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Dr. Hazel Wallace: Hello, and a very big welcome back to The Food Medic podcast. I'm your host, Dr. Hazel Wallace. I'm a medical doctor, registered associate nutritionist, and a best-selling author. For more about me, and the work that I do, head over to www.thefoodmedic.co.uk and make sure to check us out on all social media platforms under The Food Medic.

On this episode, I'm delighted to be joined by Kelly McNulty. Kelly is a PhD student at Northumbria University, investigating the effects of the menstrual cycle, and hormonal contraceptive use on performance, recovery and adaptation in sportswomen. She recently launched a product, and podcast, coming soon, The Period of The Period, which aims to promote awareness and increase evidence-based education on the topics surrounding women's health in sport and exercise.

For any of our male listeners who may not think this is for them, I urge you to keep listening, and please share this podcast with the women in your life. This is an important conversation for all of us to have, and hopefully, the start of many more around the menstrual cycle. So, first things first, how I came across you initially was because of your research paper, which was published this year, and I would love to start off just asking you a bit about you, your background, your research, and what you're doing now.

(TC: 00:02:30)

Kelly McNulty: Yes, so, I'm a PhD student at Northumbria University, and my main interests are focused around the female athlete and investigating the effects of the menstrual cycle and hormonal contraceptive use on performance, recovery, adaptation. So, I've always had a keen interest in human physiology, and how we can optimise human performance, particularly in sport and exercise. So, I completed an undergraduate degree in Sport and Exercise Science, followed by a Masters in Strength and Conditioning, and they were both at Northumbria uni. So, like most people, I got into this space because it was something that had an impact on my health, and my performance, particularly when I was growing up, playing sport. I had a lot of questions regarding the effects of the menstrual cycle, and then, hormonal contraceptive use on my performance and training, but there weren't really many answers available out there, or it wasn't something that was openly discussed. So, although we've got research dating as far back as 1876, into women-specific performance, surprisingly, we still know very little, especially around the effects of the menstrual cycle. This lack of research limits our ability to adopt an evidence approach when working with female athletes, and what that means, at the moment, in sport, is women athletes usually train in a similar way to men, which, if we think about it logically, might mean we're failing to maximise their performance potential, as we're taken this male performance model and just sticking it onto women. Recently, there seems to be an increased interest in this area, and an increased drive for research, and that's great to see, so I guess I just wanted to be part of that movement to bridge the gap in research, but then, also share that information that I've learned, to help optimise performance in all women.

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Dr. Hazel Wallace: Yes, absolutely, no, it's-, you're so right. There's definitely a huge movement towards trying to gain an understanding as to how the menstrual cycle impacts performance. Not just performance, but lots of aspects of our lifestyle, and not just relating to athletes, but also all women. It's really interesting, but like you said, we definitely need more research. So, let's dive right into training around the menstrual cycle. I think that's a really great place to start, and maybe just briefly covering off, what are the main phases of the menstrual cycle, so that we're all on the same page, before we start chatting about how it impacts how we exercise.

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Kelly McNulty: Yes, so the menstrual cycle. So, women have two predominant sex hormones. There are many other hormones involved in our menstrual cycle, but the two main hormones are oestrogen and progesterone. Across a textbook 28-day cycle, but it's also worth noting here that we aren't all textbooks, and that only 13% of women have this 28-day cycle. So, don't worry if you're working with a female athlete and they don't have that straight 28-day cycle, because a normal cycle is considered somewhere between 21 and 35 days. Across 28 days, the sex hormones ebb and flow. For example, at the start of the cycle, so day one, which is the first day of your period, oestrogen and progesterone are low. Then, after that, one of the hormones, oestrogen, starts to increase, and reaches its peak just prior to ovulation. So, around day eleven or twelve, in this textbook example. Then, after ovulation, oestrogen begins to drop off, before it has a secondary peak around days 20 to 23, and around this time, progesterone, which also started increasing after ovulation, also reaches a peak. Following this, if fertilisation hasn't occurred, both hormones drop off, and then begin that cycle again. I'm sitting here, totally waving my hands around, but no one can see me. So, basically, what it means is you have these three main phases. So, at the start of your cycle, oestrogen and progesterone are low, then oestrogen reaches its peak, and progesterone remains low in the middle of the cycle, and then, finally, oestrogen has a secondary peak and progesterone peaks in that final third of the cycle.

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Dr. Hazel Wallace: Yes, and those, you know, we have different names for the cycles that tend to come up in research, which is probably important to cover off, as well. The follicular, or the proliferative phase, which is the first part of the cycle, and the luteal phase, which is the second, and of course, then we have ovulation in the middle.

(TC: 00:07:04)

Kelly McNulty: Yes, so we, in the research, tend to call it-, so that early phase, when they're both low, as the early follicular phase. Then, we have the middle phase, so that ovulatory phase, when oestrogen is high and progesterone is low, and then we normally say the mid-luteal phase is when we have both hormones high.

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Dr. Hazel Wallace: Amazing. So, based on the research, do we see clear differences in strength and performance in these different phases of the cycle?

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Kelly McNulty: Yes, so that's a great question. So, whilst the primary function of the menstrual cycle is reproduction, the fluctuations in these hormones across the menstrual cycle also influence so many other physiological systems, which can then affect performance. In terms of strength performance, we have both oestrogen and progesterone receptors in our muscles, and oestrogen's known for its anabolic affects, whereby it can influence muscle size and strength, but also it's effects on the nervous system, which play an important role in strength performance. So, theoretically, when oestrogen is high, around the middle of your cycle, and in the final third of the cycle, it's possible that this might have a positive effect on strength performance. Additionally, progesterone is thought to oppose these oestrogen effects, therefore, we can speculate that the beneficial effects of oestrogen are likely going to be greater around that ovulatory middle of your cycle, where oestrogen's high without the interference of progesterone, compared to the final third of the cycle, so the mid-luteal phase, when both hormones are high. However, research on the menstrual cycle on strength is inconsistent. So, some studies have reported improved performance in that early follicular phase, as well as the ovulatory phase and the mid-luteal phase, whereas many other studies have shown no effect at all. So, the researchers haven't yet agreed on whether, sort of, strength performance is affected by menstrual cycle phase, but like you say, this provided the rationale for my first PhD study, whereby we investigated whether the changes in hormone levels between menstrual cycle phases affect exercise performance. So, this was strength performance, as well as endurance performance, and we did this by finding and analysing all of the previous studies on this topic, and we also examined the quality of these studies.

So, what we found was that exercise performance might be slightly reduced, in some women, when oestrogen and progesterone are low, so this early follicular phase, which is roughly days one to five of the menstrual cycle. It's important to understand that a large proportion of these studies were classified as lower in quality, and the effect of the menstrual cycle was so variable between studies. So, when you add all of that up together, so the small effect size, the poor quality of the research, and the variability, general guidelines on exercise performance (TC 00:10:00) could not, and should not be formed. So, instead, we recommend that females, and those working with female athletes take that personalised approach, whereby they track and consider their menstrual cycle, and are aware of these potential times during the cycle where performance might be better or worse, but they shouldn't just assume that average results apply to them.

(TC: 00:10:22)

Dr. Hazel Wallace: Yes, absolutely. Okay, so, based on what you found, and I know that you summarised to say that there may be reduced performance at the start of the cycle, but again, based on all of the evidence, it's not very strong, and therefore, we should just allow women to track it individually, and see what comes up. Would that be your, I guess, advice to women who are listening, and wanting to integrate menstrual cycle tracking into their training programmes? To just not, kind of, focus too much on, 'I could potentially see a dip in my performance here,' and more so just, kind of, see where are you picking up patterns?

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Kelly McNulty: Yes, definitely. So, our reviews were looking at performance. So, does your performance on any given day change across the menstrual cycle? We weren't really looking at that phase-based training. So, can we programme certain training sessions to maximise our adaptation, if that makes sense? So yes, definitely what you said about the tracking. It's definitely more of an individual approach. So, we don't really know if we can, sort of, train around our cycle yet. So, like, I touched on before, sport and performance support in sport or exercise has largely been designed for men, so the support that we apply to female athletes, whether that be performance or training, is largely based on what has been researched in men, or successful in male athletes. With more women participating in sport and exercise, and that's at all levels, it's become increasingly important to understand the physiology of the female athlete and how this might affect upon their performance and training. However, aspects of female physiology makes studying women, not impossible, but slightly more trickier, or expensive, or time-consuming than studying men. So, what that means if we've got that, sort of, rise in women in sport, but the research is still lacking behind. So, like I said before, we're largely taking this male model of performance and training, and then applying it to women. Lots of that will apply, because the majority of sport and science research will benefit both men and women, but because there are such fundamental differences between the sexes, this approach might not always be optimal. In fact, if we look at phase-based training for, say, strength, there is a recent paper by Thompson et al that reviewed all of these previous studies on the topic, of which there are only four that have looked at strength training across the menstrual cycle.

Generally, the results from these studies do indicate that follicular phase-based training, so training more in your follicular phase than any other phase, is better than regular or luteal phase-based resistance training for developing strength and muscle mass. Then, it's so difficult to be able to draw conclusions from these, because not only is there a small amount of research, but because of the quality of these studies. So, while scheduling training based on the menstrual cycle is such an interesting concept, and I love it, and to some degree, very popular in the media right now, you can see why we need that higher quality of research before we start making recommendations on training. I don't think we should be disheartened by the lack of that research, and I still think we should feel that we can work with female physiology with what knowledge and understanding we do have at the minute. So, whilst we wait for the research, there are things that we can do in the meantime.

(TC: 00:13:53)

Dr. Hazel Wallace: Yes, absolutely. Moving slightly away from training and performance, how else might the menstrual cycle affect female athletes? Obviously, these hormones aren't just orchestrating the menstrual cycle and our periods, but they also are involved in other, kind of, organs and organ systems in the body.

(TC: 00:14:15)

Kelly McNulty: Yes, so quite a popular one is injury, so in particular, the ACL injury. So, research shows that women and girls are particularly high-risk for this type of injury, with rates of three to six times greater than men, and research has indicated that the fluctuations in women's sex hormones across the menstrual cycle might influence injury risk. Specifically, there's a recent review where the authors concluded that knee

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ligament laxity and ACL injury might be increased during the ovulatory phase of the menstrual cycle. So, that's obviously something to take into consideration, but again, high quality research is needed. In fact, actually, I think, I'm aware that there's a PhD student at Nottingham Trent University who's looking into this, so watch that space. Then, you've also got sleep. So, sleep's been massive in recent years, and there's some interesting research around the influence of the menstrual cycle on sleep. For instance, it's been reported that 30% of women report disturbed sleep during their period, and 23% of women report disturbed sleep in the week leading up to their period. In contrast, you might experience better sleep in that luteal phase of the cycle, as progesterone increases, as this hormone is known as the calming hormone, and promotes melatonin production. Having said that, progesterone also has a thermogenic effect, so you might notice disturbed sleep because of that increased body temperature. Again, the research is very minimal, but just by being aware of this, and tracking potential sleep changes, you can adopt good sleep hygiene practices to negate these effects on your sleep. Then, we also have recovery. So, recovery is an essential component of training, and oestrogen has been shown to have a protective function in exercise-induced muscle damage.

So, it might be that on certain days of the cycle, we might recover more quickly from a training session, namely when oestrogen is high, such as that late follicular and ovulatory phase of the menstrual cycle. However, again, there is very little research looking into how recovery might vary across the menstrual cycle, but the data that is available so far does support that the menstrual cycle might affect the aspects of recovery from training, and it's an avenue worth exploring further. In fact, that's actually what my next PhD study is investigating.

(TC: 00:16:43)

Dr. Hazel Wallace: Yes, it's interesting, and I guess similar to the fluctuations we see in the menstrual cycle, we also see some of these changes in other parts of the lifespan, like pregnancy and menopause, where we have other changes in those hormones. Like, I know sleep is massively compromised, particularly in pregnancy, and also in the menopause, and again, that's all due to these hormones. It's interesting, because a lot of people are aware that oestrogen is a female sex hormone, even though both males and females have it, but we don't really consider the widespread effects of it. There's basically oestrogen receptors all over the body. Kelly, I know this is not your field of research, but are there any changes to nutrition that need to be considered at the different phases of the menstrual cycle, particularly looking at athletes and performance?

(TC: 00:17:38)

Kelly McNulty: Yes, so totally going to hold my hands up and say nutrition really isn't my expertise, or my background, but I'm sure it's something that people are considering. I guess, one thing to note, especially for female athletes and exercising women, is that we need to think of food as a way of nourishing our bodies, so that they can be equipped to carry out not only the essential functions, like the menstrual cycle, but also optimise our performance, training and recovery. Athletes that don't get the right fuel they need to train and perform can develop relative energy deficiency in sport, or REDS, which has various consequences on not only performance, but health. So, including the loss of the menstrual cycle, which isn't a normal part of training and performance, like it's sometimes made out to be. I won't go into too much detail on that,

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because I know I've listened to topics on previous podcasts by you, but I do think very few people realise the connection between food and women's health, but I'm sure in that nutrition space that those are, kind of, being considered. Yes.

(TC: 00:18:41)

Dr. Hazel Wallace: Yes, it's quite complicated, and I think, from a nutrient utilisation point of view, so whether we're more, kind, of glucose or fat dominant, that seems to be where the research is at, and more for a performance point of view. So, endurance athletes, like, are they using more fats for fuels, or more carbohydrates for fuels. From a general population level of advice, I think we're not there yet, to be able to make any kind of recommendations. Again, it's like listening to your own body. If you're tracking your cycle, you can try different nutrition strategies around your training, see what makes you feel good. I think that's, kind of, where we're at, at the moment. Then, just, we've, kind of, briefly mentioned a couple of methods for period tracking, and apps, and things. Are there any particular methods that you advise using, or is it, kind of, a combination of several methods?

(TC: 00:19:41)

Kelly McNulty: Yes, so I'm a massive fan of cycle tracking, and I know that it's a straightforward concept, but the menstrual cycle can be easily tracked by using pen and paper, and to do that, I would suggest annotating the start and end of your period, and when ovulation occurs. Then, noting any physical, emotional (TC: 00:20:00) performance changes on each day of the cycle. In a training context, I would also recommend using ovulation kits, or if these aren't available, you can look out for other physical signs of ovulation, such as a rise in basal body temperature, taken every morning upon waking, or white vaginal fluid that's stretchy and slippery and looks like egg white. One menstrual cycle diary I saw recently with an athlete was using an Excel spreadsheet whereby she'd had the number of days listed and when her period and ovulation occurred in one column and then had columns for performance training recovery, and then had colour-coded each day as green, amber and red. And I thought it was a really clever idea because I'd not seen anything like it but it was really handy for looking back and spotting patterns really easily. There also many apps like you say which can be used to track the menstrual cycle such as Clue. But one that stands out in particular is FitrWoman, which is an app for female athletes to help sync your training, nutrition and recovery around your menstrual cycle. One thing I think I would note about using apps to track your cycle is that the information they give is often very generic and given the variety in menstrual cycle experiences between and within women month to month, the information presented might not always be suited to you and also if you've got your apps, sort of, barking at you that you should be feeling like this when you don't have those symptoms at all it can be a bit, sort of, anxiety inducing even. So, not matter what your method is of tracking, I would encourage you to track for at least three months to allow meaningful conclusions about your cycle patterns to be made.

(TC: 00:21:40)

Dr Hazel Wallace: Yes. Absolutely. It can also be really tricky if you have any irregularities in your cycles, so, if you suffer from PCOS or any conditions that are related to the cycle, you can't really draw conclusions. I know myself I've got PCOS and it's very difficult using the apps because they try

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to predict when it's going to happen and I'm still tracking using apps but I find it that I'm so clued into my own body that that's almost my best app, if that makes sense.

(TC: 00:22:12)

Kelly McNulty: Yes, definitely.

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Dr Hazel Wallace: But they are really useful. And it's so great to see so many different types available now. Another question which quite a few people have asked me is how oral contraceptive pills affects performance. Because obviously that's synthetic hormones that we are putting into our bodies.

(TC: 00:22:34)

Kelly McNulty: Yes. So, the oral contraceptives are designed to prevent pregnancy but they are also used by many women to manipulate their menstrual cycle. So, they can control the timing of or eliminate entirely their periods. For instance, some sport women or just exercising women find having periods inconvenient being extra concerned for training, competition. And some experience negative side effects from their periods which could adversely affect their performance. So, the most popular kind of oral contraceptive in female athletes has a 28 day cycle whereby one pill is take every day for 21 continuous days followed by seven pill-free days whereby the withdrawal bleed occurs. And this alters the physiology of the female in two main ways. So, one, by suppressing the natural hormones which we produce throughout the pill cycle and then, two, by providing us with an artificial oestrogen and progesterone during the 21 pill taking days. And, I guess, what that means is that instead of having your natural hormone ebb and flow as I described before, your natural levels of oestrogen and progesterone are just downregulated, almost like a flat line. And in addition to this, every time an athlete consumes her pill on those 21 pill taking days, she's putting some artificial oestrogen and progesterone into her body which peaks within one hour of taking the pill and then drops off, but because you get that repeated effect, you get that build up over time. So, despite the prevalence of oral contraceptive use, the effects of oral contraceptives on performance and training are still poorly understand. And just like the menstrual cycle, the research is very conflicting. And that was actually, again, the rationale for that study of my PhD. So, does oral contraceptive use influence exercise performance. And what we, kind of, saw was a very similar story in that the results indicated that on average oral contraceptive use might result in that slightly poorer exercise performance when compared to naturally menstruating women. However, again, the difference between studies meant that we couldn't make hose general guidelines. Which, again, is why we recommended that individualised approach to oral contraceptive use, whereby the focus is on each athlete's response to their oral contraceptive.

So, some athletes might be affected and others might not be affected at all. And our review showed the exercise performance did not change between those pill taking and pill-free days. So, female athletes might not need to worry about what day of their oral contraceptive cycle they're on when considering performance. So, again, it's just frustrating or exciting that we haven't got that blueprint which says 100% do that. It's

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more about problem solving and figuring out what works best for you and your own data as well as using the research to date.

(TC: 00:25:27)

Dr Hazel Wallace: Yes. And in your review were you looking specifically at the combined oral contraceptive pill?

(TC: 00:25:31)

Kelly McNulty: Yes, that's the one. Yes. There's so many different hormonal products.

(TC: 00:25:34)

Dr Hazel Wallace: There's so many different ones. But obviously that will be oestrogen and progesterone whereas some of them are going to be progesterone only and there's so many different forms of contraception. I'm always quite aware when I talk about contraception on here or any kind of platform to, kind of, flag to women that there's never any judgement and there's so many different methods and people are so personal when it comes to these things. So, like Kelly said, we don't have hard and fast conclusive evidence here. And there's definitely nothing standing out to say that it's massively impairing performance. So, I think we need to be sensitive to the fact that for some people, that's the right contraception for them. Yes.

(TC: 00:26:20)

Kelly McNulty: Yes. There has been a lot of oral contraceptive-, any contraceptive shaming at the minute and ultimately they've allowed women to achieve what wouldn't have been able to achieve if they weren't here. So, not only in life but in sport. So, yes. I don't think there's any, sort of, shame around them at all. But definitely, I get what you mean about women, sort of, not wanting admit that they're on a contraceptive pill.

(TC: 00:26:44)

Dr Hazel Wallace: Yes. Or there's concerns around it and I know there's obviously lots of other side effects that we won't go into. But even looking at articles that are written online, even by researchers in this field, it often feels like they're shaming the use of it and discouraging it. And maybe for top-level athletes where they're trying to fine tune the tiniest things, there may be an alternative there. But it's hard not to feel like there's judgement there.

(TC: 00:27:12)

Kelly McNulty: Yes, yes.

(TC: 00:27:14)

Dr Hazel Wallace: And then, moving onto, so, we talked about performance and the cycle, when it comes to PMS or pre-menstrual syndrome, which affects a huge amount of people, when it comes exercise around this time, I mean, last night for example, I said on Instagram that I went for a run, it was day one of my period and the amount of messages I got from women being like, 'I would not be able to leave my sofa on the first day of my cycle,' or other women asking, 'Oh, is it okay to exercise if

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I've got PMS or if I've got symptoms?' And things like that. And I was just thinking in my head, this is perfect timing for the podcast for us to, like, dive into this discussion. So, from a research point of view, again, we're talking about the same research field and it's not going to be the strongest evidence. But what do we know about exercise and PMS and can it reduce symptoms or does it worsen symptoms?

(TC: 00:28:15)

Kelly McNulty: Yes, so, like you say, in the general population it's reported that nearly up 90% of women might suffer from PMS, which ranges from physical and psychological symptoms in the days prior to your period. So, in fact there are something like 150 reported symptoms that we can experience from anxiety, swollen boobs to bloating, headaches, tiredness etc. Whilst there are different approaches and techniques for PMS and though all those different ones might work for different women, there is definitely a role for the likes of exercise. For instance, one study found that eight weeks of aerobic exercise was effective in reducing the symptoms of PMS. Likewise, similar studies have shown that yoga is an effective strategy for reducing PMS symptoms. The mechanisms behind this effect however are unknown. But two possible reasons is that exercise releases endorphins as well as the known anti-inflammatory effects of regular moderate exercise. But, again, there is a need for that further research. In fact, there are something like five times more studies on erectile dysfunction, which 90% of men suffer from compared to PMS which is reported up to in 90% of women. So, a lot more can be done in this area. But at the moment I think the key is finding what works for you and how you are feeling.

(TC: 00:29:33)

Dr Hazel Wallace: Yes. I think that's the best takeaway. And, like you said, the evidence points that-, you know, it may actually help with symptoms and lots of various symptoms and whether that's mood or bloating or constipation and menstrual cramps, but again, the degree to which some people get PMS, I mean, there's a more severe form PMDD, which is less common and some people just (TC 00:30:00) find their period or PMS extremely debilitating. And just to, kind of, mention PMS usually starts before the period and then should disappear after one or two days into the period once it's started. But, yes, I mean, I try to move around my cycle but I definitely get that some people feel really fatigued and that can be a barrier to exercise. So, it might just be gentle movement, going for a walk. Or, like you said, there is some evidence that yoga may help with symptoms.

(TC: 00:30:33)

Kelly McNulty: Yes. I was the same. I couldn't have ever have exercised on my first day or the second day of my cycle. And that was literally, I just had to, sort of, rest and I found that was better for me. But now actually I am, sort of, a big advocate for moving on your periods, or I do like to get out there and move and I have found that it has made a massive difference in how I experience my cycle. So, yes, I think it's just trial and error of working out what works best for you.

(TC: 00:30:59)

Dr Hazel Wallace: I think so. And also I think there's, like, almost this ingrained belief, I definitely feel like I had it at school, like, amongst other girls that if you had your period you just skipped PE.

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Like, it's this belief you can't partake in anything if you have your period. So, I mean, once you feel okay it's absolutely fine to go for it. It's so great that more women are talking about it though and are a bit more open about it. And I think what's been really fascinating this year, especially because more people are tracking their cycle and are a bit more tuned to it, is because we're obviously living in this crazy year of a coronavirus pandemic and everyone's world has been turned upside down, and what we're seeing is a lot of women, including female athletes, are reporting these changes to their menstrual cycle. Why do we think this is?

(TC: 00:31:54)

Kelly McNulty: Yes. So, there's been loads of changes to women's sport with the coronavirus pandemic. But, like you say, one change is that increasing number of women reporting changes to their menstrual cycle. So, that's from painful periods, worse PMS to late or even no periods at all. And this has been the case in sportswomen. So, data from FitrWoman shows that up to 45% of athletes have experienced some change in their menstrual cycle. So, at the moment in time, like you say, we're all living in that slightly different life from the one that we would usually lead. So, we've got different schedules, maybe different eating patterns, sleeping patterns, how we're exercising. Additionally we're all probably experiencing higher levels of stress and it's common to experience these types of changes in your cycle as a result. So, stress can impact on the menstrual cycle as a result of changes in brain signals via the HPA axis. So, cortisol is one of the main stress hormones which tells our body that something be going on that might require us to react. Which is a good thing when we need to get out of dangerous situations. But the constant release of cortisol as well other hormones like adrenaline can impact upon the production and release of other hormones. So, namely those in charge of the menstrual cycle. And therefore you might experience changes in your cycle such as late periods, no periods as well as all of those additional symptoms. So, there's not going to be a real quick fix with this. And, I guess, the advice is just to look at areas where you might be able to reduce stress and restore a little bit of normality. But that's obviously easier said than done. So, just being kind to yourself and recognising it. Also, Anita, AKA the Gynae Geek, was conducting an online study, I'm sure about periods and Covid-19. But there's also a great chapter on stress in her book.

(TC: 00:33:42)

Dr Hazel Wallace: Yes. Absolutely. We've had Anita on here before. And, I mean, I'm sure everyone listening is well aware, but her book is also called the Gynae Geek which I think is available across the world if you just check it out on Amazon, but, yes, it's fascinating how the little changes in our environment or in our lives can absolutely shift our periods, whether it's a big change like moving house or the Covid pandemic. And that just, kind of, shows us how sensitive it is to changes, whether it's, you know, any stress. And stress doesn't have to be psychological stress. So, like, work stress. But it can be stress that you're not fueling your body, you're not getting enough nutrients in or stress that you're maybe exercising too much. There's lots of ways that it can affect our periods. And then, I guess, finally to finish, what for you is the biggest myth on women's health that you would love to bust?

(TC: 00:34:43)

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Kelly McNulty: Yes. So, where there's a lack of knowledge, quite often, like you say, a myth can tend to fill that gap. So, there are so many myths surrounding women's health and some of them are really, really bonkers. But, I guess, the biggest one particularly, sort of, from the sporting and exercising environment perspective is the fact that menstrual cycles and periods are still bizarrely seen as that taboo topic. And sometimes something that women need to be embarrassed about or hide away and not discuss. Like, at school we all used to shove tampons or pads up our sleeves to go to the toilets. So, it was just something that you just never wanted to bring up. So, even in the sporting environment, a recent survey showed that 81% of women have never discussed the impact of their menstrual cycle on performance and training with their coach. So, actually in sport, we're in that great position to just completely remove that taboo altogether. For example, in sport we talk openly about everything to do with performance. So, from nutrition, digestion, sleep. So, why do we tend to leave periods out of that equation? The menstrual is a natural biological process and should be considered in the same light as these other natural physiological functions. And it's not just the menstrual, there are other factors such as pelvic health, breast health, pregnancy, menopause, which all tend to go under the radar. So, I think we need to speak out and encourage other women and exercising women and female athletes to speak out about these topics and not be afraid or embarrassed. We need to make these topics the normal thing that they are. And that means everyone should be part of the conversation. So, even men, young girls, boys, none of use should be excluded. And consequently, the more we normalise the conversation, the more education we have surrounding it, the more we'll be able to further improve not only women's performance but their health and wellbeing as well at the same time.

(TC: 00:36:35)

Dr Hazel Wallace: Yes. Absolutely. That was a passionate speech. (talking over each other 36.39)

(TC: 00:36:39)

Kelly McNulty: (inaudible 36.39).

(TC: 00:36:43)

Dr Hazel Wallace: No. But it's so true. I mean, I think it was the American College of Obstetrics and Gynecology released a statement a little while ago to say it should be considered a vital sign, like, the menstrual cycle, like, just like we would take blood pressure, temperature, things like that when someone comes through the hospital and I'm like, 'Yes.' None of my colleagues ever talk about, apart from obs and gynae doctors will talk about periods, but otherwise we just pretend that whole part of a women's physiology doesn't exist and it's mind blowing.

(TC: 00:37:16)

Kelly McNulty: Yes.

(TC: 00:37:17)

Dr Hazel Wallace: But thank you so much for coming on and chatting today. It's been really fascinating.

(TC: 00:37:21)

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Kelly McNulty: Yes, it's great. Thank you for having me.

(TC: 00:37:24)

Dr Hazel Wallace: And I'm sure that we'll see more of you under period of the period and look forward to your own podcast coming out soon.

(TC: 00:37:31)

Kelly McNulty: That's great. Thank you.

(TC: 00:37:33)

Dr Hazel Wallace: Thanks so much Kelly. Okay guys, that's all from me, thank you so much for tuning into today's episode. Don't forget to subscribe and leave us a review and hopefully a five-star rating if you love what you hear on this podcast. And don't forget that you can hear more from me over on social media under @thefoodmedic and my website thefoodmedic.co.uk. Please do send us a tweet, Instagram message or Facebook message if you have some suggestions on who or what you'd like to hear from on the next podcast episode. If you're interested in grabbing a copy of my books, you can find both online on Amazon or in any good book store. Until then, see you again next time.

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