

DRAFT 1

The effects of the menstrual cycle and oral contraceptive use on women's football performance and performance related outcomes: a systematic review

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Women's football has seen a significant increase in participation, popularity and professionalisation in recent years (Datson et al., 2014; Datson et al., 2017; Harkness-Armstrong et al., 2022; Julian, 2020; Martin et al., 2021; Valenti et al., 2020) subsequently, resulting in an increase in scientific research in women's football (Okholm Kryger et al., 2022). Although previous systematic and narrative reviews have been published on the menstrual cycle (MC) and exercise performance (McNulty et al., 2020), MC and athletic performance, (Carmichael et al., 2021; Meignié et al., 2021) and the effects of oral contraceptive pills (OCP) on exercise performance (Elliott-Sale et al., 2020a), at the time this systematic review began, a systematic review on the effects of the MC and/or OCP use on football performance was yet to be published. Therefore, this review aimed to determine the effects of the MC and/or OCP use on football performance and performance-related outcomes and provide evidence-based, practical, performance recommendations which could help to enhance performance, training adaptations and reduce injury risk/injury rates (Elliott-Sale et al., 2020a; Heyward et al., 2022; McNulty et al., 2020; Whitehead et al., 2021). Five databases (SportDiscus, PubMed, CINAHL, MEDLINE and Scopus) were searched for published studies which had assessed match physical performance, football performance-related physical or physiological outcomes, biomechanical measures or injury in two or more defined MC phases (McNulty et al., 2020). Study quality was assessed using a modified Downs and Black checklist (Downs & Black, 1998) and a strategy based on the recommendations of the Grading of Recommendations Assessment Development and Evaluation (GRADE) working group (Guyatt et al., 2008 as cited by Elliott-Sale et al., 2020a and McNulty et al., 2020). Thirteen studies and 454 participants were included in the review. Seven studies (54%) were classified as very low quality, three studies (23%) were classified as low quality, three studies (23%) were classified as moderate quality. Due to methodological limitations and variations, inconsistent findings and the low-quality of research included in this review, it is difficult to form any definitive conclusions on the effects of MC phase or OCP use on football performance or football performance-related outcomes. Therefore, it is proposed that further, more high-quality research addressing methodological inconsistencies and limitations of previous studies is needed before evidence-based, practical, performance recommendations can be made.