrassment and a lack of health education (Rodríguez-Almagro *et al.* 2024). With the risk and prevalence of PFD increased in female athletes across a number of different sports compared to their non-athletic counterparts (Culleton-Quinn *et al.* 2022), it can be assumed that elite athletes may also be suffering with PFD symptoms in silence.

Despite its prevalence, symptomatic females rarely seek medical attention, and symptomatic female athletes are even less likely to disclose clinical signs of PFD (Dakic *et al.* 2023), with low self-disclosure rates for PFD symptoms in sports/exercise settings, particularly to health professionals (Cardoso *et al.* 2018; Culleton-Quinn *et al.* 2022). The reticence to seek healthcare support might be attributed to inadequate knowledge of PFD and the treatment options available (Vasconcelos *et al.* 2019). A low level of overall pelvic floor knowledge is associated with a high prevalence of PFD, which might, in part, be a result of females with greater knowledge being able to better identify symptoms and seek assistance from a health professional earlier in the progression of PFD. This would increase the likelihood of them partaking in preventative or management measures (Perera *et al.* 2014). Therefore, with more education, athletes might be better informed about the symptoms of PFD, increasing their awareness of when to seek advice and carry out preventative exercises.

Women's football is in a transitional phase where both players and athlete support personnel (ASP) are increasingly offered professional contracts (Sleeman & Ronkainen 2020). Since 2017, there has been a 50% increase in the number of professional female football players, and in this time period, the first fully professional English women's league was developed (UEFA 2019). Consequently, the developing professionalization of women's football has brought about an increase in the physical demands placed on players (Vescovi *et al.* 2021) as the intensity and frequency of both training and games has grown. As a result, it may be suggested that a concurrent increase in strain on the pelvic floors of female football players might have occurred, perhaps leading to an increased risk of PFD symptom development and/or exacerbation. This places a growing emphasis on adequate pelvic floor function in players to counteract the increases in intra-abdominal pressure (IAP), and the ground reaction forces that occur during football training and matches (Bø & Nygaard 2020). However, as with many aspects of sports science and medicine, there is a lack of sufficient data about females to inform practice (Cowley *et al.* 2021). This means that players and their ASP might not have the knowledge or tools required to deal