



“It’s more than a period”

Menstrual Cycle Considerations in Female Athletes: A Coaches Perspective





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Introduction

The menstrual cycle is a biological rhythm important for female reproduction and health. Across an average 21-35-day cycle, those who naturally menstruate, and are not using a form of hormonal contraceptive, experience fluctuations in the female sex hormones oestrogen and progesterone (McGawley *et al.*, 2023). These hormonal fluctuations can give rise to a number of physical and psychological symptoms which can impact performance, well-being and readiness to participate in sport and physical activity (Armour *et al.*, 2020; Brown, Knight and Forrest, 2020; Adam *et al.*, 2022). As such, coaches have an important role in understanding and assisting female athletes who may require additional supports in the context of their menstrual cycle.

Though its primary role is reproduction, the menstrual cycle interacts with other bodily systems and physiological processes and can impact important factors such as bone and cardiovascular health (Mills *et al.*, 2021; Kwissa *et al.*, 2022). Indeed, the menstrual cycle can be considered an indicator of female health and changes to its regular function (e.g. irregular cycles and period loss) should be addressed. Compared to the general population, female athletes may be more susceptible to disruptions in menstrual function, particularly athletes with high training volumes and/or intensities (Oxfeldt *et al.*, 2020). While many factors can influence menstrual function, special consideration should be given to Relative Energy Deficiency in Sport (REDs), which describes the potential health implications associated with a mismatch between energy intake and expenditure, and can include menstrual disturbances such as period loss (Mountjoy *et al.*, 2023).

Given the role the menstrual cycle can play in female health and performance, coaches should be aware of the physical and psychological symptoms that female athletes may experience (Armour *et al.*, 2020; Findlay *et al.*, 2020; McNamara, Harris and Minahan, 2022; Taim *et al.*, 2023). Negative menstrual cycle symptoms are commonly experienced by female athletes and additional psychological impacts such as worries around leaking, or an inability to concentrate due to severe period pain, may also be perceived to compromise performance (Armour *et al.*, 2020; Brown,



et al., 2020; Adam *et al.*, 2022; Brown and Knight, 2022). Despite these findings, communication around the menstrual cycle between female athletes and their coaches is limited (Armour *et al.*, 2020; Solli *et al.*, 2022; von Rosen *et al.*, 2022), which may be challenging for female athletes seeking support and those who wish to offer support and guidance. As such, menstrual health literacy skills are important for coaches to effectively communicate with and support female athletes (McGawley *et al.*, 2023).

Previous research has identified that personal experiences and level of knowledge can impact the supports that coaches provide to female athletes around the menstrual cycle (Brown and Knight, 2022). However, there is limited research on the current supports that coaches offer to female athletes, and what they feel they need to better support their athletes in this area. With this in mind, this research aimed to explore how Irish coaches currently support female athletes around the menstrual cycle, and to gain a deeper understanding of the factors that impact the delivery of such support.

Research Aims and Objectives

Aim

This research aimed to investigate the experiences of coaches across the Island of Ireland working with female athletes, with a particular focus on the menstrual cycle.

The objectives were to;

- 1** **Explore** coaches' perceptions of the menstrual cycle and the current supports they offer to female athletes around the menstrual cycle.
- 2** **Identify** any factors (barriers and facilitators) that impact the delivery of such supports.
- 3** **Gain** an understanding of the coaches' perceived level of knowledge and experience supporting athletes around the menstrual cycle.
- 4** **Identify** areas where coaches may need further help and training in relation to supporting their athletes around the menstrual cycle.



Methods

3.1 Participants

Sixteen coaches (male n=9 and female n=7), aged between 19 to 57 years old, took part in a semi-structured interview, lasting approximately 45 minutes. All participating coaches had a minimum of two years' experiencing working with female athletes, with overall coaching experience (specific to female athletes) ranging from 2 – 20 years.

Coaches expressed interest in the study through a recruitment questionnaire which was circulated online across social media platforms. Additional recruitment was carried out by the supporting Local Sports Partnership and members of an advisory research group comprised of academics (n=5) and women in sport leads (n=2) based on the island of Ireland. Prior to the interview, all participating coaches completed a pre-interview

questionnaire and were informed of the study procedures before providing informed consent.

Table 1 below presents a breakdown of all participants, in order of interview completion. Participants were categorised based on the sporting level and age group of their athletes; where those coaching female athletes aged 18 years and older were classed as senior, and those coaching female athletes aged 13-17 years were classed as youth. Sporting level reflected the primary goal of the athlete group that coaches worked with and was categorised into performance or participation. Performance included athletes from the various sports that played at, or just below the highest grade (elite/sub elite) available in their sport.

Table 1: Participant Characteristics

Participant	Gender	Sporting Background	Sporting Level*	Age Group**
1	Male	Athletics	Performance	Senior (18+)
2	Male	Soccer	Participation	Underage
3	Male	Soccer	Participation	Underage
4	Male	Camogie	Performance	Senior
5	Female	Basketball	Performance	Underage
6	Male	Camogie	Participation	Mixed
7	Female	Cricket	Participation	Underage
8	Male	LGFA	Performance	Senior
9	Male	Athletics	Participation	Senior
10	Female	Athletics	Participation	Underage
11	Female	LGFA	Performance	Underage
12	Female	Swimming	Participation	Underage
13	Female	Athletics	Performance	Senior
14	Male	Rowing	Performance	Senior
15	Male	Camogie	Performance	Senior
16	Female	Hockey	Participation	Mixed

* Sporting Level: Performance = Intercounty/Interprovincial/International

** Age Group: Underage = Athletes aged between 13-17 years

3.2 Study Design

Phase 1: Developing the Interview Topic Guide

To maintain consistency between interviews, a topic guide was developed (see Appendix 1). The supporting research group evaluated and provided feedback on the topic guide before the completion of three pilot interviews at which point, the topic guide was refined and finalised. An overview of the key sections of the final topic guide are presented in Table 2. All interviews were conducted online via Zoom. To facilitate data analysis, all interviews were audio recorded. This study was approved by the Department of Sport and Health Sciences Research Ethics Committee in Technological University of the Shannon: Midlands.

Table 2: Overview of Interview Topic Guide Sections

	Introductory Questions
Section 1	Current Perceptions of the Menstrual Cycle
Section 2	Coach- Athlete Support
Section 3	Perceived Barriers and Facilitators
Section 4	Current Knowledge of the Menstrual Cycle
Section 5	Future Support for Coaches
	Closing Questions

Phase 2 – Conducting the Interviews

The interviews began with the interviewer providing a brief overview of the study, detailing the procedures, addressing queries and obtaining consent. Coaches were then asked two introductory questions about their experience working with female athletes, before moving to specific questions about their perceptions of the menstrual cycle and sports performance, the current supports they provide to female athletes around the menstrual cycle, and the factors (barriers and facilitators) that impact the delivery of such supports. Finally, the coaches' perceived knowledge and understanding of the menstrual cycle were explored, and areas where coaches felt they needed future support in relation to the menstrual cycle were discussed. Coaches were then given the opportunity to ask questions or provide further comments prior to the end of the interview.

3.3 Data Analysis

All audio recordings were transcribed verbatim by the researcher and predominantly analysed using an inductive approach. Data analysis followed the recommendations for reflexive thematic analysis (Braun and Clarke, 2021), whereby the researcher familiarised themselves with the data, identified meaningful segments of text, and tagged them using descriptive codes (Braun and Clarke, 2019). These codes were used to identify thematic patterns within the data set which were further grouped into sub-themes and refined into overall themes.

Results

4.1 Theme Overview

Three themes were developed, and an overview of each theme and their sub-themes is listed below.

1.

It's More Than A Period

Coaches have a mixed understanding of the menstrual cycle, including its basic characteristics and the role it plays in female health and performance. The coaches' multi-dimensional perspectives of the menstrual cycle appear to be influenced by their own knowledge and personal experiences.

Sub-themes:

1. An Indicator of Female Health
2. A Factor that Impacts Performance
3. A New Experience for Youth Female Athletes

2.

If Not You Then Who?

Coaches identify roles and responsibilities when it comes to supporting female athletes around the menstrual cycle, which vary depending on the age and sporting level of athletes and the availability of support staff.

Sub-themes:

1. Coaches Perceived Roles and Responsibilities
2. That One Good Female
3. Parents and Peers

3.

Practically That's Not Practical

Coaches varied (mis)understanding of research emphasises the importance of providing simple, practical, and evidence-informed guidelines for coaches, in order to bridge the gap between theory and practice for menstrual cycle-related issues.

Sub-themes:

1. Where is the Evidence-Based Information?
2. Individuality of the Menstrual Cycle
3. The Need for Practical Guidance

4.1 It's More Than A Period

Theme Summary

The menstrual cycle, by definition, starts from the first day of the period and continues until the first day of the next period. However, our data revealed a common misconception, with almost half of coaches (n=7, 43.75%) believing that the menstrual cycle is just the period or bleeding stage and lasts an average of “three to five days” (Interview 3, Male Coach, Participation) (Appendix 2 - Table 1). Nonetheless, half of coaches (n=8, 50%) appeared to be aware of issues related to the menstrual cycle such as period loss, and the impact it can have on female athlete health.

The menstrual cycle has frequently been reported by female athletes as a factor that impacts sports performance (Findlay *et al.*, 2020; Solli *et al.*, 2020; McNamara, Harris and Minahan, 2022), though the perceived magnitude of these effects may vary depending on personal experience with the menstrual cycle (Armour *et al.*, 2020; Brown, Knight and Forrest, 2020). In line with this, coaches offered diverse perspectives on the perceived impact of the menstrual cycle on sports performance, with female coaches offering insights based on their personal reflections and experiences.

Finally, as identified by the majority of coaches (n=12, 75%), the menstrual cycle is a new experience which can create additional challenges for young female athletes who are navigating their way through puberty. Increased feelings of embarrassment and discomfort may also be experienced by some youth female athletes which may act as a barrier to communication and potentially impact support-seeking behaviours around the menstrual cycle (Taim *et al.*, 2023). Sub-themes are listed in Figure 1.

It's More Than A Period

An Indicator of Female Health
A Factor that Impacts Sports Performance
A New Experience for Youth Female Athletes

Figure 1: Overview of Theme 1 and Related Sub Themes

An Indicator of Female Health

A regular menstrual cycle can signify good health in female athletes and disturbances to the menstrual cycle can impact both health and performance. When working with female athletes, almost half of coaches (n=7, 43.75%) were aware “that it is an important thing that [female athletes] do have a healthy menstrual cycle” (Interview 5, Female Coach, Youth Performance) and identified it to be an indicator of female health:

“It shows that your body is working and it shows that you're not overdoing it with exercise [and] you're eating well, [...] because if anything was off kilter in any of those areas, you wouldn't be having your periods”

(Interview 12, Female Coach, Participation)

Many coaches (n=10, 62.5%) referred to the importance of regularity around the menstrual cycle. In the opinion of one coach, the menstrual cycle can be considered regular when a female athlete is having a period “within an allowable 21-35 days” (Interview 10, Female Coach, Participation), though as recognised by few coaches (n=5, 31.25%), at times “there can be hormonal difficulties and hormonal imbalances where cycles can change” (Interview 15, Male Coach, Performance) which over time, can have negative implications for female athlete health and performance.

“I suppose that the most vulnerable athletes in terms of over work is somebody who's overdue on their cycle [...]. I would recall there being athletes with menstrual dysfunction being more exposed to things like stress fractures and potentially fatigue and obviously fatigue then into injury and things like that, yeah”

(Interview 4, Male Coach, Performance)

Another coach offered that: “if they [naturally menstruating females] don't have one [a period] in three months, that's a problem” (Interview 10, Female Coach, Participation). Period loss is “one of the first signs of [relative energy deficiency in sport] REDs” (Interview 14, Male Coach, Performance) and may be an indicator that a female athlete is under fuelling as shared by almost half (n = 7, 43.75%) of the coaches.

“And you know, it's the whole REDs thing. Like the first thing to go is the period. So, if they're not getting a period, I'm going, hold on a minute, you're not eating, you know?”

(Interview 13, Female Coach, Performance)

“I suppose with my nutrition hat on it's obviously trying to spot the warning signs for amenorrhea and REDs and that kind of thing. Making sure that you are getting a period, because that's one of the first signs of REDs, the loss of the menstrual cycle”

(Interview 14, Male Coach, Performance)

A Factor that Impacts Performance

The perceived impact of the menstrual cycle on sports performance can vary depending on personal experience with the menstrual cycle. All coaches considered the menstrual cycle to be an important factor when working with female athletes, given the apparent physiological and psychological impacts it can have on sports performance (Appendix 2 – Table 2). Observed changes in athlete energy levels, skill execution (e.g. “delayed reactions”), and body language (e.g. “general body demeanour”) were reported by coaches and perceived to be a result of the menstrual cycle. Additionally, some coaches (n=6, 37.5%) discussed the psychological challenges and additional distractions that some athletes can face when dealing with their period, such as the fears or worries of leaking.

“But yeah, I definitely felt that players looked disinterested maybe, and more tired. Like girls especially, you know that would give you lots of energy and always be kind of bouncing around the pitch and all of a sudden, they just looked really off, like they didn’t have that energy”

(Interview 2, Male Coach, Participation)

“In the dressing room at half time, I could notice she was very upset. Went over and she just told me and obviously at the time we were wearing white shorts, the girls were wearing white shorts, so she was very, very conscious of that [...] So, it does affect their match performance. It does affect their training, even in their head, being conscious of having their period. Some of them might just wear pads maybe, and they might be always conscious of that as well”

(Interview 11, Female Coach, Youth Performance)

While discussing the physiological and psychological impacts of the menstrual cycle, female coaches reflected on their own experiences. Some female coaches (n=4, 57%) perceived that the menstrual cycle had a negative impact on their own sporting performance while other coaches (n=3, 43%) reported no impact on their own performance (Table 4). These experiences may impact coaches’ general perception of how the menstrual cycle influences performance and subsequently the support offered to their athletes.



Table 4: Impact of the Menstrual Cycle: Personal Experiences of Female Coaches

Negatively impacts performance	
Interview 5 Female Coach Youth Performance	“I personally would have struggled with it. I was like 16 and I was playing and I'd literally just got my period and I felt so distraught. I was like my whole performance is going to be terrible because of this”
Interview 7 Female Coach Participation	“I definitely know at certain phases I'm more likely to get injured and if I'm more likely to get injured then I'm, you know, my performance obviously isn't going to be good”
Interview 11 Female Coach Youth Performance	“It definitely does affect it [performance]. I know myself, I play as well and for example, last night I was in the middle of my period. I felt weak, I felt low and this morning I woke up with a cold, you know? So, I knew it affects me in that way. Like, you know, it's often the time, my period, that I get a cold or flu. And I knew myself last night. I was in a game setting and I just felt totally weak”
No impact on performance	
Interview 10 Female Coach Participation	“It was fine. It was okay, like it was what it was. I had it easy enough for most of it until after I'd had all my kids. Then it went to hell!”
Interview 13 Female Coach Performance	“Like I got my period when I was just 11 myself okay [...]. It never impacted my performance. [...] But I actually don't think when you actually get your period that your performance goes down. That'll be my experience”
Interview 16 Female Coach Participation	“It didn't impact my performance, or if it did, it didn't impact me enough. And I never had any instances where I felt I couldn't perform in an important game or an important fitness test or anything like that as a result. Maybe I'm very lucky, maybe I'm the minority”

However, male coaches lack lived experience of the menstrual cycle and therefore may develop perceptions of the menstrual cycle and its impact on sports performance based on their own reading and research, and their experiences in relationships with significant females in their lives (e.g. wives, partners, girlfriends, etc) (Table 5).

Table 5: Impact of the Menstrual Cycle: Lack of Lived Experience of Male Coaches

Perceptions Based on Reading and Research	
Interview 4 Male Coach Performance	“I would have had a perception that an athlete with their period would be susceptible to the inferior performance or possibly. But I'm not so sure about that anymore from stuff that I've been reading more recently that it's not necessarily the case and that it's very individualized”
Interview 14 Male Coach Performance	“I suppose, from reading various bits, I think there does seem to be a drop off in performance during the start and the end phases of the cycle from what I know. But as I said already there can be athletes who are really affected by it. There can be athletes who aren't affected by it. It can vary cycle to cycle I think”
Perceptions Based on Experiences in Relationships	
Interview 3 Male Coach, Youth Performance	“I know from my own girls when they're, you know... when they're having their periods, I know they struggle and I know that sort of stuff. So, that stands to reason if you're dealing with the players like that”
Interview 15 Male Coach Performance	“I suppose being married to a woman helps. I've seen how my own wife can be. So sometimes the cycle can be very painful and she can be quite run down. Like if I can see that under my own roof, you know, I have to understand that that's one female [and] that everyone is different. So that's helpful that I can see it and hear it”

A New Experience for Youth Female Athletes

During puberty, young female athletes go through a number of physiological changes including menarche, their first period. This time and the phase thereafter during which the menstrual cycle can be irregular and unfamiliar can be challenging, as identified by the majority of coaches (n=12, 75%). One coach remarked that from the onset of puberty, youth female athletes are “going through so much changes inside themselves” (Interview 5, Female Coach, Youth Performance). Understandably, coaches of these young athletes were cognisant of the challenges that these athletes may face during their period, particularly for the initial onset and time after menarche, when the menstrual cycle can take some time to regulate.

“ I had a girl recently I was coaching; she was like 12 and she wasn't herself that day. I was kind of going... something's wrong here. And her father came over and said, “she's having her first period and she's just all over the place”. She was emotionally all over the place and just having a tough day”

(Interview 9, Male Coach, Participation)

“ It wasn't the first time, but she got one at training. She wasn't expecting it as early, apparently. [...]. I could see there was two or three kind of gathered around the girl and she looked really uncomfortable. [...]. And she just basically told me she had no tampon with her. She had no pads. She wasn't expecting it and that it had come and that she did not feel comfortable training”

(Interview 2, Male Coach Participation)

Many coaches (n=11, 68.75%) considered youth female athletes to be uncomfortable discussing the menstrual cycle, and to have poor knowledge and awareness of their menstrual cycle compared to adult females who “know their cycle [and] know how they feel during it” (Interview 16, Female Coach, Participation). Together, these were deemed a challenge for coaches who wished to offer support to youth female athletes.

“ I think it's a difficult one to touch on when particularly when you're coaching underage. When they start to get a bit older, it can be easier. I know in cricket a lot of the younger girls from 15 up will play seniors and so you'll ...you would tend to talk about that stuff a bit more”

(Interview 7, Female Coach, Participation)

“ You know, you might have a younger set of players there. You know, they're obviously probably not going to be overly comfortable talking to you about that sort of stuff, so you wouldn't know whether that was happening or not, you know”

(Interview 3, Male Coach, Participation)



4.2 If Not You Then Who?

Theme Summary

Knowledge and experiences can shape the coaches view of the menstrual cycle and influence the approach they take in supporting their female athletes (Brown and Knight, 2022). Almost all coaches (n=14, 87.5%) believed that they had roles and responsibilities when supporting female athletes around the menstrual cycle. Coaches working with youth athletes and in participation contexts generally focused on creating “a safe space that [female athletes] feel happy to operate in” (Interview 3, Male Coach, Participation). However, almost all coaches at a performance level (n=7, 87.5%) highlighted that they need to be more considerate of the menstrual cycle with respect to performance and health when supporting female athletes.

Research suggests that rather than approaching their coach, some female athletes prefer to speak to medical practitioners or other females with issues related to their menstrual cycle (Brown, Knight and Forrest, 2020; Findlay et al., 2020). Many coaches (n=7, 43.75%) shared a similar view that female athletes were not as comfortable discussing the menstrual cycle with males as they are with females, and so, delegated the role of support around the menstrual cycle to a specific female in their environment.

Delegating roles to parents and peers was also of benefit to coaches, particularly in the absence of female support staff and when working with youth female athletes. Instead of speaking to a coach, female athletes have reported a preference to speak with friends (62%) (von Rosen et al., 2022) or parents (85%) (Taim et al., 2023) about concerns related to their menstrual cycle. Thus, aside from the coach, support for female athletes around the menstrual cycle also involves the contribution of other members in the sporting environment such as parents, teammates and female staff members. Sub-themes are presented in Figure 2.

If Not You Then Who?

Coaches Perceived Roles and Responsibilities
That One Good Female
Parents and Peers

Figure 2: Overview of Theme 2 and Related Sub-Themes

Coaches Roles and Responsibilities

Many factors can influence the way in which coaches support female athletes around the menstrual cycle. In this instance, coaches indicated that their roles and responsibilities varied depending on the athletes' age and sporting level. At a performance level, coaches (n=6, 75%) identified the role they play in health and wellness monitoring (e.g. mood, energy, injury status) because “if [female athletes are] healthy, then they should be able to perform” (Interview 8, Male Coach, Performance). Only one coach included menstrual cycle monitoring “as a form of wellness” (Interview 15, Male Coach, Performance). However, almost all coaches of performance level athletes (n=7, 87.5%) recognised that there is a greater need and responsibility for them to consider the menstrual cycle as a performance and health factor, and some (n=4, 50%) mentioned that they would like to incorporate this in the future.

“Three times a week typically we would get data on approximately 26 to 30 players as to are they on their period or not or are they impacted by the menstrual cycle or not. So that's all it is [...]. We're using it as a form of wellness. [...]. So, we would ask, are you affected? [...] something like are you impacted or affected by your menstrual cycle today and it's yes, no or unsure”

(Interview 15, Male Coach, Performance)

Meanwhile, coaches working with youth female athletes and with those in participation contexts, in general, prioritised creating “safe” and “comfortable” environments for their female athletes, including appropriate consideration of the menstrual cycle and how it can impact participation.

“I think no players should have to miss a part of the session because she's got her period and if I don't know that then and I keep the session the same, then she feels uncomfortable. So, it's I suppose just to make her feel as comfortable as possible throughout the session and doesn't feel like she has to sit out and that would be kind of the main role for me”

(Interview 2, Male Coach, Participation)

Offering emotional support to youth female athletes around the menstrual cycle (e.g. reassuring them that it “is part of life” and “nothing to be ashamed of”) was also considered relevant for some coaches (n=5, 31.25%). The importance of having sanitary products and spare gear available for female athletes was also discussed by coaches (n=9, 56.25%), particularly in the case of youth female athletes who may be “caught unaware” of their period due to irregular cycles (Interview 12, Female Coach, Participation).

“I have everything in the gear bag for them if they need it. So, they're more comfortable. And I suppose this year we actually changed the red shorts, which was a huge boost. And when I was putting in the order for the girls, I made sure that I got an extra pair just in case”

(Interview 11, Female Coach, Youth Performance)

“So, one of the girls said to me, oh, I think she has a period so and she doesn’t have a tampon. So, I went over to her and I said, are you okay? She said, yeah. And I said, look, do you need a tampon? And she said, yeah. And I said go over to my bag. It was on the other pitch, go over to my bag in the pocket there’s one there”
 (Interview 16, Female Coach, Participation)

Irrespective of sporting level, the majority of coaches (n=13, 81.25%) felt responsible for improving their own knowledge around the menstrual cycle and to remain “up to date with current [research] in that area”. Improving female athletes’ knowledge around the menstrual cycle was also considered an important role for coaches (n=7, 43.75%). A number of coaches (n=4, 25%), highlighted that there may be female athletes who are unaware that period loss, heavy menstrual bleeding and period pain potentially require further consideration by a medical professional. Thus, these coaches deemed that they also had a responsibility in signposting their female athletes “to talk to their doctor” (Interview 9, Male Coach, Participation).

“I find girls don’t realize maybe how heavy their periods are, how abnormal that is you know? Or how light the period might be, that could be abnormal too [...]. And for someone having a very heavy period, they might think that’s normal. And it was in this case, the girl was getting wobbly legs, she was in so much pain, she’s bent over and I’d asked her, you know, ‘has that happened before?’, and she said that it happens all the time. I just advised her maybe take a trip to the doctor and see what do they say”
 (Interview 11, Female Coach, Youth Performance)

A number of coaches encouraged female athletes to track their own menstrual cycles, recognising that it can facilitate with signposting (n=3, 18.25%) and may improve knowledge and awareness of how the menstrual cycle impacts sports performance (n=6, 37.5%).

“And then I think maybe being able to like reflect back on how it affects them and if they can draw certain links between certain phases of the cycle, if they’re experiencing a drop off in performance for that week or those few days that that may explain it. And then that can give them a bit more like of an understanding”
 (Interview 14, Male Coach, Performance)

That One Good Female

Not all female athletes are comfortable to seek support around the menstrual cycle and openly discuss this topic, particularly with male coaches. Thus, establishing a female point of contact in sporting contexts may be beneficial. In this study, the majority of coaches (n=12, 75%) perceived that female athletes are not as comfortable discussing the menstrual cycle with males as they are with females, given that males “don’t experience it, [and] can’t experience it and would never know what it is like to go through what women go through” (Interview 9, Male Coach, Participation) (Table 5). Therefore, some coaches (n=7, 43.75%) delegate a specific female with the role of supporting athletes around the menstrual cycle.

Table 5: Male vs Female Coach Perceptions on Comfort of Discussion around the Menstrual Cycle	
Male Coaches	Female Coaches
Perception 1 Lived Experience: Females have an advantage given their lived experience	
<p>“I can't empathize. I've never experienced that so there's no way of knowing how it impacts do you know? And that does make it difficult for me to support and to cross” (Interview 6, Male Coach, Participation)</p>	<p>“I think it's easier when you have experienced it. Like anything in life, I can have just more understanding and empathy, I suppose is the thing because I know what it feels like [...]. It's very hard to know what that feels like if you've never experienced it” (Interview 12, Female Coach, Participation)</p>
Perception 2 Empathy: Male coaches are perceived as lacking empathy	
<p>“I think there was an idea that if they had been upfront and honest with me that I would probably kind of shrug it off or not understand, which is fair enough I suppose. You know, as a male coach, I think that's kind of the way it is, unfortunately” (Interview 14, Male Coach, Performance)</p>	<p>“I'm assuming that they would find it easier to say it to a female person than a male. Um, in terms of if it comes out in front of a male, it will be in jest and the males will get embarrassed” (Interview 16, Female Coach, Participation)</p>
Perception 3 Comfort: Female athletes would be more comfortable speaking to a female vs male	
<p>“Yeah, so again, we have a female assistant with us and she kind of would deal with that. Not that I would be worried about dealing with it, but just I feel girls would feel more comfortable with her discussing it rather than me”. (Interview 2, Male Coach, Participation)</p>	<p>“I'm the I'm the only female, the group of six of us, so they leave that to me. [...] because it's obviously it's not something that girls want, said in front of everyone and definitely not to the lads either” (Interview 11, Female Coach, Youth Performance)</p>

Parents and Peers

Where the availability of support staff or a female point of contact is limited, parents and peers may facilitate communication between coaches and female athletes who wish to offer or receive support in relation to the menstrual cycle. Engagement with parents and “having honest conversations” with them in the context of the menstrual cycle may help coaches to better understand how their female athletes are impacted.

“ I think it’s beginning to have that conversation. Begin to have a conversation with parents and going, look, she’s a girl of 16 or 17, she’s going to have periods, it’s going to impact. That normally opens the conversation and they kind of go, ‘well, yeah, she’s tends to get tired, grumpy, you know?’”

(Interview 9, Male Coach, Participation)

To support engagement with parents, some coaches (n=5, 31.25%) discussed the importance of maintaining transparency around their intentions to support the female athletes around the menstrual cycle and keep parents involved, so that together they can support the female athlete.

“ So, what I started to do very early on was to get a meeting of parents, mothers, sometimes fathers, mind you and the daughters altogether and we discussed it in a small little room, private and said ‘okay, first of all, when you start periods, you get pain, discomfort and exercise will help. And therefore, if you’re taking a whole week off, you’re going to lose your fitness’”

(Interview 12, Female Coach, Participation)

“ You’re really looking to incorporate parents and feedback to parents and upskilling in parents in terms of okay this is how we approach this does anyone have any reservations? Does anybody have anything they need to discuss with us is there anything we need to be made aware of? If there’s any issues please come to us and let us know and then we will deal with this discreetly and this is the structures, the policies and procedures of how we would deal with it as a working group”

(Interview 3, Male Coach, Participation)

Designating supportive roles to peers can also help coaches provide support to female athletes around the menstrual cycle, particularly in settings where the availability of support staff is limited.

“ I just want us to be open and the conversation among the girls themselves, so that the girls can start to ask questions a little bit about it. And that’s where like I do have a couple of older girls in there that I feel they are going to be the ones that go to”

(Interview 10, Female Coach, Participation)

“ And I would always check in sometimes, depending on the personality, sometimes I check in with the leaders or one I’d know they were friendly with and say listen, are they okay? Were they off today? Is everything going on? Suss out the background and sometimes I might say it to that person themselves”

(Interview 16, Female Coach, Participation)





4.3 Practically That's Not Practical

Theme Summary

Knowing where to source and how to critically analyse information about the menstrual cycle is important for coaches who wish to support female athletes (McGawley *et al.*, 2023). Coaches (n=9, 56.25%) discussed the challenges of trying to locate, understand and implement research guidelines and some (n=5, 31.25%) revealed their use of internet sites and social media to access information on the menstrual cycle in light of their work with female athletes.

Almost all coaches (n= 15, 93.75%) acknowledged the individuality of the menstrual cycle when it comes to its impact on sports performance. Based on current evidence, modulating training across the menstrual cycle is not supported and therefore if managing training throughout the menstrual cycle, coaches and practitioners are advised to approach this on an individual basis, depending on the female athletes' experience of the menstrual cycle (McNulty *et al.*, 2020). However, as highlighted "in reality, it's probably something that's very difficult to manage with like a big group of athletes" (Interview 14, Male Coach, Performance).

All coaches were keen to adopt evidence-based approaches when supporting athletes around the menstrual cycle and managing their training. However, there was a perceived lack of education and guidance available for coaches on how to manage training around the menstrual cycle, and communicate with female athletes on this topic. This, in part, may be influenced by the coaches' educational background and their menstrual health literacy skills (i.e. their (in)ability to access, understand and apply research), which highlights the need for practical guidelines for coaches that are simple and accessible. Sub-themes are presented in Figure 3.

Practically That's Not Practical

Where is the Evidence-Based Information?
 Individuality of the Menstrual Cycle
 The Need for Practical Guidance

Figure 3: Overview of Theme 3 and Related Sub-Themes

Where is the Evidence-Based Information?

Providing support to female athletes around the menstrual cycle in the context of performance requires coaches to have a sufficient level of sports specific menstrual health literacy. Half of the coaches (n=8, 50%) reported wanting to follow evidence-based guidelines and adopt "research informed approaches" (Interview 15, Male Coach, Performance) when supporting female athletes around the menstrual cycle. However, there were coaches (n=4, 25%) who acknowledged the importance of developing and needing a high level of research literacy to be able to locate, understand and practically apply academic research.

“ I was in college myself, so I know how to break [a research paper] down. But for the average person, I think it's going to be very difficult. And you know, it's very, very detailed, very detailed studies. [...] Fortunately for me, I've been to college. I wrote up papers like that, so I know myself how to break them down. But I know that the average person definitely wouldn't have that”

(Interview 11, Female Coach, Youth Performance)

Most coaches (n=9, 56.25%) mentioned the use of social media, applications and other internet sources to locate information about the menstrual cycle.

“ I suppose when new research comes out I definitely look at it first. And my Instagram accounts, I wouldn't follow too many people who are in research, but I tend to follow the ones who are studying female athletes or who post a lot about female athletes”

(Interview 7, Female Coach, Participation)

“ Looking at Twitter and just trying to find out who are the main figureheads of research and menstrual cycle. And then just adding them and then obviously on their Twitter handles, they've probably a lot of research and chatting about it and just taking it from there really”

(Interview 8, Male Coach, Performance)

However, online sources and applications may not really be grounded in the most up to date evidence or "close scientifically" (Interview 10, Female Coach, Participation), and may result in coaches trying to support athletes using information that is not evidence-based or justified by research.

“ I looked up the [named governing body] and they had recommended [X]. So, I went with that approach. So, I literally just did a summary of that [the hormonal fluctuations through the cycle] and then the foods that could be eaten at various stages. So, I had maybe phase one, I said what stage your levels are at, what foods would be appropriate there and then what exercises will help you alleviate symptoms at that time. So, it was only a couple of slides, but it was a summary of that”

(Interview 11, Female Coach, Youth Performance)

Individuality of the Menstrual Cycle

The menstrual cycle is a unique and individual experience that varies not only between female athletes, but also within female athletes (i.e. from one cycle to the next). Almost all coaches (n=15, 93.75 %) acknowledged the individuality of the menstrual cycle with regards to the impact it can have on the athlete, highlighting the importance of an individual approach when working with female athletes.

“My thoughts on the menstrual cycle and performance? I’d say it’s a very individualized and that’s why I was trying to get the girls to all give me their feedback. You know, the odd ones, say that it doesn’t affect them at all. Some say it does affect them a lot”
(Interview 1, Male Coach, Performance)

“Other girls just can just fly through it, but some- if it’s really heavy and it’s really tough then they’re just not able for it. And then the girl last week could barely stand up it was that bad for her like. So yeah, I think everyone’s individual, but I’ve certainly seen instances of it where it’s had a massive impact on the individual”
(Interview 3, Male Coach, Participation)

However, the individuality of the menstrual cycle presents a challenge for coaches who wish to offer support; particularly for those working with teams or in group settings. “Knowing what to say” to female athletes about the menstrual cycle and its impact on performance can be difficult “with there being a lack of research around it” (Interview 7, Female Coach, Participation). Additionally, “when you have a group of 15 or 20 and you’re trying to make that an individual application for each of them, that’s challenging” (Interview 10, Female Coach, Participation).

“I think it’s just difficult because you’re trying to get everyone to do like the same training program and the same regimen, because it obviously makes it easier for the group to be doing the same thing collectively. But then like, at the same time you want to individualize it as much as possible. So, yeah, I’m just trying to individualize the training program based on that because when you’ve got like 20 athletes in every block and trying to manage every single one individually would be quite difficult”
(Interview 14, Male Coach Performance)

“Yeah, it’s tricky one. I suppose, just trying to find out as much information about their symptoms individually, what works, and knowing in advance if there’s going to be a week where there is a group that’s going to be impacted. I think you can get by, by adjusting an individual, but the challenging one will be when there’s a few people”
(Interview 16, Female Coach, Participation).

The Need for Practical Guidance

Developing simple and accessible educational resources for coaches may help with the practical application of research about menstrual cycle and improve the supports offered to female athletes. All coaches felt that more education, resources and practical guidance was needed, with most coaches (n=12, 75%) reporting that they have never received any formal education or “specific training towards that [the menstrual cycle]” as part of their coaching career (Interview 5, Female Coach, Youth Performance).

At a performance level, some coaches (n=5, 31.25%) requested practical “guidelines or procedures [for] tailoring training around the cycle” to maximise performance (Interview 14, Male Coach, Performance), while others (n=5, 31.25%) wished for guidance on how to implement menstrual cycle monitoring, because although it is carried out by some sports teams, “you just see they’re using [it] but you don’t actually know how to use it” (Interview 7, Female Coach, Participation).

“In terms of what is the appropriate way to track. What should I be tracking? You know, is it just simply the first day, last day of the period? You know, what kind of symptoms? Just to get a woman’s experience and things like that, I think that would be very useful to know”
(Interview 9, Male Coach, Participation)

“I think even listening to other coaches or practitioners implementing it [menstrual cycle monitoring] see how they’ve done it. So, more case studies on its implementation and if it was successful, has it been bought in”
(Interview 8, Male Coach, Performance)

Additionally, there were coaches (n=5, 31.25%) who expressed that they find it difficult to discuss the menstrual cycle and wish to have practical guidelines on “how to do that in the best manner with [young] girls” (Interview 7, Female Coach, Participation) and other female athletes without coming “across as interfering” (Interview 9, Male Coach, Participation).

“And then from the coach’s point of view, I think just more knowledge and information, on like the language that’s best to use to discuss it or how to create a supportive environment. [...] So, it’s just kind of not knowing what the best way to... what the best way to bring it up without kind of coming across badly”
(Interview 14, Male Coach, Performance)

To facilitate the practical application of research, many coaches suggested (n=10, 62.5%) that having “simple information” that’s “not too volumized” made available for coaches could be helpful. This could be particularly useful “for the non-academic, the person that’s on the ground working with the players” (Interview 15, Male Coach, Performance). Developing menstrual cycle related resources that are specific to the “different age groups [and]or different [sporting] levels” of their female athletes was also suggested (n=4, 25%) (Interview 5, Female Coach, Youth Performance).

Summary of Key Findings

1. Coaches' perceptions of the menstrual cycle

The understanding of the menstrual cycle was varied amongst coaches. Although 50% recognised the important role of the menstrual cycle in female health, many misidentified it as just the period or the bleeding phase. Coaches also displayed diverse opinions on how the menstrual cycle influences performance. These opinions were shaped by reading and research, lived experiences (female coaches) or the experiences of significant females in their life (male coaches). Additionally, coaches acknowledged an awareness that the menstrual cycle can be part of the many new challenges that youth female athletes face during puberty.

2. Current supports offered to female athletes around the menstrual cycle

To support their female athletes, some coaches made efforts to educate their athletes on this topic and others proactively supplied sanitary products, but overall support was limited and differed based on age and sporting level. Coaches at performance level discussed a willingness to support athletes by incorporating menstrual cycle tracking however, only one coach was doing this. Meanwhile, coaches in participation and youth settings generally worked towards creating comfortable environments where athletes would feel safe to discuss the menstrual cycle if needed. Almost all coaches acknowledged that they have a role to play in supporting female athletes around the menstrual cycle, but it is clear that other members of the sporting environment can also contribute to this support provision.

3. Factors (barriers and facilitators) that impact the delivery of support

Several factors including athlete age, sporting level, and the availability of assisting staff influenced the delivery of menstrual cycle-related support. A perceived lack of knowledge and practical guidelines for implementing menstrual cycle support were identified by coaches as limiting factors. In addition, coaches also considered the fact that not all of their female athletes were comfortable discussing the menstrual cycle as a challenge to providing support and guidance. Therefore, in order to facilitate the delivery of support to their athletes, some coaches delegated roles and responsibilities to other members in the sporting environment (e.g. parents, teammates and female staff members).

4. Areas where coaches request/need further help and training

Coaches identified the need for assistance in developing their menstrual health literacy skills due to the challenges of trying to locate, understand and implement research guidelines. In most cases, social media and other internet sources which may not be scientifically grounded, were used by coaches to locate relevant information. Thus, developing simple and accessible educational resources for coaches may help with the practical application of menstrual cycle research and improve the supports offered to female athletes. Coaches also require guidance in developing their confidence and ability to communicate effectively about the menstrual cycle.

Implications for Practice



Development of menstrual cycle specific coach education and resources

- Bespoke **menstrual cycle education programmes and resources** should be developed, delivered and made readily available for coaches in order to improve their working knowledge of the menstrual cycle. As such these programmes and resources should include information on basic menstrual cycle physiology as well as its role and impact on female health and performance.
- **Practical guidance** on the individualised nature of the menstrual cycle in relation to (i) the appropriateness and effective implementation of menstrual cycle monitoring and (ii) the application of evidence-based research to support athletes is also warranted.
- Coach education programmes and resources should not only aim to improve menstrual cycle knowledge, but should have a clear focus on overall **menstrual health literacy** to facilitate timely signposting of athletes to medical professionals should the need arise.
- It is important to ensure that the content of any education programmes and resources is catered towards the relevant **age group and sporting level** and it is essential that they are evidence based, accurate and regularly updated.



Creation of safe and comfortable environments that support open communication

- Developing good **coach-athlete communication** about the menstrual cycle should be embedded in all related coach education programmes and resources. For example case studies and role plays on communicating with and supporting female athletes about the menstrual cycle would facilitate coaches to maintain open and honest communication and build trust with athletes.
- While enhancing menstrual cycle knowledge has the potential to improve communication, developing **interpersonal skills and offering coaches guidance around language use** may give them confidence when communicating with their female athletes about this topic.
- Where the **gender of the coach** is a perceived barrier to effective communication about the menstrual cycle, communication may be encouraged and facilitated by delegating a specific female (e.g. member of support staff or other female athlete), and/or a parent with the role of providing menstrual cycle related support.
- It is important that the **designated female** has (i) appropriate menstrual health literacy skills and level of knowledge, (ii) a clear understanding of their responsibilities within this role, and (iii) is comfortable and confident speaking to female athletes about the menstrual cycle.



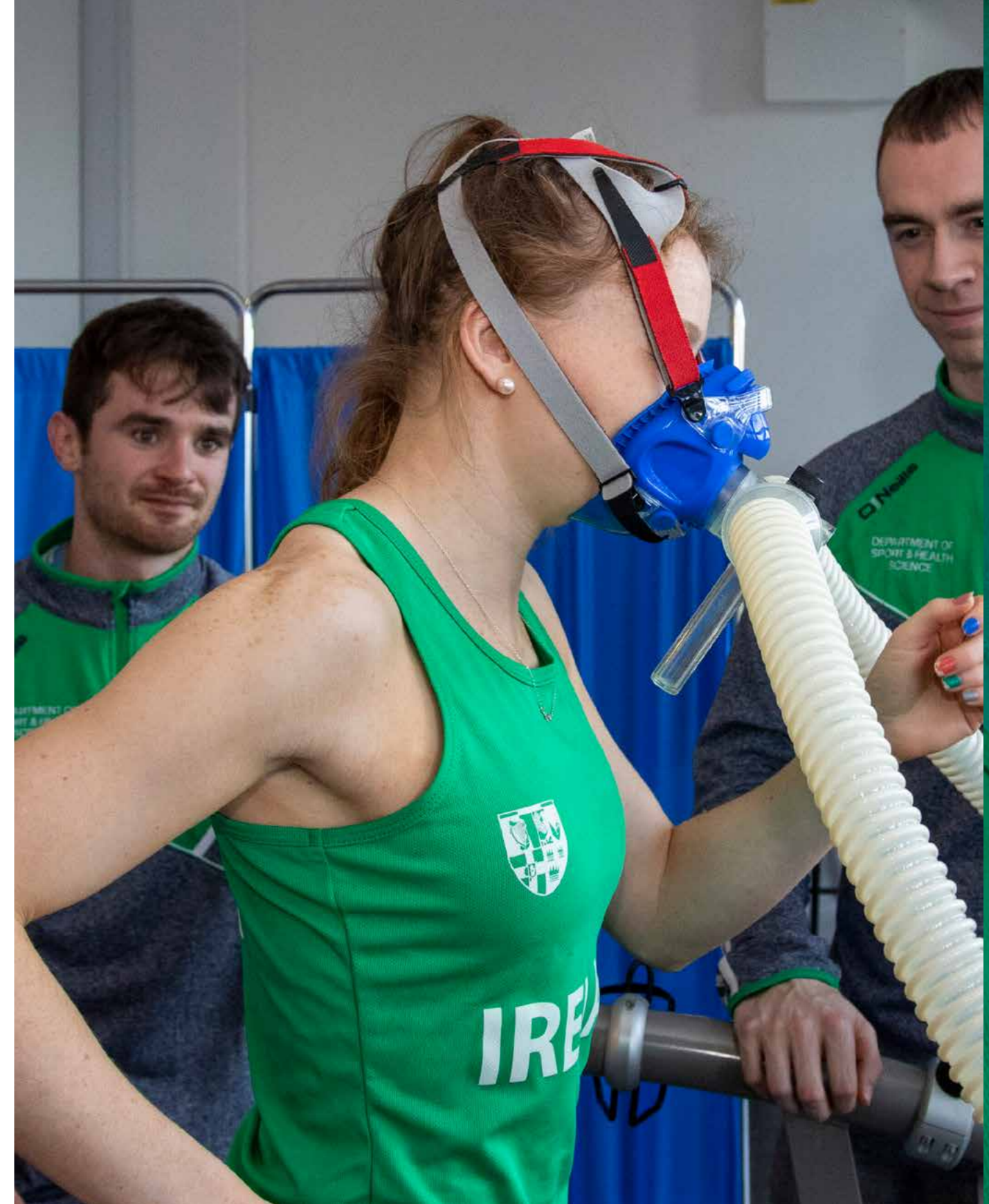
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Research Team



Niamh Fogarty

Niamh Fogarty is a postgraduate research student in the Department of Sport and Health Sciences, in TUS Athlone. Niamh graduated with a BSc (Hons) in Athletic Rehabilitation Therapy in 2022 and since then has had the opportunity to work as the lead athletic therapist with several GAA club and intercounty teams. As an enthusiastic sportsperson with a passion for exercise and women's health, her current research focuses on the female athlete and the supports around the menstrual cycle. Niamh competes Internationally in the Discus and has represented Ireland at several European Championships. A member of the SHE Research Group at TUS, Niamh hopes to bring greater awareness to supporting female athletes in the context of the menstrual cycle.



Dr Ciarán Ó Catháin

Dr. Ciarán O Cathain is a lecturer and course co-ordinator for the BSc in Sports Science and Exercise Physiology in TUS Midlands. Ciarán is also a Sports Performance Co-Lead in the SHE Research Group. Ciarán's primary research interests focus on a multidisciplinary approach to improving sporting performance, reducing injury risk and addressing the current gender data gap that exists in this area. This involves examining how biomechanics, physiology, and nutrition interact in order to provide a more holistic understanding of the underlying mechanisms that can be targeted to improving athletic performance and reduce injury occurrence.



Eamonn Henry

Eamonn Henry is the Coordinator of Offaly Sports Partnership and has been in the role since it was designated by Sport Ireland in 2006. Eamonn has been involved in numerous projects and initiatives aimed at increasing participation levels in sport and physical activity. Offaly Sports Partnership also highlight the importance of inclusion and diversity and provide diverse opportunities for people to participate in sport and physical activity. Eamonn is also currently an athletics coach to a small number of athletes.



Dr Niamh Ní Chéilleachair

Dr Niamh Ní Chéilleachair is a senior lecturer in the Department of Sport and Health Sciences in TUS Athlone and is the Sports Performance Co-Lead in the SHE Research Group. Niamh is also a performance physiologist and has worked with high performance athletes across a range of sports including rowing, swimming and athletics. Her research interests are of a multi-disciplinary, applied sports science nature focusing on improving the health, wellbeing and performance of athletes. In particular Niamh's research focuses on female physiology and narrowing the gender data gap that exists in sport and exercise science.



Dr Aoife Lane

Dr Aoife Lane is Head of Department of Sport and Health Sciences in TUS Athlone. Aoife is a founder of the Women's Gaelic Players Association and has a particular interest in addressing the gender data gap in sports science and health research. Aoife is Chair of the Gaelic Games Sports Science Working Group who have produced a sports science framework for Gaelic games. Aoife is also a member of the GAA Games Development Committee and takes part in Sport Ireland's Research and Participation Sub Committee.

Appendix 1 - Interview Topic Guide

Introductory Questions

- Question 1: What was it like for you when you first started working with female athletes?
 Question 2: Can you tell me about what you are currently doing in general to support your female athletes?

Section 1: Current Perceptions of the Menstrual Cycle

- Question 1: In your opinion, when working with female athletes, how important is it to consider the menstrual cycle?
 Question 2: What are your thoughts on the menstrual cycle regarding training and competition performance?

Section 2: Coach-Athlete Support

- Question 1: What are you currently doing to support your female athletes around the MC?
 Question 2: In what ways do you consider the menstrual when planning training/ or preparing for matches/competition?
 Question 3: Can you think of a time during your coaching career when you provided support to a female athlete in relation to their menstrual cycle?
 Question 4: When providing support to your female athletes around the menstrual cycle, what do you feel your role is as their coach?

Section 3: Perceived Barriers and Facilitators

- Question 1: When providing support to your female athletes around the menstrual cycle, what do you feel is most challenging?
 Question 2: What currently helps you to provide support to your female athletes around the menstrual cycle?
 Question 3: (Males) Do you think having / (not having) personal experience of the MC impacts how you support your female athletes around the MC? How?
 Question 4: (Females) Could you tell me a little bit about your own experience with the MC and how it influences the support you provide to your athletes?

Section 4: Current Knowledge of the Menstrual Cycle

- Question 1: How confident are you in your knowledge of the MC?
 Question 2: Can you tell me what you know about the menstrual cycle?
 Question 3: Can you tell me about any training/education you have received in relation to the female athlete and the menstrual cycle throughout your coaching career?
 Question 4: What you have been doing to try and improve your own knowledge and understanding of the MC?

Section 5: Future Support for Coaches

- Question 1: As a coach what do you feel might help you to support your female athletes around the menstrual cycle?
 Question 2: What do you think would help to improve your own knowledge and understanding of the MC?
 Question 3: What additional information around the MC do you feel you could benefit from?

Appendix 2 - Data Excerpts

Table 1: Coach Misconceptions of the Menstrual Cycle

Table 1: Coach Misconceptions of the Menstrual Cycle	
	Would you be able to tell me what the average length of a menstrual cycle is?
Interview 2	"It's three to five days"
Interview 6	"I would think it varies based on the woman and her age and her own ovulation in terms of eggs being released, you know? So, I don't think you can say the average of – oh the average! A week? Perhaps a week"
Interview 7	"About 5-7 days usually I think"
Interview 9	"Erm...typically I would say five to seven days, although there would be females that have encountered others that are longer"
	Can you tell me what you know about the menstrual cycle?
Interview 3	"Not really, other than that it's a monthly thing and it lasts, you know, the period of time it lasts [which is] three to five days"
	So, if you had to explain the menstrual cycle to a young girl, what would you say to her?
Interview 13	"I'd say every four weeks or more or less, you'll have a bleed and that's gonna happen to you right? For the rest of your life! So, get over it"
Interview 12	"I would say that it's the lining of the womb that's preparing for a pregnancy that isn't happening, just shedding [...] and it's going to happen every month"

Table 2: Coach Perceptions of the Impact of the Menstrual Cycle on Performance

Table 2: Coach Perceptions of the Impact of the Menstrual Cycle on Performance	
	Would you be able to tell me what the average length of a menstrual cycle is?
Interview 5	"Some of them might be like, 'oh, but if it goes through my gear, it's going to affect my performance' or 'am I going to get out to the bathroom?' So, there's a big, like, mental element of stress about it"
Interview 9	"I've definitely noticed they're just off [...] and they're worried about it or they're worried about what it might do and you see them kind of going, because I'm going to have my period, I'm going to be different"
Interview 11	"I suppose at training I've seen at least two or three girls having to pull out with the cramps or not feeling well or the weakness. And it's obvious that their menstrual cycle is affecting them"
Interview 12	"I know by them that they're having their period. I can physically see. I've noticed they're not...they feel heavy in the water and they look heavy in the water and they look as if they're fighting with the water"
Interview 13	"I do notice if it's the week before their period, there won't be a good performance. But if it's if once the period starts or the week after the period, the performance goes up"
Interview 14	"I think just in general there's like a drop off in performance level kind of, ability to perform and train and you know, willingness to actually kind of do a certain test or do certain session and it's kind of ... yeah there's a few things really that you'd notice"
Interview 12	"I would say that it's the lining of the womb that's preparing for a pregnancy that isn't happening, just shedding [...] and it's going to happen every month"

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