Barriers and enablers influencing female athlete return-to-sport postpartum: a scoping review

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► Additional supplemental material is published online only. To view, please visit the journal online (http://dx.doi.org/10.1136/bjsports-2023-107189).

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Accepted 6 September 2023
Published Online First 27 September 2023

To cite: Tighe BJ, Williams SL, Porter C, *et al*. *Br J Sports Med* 2023;**57**:1450–1456.

ABSTRACT

Objective Motherhood within sport has become more common with many female athletes seeking to return-to-sport (RTS) postpartum; yet few sport organisations possess policies that support female athletes to RTS postpartum. Our aim was to synthesise existing literature to identify the barriers and enablers that influence female athlete RTS postpartum to help guide the development of evidence-based policies to support postpartum athlete RTS.

Design Scoping review.

Data sources Ovid-Medline, Embase, SportDiscus and Scopus were systematically searched. Reference lists of eligible studies were also searched to identify additional studies of relevance.

Eligibility criteria Original, empirical, peer-reviewed, English-language studies reporting on female athletes and their RTS postpartum. Reviews, book chapters and grey literature were excluded.

Results Twenty-two studies were included in this review. Identified barriers and enablers reflected 11 categories which occurred within and/or across three domains of the socioecological model. Five key factors were found to significantly influence female athlete RTS postpartum including (1) postpartum recovery time; (2) time to manage motherhood and sport demands; (3) sport organisation policies; (4) stereotypes; and (5) social support.

Conclusion Various barriers and enablers exist that influence successful RTS postpartum. These factors present opportunities for clinicians and sport organisations to improve their support of postpartum athletes. Paid maternity leave, offering job security, travel support for carer and child and affordable and accessible childcare are critical policy inclusions to appropriately support female athletes in their RTS postpartum.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Despite female athletes being motivated and capable to return-to-sport (RTS) postpartum, not all female athletes are successful in their attempt to RTS postpartum.
⇒ Few sport organisations possess policies that support female athletes to RTS postpartum.
⇒ Preliminary research has identified various barriers and enablers that can influence female athlete RTS postpartum, yet no research to date has sought to synthesise the literature.

WHAT THIS STUDY ADDS

⇒ A total of 22 studies exploring the barriers and/or enablers that influence the successful RTS among female athletes postpartum were identified and synthesised in this scoping review.
⇒ Factors found to significantly influence female athletes successful RTS postpartum include: (1) postpartum recovery time; (2) time to manage motherhood and sport demands; (3) sport organisation policies; (4) stereotypes; and (5) social support.
⇒ Paid maternity leave that offers job security, travel support for carer and child and affordable and accessible childcare are critical policy inclusions to support female athletes in their RTS postpartum.
⇒ To advance the current body of evidence, future research should adopt standardised definitions of the 'postpartum period' and the 'athlete', as well as report when (weeks post birth) athletes returned to sport and what level of sport athletes returned to postpartum.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ This study provides an initial evidence-base of the barriers and enablers that can influence female athlete RTS postpartum, thus provides a basis for sport organisations to develop RTS postpartum policy.

INTRODUCTION

In the past, female athletes delayed having children until after their sporting careers, as motherhood was commonly perceived as 'the end' of a female athlete's sporting career.[1 2] However, motherhood is now less likely to mark the end of an athlete's career, with an increasing number of female athletes becoming pregnant, training through their pregnancy and returning to competitive sport postpartum (herein referred to as 'sport postpartum').[1 2] This increase in female athletes returning to sport postpartum stems in part from three major developments in sport. First, changes to legislation and sport policy have made it unlawful to stop women from participating in sport during pregnancy (although medical clearance is required).[3] Second, the growth and professionalisation of women's sport now offers female athletes' more opportunities to establish long-term, financially viable careers as athletes.[2 4 5] Third, research and media now showcase female athletes as capable and motivated to return to the same level of sport postpartum, sometimes with improved athletic performances.[6–8] Despite these substantial developments, many female athletes are unsuccessful in their attempt to return-to-sport (RTS) postpartum or experience significant challenges when returning to sport postpartum.[9]

Recent research has identified a range of factors that can impede (barriers) or support (enablers) female athletes to RTS postpartum. Identified 'barriers' include physiological conditions that stem from pregnancy and/or childbirth,[10] stereotypes/social expectations about mothers participating in sport,[11 12] the time demands of raising a child,[11 13] as well as a lack of policy supporting female athletes to RTS postpartum.[14] Identified 'enablers' include having adequate time to recover postpartum,[15] having family assist with childcare,[16] and sport organisations providing athletes specific provisions such as allowing family to travel with the athletes to competition away from home.[13] In fact, many of these factors are similar to that of non-athletes in their return-to-work postpartum; for instance, both report the significant influence that adequate maternity leave, job security, flexible work hours and arrangements, access to and cost of childcare can have on whether they successfully return to work or sport postpartum.[14 15 17 18] Nevertheless, the introduction of government legislation (eg, Title VII of the Civil Rights Act 1964, Australian Sex Discrimination Act 1984, Canadian Human Rights Act 1985) 'ensures' female non-athletes are 'protected' against discrimination in their workforce including the right to equal wages, equal opportunity and job security (eg, pregnant employees cannot be dismissed on the premise of their pregnancy), which provides a level of stability and security for female non-athletes.[19–21] This is not the case for most female athletes who experience limited 'job' stability, security or equal gender opportunity compared with their non-athlete counterparts.[14] Further exacerbating the challenges for female athletes is that some receive little to no maternity leave, such as those from USA who are only able to access 12 weeks of unpaid leave, with no additional government subsidy.[22] Whereas women in Bulgaria (410 days beginning 45 days before birth, 90% of average renumeration), Canada (35 weeks maternity leave, C$638 a week), Japan (6 weeks before birth and 8 weeks after, one payment of ¥420 000) and Scandinavia (480 days, 180SEK per day) receive maternity leave support from their national government.[23–26] In a positive move forward, international sporting (eg, FIFA) and national governing bodies (eg, UK Sport) and sporting codes (eg, England Rugby, Netball Australia) have introduced additional maternity leave provisions (eg, job security through extended contracts) for their female athletes, similar to those that many non-athletes receive from their employer.[27–30]

Many sport organisations are now looking to 'follow suit' and develop their own evidence-based policies to support their female athletes in their RTS postpartum.[5 15] However, it remains unclear how sport organisations can best provide this support as no research to date has sought to collate current evidence to understand the full range of barriers and enablers that can influence female athletes RTS postpartum. Thus, the aim of this study was to synthesise existing literature to identify the barriers and enablers that influence female athlete RTS postpartum to help guide the development of evidence-based policies that support female athletes in their RTS postpartum.

METHOD

This scoping review was conducted following the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines (see online supplemental material 1).[31] A protocol was registered with Open Science Framework (DOI: 10.17605/OSF.IO/W59AV).

Identification and selection of studies

A literature search for studies was conducted in April 2023. Four databases (Ovid-Medline, Embase, SportDiscus and Scopus) were searched to identify relevant studies. Studies were included if: (1) empirical, peer reviewed, of English language; and (2) reported on female athletes, as defined by MacMahon and Parrington (2017), postpartum.[32] Studies were excluded if: (1) editorials, opinion pieces, reviews, book chapters, abstracts, conference papers, commentaries or grey literature; (2) used sport as an intervention or form of rehabilitation; and (3) did not report barriers or enablers that influenced female athlete RTS postpartum. As the first scoping review to synthesise literature exploring barriers and enablers that influence female athletes RTS postpartum, the authors chose not to restrict the literature search by age of publication or geographical location to ensure all available literature was captured in the search for potential inclusion. The search strategy for each database is listed in online supplemental material. All studies retrieved were downloaded into Covidence software with duplicates removed prior to screening. Two authors (BJT and CP) independently screened the studies with conflicts resolved by a third author (MH). The reference lists of eligible studies were also handsearched to identify any additional studies not identified in the original search.

Charting the data

Data from eligible studies were charted into a customised Excel spreadsheet by one author (BJT) and individually cross-referenced and verified by two other authors (MH and SLW). Data were charted capturing the following dataset: author's name; publication year; study design, aim/s, population; postpartum period studied; and barriers and enablers that influence female athlete RTS postpartum. Content analysis was used to identify common barriers and enablers which were then categorised under different levels of influence in accordance with the socioecological model.[33–36]

Collating, summarising and reporting results

Study characteristics (ie, the author's name; publication year; study design, aim/s, population; and the postpartum period studied) and barriers and enablers that influence female athlete RTS postpartum were collated and summarised into three separate tables (online supplemental tables 1–3) and reported descriptively (see below).

Equity, diversity, and inclusion statement

The author group of this review is gender balanced consisting of junior, mid-career and senior level researchers as well as sport industry personnel, mothers and athletes who previously competed at a national level. Inclusive data collection methods were used to capture evidence from the female athlete population irrespective of their sport, level of competition, age, location, education, and socioeconomic status.

Patient and public involvement

No patients or public were involved in the design or analysis of this review.

RESULTS

Twenty-two studies met the inclusion criteria and were included in this review. A PRISMA flow chart illustrating the selection process is presented in figure 1. Of the 22 studies, 18 were qualitative, 2 were mixed methods and 2 were quantitative. Sixteen

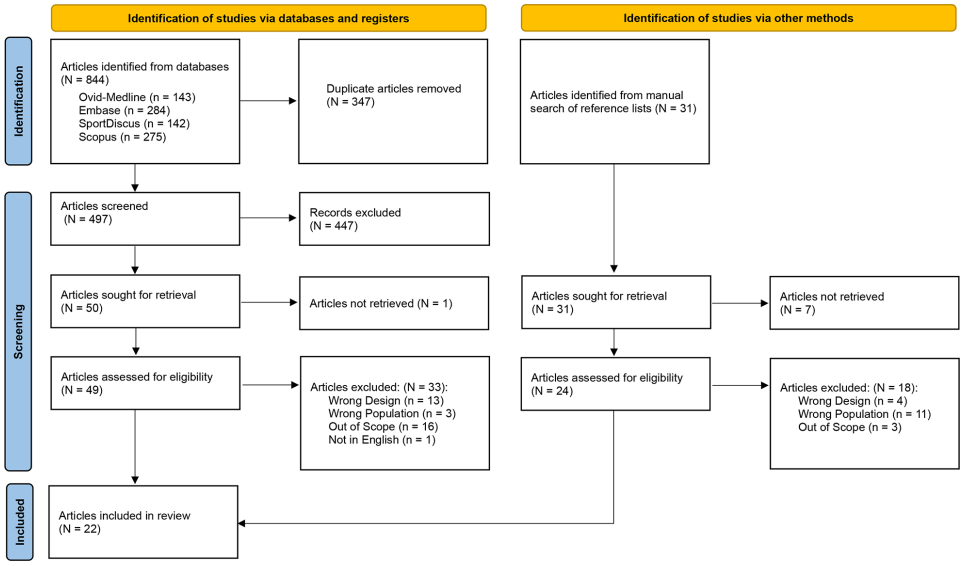

Figure 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for scoping reviews (PRISMA-ScR) flow chart. From Page *et al*.[75]

(73%) studies were published in the past 15 years (between 2011 and 2023). Seventeen (77%) studies explored the barriers and/or enablers to returning to sport postpartum among national and international level athletes, while the remaining five (23%) studies encompassed athletes competing across a variety of levels ranging from local to international. The aim of the included studies varied from exploring how female athletes negotiated their roles and identities as mothers to the perceived support of corporate sponsors and athletic governing bodies. Notably, no study provided a definition or timeframe for the 'postpartum period', and 'athletes' were inconsistently defined across studies. Fourteen (64%) studies did not specify a postpartum return period within their eligibility criteria. Of the nine (36%) studies that specified a postpartum return period, seven (78%) studies examined barriers and enablers of RTS postpartum in female athletes who returned to sport within 5 years postpartum and two (22%) studies that examined athletes who returned to sport postpartum between 6 and 10 years, respectively. Twelve (55%) studies did not report the level of sport athletes returned to postpartum, while the remaining 10 (45%) studies reported athletes returned to national or international sport. An overview of included study characteristics are provided in online supplemental table 1.

From our analysis of the 22 studies, we identified a range of barriers and enablers categorised as physiological, psychological, behavioural, financial, attitudinal, situational, communication, social support, time, strategies and policy that influenced female athlete RTS postpartum. These categories occurred within and/or across three levels of the socioecological model (ie, individual, interpersonal and organisational). Identified barriers and enablers, their respective category and socioecological level are reported descriptively below, as well as summarised in online supplemental tables 2 and 3 and illustrated in figure 2.

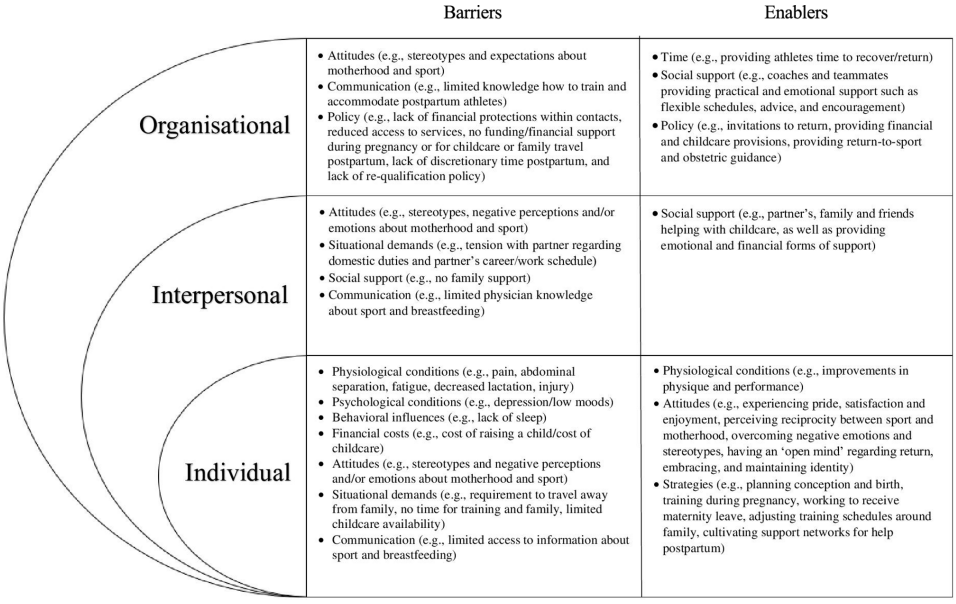

Figure 2 Summary of barriers and enablers influencing female athlete return-to-sport postpartum.

Identified barriers influencing female athlete RTS postpartum

Individual level

At the individual level, barriers were categorised as physiological, psychological, behavioural, financial, attitudinal, situational and communication. Physiological barriers comprised of factors pertaining to pregnancy, childbirth and athlete involvement in sport postpartum that impaired athletic or breastfeeding ability. This included conditions such as pelvic organ prolapse[15]; rectus abdominal separation[37]; fatigue[15 38]; muscle weakness[39 40]; increased body weight[15 41 42]; musculoskeletal injury[15 42 43]; and reduced lactation.[15 37 39] Athletes also experienced psychological barriers including postpartum depression[15 44] and behavioural barriers such as lack of sleep.[15 43 45] Financial barriers explicitly related to the increased cost of raising a child[41] including childcare.[15 16] Attitudinal barriers reflected female athlete perceptions of gendered stereotypes about motherhood[12 13 16] (eg, the 'good mother' identity); and negative emotions or perceptions about competing in sport postpartum including guilt and selfishness[12 16 43 46 47]; doubt about being a 'good mother'[16 41]; uncertainty about return[13 15 41 43 48]; as well as concerns about breastfeeding affecting health, training and performance.[45] In some cases, athletes perceived a change in their priority (ie, sport no longer important)[41 48 49]; sport organisations to be bias towards selecting athletes who were not mothers[13]; partners as incapable of looking after children[47]; and pressure to RTS sooner than desired.[15 50] Situational barriers comprised of competing demands between sport and motherhood including travel which encompassed the stress and cost associated with travelling with family[43]; as well as guilt from travelling without family[12 37]; a lack of time to train,[13 37 43 45 49] breastfeed[15 45] and be with family[13 37 43 49]; and poor access to and availability of childcare.[15 16] In addition, communication barriers related explicitly to athletes being unable to access information in regards to breastfeeding and sport (eg, is it safe to train while breastfeeding?), which impaired their decisions about returning to sport postpartum.[45]

Interpersonal level

At the interpersonal level, barriers were categorised as attitudinal, situational, social support and communication. Attitudinal barriers included partners, family and friends of athletes perceiving gendered stereotypes about motherhood and sport (eg, 'good mother' identity)[43 46]; negative judgements about athletes 'over-relying' on family for childcare[37]; and a concern for athlete health when returning postpartum.[37 44] Situational barriers reflected the competing demands of the partner's career and work schedule[47]; as well as disputes regarding at home domestic duties (eg, cooking, cleaning).[41] Social support barriers related to athletes not having boarder family support to assist with childcare[41]; while communication barriers encompassed athlete physicians possessing limited knowledge about sport and breastfeeding impairing athletes' ability to make informed decisions about their RTS postpartum.[45]

Organisational level

At the organisational level, barriers were categorised as attitudinal, communication and policy. Attitudinal barriers encompassed teammates, coaches and the sport organisation perceiving trivialised stereotypes and unrealistic expectations of female athletes returning to sport postpartum. For example, female athletes were perceived as being difficult to manage, incapable of returning to the same level sport postpartum[41] and/or expected to put sport before their family and children.[15 47] Communication barriers included sport organisations possessing limited knowledge and information on how to accommodate female athletes postpartum including their training which caused some athletes to become injured.[43] Additionally, policy barriers related to sport organisations excluding maternity leave, job security and access to support services within athlete contracts[14]; reducing or removing athlete remittance and funding[13 14 41]; providing no financial support or practical provisions for childcare or family travel[13 15 43 51]; as well as having no policy to enable athletes to re-qualify for events and competitions postpartum.[15]

Identified enablers to female athlete RTS postpartum

Individual level

At the individual level, enablers were categorised as physiological, attitudinal and strategical. Physiological enablers included female athletes experiencing improvement in their physique and/or performance such as weight loss or improved race times.[37 48] Similarly, attitudinal enablers reflected female athletes perceived improvements in their physique, fitness and performance postpartum[15 39 44]; as well as athletes feeling pride and satisfaction with their training efforts[12 37 43]; greater awareness and intuition with their body[37 41 43]; renewed enjoyment, passion and motivation for sport[13 38 41 43 49]; a perceived mutual benefit and reciprocity between sport and motherhood[13 41 43]; and lessened expectations about self and returning to sport postpartum[12 44] including not being forced to choose between sport and motherhood.[12] In addition, athletes adopted specific strategies to enable their RTS postpartum including planning their pregnancy to coincide at the end of their contracts or in-between major sport competitions[13 16 41 43]; undertaking paid work to receive maternity leave[16]; devising specific plans to manage sport and motherhood responsibilities (eg, expressing and storing breastmilk so others can feed their child or bringing their child to training)[13 15 16 37 38 41 43–45 48 51 52]; making explicit decisions about their training (eg, taking a gradual approach)[41 48 49 52]; and cultivating support networks that can provide additional support when required.[43]

Interpersonal level

At the interpersonal level, enablers were categorised as social support. These enabling factors of support included the athlete's partner, parents and friends providing athletes practical and/or emotional support in the form of childcare[37 38 41 43 47 49]; income[16]; and motivation and understanding for pursing sport postpartum.[12 16 41 43 47] Other forms of social support included athletes having an 'equal' relationship where the parental responsibilities are shared equally with their partner.[52]

Organisational level

At the organisational level, enablers were categorised as time, social support and policy. Time as an enabler specifically related to athletes receiving or having enough time to recover postpartum before returning to sport.[15 42] Social support on the other hand consisted of coaches and teammates encouraging athletes to RTS postpartum[37]; as well as coaches being flexible with training and competition schedules[41 43]; and teammates providing athletes with advice about sport and motherhood (eg, best times to breastfeed).[43 45] Policy enablers involved sport organisations encouraging female athletes to return postpartum[13]; while also including financial assistance in terms of maternity leave[41] and providing athletes with childcare provisions such as paying for an extra hotel room so child and a carer could attend games away from home.[15 43] Additionally, female

athletes identified opportunities to develop policies that would better support and enable their RTS postpartum. These opportunities included sport organisations providing greater legal and financial protections within athlete contracts[14]; devising more equitable policies[14]; and providing athletes additional funding for childcare and family travel.[15 43] Moreover, female athletes recommended sport organisations amend their views and attitudes about female athletes returning to sport postpartum[13] as well as seek to create individualised plans (that consider factors such as injury and safe return) for athletes returning postpartum that involve consultation between the athlete, coaches, and health professionals.[15]

DISCUSSION

This review aimed to synthesise existing literature to identify barriers and enablers that influence female athletes RTS postpartum to help guide the development of evidence-based policies that support female athletes to RTS postpartum. Identified barriers and enablers reflected 11 categories (ie, physiological, psychological, behavioural, financial, attitudinal, situational, communication, social support, time, strategical and policy) which occurred within and/or across three levels of the socioecological model (ie, individual, interpersonal and organisational). In mapping and comparing the barriers and enablers identified, five key factors were found to significantly influence female athletes successful RTS postpartum: (1) postpartum recovery time; (2) time to manage motherhood and sport demands; (3) sport organisation policies; (4) stereotypes; and (5) social support. These factors are discussed in detail below. Policy recommendations and additional considerations for clinicians and sport organisations to better support female athletes in their RTS postpartum are presented in online supplemental table 4.

Postpartum recovery time

Having enough time to recover from childbirth was reported as essential to female athletes to avoid injury and regain fitness postpartum. Research suggests that female athletes who RTS too soon postpartum may be more prone to experience injury.[10 53 54] Regardless, athletes in this review reported feeling pressured by their sport organisation to RTS sooner than preferred. Until recently, limited guidance existed to inform sport organisations how and when female athletes should RTS postpartum.[55] Of the RTS frameworks that do exist, few acknowledge the postpartum period and typically focus on the management of musculoskeletal injuries, risk of reinjury and psychological readiness.[10 56] As such, many sport organisations relied on the medical clearance at 6 weeks postpartum as the basis for their athletes to RTS postpartum.[15] However, Goom *et al* (2019) highlights that 6 weeks is an arbitrary time for recovery, and that medical clearance does not account for other broader physiological and non-physiological factors (eg, fatigue, breastfeeding, hormonal changes, reduced exercise tolerance, readiness to return) that can contribute to an increased risk of injury postpartum.[57] These broader factors combined with the limited knowledge of clinicians, trainers and coaches on how to treat and train postpartum athletes put these athletes at an increased risk of injury, especially if they RTS too soon.[58] In 2022, Donnelly *et al*, published the 6 Rs framework providing a phased, whole systems, biopsychosocial approach. Specifically, this framework extends on existing RTS frameworks by utilising a 'proactive rather than reactive approach', recommends the involvement of a multidisciplinary team and provides a graduated, systematic, criterion-based approach to support the individualised, safe and effective RTS among postpartum athletes.[59] This individualised approach is critical given the wide range of considerations that must be accounted for when athletes RTS postpartum (eg, type of birth, whether athletes trained during their pregnancy as research suggests athletes who train during their pregnancy can RTS postpartum more quickly than those who do not train during pregnancy).[15 54]

Time to manage motherhood and sport demands

Not having enough time to commit to both sport and family was commonly reported. A lack of time was mainly due to the competing demands of sport and motherhood (eg, time needed to look after child as well as train). Based on cultural and social norms of parenthood, women in general devote more time to the care of their child/children than men.[60] Moreover, the time dedicated to taking care of children, especially prior to school years, is a major factor for determining whether women re-enter the workforce.[61–63] To enable their RTS postpartum, female athletes in this review reported devising specific strategies to balance the demands of both family and sport. For instance, athletes expressed and stored breastmilk to enable partners to feed their child,[43 45] as well as asked family or friends to look after their child while they trained.[37 43] However, these strategies often required significant time to plan and implement and were highly influenced by the support available to the athletes (eg, whether family could assist with childcare).[37 43]

Sport organisation policies

The lack of sport organisation policy, specifically in relation to maternity leave, family travel and childcare, was identified as a barrier that reduced the ability of female athlete to RTS postpartum. Darroch *et al* (2019) suggests that the lack of maternity leave within female athlete contracts not only discriminates but forces athletes into a precarious financial situation to remain athletes postpartum particularly given their income is reduced and there is no guarantee for their return.[14] Likewise, when sport organisations do not provide athletes family travel and childcare assistance, athletes were forced to pay for these expenses out of their own pocket, which they were not always able to afford. Despite female athletes playing at the pinnacle of their sport, many female athletes are considered low-income earners who earn considerably less than their male counterparts.[64 65] As a result of their income, many female athletes were often forced to travel without family as well as rely on family for childcare support to enable them to train and compete. These arrangements, however, do not come without significant implications. For example, travelling without family caused many female athletes in this review to experience negative emotions such as guilt, selfishness and doubt about being a good mother.[12] Similarly, over-relying on family for childcare caused some athletes to be subjected social judgements about their capabilities as mothers.[37] Recently, policy issues such as maternity leave, family travel and childcare assistance have been placed on the agendas of sports organisations, thanks to the advocacy of elite athletes such as Allyson Felix.[66] In a 2019 interview with TIME magazine, Felix spoke publicly about how her sponsor Nike failed to provide any equitable protections in her contract regarding injury or reduced performance postpartum.[66] In response to public backlash regarding Felix's article, organisations such as Nike have now amended their policies to include protections such as paid maternity leave, while other organisations like Athleta have gone on to introduce additional finance provisions such as funding for childcare and family travel.[66 67] Regardless,

polices like paid maternity leave, childcare, and family travel remain limited within female sport.[5]

Stereotypes

Underpinned by traditional gendered ideologies and trivialised perceptions of women and mothers in sport, female athletes in this review both perceived and were subject to stereotypes that influenced their decision/s to RTS postpartum. Stereotypes specifically perceived by female athletes focused primarily on traditional gendered ideologies such as 'ethic of care' and 'good mother identity' and how such ideologies do not align with their sport. As a result of these ideologies, athletes perceived negative emotions regarding their RTS postpartum such as guilt. Markedly, these same ideologies were also perceived by friends and family which exacerbated the negative emotions felt by athletes. Comparatively, stereotypes from sport organisation personnel, such as coaches, reflected trivialised perceptions of women and mothers in sport. For example, one perception is that female athletes are incapable of returning to the same level of sport postpartum.[41] Research suggests that any stereotype can threaten the career, performance and motivation of female athletes to 'persevere' with sport.[68] To negate stereotypes, female athletes modified their perceptions by justifying the positive attributes and benefits of sport to self and child; for instance, allowing athlete to role model dedication, hard work and a healthy lifestyle to their child, as well as provide their child new experiences.[11–13 41 43] One's ability to modify their perceptions in the face of adversity aligns to that of self-efficacy.[69] Research regarding interventions to improve self-efficacy amid injured athletes has been shown to improve athlete retention and RTS, thus too could be beneficial for postpartum athletes to enable their RTS postpartum.[70]

Social support

Given the lack of policy to support female athlete to RTS postpartum, athletes relied heavily on social networks (ie, family, friends, coaches and teammates) for emotional, financial and practical types of support. This support was essential for female athletes to be able to RTS postpartum. For example, to afford themselves both time and space to RTS postpartum athletes relied heavily on family for childcare. Research shows that family support is imperative for both the physical and mental health of mothers; yet not all women have access to or are able to draw on family for support.[71] Barkin *et al* (2014) and Darvill *et al* (2010) found that mothers experience difficulties obtaining help if family do not live close by.[72 73] Similar findings were also found in this review with athletes who did not have family nearby, reporting being forced to RTS later than preferred.[41] However, in cases where family support was not available, athletes acknowledged seeking the support of close friends.[13] Notably, coaches and teammates also provided athletes with support; however, this support reflected coaches being understanding of athlete circumstances and catering to the athletes needs such as being flexible with training, and teammates providing athletes with advice about sport and motherhood such as when to express/feed their child before training. Though this type of support from coaches and teammates is beneficial, it does not fully accommodate the practical and emotional needs of female athlete to RTS postpartum.

Strengths and limitations

This scoping review used rigorous and transparent methods throughout the entire process including the use of PRISMA-ScR guidelines to guide data collection, cross-checking data with two researchers and summarising findings using an established framework (ie, the socioecological model). Nevertheless, there are limitations to consider when interpreting the findings of this review. Only studies reporting the barriers and enablers of athletes who successfully returned to sport postpartum were included in this review. These barriers and enablers may differ from athletes who did not RTS postpartum. As such, this review may not have identified all barriers and/or enablers that influence athletes RTS postpartum. Despite an extensive review of the literature, the exclusion of non-English language studies may have also led to additional barriers and enablers not being identified. Some studies included in this review also assessed athletes who had given birth before becoming an 'elite' athlete, thus their identity as a mother may be more established. It is not known if this would have a greater or lesser impact on barriers and enablers experienced. While not limitations of this review, but rather limitations of the current body of evidence, the following factors should still be considered when interpreting the findings of this review. No study explicitly defined the 'postpartum period'. This resulted in significant variability in the timeframe in which athletes' barriers and enablers were examined. Additionally, the 'athlete' was inconsistently defined across studies. For instance, the two McGannon *et al*, studies defined their 'athletes' as 'recreational athletes', who were competing at an international level,[11 44] while other studies defined their 'athletes' as 'elite athletes' if they were competing at an international level.[15 48] Moreover, few studies in this review specified when athletes returned to sport postpartum or what level of sport they returned to. Without this information, a standardised account of barriers and enablers cannot be determined to guide policy development. Lastly, five studies in this review comprised of athletes competing at different levels of sport (eg, local, national, international), but then did not separate the athletes based on the level of sport athletes were competing at for analysis. This meant we were unable to differentiate the barriers and enablers experienced by athletes competing at the different levels of sport within these studies. Therefore, barriers and enablers identified in this review may not be relevant to all athletes.

Based on these limitations we recommended future research: (1) explicitly define the postpartum period, such as the 12-month timeframe suggested by Bø *et al*[10]; (2) follow standardised definitions and classifications of 'athletes', such as those recently established by McKay *et al* in their Participant Classification Framework[74]; (3) report when (weeks post birth) athletes returned to sport postpartum and what level of sport the athletes returned to; (4) separate athletes based on level of sport for analysis to enable greater exploration of the barriers and enablers experienced by athletes who compete at different levels to help establish policies of relevance; as well as consider the limitations of this review when examining barriers and enablers influencing female athlete RTS postpartum.

CONCLUSION

This review synthesised existing literature to identify barriers and enablers that can influence female athletes successful RTS postpartum. This will help guide the development of evidence-based policies that support female athletes during this unique life stage, as few of these policies currently exist. Postpartum recovery time, time to manage motherhood and sport demands, sport organisation policies, stereotypes and social support were identified as the most significant of factors to influence female athletes successful RTS postpartum. Moreover, paid maternity leave offering job security, travel support for carer and child

and affordable and accessible childcare are critical policy inclusions to appropriately support female athletes in their RTS postpartum. In addition to policy development, various opportunities exist for clinicians and sport organisations to better support postpartum athletes. To build on the current body of evidence, future research should adopt standardised definitions of the 'postpartum period' and 'athlete' as well as report time taken to RTS and the level of sport athletes returned to postpartum.

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Contributors All authors meet requirements for authorship. Specifically, BJT with support from MH and SLW developed the search approach. BJT performed the literature search. BJT and CP screened articles for inclusion, BJT with support from MH and SLW extracted data. All authors (except CP) were involved in drafting, critically reviewing and revising the work of the manuscript as submitted. BJT is guarantor of the study thus agrees to be accountable for all aspects of the work.

Funding The lead author is supported by an Australian Government Research Training Program Scholarship provided by Central Queensland University and the Queensland Academy of Sport.

Competing interests None declared.

Patient consent for publication Not applicable.

Ethics approval Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available in a public, open access repository. All data that are publicly available and used in the writing of an article.

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