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Editorial: Reframing return-to-sport postpartum: the 6 Rs Framework

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THE NEED FOR CHANGE

Female participation and professionalisation within sport is growing, leading to greater investment, competition and publicity. Despite this, there is a lack of female-specific research and frameworks to guide organisations in supporting and optimising *female* athlete performance,[1] particularly during the transition into motherhood. Recent developments in sporting regulations allow greater flexibility in team selections to support perinatal athletes who are pregnant or on maternity leave.[2] However, provisions to assist these athletes returning to their sport are lacking and there is a need for greater recognition of perinatal health considerations e.g., pelvic health. Multidisciplinary teams managing athletes often include sports medicine clinicians (particularly physiotherapists and physicians), surgeons, physiologists and coaches.[3] In the context of the perinatal athlete, we argue that it is crucial that specialist pelvic health physiotherapists, midwives and obstetric and gynaecological consultants are included in the multidisciplinary team supporting their return-to-sport. In this editorial we will outline considerations that are necessary for supporting athletes during and after pregnancy. In doing so we aim to provide a framework to guide multidisciplinary teams managing perinatal athletes and their return-to-sport postpartum.

PERINATAL CONSIDERATIONS

Several anthropometric and physiological factors have been argued to explain sex differences in performance and injury,[1] yet sex-comparisons do not allow perinatal considerations to be explored. For example, female breasts lack intrinsic support and fluctuate in size during the perinatal period, which may exacerbate painful exercise-induced breast motion.[4, 5] Additionally, performance and exercise participation may be affected by pelvic floor dysfunction, such as urinary incontinence and pelvic organ prolapse.[4, 6, 7] Whilst pelvic floor dysfunction is not specific to females, females appear to have a greater predisposition for such dysfunction, partly due to having a larger pelvic outlet and greater surface area that requires support from the pelvic floor.[8, 9] Moreover, the additional pelvic outlet (vagina) in females increases the risk for structural support deficits at the base of the pelvis[8] and this risk increases further during pregnancy and childbirth. Despite the acknowledged impact of pelvic floor dysfunction on sporting performance and quality of life,[10] these complaints are often overlooked in return-to-sport frameworks.

Return-to-sport frameworks traditionally focus on managing musculoskeletal injuries, psychological readiness, and risk of re-injury[3] with no consideration given to managing postpartum return-to-sport, conceivably because the focus has been on male rather than female athletes. Furthermore, female athletes entering motherhood during their athletic career is a relatively new occurrence. For these athletes and their multidisciplinary teams, the perinatal period provides challenges due to the complex changes to bodily systems.[5, 6] It is recommended that the following factors are considered within a whole-systems, biopsychosocial approach to perinatal athlete support: childbirth related trauma (such as abdominal wall dysfunction, pelvic floor dysfunction or post-traumatic stress), menstrual health, breast health, energy balance, psychological wellbeing, fear of movement and sleep.[5, 6] Additionally, athletes should be supported in their choice to breastfeed, with consideration given to the physiological impact and practicalities surrounding breastfeeding with training and competition.[5]

Unlike musculoskeletal injury return-to-sport, pregnancy and childbirth offer athletes and their multidisciplinary teams a unique opportunity to plan ahead for the impending physical and psychological changes.[9] This opportunity for forward planning calls for the development of athlete driven services to formulate *proactive* rather than *reactive* approaches to athlete care. Enhancing perinatal athlete care via a proactive approach could optimise athletic performance and enable females to continue sporting careers beyond the transition into motherhood, safeguarding their sporting longevity. Conceivably, it may also address the disparity that exists in recognising female specific considerations, such as pregnancy and childbirth, within athlete care by providing equitable service provision to female athletes.

THE 6 RS FRAMEWORK: A PHASED, WHOLE-SYSTEMS, BIOPSYCHOSOCIAL APPROACH

We propose the 6 Rs framework to guide multidisciplinary teams in preparing, returning and optimising perinatal athletes for their sport (Table 1 & infographic in Supplementary 1). The 6 Rs framework encourages practitioners to reframe perinatal athlete evaluation within a whole-systems, biopsychosocial model of care.[5] It also supports a criterion-based approach[3] to facilitate return to performance via individualised, evidence-informed, systematic and planned phases. Implementing this framework requires the safety of the mother and baby to be the overarching consideration and consultation with a multidisciplinary team, including the primary obstetric health care provider, is recommended. This ensures that all aspects of perinatal athlete performance are considered, including appropriate and individualised timescales for tissue healing and postpartum recovery. Further resources and wider reading relevant to each

phase can be found in Supplementary 2. The suggested timescales for the 6 Rs, shown in Table 1, will serve as a guide for multidisciplinary teams supporting perinatal athletes to apply and modify as necessary. Return-to-sport postpartum should not be rushed, and athletes may move back and forward between phases depending on their individual rehabilitation needs.

Table 1. *Reframing Return-to-Sport Postpartum: The 6 Rs Framework.*

6 Rs	Description
1. **R**eady *(prenatal – early postpartum)*	Ready the athlete for anticipated whole-systems, biopsychosocial changes* by proactively educating them about perinatal health considerations during the transition into pregnancy and motherhood (e.g., weight-gain, pelvic floor function, perinatal mental health). Aim to maintain exercise throughout pregnancy (where it is safe to do so for the mother and baby), limit deconditioning and optimise postpartum recovery with forward planning.
2. **R**eview *(6-8 weeks)*	Review and evaluate the postpartum athlete and address acute musculoskeletal and pelvic health rehabilitation needs. Screen for whole-systems, biopsychosocial considerations*
3. **R**estore *(8-16 weeks)*	Restore physical and psychological wellbeing depending on individual needs and prepare the perinatal athlete for returning to structured training environments. Include pelvic floor rehabilitation and other relevant whole-systems, biopsychosocial considerations*.
4. **R**econdition *(16 weeks+)*	Recondition the perinatal athlete for their required physical and psychological sporting demands. Commence graded exposure towards individual-specific training load requirements. Revisit whole-systems, biopsychosocial considerations* and monitor symptoms as training increases.
5. **R**eturn	Return-to-sport through an individualised, evidence-informed and guided exposure to the competitive environment and re-evaluate regularly.
6. **R**efine	Refine whole-systems, biopsychosocial strategies* (e.g., optimise sleep quality, monitor for signs of relative energy deficiency syndrome) to enhance athlete training and competition availability, retaining the athlete in their sport and optimising performance.

***whole-systems, biopsychosocial considerations -** childbirth related trauma (e.g., abdominal wall dysfunction, pelvic floor dysfunction or post-traumatic stress); menstrual health; breast health (e.g., review breast support particularly in the breastfeeding athlete); energy balance (e.g., relative energy deficiency in sport); psychological wellbeing (e.g., perinatal mental health); fear of movement; and sleep (e.g., sleep routine and quality)

CONCLUSION

The 6 Rs framework builds on existing return-to-sport models by utilising a proactive rather than reactive approach to perinatal athlete management. By understanding individualised, perinatal considerations, sporting organisations can educate and support athletes in preparation for the expected whole-systems, biopsychosocial changes during and after pregnancy. This will subsequently optimise their return-to-sport postpartum. It will also enable the sporting success and longevity of the female athlete to be safeguarded beyond motherhood.

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ETHICS AND DISSEMINATION

No ethics approval is required for this editorial and the authors.

DECLARATIONS

Author Contributions

GMD and RC conceptualized and devised the scope of the editorial. GMD, ISM and RC drafted the initial manuscript. GMD, ISM, EB, AR and RC all made substantial contributions to the revision of the manuscript prior to submission. AR produced the infographic based on the presented editorial. All authors consented to the final version of the manuscript.

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