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Advancing Care for Pregnant and Postpartum Athletes: A Call to Action for Athletic Trainers

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ABSTRACT

Context: There is a need for evidence-based clinical care guidelines for perinatal athletes in the athletic training profession. Limited research on perinatal athletes, in science, exercise, and sports medicine has resulted in barriers to providing patient-centered care for this population.

Objectives: To inspire discussions of female-centric healthcare among athletic trainers to better understand patient values, encourage clinician collaboration and shared decision-making, promote equal representation of males and females in sports medicine research, advocate for safe and effective training guidelines for perinatal athletes, and establish organizational support for providing patient-centered care to pregnant and postpartum athletes.

Description: General guidelines have been established by the American College of Obstetricians and Gynecologists (ACOG) for recreational exercise, but most of the current literature in sports medicine is lacking recommendations for perinatal competitive and elite athletes. A call to action is required from athletic training education, clinical practice, research, and professional organizations.

Clinical and Research Advantages: Examining perinatal athletes' needs will bring focus to a marginalized population in sports medicine. Comprehensive guidelines and practical coaching methods in the athletic training profession have the potential to improve the monitoring of perinatal health and patient outcomes.

Key Words: athletic trainer, pregnancy, postpartum, female athlete, pelvic floor, REDs

INTRODUCTION

Because the age of peak athletic performance and predicted peak fertility often overlap, there is an increasing prevalence of pregnant and postpartum athletes participating in high-impact activities at the highest levels, while specific guidance for athletic trainers (ATs) on appropriate activity modifications during pregnancy and appropriate return to activity postpartum (Table 1) remains limited.[1-3] While partaking in exercise is generally safe for most individuals during pregnancy, there are multiple risk factors and conditions while managing the care of a perinatal athlete.[3-8] Musculoskeletal injuries are common for the perinatal population, especially in the third trimester, with falls being the most frequent mechanism of injury.[4] Recent evidence also demonstrates that postpartum individuals are at increased risk for musculoskeletal conditions, particularly in active-duty military populations where physical demands remain high.[9] However, the scope and mechanisms of musculoskeletal injury specifically related to sport or physical activity in perinatal populations remain largely undefined. By exploring perinatal health in sports medicine and active populations, there is a chance to develop preventative and rehabilitative health care for athletes experiencing this health condition.

New conversations about pregnant and postpartum athletes made headlines in recent years due to more new mothers competing in the Olympics. Athletes like Allyson Felix, Kim Gaucher, Alysia Montano, and Naomi Folkard spoke to the public about their journey of being a mother and training as Olympic athletes. Additionally, the tragic loss of Tori Bowie in the Summer of 2023 to complications of pregnancy sparked renewed conversations around maternal mortality. A recent scoping review found that many postpartum athletes return to sport without adequate guidance, placing them at greater risk for injury, and highlighted the critical role that trained clinicians, including athletic trainers, can play in creating individualized return-to-sport

pathways.[2] Topics such as safe participation during pregnancy, return-to-play protocols, nutrition plans, common perinatal conditions, and breastfeeding concerns have begun to surface, and clinicians are recognizing a need for structured guidelines. Pregnancy is a health condition that affects every organ system, and biomechanical changes result in postural and gait changes and limitations in range of motion.[3,5,8,10,11] With appropriate evidence-based training guidelines, ATs would be able to enhance their clinical decision-making when working with pregnant and postpartum athletes. Reducing injury risk and providing optimal care while allowing these patients to continue to live active lifestyles and maintain their competitive edge is the goal. Therefore, the objectives for this article are to (1) highlight considerations and potential challenges of providing care to pregnant and postpartum patients, (2) discuss how ATs can serve an important role that is often unconsidered, (3) identify considerations for ATs as they approach the unique medical circumstances perinatal patients present, and (4) discuss ways in which the athletic training profession can improve care provided to pregnant and postpartum athletes through education, clinical practice, and research. Although the Commission on Accreditation of Athletic Training Education (CAATE) Standards serve as the criterion for professional athletic training programs, reproductive and perinatal health is only implicitly mentioned, signaling a need for more robust educational integration.[12] Because this topic is not often included in regular athletic training discussions, Table 1 provides a list of pregnancy-related definitions. According to the Board of Certification's (BOC) Practice Analysis, 8th Edition (PA8), athletic trainers are expected to promote health literacy, optimize wellness, and implement individualized risk-reduction strategies, which are essential skills when working with pregnant and postpartum patients.[13] These competencies reflect foundational elements of patient care that translate directly to the perinatal population. Athletic healthcare encompasses the services provided to a broad

range of athletes including recreational, competitive, and tactical, so this call to action can be applied to all athletes regardless of type or level of activity.

LACK OF EVIDENCE TO SUPPORT PERINATAL ATHLETES

To date, there is a dearth of available evidence regarding the epidemiology and pathophysiology of injuries sustained by perinatal athletes as well as postpartum rehabilitation and treatment. Due to the scarcity of evidence for this population, it is difficult to provide specific clinical recommendations supported by levels of evidence or grades of recommendation using established scales (e.g. Strength or Recommendation Taxonomy, Centre for Evidence-Based Medicine).

Current evidence on the epidemiology and pathophysiology of injuries among perinatal athletes is graded low to very low in quality due to few existing studies that include elite perinatal athletes, small sample sizes, design flaws, limited or inconsistent information on participants, no fetal data, practical challenges relating to parenthood, poor measurement reporting, a lack of research on transitioning to competition, difficultly with blinding pregnant individuals and clinicians, and overall exclusion of pregnant athletes from studies' participant criteria.[3-8,11] Additionally, sports medicine literature is limited on guidelines following vaginal versus cesarean births, premature birth, miscarriages, fetal death, spontaneous and elective abortions, pregnant adolescents, and those pregnant with more than one fetus. There are even fewer studies that examine common conditions following childbirth, including infection, perineal pain, breast pain, uterine prolapse, thrombosis, gestational diabetes, cardiovascular disorders, depression, bladder and fecal incontinence, biomechanical movement dysfunction, and general fatigue.[3,5,7,8,11,14,15] While current training recommendations are often based on lower levels of evidence, many are nonetheless informed by expert consensus. This highlights the potential

value of developing future guidelines through a formal expert panel to standardize care and provide a stronger framework for future scholarly work.

Current literature on postpartum rehabilitation progressions and treatment is lacking consistent evidence. Although the physiological and biomechanical differences between females and males are well-cited, studies lack training-specific guidelines for female athletes, especially the pregnant and perinatal population.[3,5,11,16] Since perinatal athletes who previously exercised regularly tend to continue with high-intensity training, ATs who work with a population that is of child-bearing age are likely to be tasked with designing programs that progress a perinatal or postpartum athlete through rehabilitation or training.[8,17] With most athletes choosing to continue their demanding training program during child-bearing years, more information is needed for clinicians to recommend and direct appropriate training.[8,16] Christopher et al[18] established a 4-phased approach to rehabilitating a postpartum runner that considers a myriad of physical, emotional, and psychological factors when progressing an athlete back to running postpartum and can provide useful guidance to ATs caring for postpartum athletes. However, the recommendations do not address training during pregnancy or athletic activities beyond running, nor does it consider elite athletes returning to competitive sport.[18] There is rare evidence showing harmful effects of exercise on the pregnant athlete or fetus for the average athlete who exercised regularly before pregnancy.[8,17,19] Therefore, training programs should be carefully personalized, since each patient and each pregnancy has an individual threshold and medical history to consider, just as an a AT would design an individualized training plan for any other health conditions.

Future guidelines should also consider establishing characteristics that distinguish a pregnant athlete who partakes in recreational exercise from an elite or tactical pregnant athlete

training for competition or as a part of a career. Current obstetrical guidelines for active pregnant athletes advocate for approximately 150 minutes of moderate aerobic exercise per week, which is significantly less in terms of duration and intensity than an elite or tactical athlete's participation.[3,19,20] High-quality literature is lacking parameters for elite or tactical perinatal athletes.[3,5-8,16,17,19,20] Exercise recommendations should include exercise intensity, frequency and duration, activities that should be avoided, and approval from health care professionals involved in the decision-making.

THE ROLE OF THE AT IN THE CARE OF PREGNANT AND POSTPARTUM ATHLETES

As is the case with many other health conditions, athletic trainers thrive on interprofessional care teams, and, because pregnancy is a multisystem health condition, expertise from many different healthcare fields will enhance patient outcomes. The members of the interprofessional care team may include an obstetrician or midwife, a doula, a lactation consultant, a registered dietician with education and experience working with both pregnant and athletic populations, a pelvic rehabilitation specialist, a behavioral medicine provider, a social worker, a sports medicine physician, and the AT, depending on the athlete's individual preferences and circumstances. As the athlete progresses through their pregnancy and eventually the return-to-activity protocol postpartum, all members of the care team should collaborate closely and share equal decision-making responsibility, regardless of roles or credentials. If the dietician has concerns about the athlete participating on a given day, that opinion holds just as much weight as if the obstetrician were to express concerns. Because ATs often develop close and trusting relationships with their patients, the AT is uniquely positioned to facilitate communication among providers, provide education to the patient, and monitor the patient for

life-threatening conditions during activity. When a pregnancy is reported or suspected, the AT should respond with compassion and a desire to help. Rapport and patient trust are critical components of patient-centered care. Research suggests that trust in the AT predicts an individual's likelihood of disclosing a pregnancy, further emphasizing the importance of the clinician-patient relationship in these situations.[21]

With the many changes in an athlete's body and symptoms that vary day-to-day during pregnancy, the AT's responsibility should include distinguishing between common and severe perinatal conditions and understanding when to refer the athlete to more advanced-level care.[8,11,17] With education and training in treating minor to life-threatening injuries, ATs provide a safe training environment and are prepared to intervene during emergencies. Observing the patient's heart rate is among one of the most common and important factors that should be monitored closely in perinatal athletes.[6,7,19,20] While heart rate may vary depending on pregnancy stage and number of fetuses being carried, ATs are educated on recognizing the exertional effort that pregnant athletes may exhibit during high-intensity training, including labored breathing and tachycardia.[3,8,11,20]

The majority of hospitalizations occur in the third trimester, with falls affecting at least 25% of pregnancies.[4] With the knowledge of gait analysis, posture corrective exercises, functional movement patterns, and faulty mechanics, the AT is uniquely qualified to monitor the patient throughout their physical adaptations during pregnancy. For ATs, several factors may contribute to clinical decision-making depending on the patient's medical history and predisposition to common conditions during pregnancy and should be considered when designing a return-to-activity progression. These factors include the type of birth, complications during pregnancy or birth, compensatory biomechanical patterns, and pre-pregnancy training

status. With appropriate education on training pregnant and postpartum athletes, ATs will become an even more valuable asset to the medical team.

COMMON CONDITIONS AND PHYSICAL CONSIDERATIONS

Pregnancy involves physiological changes that affect every organ system in the body. Common physical conditions affecting the pregnant or postpartum athlete may include musculoskeletal pain, preeclampsia, gestational diabetes, fecal or bladder incontinence, constipation, perineal tears, pelvic organ prolapse, and diastasis rectus abdominis, which affects nearly all individuals in the third trimester and persists in approximately one-third of individuals postpartum.[3,8,11,17,22,23] However, traditional athletic training education and continuing education do not provide much guidance on how to recognize or address these conditions. For example, preeclampsia is characterized by edema, protein in the urine, and hypertension that can progress to seizures, but the diagnostic criteria varies greatly, leading to difficulties in comparisons across populations.[24] Preeclampsia also has implications for the developing fetus. Hypertension results in abnormal development of the placental vasculature, which leads to reduced perfusion and fetal hypoxia, so early recognition and referral to more advanced care is important.[10] The most prevalent form of urinary incontinence is stress urinary incontinence, which has been reported to affect up to 20.7% of female athletes in a variety of activities, regardless of parity.[8,15,17] With early detection and proper management, therapeutic exercise may improve these conditions, restoring the patient's overall quality of life. Along with providing careful monitoring, ATs should counsel athletes and coaches on warning signs and symptoms of common pregnancy complications that have the potential to occur during exercise.

Traditional guidelines for activity during pregnancy are set by the American College of Obstetricians and Gynecologists (ACOG). These guidelines categorize pregnancy by its three

trimesters and encourage physical activity throughout pregnancy, explaining that there is minimal risk and high benefit.[19] Known benefits of routine exercise include healthy birthweight, lower incidence of gestational diabetes mellitus and preeclampsia, decreased incidence of premature birth, and lower incidence of cesarean or instrument-assisted birth.[6,19,20,25] In addition to these physical benefits, regular physical activity may also improve psychological well-being, with research linking prenatal exercise to reduced symptoms of anxiety and depression and a lower risk of postpartum depression.[26] For the past twenty years, literature has demonstrated that exercising is beneficial for both the patient and the fetus if the pregnancy is free of contraindications.[5,19,20,25,27]

In order to track the development of the fetus, gestation is divided into trimesters, with each trimester lasting approximately 12 weeks.[24] ATs and other providers can also use these trimesters to track physiological changes in the athlete and make appropriate training modifications to accommodate those changes. Aerobic exercise 3-4 days each week, up to daily, for 30- to 60-minute sessions at a time, is encouraged during the first trimester and up to birth.[19,20] Those who regularly performed high-intensity aerobic activity prior to pregnancy are encouraged to continue the same activities through pregnancy and postpartum, with appropriate medical clearance and monitoring.[19,20] At 14 weeks and beyond, it is recommended to avoid contact sports, such as lacrosse and martial arts; activities with a high risk of falling, such as equestrian and skiing; training in a supine position, such as bench press and backstroke in swimming; exercises that increase intra-abdominal pressure, such as gymnastics and scuba diving; and holding breath underwater for long time periods.[19,20] Exercises such as walking, running, stretching, stationary cycling, dancing, aerobics or water aerobics, and resistance training with bodyweight, bands, or free weights are all safe and beneficial throughout each

pregnancy phase.[6,19,20,25] Modifications are recommended as biomechanical and physiological changes place new stresses on the body that require adaptation.[4,8,19] Even with research demonstrating positive outcomes from physical activity, pregnant elite athletes are often hesitant to participate due to uncertainty of proper precautions and how to correctly modify activities.[28,29] The role of the AT is to have an understanding of necessary precautions and to intervene if signs and symptoms of emergent conditions present.

First Trimester (Weeks 1-12)

During the first trimester, physiological changes take place for a pregnant athlete that may affect physical activity. Some of these changes include increased blood volume, weight gain, increased ligamentous laxity, and elevated body temperature.[5,19,20,25,27] Cardiac output increases 30 to 60%, and the majority of this increases occurs during the first trimester.[10] These changes affect exercise by elevating heart rate and reaching maximum cardiac output sooner.[6,19,20] While physical performance may increase initially with increased blood volume, as the pregnancy progresses patients may correspondingly experience a rapid rise in body temperature and feel like they are reaching maximum output sooner.[6,19,20,25] In addition, the diaphragm elevates, resulting in a 5% reduction in total lung capacity, and tidal volume increases by 30 to 40%. As a result, respiratory rate does not increase, but dyspnea occurs in 60 to 70% of pregnant patients, which ATs are equipped to recognize and respond to.[10] Increased progesterone levels lead to smooth muscle relaxion in the gut, resulting in gastroparesis and prolonged gastric emptying. When combined with decreased gastroesophageal sphincter tone and superior displacement of the stomach due to fetal development, reflux is common. Progesterone-induced smooth muscle relaxation also leads to decreased motility in the large intestine, which results in increased water absorption and constipation.[10] With greater hypermobility in the musculoskeletal system each

trimester due to an increase in the amount of circulating relaxin, the risk of musculoskeletal injury increases.[4,19,20] ATs are not only able to recognize these ailments but are trained to act quickly to assess them, treat them, and modify a program when necessary.

Second Trimester (Weeks 13-27)

The stresses placed on a pregnant athlete's body secondary to physical changes continue through the second trimester. Loss of balance becomes a risk due to widening step width, and weight gain and increasing fetal size affect the center of gravity.[5,6,11,19,20] This is also a phase where fluid retention and swelling of the limbs are common, making the patient susceptible to muscle tightness, reduced range of motion, decreased proprioception, and decreased muscle activation.[5,11,19,30] With a trained clinician, such as an AT, who is qualified to educate and treat individuals with these conditions, the risk of injury may be reduced.

Third Trimester (Weeks 28-40+)

In the third trimester, physiological changes are the most remarkable, and risk of injury is greatest.[11,19,20] With a rapid increase in biomechanical transformations, pregnant athletes are likely to develop postural changes.[5,11,19] These changes cause discomfort, commonly leading to lumbar hyperlordosis, anterior pelvic tilt, and further shifting of the center of gravity.[5,11] Edema tends to worsen at this stage as the due date becomes closer, with fluid settling in the feet and ankles.[5,11,19] This pooling of fluid is known to cause pain or neuropathy due to compression, and in some cases can increase foot size.[5,11,19] In addition, fluid retention in the lower extremities can adversely affect proprioception in the joints and reduce muscle contractility, both of which increases the risk of fall and injury.[30] In addition to lower extremity swelling, fluid retention during pregnancy can lead to carpal tunnel syndrome (CTS), affecting up to 23% of pregnant individuals, particularly in the third trimester.[31] CTS symptoms, such as numbness and tingling

252 in the hands, can impair grip strength and dexterity, influencing athletic performance.
253 Furthermore, generalized swelling may alter the fit and comfort of activity-related apparel and
254 equipment, necessitating adjustments to ensure safety and effectiveness during physical
255 activity.[32] When the patient is unable to perform certain exercises due to shortness of breath,
256 poor balance, or general discomfort, an AT will be able to understand these biomechanical
257 changes and modify the exercise program.

258 **POSTPARTUM RETURN TO ACTIVITY CONSIDERATIONS**

259 Safety precautions should be continued as the athlete enters postpartum. Though the
260 patient is no longer pregnant, many of the physical symptoms experienced in the third trimester
261 may persist into the postpartum period. The effects of pregnancy can extend well beyond the first
262 year after childbirth, particularly in athletes who continue to lactate, as hormonal fluctuations
263 associated with breastfeeding may influence musculoskeletal recovery and readiness to return to
264 sport.[3,5,6,8,11,18,19,33] Musculoskeletal changes will continue to occur and must be monitored during
265 the first six months postpartum as connective tissue and muscle tissue recover and repair
266 following childbirth.[4-8,11,19]

267 Immediate recovery from childbirth may involve monitoring wound healing, including
268 cesarean or episiotomy incisions and perineal tearing.[6] Continued interdisciplinary care is
269 recommended to assess the patient's physical and mental status, pelvic health concerns,
270 nutritional needs, breastfeeding concerns, and patient goals as they pertain to physical
271 progression and athletic performance, and return to activity should be gradual and individualized
272 after a period of relative rest.[7,32] High-intensity training and exercises involving jumping or
273 running may lead to injury if done before adequate healing of the pelvic floor, abdominals, or
274 associated wounds. Generally, return to high-impact activity is not recommended before 6 weeks

postpartum for a vaginal birth or 8 weeks for a cesarean birth, although these timelines may vary depending on the individual's healing, symptoms, and medical guidance.[7] Komatsu et al[34] found significant variability in the time for resolution of pain and functional recovery between vaginal birth and cesarean birth. Median time for pain-free functional recovery following vaginal birth was 19 days and 27 days for cesarean births, so type of birth should be considered during an athlete's recovery.[34] While the interprofessional healthcare team continues to monitor health assessments, the patient may begin progressing their weight training and cardiovascular training. Setbacks are probable in this rehabilitation phase, so educating the patient and coaching staff on recovery expectations is essential. Once the patient returns to unrestricted activity and competition, a routine maintenance program for injury prevention and regular physical, functional, and mental health screenings may be established to support long-term health, enhance performance, and reduce the risk of reinjury. The AT should continue to work with a comprehensive interprofessional health care team for appropriate activity progressions and continuity of care.

Pelvic floor muscle training prescribed by a physical therapist with advanced training in pelvic health (e.g., a Board-Certified Women's Health Clinical Specialist) or an occupational therapist with similar advanced training may be beneficial for all athletes participating in impact activities and is recommended for athletes who suffer from pelvic floor dysfunction and urinary or fecal incontinence following pregnancy.[3,5-7,11,22,35] These conditions are not normal but are common for postpartum patients.[3,5-7,35] Patients who experience episiotomy scarring or perineal tears due to birth also often experience pelvic floor dysfunction.[5] While pelvic floor strengthening is commonly emphasized in postpartum recovery, it is important to recognize that some individuals may present with pelvic floor dysfunction such as hypotonicity, hypertonicity,

or coordination impairments, all of which require individualized assessment and treatment approaches by a trained specialist.[5-7,15,35] Pelvic floor muscle training postpartum can improve the patient's quality of life and reduce complications or delays in returning to sports participation.[5-7,15]

Lactating individuals have increased caloric needs to support milk production, and when these needs are not met, they may be at elevated risk for Relative Energy Deficiency in Sport (REDs). Inadequate energy intake during this period can impair hormonal function, hinder recovery, and compromise both athletic performance and lactation.[36] ATs should consider these nutritional demands when advising postpartum athletes and collaborate with dietitians or other providers to ensure adequate nutritional support during the postpartum period. From smaller sample size studies, the majority of athletes who continued to breastfeed while returning to high-impact exercise did not experience adverse health effects, nor did they notice an effect on lactation production or ability to breastfeed.[7] However, monitoring calcium and vitamin-D intake may be beneficial during the lactation period to maintain adequate bone density.[3]

Recent literature shows the most commonly reported postpartum symptom is low back and pelvic pain, affecting nearly half of studied athletes.[4-7,11] Neck pain and shoulder pain are also frequently reported, with urinary incontinence affecting most postpartum individuals.[11] Urinary incontinence can be problematic for several months to years after birth and affects a higher percentage of individuals after the birth of their first child.[6,11,15] With weight training or sports that require increases in intra-abdominal pressure, such as gymnastics, ATs may collaborate with pelvic rehabilitation specialists and intervene to improve physical function. By slowly increasing the load, the AT can monitor the demands placed on the core and pelvic floor, which were stressed by pregnancy.[6,11,15] Standards for this phase are needed in the athletic

training profession as they would help guide the athlete as they return to an active lifestyle without compromising their health. Table 2 offers general guidelines for a phased approach to activity postpartum. These guidelines should be adapted to fit individual situations and circumstances. A team-based healthcare approach should be maintained, and all members of the healthcare team should be in agreement with the athlete's progression.

Sundgot-Borgen, et al[3] found that athletes felt their training levels were the same or had improved since parenthood, but athletes reported not being satisfied with the postpartum training guidance they had received. ATs are qualified to recognize potential risks during athletic activity, have the knowledge and skills to intervene in emergencies and musculoskeletal injuries, and are capable of properly progressing an athlete to a level of activity consistent with pre-pregnancy. ATs are uniquely positioned to support perinatal athletes, offering clinical expertise and trusted guidance in situations where medical advice may be limited or unsatisfactory.[21] Their presence fills a critical gap in care, making them an invaluable asset to this population.

CALL TO ACTION FOR THE ATHLETIC TRAINING PROFESSION

Table 3 provides specific calls to action for each facet of the athletic training profession. As healthcare providers with a specialty in athletic healthcare, ATs are uniquely equipped to provide expertise and guidance for pregnant and postpartum athletes.

A Call for Education

To provide optimal patient-centered care as clinicians, an understanding of the body and its sexual dimorphisms are foundational. While some of the CAATE Standards, particularly Standard 8 – Interprofessional Education, Standard 17 – Clinical Practice with Varied Populations, Standard 18 – Variety of Health Conditions, Standard 71 – Inclusion of the Reproductive System, and DEI 1, can be interpreted to include pregnant and peripartum patients,

they do not comprehensively address educational needs specific to pregnancy or postpartum care.[12] Education on providing for a perinatal athlete might begin with risk assessment during physical examinations before athletic participation. Screenings as such should record factors that exacerbate pregnancy risks, noting the severity of each condition, and explore options for management of those risks, if the patient desires to continue with training. High risk should be used to describe a patient or fetus whose health screening reveals underlying medical or nonmedical factors that increase the risk of pregnancy complications or mortality. Educational offerings should also address female-specific health conditions, such as pregnancy, and provide opportunities for observing and providing care for perinatal athletes during clinical rotations. The profession may also consider advocating for an expansion of the CAATE Standards to ensure comprehensive inclusion of perinatal health content at the professional level.[12] Training should extend across the educational continuum, from professional to post-professional, continuing education, and possibly interprofessional education opportunities for AT residencies and fellowships. From these efforts, clinicians will gain insight on how to counsel in this area when working with perinatal athletes. Educational programs should analyze existing recommendations related to pregnancy and strategize how to participate in developing written athletic training guidelines that effectively advise, advocate for, protect, and promote pregnant and perinatal athlete health, just as non-pregnant athletes are advised, advocated for, and protected.

A Call for Clinical Practice

As a provider, delivering patient-centered care requires discussing values and priorities with the patient and understanding the anatomical and biological transformations in pregnant and perinatal individuals. By acknowledging these transformations, inclusive programs, including those of perinatal-specific care, should be part of the AT's practice. The BOC PA8 emphasizes

the importance of health literacy, interprofessional collaboration, and recognizing indications for referral, which are all core competencies that directly support the athletic trainer's role in managing the complex and interdisciplinary needs of pregnant and postpartum patients.[13] The AT's ability to detect, identify, and manage risks to physical or physiological health care needs of a perinatal athlete should merit involvement in shared decision-making. The guidance of an AT through pregnancy may reduce an athlete's health risks. Just as ATs practice interprofessional collaboration with surgeons, sports medicine physicians, and physical therapists regarding other health conditions, ATs should engage with practitioners in other specialties, such as obstetricians, midwives, doulas, lactation consultants, pelvic rehabilitation specialists, behavioral medicine providers, gynecologists, and dieticians, to ensure sound continuity of care throughout pregnancy and postpartum.

A Call for Inclusive Research

Equal representation of males and females should be included in the research, which is especially necessary with science and exercise studies, given the biological discrepancies.[37,38] There is a history of sports medicine research including predominantly male and non-pregnant subjects, which is why there is now encouragement to develop more female-centric literature.[37,38] With the increase of elite female athletes in the Olympic Games and professional sports teams, participation in female sports programs will likely continue to grow.[37] Further inclusion of this population is needed to explore sex disparity, such as biomechanical adaptations, physiological responses to exercise, and maximizing athletic performance. This inequality in literature has caused researchers to extrapolate data from male participants and apply those conclusions to females without consideration of sex dimorphism.[37,38] Recent proposals, such as a protocol to audit female representation in sports science and sports medicine research, are bringing attention

and offering solutions to this matter, and the athletic training profession has the potential to initiate the same for research.[26]

A Call for Professional Organization Support

By publishing a position statement on perinatal athletes' care, the National Athletic Trainers' Association (NATA) can provide helpful guidance to its members on how to appropriately monitor, intervene, build a trusting rapport with their patients, and efficiently discourse best practices for health, safety, and advocacy for pregnant and postpartum athletes. With a lack of support from professional sports organizations and collegiate sports, perinatal athletes in professional sports and student-athletes face exceptional challenges.[28,29] The decisions associated with being pregnant and continuing to participate in competitive athletics are overwhelming and cause substantial pressure, especially if there is no readily available strategy or support from healthcare staff to help facilitate the transition to parenthood. Pregnant athletes may face complex emotional and logistical decisions, including how and when to disclose a pregnancy to coaches, teammates, or governing bodies; how to manage financial implications from lost funding or sponsorship; and how to balance postpartum return to sport with childcare responsibilities and limited institutional support.[28,29] Additional considerations may include how to continue with academic responsibilities, secure stable housing, or plan for long-term parenting needs, all of which can influence physical and mental well-being. Limited focus has been dedicated to serving the mental health aspect of peripartum athletes.[7,26] Postpartum or postnatal depression is the most common mental health condition among these patients and has a significant correlation with the quality of life for the patient and infant.[7,26] This condition can also negatively affect parent-infant bonding and parenting behaviors.[7,26] With proper guidance,

ATs can play an integral role for perinatal athletes by recognizing mental health symptoms and directing them to the appropriate resources.

CONCLUSION

At the professional organization level, advocacy for education, awareness, and resources are needed to improve perinatal health monitoring and patient outcomes. The athletic training profession is equipped to mobilize, develop, and employ a position statement that addresses care for perinatal athletes. While awareness to improve perinatal care and resources across health care organizations grows, the everyday life experiences of perinatal athletes continue to be marginalized. There is much to be considered in being an advocate, promoting safety, and practicing ethically for perinatal athletes. Only through understanding perinatal athletes' needs and implementing progressive education and resources can this issue be resolved.

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Table 1. Common Definitions Related to Pregnancy[1]

Term	Meaning
Gestation	The period of time between conception and birth
Lactation	The process of milk production; associated hormonal changes may persist and influence physical recovery and performance
Neonatal	Refers to the first four weeks after birth
Parity	Refers to the number of births for a given person
Perinatal	Refers to the period of time starting at 22 completed weeks of gestation and extends through seven days after birth
Postpartum	Refers to the period of time beginning at birth and extends for one year or beyond in the setting of ongoing lactation

Table 2. Athletic Participation Considerations Following Full-Term Birth

Postpartum Recovery Phases* for Return to Competition		
Immediate Recovery (childbirth – 6 weeks)	Strength and Conditioning (6 weeks – 6 months)	Return to Competition (6 months – 1 year+)
Monitor wound healing Begin individualized non-contact aerobic training progression as soon as care team agrees Regularly discuss: • Physical and mental health • Pain, discomfort, dysfunction, general concerns • Sleep hygiene, rest, recovery • Breastfeeding schedule and concerns • Patient goals pertaining to progression and athletic performance Evaluate prior to and during return:[14] • Proper breast support • Footwear fit • Pelvic floor function (strength, endurance, coordination) • Pelvic organ prolapse • Urinary/anal incontinence • Lower extremity strength • Balance and proprioception • Gait analysis	Continue to monitor wound healing as necessary Continue with training progression as tolerated Continue to discuss and monitor: • Physical and mental health • Pain, discomfort, dysfunction • Sleep hygiene, rest, recovery • Breastfeeding concerns • Nutritional intake and energy availability to reduce REDs risk, especially during lactation • Patient goals Consider functional movement screen and address identified dysfunctional movements Once care team is in agreement, may incorporate weight training and sport-specific training exercises Educate patient and other stakeholders on training expectations, setbacks, and injury	Continue with training progression as tolerated Continue to discuss and monitor as necessary: • Physical and mental health • Pain, discomfort, dysfunction • Sleep hygiene, rest, recovery • Breastfeeding concerns • Nutritional intake and energy availability to reduce REDs risk, especially during lactation • Patient goals Establish a routine maintenance program for injury prevention Once care team is in agreement, introduce return to competition in phases (e.g. time intervals, periods, innings, quarters)

*These phases can be adjusted based on the length of pregnancy. These phases are general guidelines. Return to sport should be based on individual recovery, goals, medical clearance, and evolving physical and psychological readiness.

Table 3. Recommended Actions for Athletic Training Professionals

Call to Action for the Athletic Training Profession			
Education	Clinical Practice	Inclusive Research	Professional Organizations
Include education on sexual dimorphism and female-specific health conditions, including pregnancy, postpartum recovery, and lactation. Incorporate perinatal health content aligned with CAATE Standards (e.g., Standard 71) across didactic and clinical education.[12] Emphasize psychosocial considerations, including trust-building, stigma reduction, and effective communication with perinatal athletes. Educate students on REDs risk factors in lactating athletes and the impact of energy availability on health and performance. Offer clinical experiences that expose students to the care of pregnant and postpartum patients across various settings.	Use BOC Practice Analysis to guide scope-appropriate screening, documentation, and referral decisions.[13] Monitor for musculoskeletal, pelvic floor, and psychosocial concerns common in the perinatal period. Evaluate physical and psychological readiness before initiating return-to-sport activities. Collaborate with interprofessional providers (e.g., pelvic health PTs, dietitians, mental health professionals) to individualize care. Include pregnancy status in history-taking and practice shared decision-making when planning care and return to activity.	Promote equal representation of females in sports medicine and exercise science research. Investigate the full range of pregnancy outcomes and how they affect athletic participation (e.g., preterm birth, miscarriage, cesarean). Study clinician preparedness, confidence, and perceived barriers when treating perinatal athletes. Explore both quantitative outcomes and lived experiences of perinatal athletes at all levels of sport. Examine the impact of physical activity on maternal musculoskeletal health across the perinatal timeline.	Provide continuing education on screening, monitoring, and managing perinatal athletes. Advocate for safe, evidence-based, and inclusive practices for athletes during and after pregnancy. Support updates to CAATE and BOC standards to reflect emerging needs in perinatal health.[12,13] Encourage collaboration across disciplines to improve continuity of care and communication. Develop a position statement and clinical guidelines outlining best practices for athletic trainers working with perinatal athletes.