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Fight like a girl. The impact of menstruation on female athletes in combat sports

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Abstract
This paper aims to investigate the relationship between menstruation and sports, specifically from the perspective of women who play combat sports. Much of the research concerning sports, and the factors that affect sports performance, is based on a universal male subject and fails to account for sex- and gender-related differences. There is a male bias in the assumption that the 'normal' body is immutable and characterized by stability. Such a conception excludes the female body which undergoes cyclic changes on a monthly basis. Starting from this assumption, the aim of this paper is to see how female athletes[1] deal with this norm. The study centers on the experiences of female athletes, spanning from their physical education during schooling to their current training and competitive activities. Employing the concept of menstruation as both a biological and socio-cultural factor, this work seeks to deconstruct the prevailing sports canon, revealing that the notion of neutrality often corresponds to a male-centered ideal of neutrality.

Keywords: Menstruation, Combat sports, Medicalisation, Training, Weight.

1. Introduction

In recent decades, women's participation in combat sports has increased significantly, not only quantitatively—such as in membership of boxing federations—but also in terms of public visibility. We see more women on the ring at the Olympics, more professional women's fights are broadcast, all the way to one of the most important events of 2024 for those interested in boxing: the bout between Katie Taylor and Amanda Serrano, the first female boxers to have the main event at Madison Square Garden.
The increase in women's participation in combat sports has made it more evident even to experts in various fields that there are factors, both biological and cultural, that influence the performance of female athletes, one of the most important of these being the menstrual cycle. However, the idea of investigating the effect of the menstrual cycle is not new. As early as 1995, Reis et al. conducted a study showing that resistance training based on the follicular phase produced better results than regular training. In the study, participants trained one leg every other day in the follicular phase and only once a week in the luteal phase, while the other leg was trained consistently throughout the cycle. The group that had followed the training focused on the

[1] Female athletes' here denotes athletes assigned female at birth (AFAB) competing as women, focusing on those experiencing menstrual cycles.

follicular phase showed a 32.6% increase in maximal strength compared with 13.1% in the control condition. Despite these promising results, research on this topic has remained scarce. A 2020 systematic review (Prelchi Gallego) identified only four studies on the topic, three of which confirmed the benefits of training focused on the follicular phase. However, the limited number of participants and the methodologies used do not allow definitive conclusions to be drawn. Nevertheless, available evidence indicates that hormonal fluctuations influence strength, endurance, body composition, and injury risk (McNulty et al., 2020; Oosthuyse & Bosch, 2010). In high-intensity sport settings, such as combat sports, these effects can have a significant impact on physical fitness and competitive strategy. Recent studies have shown that female athletes may experience variations in fatigue perception, recovery capacity, and pain management related to different phases of the menstrual cycle (Carmichael et al., 2021). However, the literature specific to combat sports remains limited and is often based on data extrapolated from other disciplines. In addition, factors such as weight cutting, nutritional strategies, and sport culture may amplify or mitigate the effects of the menstrual cycle on female athletes, necessitating a more in-depth and contextualized investigation.

This article analyses the impact of the menstrual cycle on female athletes in combat sports, grounded in the theoretical assumption that biological and cultural factors should not be considered as parallel entities but rather as intersecting dimensions. Accordingly, the study draws on Foucault's analyses of the medicalization of bodies and Haraway's concept of natureculture, which frames menstruation as a phenomenon where biological data and cultural meanings cannot be separated. In addition to this we specify that the perspective adopted is that of the feminist literature on the subject.

Accordingly, the following sections will engage with extant literature encompassing both biological aspects and socio-cultural approaches, while also incorporating the firsthand experiences of women actively involved in combat sports. In fact, 10 semi-structured interviews were conducted with 10 women ranging in age from 20 to 35 years old, all in the Italian context and practicing it either at a competitive or amateur level. The interviewees were recruited through a mailing list to which the author gained access after participating in a women's boxing workshop. The workshop coach helped disseminate the call for participants among the registered members. The mailing list included practitioners of both boxing and Muay Thai, with varying degrees of experience; however, none were complete beginners, as participation in the workshop already required a certain level of preparation. Approximately half of the interviewees had taken part in official matches. Because the author also trains in a combat sport, the interviews were anchored in practical and detailed questions about training. The collected data were analyzed using *thematic analysis* (Braun & Clarke, 2019), which provided a systematic framework for identifying and interpreting patterns of meaning within the narratives. Coding was conducted iteratively, moving from descriptive to interpretative levels, and the emerging themes reflected both the participants' lived experiences and broader gendered discourses surrounding women's engagement in combat sports. The results of the interviews, together with the existing literature on the topic, brought out the issues that will be discussed throughout this article.

Drawing on Foucault and Haraway, the study critiques the construction of the "neutral" athletic body – rooted in male physiology and marginalizing cyclical female processes. Through interviews with female athletes the analysis reveals persistent cultural taboos surrounding

menstruation, particularly in sports environments where pain resistance is valorized and open dialogue is often lacking. The discussion further explores how technology, such as cycle-tracking apps, offers potential for personalized training while risking new forms of biopolitical control. A key tension emerges in the section on menstrual suppression via hormonal contraceptives, where athletes navigate whether such practices reflect empowerment or compliance with performance-driven demands. The issue of weight management underscores structural inequities, as regulations fail to accommodate hormonal fluctuations, forcing athletes into precarious health trade-offs. Ultimately, the conclusion calls for a paradigm shift in sports science and pedagogy, advocating for policies that recognize menstruation not as a hindrance but as a variable requiring integration into training methodologies. By centering athletes' lived experiences, the paper dismantles the myth of neutrality in sports, exposing how gendered norms are embedded in both institutional practices and bodily disciplines.

Though the article explicitly adopts a feminist natureculture framework – positioning menstruation as both a biological reality and a cultural construct – its empirical focus at times leans disproportionately toward hormonal and physiological effects (e.g., training adaptations, weight management). To fully realize its interdisciplinary potential, the analysis would need to more consistently articulate how cultural forces (e.g., medicalization, gendered sports norms) actively shape the very biological experiences it describes.

2. The neutral body of female athletes

Many studies in the field of sports research, and particularly those related to factors affecting athletic performance, rely on a universal male model, treating the body as neutral, stable, and unchanging. This bias is evident not only in scientific research but also in instructional manuals. Both the academic curricula that train exercise science professionals and the technical manuals used by federations to prepare coaches contain few, if any, sections that address gender-related variables in sport. This approach ignores differences related to gender and sex, excluding the biological specificities of the female body and its cyclical nature.

Indeed, there is a male bias in the medical conception of what constitutes a healthy body. The dominant model is one of stability and balance—qualities implicitly aligned with male physiology. A healthy body, on the other hand, if we follow the theories of Georges Canguilhem and Foucault (2015), is not an objective and neutral reality, but a historical and social construction that varies according to cultural and political contexts. Canguilhem (1998) asserts that health is not just the absence of disease, but the ability to adapt and redefine one's life norms, a perspective particularly relevant in sports, where the body is constantly being shaped to maximize performance. Foucault, a few years later on this track, shows how biopower disciplines bodies through practices of control and normalization, making sport a privileged arena for the imposition of standards of efficiency and performance. Moreover, the concept of the healthy body is deeply influenced by gender norms: ideals of strength, endurance and agility are often declined differently for men and women, reinforcing stereotypes and body hierarchies. In this sense, the "healthy body" is not just biological but a normative product that reflects and reproduces power relations. This view of a healthy body in constant balance effectively excludes the female body, which instead goes

through cyclical variations on a monthly basis due to the menstrual cycle. Sports medicine and athletic performance research often adopt benchmarks built on male physiology, overlooking how hormonal changes affect key aspects of performance such as strength, endurance, recovery, and injury risk (Smith et al., 2022). The concept of a neutral body in sport ignores the specific needs of female athletes and the need to adapt training methods, nutrition, and recovery based on physiological variations in the female body (Webb, 2008). Building upon this theoretical framework, the study aims to explore how female athletes perceive and navigate health-related norms associated with menstruation within the sporting context.

2.1 The medicalization of menstruation

The medicalization of menstruation has historically helped to define what is considered "normal" or "abnormal" in terms of symptoms, often reducing the complexity of the female experience to a series of disorders to be managed (Markens, 1996). From a Foucauldian perspective (2005), the medicalization of menstruation represents a central mechanism of biopolitical control, where bodily variability is transformed into a site of normalization and expertise. By translating the menstrual cycle into a series of pathologies, risk factors, or symptoms to be managed, medical discourse produces a disciplined subject whose body must be continuously monitored and corrected. Within sport, this logic manifests in the tendency to interpret menstrual irregularities as deviations from an ideal of stability—an ideal implicitly modeled on male physiology. The idea of a stable, unchanging body, typically associated with the male body, has also influenced the world of sports, where training and performance standards have been built on male parameters to the exclusion of the cyclical variations typical of the female body. This leads to a fundamental question: does adapting training to menstruation really mean recognizing the specificity of the female body, or does it risk creating a new rigid standard that imposes a one-size-fits-all way of managing the cycle in sport (Colenso et al., 2023)?

> It is very interesting this topic, there are hormonal variations that can also be exploited to the advantage and not only to the disadvantage of performance, try to make the most of the various phases of the cycle, have a strategy (Anna, competitive boxer).

Adapting training to the menstrual cycle can have both advantages and criticalities. On the one hand, it represents progress in recognizing biological differences and personalizing athletic preparation. Recent studies show that the luteal and follicular phases can influence strength, endurance, and injury risk, suggesting that targeted programming can optimize performance and reduce the risk of overload (McNulty et al., 2020). On the other hand, there is a risk of over schematization, which could turn individual variability into a new prescriptive norm. For example, if an athlete feels able to compete at high performance during the menstrual phase but the training program involves a reduced load, she may find herself forced to follow a pattern that does not reflect her personal experience.

> To think that the federations do this development, which to me is only positive, I don't know--I see it very far away yet. But I did have a (woman) coach who cared a lot about it, especially from a psychological point of view, she was advocating that we needed a mental coach for the team to take care of this very aspect here. (Anna, competitive boxer).

A further critical aspect concerns the perception of menstruation within the sports world. As Billington (2023) notes, premenstrual syndrome (PMS) has been classified as a medical condition with specific effects on the body, but it has also become a social stigma, associated with weakness and emotional instability. In sports, this narrative may contribute to the idea that menstruation is a hindrance to performance, leading female athletes and coaches to view it as a limiting factor rather than a manageable physiological variation. Some female athletes may internalize this view and experience the cycle as a moment of vulnerability to dominant athletic standards, while others may perceive it simply as a fluctuation to be lived with and adapted to individually.

3. The Taboo of Menstruation

Menstruation has always been the subject of cultural stigma (Gottlieb, 2020), a phenomenon that is also reflected in the language and behaviors of female athletes. The menstrual cycle is often described in negative terms, contributing to a sense of shame or inadequacy.

Building on Foucault's notion of discourse and power, the taboo surrounding menstruation in sport can be understood as a disciplinary silence that regulates which bodily experiences may be spoken and which must remain hidden. The unspoken nature of menstruation thus functions as a mechanism of normalization—producing "docile bodies" (Foucault, 1977) that conform to the masculine ideal of the neutral athlete. In this sense, the silence surrounding menstruation is not merely cultural but operates within what Haraway (1991) calls a *natureculture*: an intertwined domain where biological processes and social meanings co-constitute each other. The taboo enacts a false division between nature (the biological fact of menstruation) and culture (the social context of sport), rendering the menstrual body simultaneously hyper-material and unspeakable. To break this taboo, therefore, is to reclaim the menstrual body as a site of situated knowledge—where biology and culture meet, resist, and redefine the boundaries of what counts as a legitimate athletic body.

If we think, with Judith Butler (1996) that language is performative—not merely descriptive of reality but constitutive of it—then the words used to refer to menstruation gain particular significance. More telling still are the words not used. In fact, menstruation is often not named directly; other words are used that allude to menstruation. This not naming something actually makes it a taboo. In this way they are not just another occurrence but something to be hidden.

The lack of open discussion about menstruation leads many female athletes to hide their physiological status or not communicate any discomfort to their coaches. This silence perpetuates the marginalization of women's needs in sport and limits the adoption of training strategies appropriate to hormonal changes. Most female athletes in interviews state that they do not feel a sense of shame talking about menstruation, also tying this to a path of body awareness linked on the one hand to adulthood and on the other precisely to being athletes, thus people who *work* with their bodies. The common perception is therefore that it is not a taboo at all and that menstruation is given its own name and perceived as just another event. If one goes further, however, to the first answer to the question, "do you talk about menstruation during training? in what terms?" one slowly discovers that it is talked about, but preferably with female training

partners "for comparison". With coaches—particularly male coaches—they felt no need to talk about it, fearing it would be treated as something exceptional rather than ordinary.

> When it came out of the protected space of the women's locker room and reached the ear of some of her teammates, the most common reaction was to remain disgusted and in rare cases would end with a middle school joke (Julia, amateur boxer).

4. Educating the body

Sports can be a key tool in building the relationship between adolescent girls and their bodies during puberty. Despite the benefits of physical activity, women are still less active than men, and menstruation may be a factor contributing to their estrangement from sports, this mainly because, as we have already mentioned, it is still a phenomenon subject to cultural taboos (Moreno-Black & Vallianatos, 2005). Young female athletes face misconceptions about the compatibility of menstrual cycle and athletic performance, as well as fears related to cycle visibility (e.g., spotting, odor, cramping). Female athletes develop strategies to conceal menstruation during training and competition. These include the use of tampons (preferred over pads for reasons of mobility and discretion), checks between teammates, and the use of medications to reduce pain. This is where interactions with gym mates and coaches prove crucial. Some female athletes feel the need to hide the cycle to avoid judgment or be considered less of a performer. Others develop an "athletic attitude" that emphasizes control and resistance to pain (Moreno-Black & Vallianatos, 2005). The sports environment promotes the idea that pain should be ignored. This is reflected in a sports ethos that encourages "pushing the envelope", likening menstrual pain to that of injury. The sports environment systematically promotes the normalization of pain through the "culture of no excuses" – an ethos that valorizes "pushing the envelope" while pathologizing bodily limitations. This paradigm is particularly entrenched in combat sports, where pain tolerance is ritualized as a marker of athletic legitimacy. Feminist sport scholars identify this as a gendered disciplinary mechanism: where male athletes' pain is framed as heroic (Theberge, 2008), female athletes face double binds when menstruation-related pain becomes visible – either dismissed as biological weakness or erased to prove "equality" through suffering. On the other hand, sports practice helps young female athletes develop greater body awareness and perceive their bodies as a source of strength rather than limitation. However, education about the menstrual cycle is often fragmented and from disparate sources, such as parents, teachers, media, and peers. Placing sports in this context can offer a positive alternative, where the changing body is welcomed and supported through physical practice.

> Beyond a series of unpleasant episodes that occurred in adolescence, during which my relationship with my period was horrible for obvious reasons of adolescent discomfort, lack of education on the part of the family/school that led to an inevitable inability to handle a very normal event in every girl's life, in adulthood I have no negative or positive memories related to menstruating and playing sports. (Paola, competitive boxer).

Also in the interviews, it often emerges how those who were educated in sports as a child/girl have a different perception of menstruation, that they have incorporated it into their daily life,

which includes sports. However, this does not always mean a greater awareness of what happens physiologically to one's body but most often involves individual management of the menstrual cycle.

> I really started it as late as 26 years old so not when I was a teenager and that is, it is not that I delved into it as a topic, however certainly at some point I started trying to understand that is, it is not that I started trying to understand and there were times when during the workout either my ovaries would hurt and I would feel pain and so I had to stop and in a way, I had to understand what was a little bit the relationship between the masses the menstrual cycle and the and physical activity is actually over time what I realized that physical activity helps and improves the relationship with the pain of one's menstrual cycle (Giulia, muay thai competitive)

> These are all questions that I started asking myself in adulthood, from the age of 35 onwards I was much less able to understand period for example what week I was in before, certainly between the ages of 20 and 30 I was absolutely unaware of what was the week of my of my menstrual cycle [...] no one told me anything over time even when vabbè in the era I am 14 years old I was doing volleyball (Arianna, amateur boxer).

5. The negotiation of sports activity versus pain

Menstrual pain (dysmenorrhea) and other associated symptoms, such as fatigue and cramping, can affect female athletes' ability to train and compete. However, many female athletes are forced to *negotiate* their presence in competition and training, often minimizing their discomfort to avoid appearing weak.

> I have always shied away from thinking of the cycle as a variable, forcing myself to push harder even if my body can't handle it later (Valeria, amateur boxer).

The culture of pain resistance, particularly entrenched in combat sports, as already mentioned above, can lead to poor symptom management and increased risk of injury. From a Foucauldian perspective, the valorization of pain in combat sports exemplifies how disciplinary power is inscribed upon the body through repetition, endurance, and control. Athletes are trained to interpret suffering as a sign of moral strength, transforming pain into a practice of self-regulation and obedience. For female fighters, this dynamic intersects with gendered biopolitics: menstrual pain becomes a test of legitimacy, where acknowledging discomfort risks being read as weakness, and concealing it becomes proof of strength. Within Haraway's framework, this negotiation illustrates the *naturecultural* entanglement of pain—neither purely biological nor merely symbolic, but a material-semiotic practice through which the athletic body is produced and disciplined. Reframing menstrual pain as a *situated* experience rather than a deviation from normality challenges the medicalized and masculinized narratives of control that dominate sports culture, opening space for new understandings of vulnerability, endurance, and embodied knowledge.

Despite the taboo and pain, physical activity can have beneficial effects on menstruation (Lorzadeh, 2021). Scientific studies have shown that regular exercise helps reduce menstrual pain and improve mood by releasing endorphins and reducing muscle tension. Movement promotes blood circulation, which can alleviate bloating and fatigue. In addition, the experience of

menstruation is subjective: some female athletes report debilitating symptoms, while others find no significant influence on their performance (Bruinvels, 2016). It is essential that training programs take into account the individual needs of female athletes and the phases of the menstrual cycle, avoiding unnecessary overload at times of greatest physical vulnerability.
The role of coaches in this process is crucial. While greater awareness about menstruation can help structure more inclusive workouts, there is a risk of reproducing biases that view the female body as less reliable than the male body. It is therefore essential that training adaptations are not imposed as a new form of control but instead serve to empower athletes with tools to manage their bodies.

6. Communicating for change

There is a disconnect between physician and patient perceptions of menstrual cycle symptoms: while medicine tends to categorize and standardize menstruation-related complaints, women describe their experience in more fluid and subjective ways Barnack-Tavlaris (2015). This phenomenon can also be observed in the world of sports, where communication between female athletes and coaches can be influenced by language barriers, differences in perception, and gender dynamics. Just as it happens between doctor and patient, discrepancies may also emerge between coach and athlete in understanding menstrual symptoms. Female athletes might describe their condition based on subjective feelings-fatigue, heaviness, cramps, irritability-while coaches might interpret them through the filter of sports performance, wondering to what extent these factors affect performance in training or competition. If coaches do not have a thorough understanding of the physiological variations related to the menstrual cycle, they might underestimate or generalize symptoms, not considering that the impact of menstruation varies greatly from person to person. A key element in communication between female athletes and coaches is the language used to describe menstrual symptoms. Often, to avoid stigmatization or judgment, female athletes may downplay their condition or use more neutral language, speaking, for example, of "low energy" or "feeling heavy" rather than mentioning menstruation directly. In some sporting contexts, menstruation may still be taboo, and female athletes may feel uncomfortable talking about it openly, especially if their coach is a man or if they perceive an environment that is unwilling to accommodate these issues. On the other hand, some coaches-especially those who have received specific training or who work closely with high-level female athletes-may take a more open and technical approach, asking female athletes to monitor their cycle and report any changes that might affect performance. In this case, the language used is often more objective and related to physical and recovery parameters, rather than subjective feelings.
The gender of the coach may influence how the topic of menstruation in sports is addressed. Studies on women's coaching suggest that female coaches may be more likely to address these topics openly, creating a more inclusive dialogue environment. A female coach, having firsthand experience with the menstrual cycle, might better understand the challenges associated with hormonal variation and more easily adapt coaching based on the individual needs of female athletes.

> I felt lucky to have a female coach, there is some modesty from male coaches and fear of not being understood (Jenin, muay thai competitive).

Male coaches, on the other hand, may feel less comfortable broaching the subject, either due to lack of firsthand experience or fear of crossing boundaries considered private. Some may avoid the issue altogether, leaving female athletes to manage their symptoms themselves, while others may take a more technical approach, relying on physiological data rather than the subjective feelings of female athletes. However, increasing scientific attention to the impact of menstruation on sports performance is leading to more education of coaches, regardless of their gender, on how to support female athletes effectively. As already mentioned, the disconnect between physicians' and patients' perceptions of menstrual cycle symptoms reflects a broader tendency in medicine to medicalize and standardize bodily experiences that women, instead, describe in subjective and fluid terms. This phenomenon also occurs in sports, where communication between female athletes and coaches is influenced by gender dynamics, language barriers, and differences in how menstrual symptoms are perceived. The theory of *biomedicalization* (Clarke et al., 2003) helps explain how the female body is often interpreted through rigid medical categories, while athletes describe their symptoms in terms of personal experience (e.g., fatigue, irritability). This communication gap can lead to an underestimation of the menstrual cycle's impact on performance, especially if coaches lack specific training on the physiological variations linked to hormonal fluctuations. Furthermore, studies on *language and stigma* (Krane et al., 2010) suggest that female athletes may resort to euphemisms ("low energy") to avoid judgment, particularly in sports environments where menstruation remains a taboo. *Gender relations theory* (Messner, 2002) explains how the athlete-coach dynamic is influenced by gender: female coaches, due to firsthand experience, may foster more open dialogue, while male coaches might avoid the topic out of fear of crossing perceived private boundaries. However, with growing research on the impact of the menstrual cycle in sports, a more scientific and inclusive approach is emerging, promoting technical and personalized language that moves beyond gender stereotypes. The experience shared by athlete Jenin highlights the importance of a safe and understanding environment, regardless of the coach's gender, as long as there is awareness and sensitivity toward these issues.

7. Skipping menstruation

Another technology to evaluate when it comes to sports and menstruation concerns the continued use of the birth control pill to suppress menstruation, a common practice among high-level female athletes, especially in disciplines that require rigorous preparation and detailed competition planning such as combat sports (Burrows et al., 2007). However, the debate between gynecology and sports medicine remains open, with conflicting positions on the long-term effects of this practice and its implications for the health of female athletes. The question that interests us most here is whether female athletes perceive this choice as an act of personal autonomy or as a necessity imposed by the demands of competitive sport. Currently, there is no consensus opinion among gynecologists and sports physicians on the use of the pill to suppress the menstrual cycle in female athletes. Some specialists believe that cycle suppression may offer practical benefits, such as reduction of premenstrual symptoms, prevention of iron deficiency

anemia, and greater control over hormonal stability (Elliott-Sale et al., 2020). On the other hand, there are concerns about possible side effects, including alterations in bone density, reduced endogenous estrogen synthesis, and possible psychological and cultural implications related to the perception of the body and femininity. The study by Kunz et al. (1998) highlights the diversity of opinions among women on cycle suppression: 44% of respondents preferred to maintain a monthly bleeding pattern, while 34% preferred a menstruation-free regimen. D'Arcangues et al. (2010) found that cultural and social factors influence the propensity to modify the menstrual cycle, with younger, unmarried women who are accustomed to hormonal contraceptive use more likely to deviate from the natural menstrual rhythm. Female athletes, particularly those who compete internationally, often choose to use the pill continuously to avoid the risk of menstruating during crucial competitions. However, the degree of perceived freedom in this choice can vary considerably. Some female athletes see this strategy as an opportunity to improve their performance and reduce the negative impact of menstrual symptoms (McNulty et al., 2020).

> I am afraid that I will not be able to push hard enough, that I will be less resilient and run out of energy too soon, that the presence of the cycle will frustrate, at least in part, any athletic performance, especially maximal ones. I am no longer using pills, otherwise I would have just blown off my cycle. Probably the previous month's, too, so I don't have to train with the dizziness and anxiety of doing overly explosive movements (Clara, amateur boxer).

For others, however, the need to suppress the cycle might be perceived as an external pressure imposed by the dynamics of professional sports, where the body must adapt to performance standards that do not take into account female physiology.

Another critical element is the level of information and awareness among female athletes. Many receive advice on hormone management directly from their coaches or sports physicians, but these professionals do not always have specific training in gynecology. As a result, some female athletes may not be fully informed about the possible risks or alternatives to cycle suppression.

We then return to the central question for us: determining the extent to which the use of the pill to suppress the cycle is a free choice or a functional adaptation to the demands of sport. In a context where athletic standards are historically modeled on male bodies, the need to alter the menstrual cycle may reflect a lack of inclusion of female physiological specificities. In addition, perceptions of choice may vary based on the support received by female athletes. In settings where women's health is considered a priority and female athletes are actively involved in decisions about their bodies, cycle suppression may be experienced as a conscious and self-determined option. Conversely, in settings where the pressure of competition is high and female athletes' well-being is secondary to performance, this practice may be perceived as a compulsion rather than a choice. Although many female athletes see this strategy as a means to optimize performance and reduce menstrual discomfort, there is a risk that this practice becomes an implicit norm, where cycle suppression is not a fully free choice but a necessity imposed by the rules of the sport. To ensure greater awareness and self-determination, it is essential that female athletes receive comprehensive information, training alternatives and qualified medical support so that they can make informed decisions about managing their bodies.

8. How to use technology

Chelsea FC Women was one of the first clubs in the world to integrate the use of an app to monitor their female athletes' menstrual cycles in order to optimize performance and reduce the risk of injury. Starting in 2020, under the leadership of coach Emma Hayes, the team began using the FitrWoman app, developed by sports science company Orreco. This app allows female players to record information about their menstrual cycle and associated symptoms. This data is analyzed to individually adapt training and nutrition programs, taking into account the different phases of the cycle. For example, during certain phases, female athletes may be more susceptible to ligament injuries or may experience changes in coordination and mood. By closely monitoring these aspects, technical staff can implement preventive and ameliorative strategies. The introduction of FitrWoman has led to increased awareness among female players about their bodies and their needs. Athletes such as Erin Cuthbert and Jessie Fleming pointed out in an interview how understanding their cycle has enabled them to optimize recovery and performance, reducing negative symptoms and improving daily management of their physical and mental state. The introduction of a menstrual cycle monitoring APP is a significant step toward a more personalized approach to sports training that takes into account hormonal fluctuations and their impact on athletic performance. This technology makes it possible to build exercise programs and diet plans based on the different phases of the cycle, seeking to maximize performance and reduce the risk of injury. However, as authors such as Haraway and Plant point out, the relationship between gender and technology is never neutral, and the use of digital tools in monitoring women's bodies raises several critical questions. One of the main questions concerns the perception of this technology by female athletes: is it seen as an opportunity to improve performance and adapt training to the specificity of the female body, or rather as an invasion of privacy? While monitoring may represent a recognition of the need to differentiate athletic training by gender, it may also be perceived as an additional mechanism of control over women's bodies. The technoscientific management of menstrual cycles through digital tracking tools embodies what Haraway (1991) termed the "informatics of domination" – a paradoxical convergence of empowerment and biopolitical control. While cycle-syncing apps ostensibly enable personalized training regimens aligned with physiological fluctuations they simultaneously extend Foucault's (1977) disciplinary regimes into the most intimate spheres of female athletic embodiment. This duality reflects Plant's (1997) contention that technologies developed under patriarchal capitalism inevitably reproduce its logics, even when designed for women's benefit. The surveillance dimension proves particularly fraught. As Lupton (2016) notes in her analysis of self-tracking cultures, the quantification of bodily processes transforms subjective experiences into algorithmic data points, creating a "menstrual panopticon".
The daily recording of such personal data could generate anxiety and a sense of surveillance, especially if the information collected is not handled with transparency and informed consent.

> I see more and more a "tracktization" of performance, now even with a very low expense you can monitor everything, and with menstruation it has become almost an excuse to sell supplements, even on instagram I get sponsorships of workouts related to menstruation, which are very basic, in the follicular phase you do weights, in the ovulatory phase you run... but always connected to a sale of services and products that on the one hand uses a positive thing which is the awareness

> that our bodies change but always focusing on increasing performance by attaching a very heavy commercial part to it. To me it sometimes has the opposite effect: don't be annoying, it's a natural thing… (Julia, competitive boxer).

In addition, one must consider the risk of technological standardization of menstrual cycle management, which could turn a subjective and variable experience into a rigid model that does not always reflect the individual needs of female athletes. This could lead to new forms of medicalization of the female body in sports, with the risk that technology, instead of fostering self-determination, will end up imposing a new normative paradigm. However, there is also the issue of professionalization of sport to consider:

> On the app... this kind of control at this level is normal, it's their job, I don't like so many safety measures in my job either, but that's their salary, they earn it that way (Anna, competitive boxer).

In conclusion, while tools such as the APP used by Chelsea represent progress toward greater attention to the gender dimension in sport, it is essential to question how such technologies are implemented and what the ethical implications are. A conscious and participatory use that gives female athletes a voice in decision-making could turn these tools into a real opportunity, preventing them from resulting in new forms of control and disciplining the female body. The solution in combat sports could be a *"situated"* approach: letting fighters control their data, co-interpret it with coaches.

9. The issue of weight

Shannon Courtenay, the 28-year-old British boxer who held the WBA world bantamweight title until October 2021, faced a dramatic weigh-in incident ahead of her title defense against Jamie Mitchell. On October 8, during the official pre-fight weigh-in, Courtenay unexpectedly registered over 1kg above her contracted weight limit. Following standard boxing protocols, she was granted the customary two-hour window to attempt weight reduction and requalify for the championship bout. Courtenay not only refused to drop weight in two hours but the next day explained her choice from her Instagram account saying:

> "Yesterday I had reached the right weight. I was ready to go. Then last night I unexpectedly got my menstrual cycle which is known to cause weight gain. During preparation training we never had such problems. I was fit all week, I was ready. To say that I am devastated is an understatement, something like this has never happened to me before. I am always professional, but what happened this time was beyond my control. And I can't do anything about it. But what I can do is go out there tomorrow [Saturday] night to win and take the belt back. And that's exactly what I'm going to do".

Never in boxing had such a statement been made, explicit in language and clear in questioning the rules of the discipline of boxing.
And this is a theme that also came through strongly in the interviews.

> In the period of cutting weight, the periodic variation of 1 kg/1.5 kg weighs on the perception of preparation progress and weighs down the moment (almost the ambush) when the coach weighs her. One day, warning that at the end of training, the dreaded weigh-in moment would come, and sensing that on that day the scale with the plumbs would show a particular weight out of the possible range, I contrived for the entire hour an arduous escape plan... Then he desisted from the escape, I got weighed, and stoically cashed in on the coach's look of disappointment at the revealing of the weight.
> On the way back he thought endlessly, but who the fuck made me do it, at over thirty years old, put me in a weight fight when all my life I had escaped this curse (Beatrice, competitive boxer).

The issue that seems to emerge from interviews with female athletes is that the cycle is seen as a problem the moment it creates a disparity that is not dependent on one's own will and athletic preparation. As we have seen, many female athletes use the birth control pill to regularize it and some use it continuously as needed precisely so as not to menstruate during competitions, however, this does not solve the problem of water retention and therefore weight. There is also the fact that women's hormonal balance is more delicate than men's, and excessive fat loss tends to alter hormonal cycles. One of the main consequences is hypomenorrhea, or decreased menstruation and with reduced flow, which could also evolve into amenorrhea, their total absence. In the long term, this condition can have effects on the reproductive system.

> There was a girl who had been training for a few months already; they were, at the time, in the same weight category and about the same age; the girl at that time was close to her debut. Due to match requirements she needed to lose a couple of pounds, so in addition to constant training she was also following a diet. One day a companion, before training asks for a tampon and the girl says that she had not had her period for months, the naturalness with which she said this shocked her more than the news itself; he asked her if it was a normal thing for her to have delays due to some pathology or syndrome that can cause this symptom, but almost with amazement the girl said that she was perfectly healthy and that the lack of menstruation was, she believed, related to eating little, training a lot and being very stressed about the debut. He then asked her if she had talked to the coach about it, she said yes and said he told her it was for the best. This dialogue left her there and then very puzzled but not particularly upset, perhaps because when you are immersed in an environment you do not notice its distortions; but as she grows up and looks with increasing detachment at that world, she still wonders how many girls (perhaps teenagers) think it is normal not to menstruate for months, how many coaches rejoice at the news that female athletes do not menstruate? (Anna, competitive boxer)
> The only real concern associated with the cycle has always been weight gain near the pre-competition weigh-in. When I stopped my professional activity I also stopped taking the contraceptive ring. It took me almost 2 years to return to having a regular cycle since in the early days it would skip for several months but I think this aspect was still related to the combination of iron diet/intense training for multiple daily sessions 6 days a week. Upon returning to consistent but non-competitive physical activity and a less restrictive diet, the body began to function normally again.
> As mentioned I never wanted the cycle to affect my daily life and somehow it never did. I couldn't tell if it was luck or will (Marta, competitive boxer).

The fact that Shannon Courtenay, a world champion boxer, stated this in a press conference means first of all to begin to break down taboos and sense of shame that still hover around menstruation, and secondly to highlight precisely the mechanisms of a sport calibrated only to the male body. It seems significant to us that precisely on this specific aspect the female athletes

interviewed seemed particularly involved and with rather uniform views. In the variation in weight and disadvantage in competitions that follows from this it becomes evident to the female athletes that the norms are built on a male body and here, where the disparity is "objective" it is perceived as unfair, while other more minor or not immediately identifiable discriminations are either not perceived as such or are underestimated precisely in order not to highlight the difference that there may be between the bodies.

10. Conclusions

Analysis of the impact of the menstrual cycle on female athletes in combat sports highlights how hormonal variations cannot be reduced to mere Rather, they must be recognized as integral aspects of female physiology that can be strategically incorporated into training and preparation. The traditional approach, which has historically ignored these variables on the basis of an implicitly masculine neutral body model, proves inadequate in addressing the needs of female athletes, perpetuating a medicalizing view of the female body and underestimating the socio-cultural dimension of the issue.

The evidence gathered, both through the literature review and through the testimonies of female athletes, underscores the need for a critical rethinking of training methodologies, coach education, and federation policies, so that the menstrual cycle is not treated as a limitation, but as a physiological variable to be consciously integrated into sports programming. The case of weight management in weight-category disciplines, in particular, reveals how relevant regulations and practices are structured around parameters that do not take into account the biological specificities of female athletes, leading to consequences that can negatively affect their long-term health.

The experience of the female athletes interviewed highlights the crucial role of communication and education, not only in terms of the transmission of scientific knowledge, but also with respect to the construction of a language to overcome the cultural taboo of menstruation in sports. The absence of open dialogue on these issues, as evidenced by the difficulties in involving coaches in the discussion, perpetuates an individualized and often unconscious management of the menstrual cycle, with possible repercussions on the performance and physical and mental well-being of female athletes.

The gym's spatial politics create what Turelli (2024) calls "assimilative disruption". Female presence inherently combat sports patriarchal traditions, yet maintaining access requires adopting what is called "the posture of grateful invaders". Reflecting on the relationship between sport and menstruation therefore extends beyond performance optimization: it requires rethinking the very concept of sport itself.

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