

Pelvic floor dysfunction



Pelvic floor dysfunction, or PFD, is a significant and under-addressed complication in the female athlete population – worsened further by the fact that the majority of sports medicine research has been performed with male subjects.

In the general population, females tend to experience PFD at significant rates and at discrete life stages. For example, approximately 32% of pregnant women and 59% of menopausal women exhibit some form of PFD. However, among particular subsets of female athletes, rates of PFD are truly staggering: The aggregate findings of numerous epidemiological studies suggest that within the combined cohort of powerlifters and Olympic weightlifters, 50% report urinary incontinence and 80% report fecal incontinence. This group also experiences pelvic organ prolapse at a rate of 23%. Even in sports less focused on the maximization of raw power, rates of PFD are quite high. Thirty-two percent of rhythmic gymnastics athletes reported PFD, as did an astonishing 76% of volleyball players.

These numbers are already high enough to warrant significant investment of time and resources into the study and treatment of PFD in the female athlete; however, the true rates of PFD are likely underreported. Athletes may have numerous reasons for keeping PFD to themselves, from fear of social stigma to the misapprehension that leaking is normal. Further, many surveillance studies and reporting regimens simply fail to address PFD, focusing instead on injuries that lead to immediate training setbacks or time loss.

Staff and medical professions who work with female athletes should implement thorough screening practices that include ruling out red flag signs and symptoms of serious pathology such as the facts listed in the following table (Table 2) from the paper “Sports medicine and the pelvic floor” authored by Donnelly GM and Moore IS and published in *Current Sports Medicine Reports*.

Table 2 - Red flag signs and symptoms.

Red Flag	Signs and Symptoms
Potential serious pathology	<ul style="list-style-type: none"> Pelvic masses Neurological signs and symptoms including, but not limited to, cauda equina: reduced saddle sensation, loss of urinary urge, loss of fecal control, widespread neurological signs and symptoms Suspected cancer (bladder, bowel, cervical, vulva) – screen for established cancer related signs including unremitting night pain, night sweats, unexplained mass/growths, skin lesions, weight loss or gain, neurological signs. In addition, be aware of gynecological-related symptoms including excessive abdominal bloating, feeling of fullness early with eating, and unexplained vaginal bleeding Persisting vaginal bleeding Persisting urinary retention or any postpartum urinary retention
Indicating onward referral for specialist management	<ul style="list-style-type: none"> Psychosexual trauma Suspected endometriosis Fistula Suspected dermatological presentations, e.g., lichen sclerosis Missed or poorly healing obstetric anal sphincter injury Heavy, painful, or clotting menstrual bleeding
Other potential medical sources of presenting symptoms of PFD	<ul style="list-style-type: none"> Urinary tract infection Thrush or bacterial vaginal infection Diabetes Sexually transmitted infection Inflammatory bowel or bladder issues

Interventions

Some athletes may be able to alter their training or performance to limit activities that may lead to PFD. However, for some, this may not be possible due to the nature of their chosen sport. Fortunately, pelvic floor muscles respond to strength and conditioning regimens, and such training can improve PFD symptoms. According to Donnelly and Moore, “both research and clinical experience have highlighted that more than 44% to 70% of females are not recruiting their (pelvic floor muscles) correctly,” so training presents a significant opportunity in this population. As with any exercise prescription, the program should be tailored to the individual. Donnelly and Moore offer a series of cues that may help the athlete understand and embody the necessary internal movements: “imagine you are stopping gas escaping,” “close your anus,” “stop the flow of urine,” and “imagine closing a zip from your back passage to your front passage.” The authors recommend a combination of “rapid maximum voluntary contractions” and “slower endurance holds.”

Accordingly, “female athletes should engage in focused (pelvic floor muscle training) of one to two repetitions of (pelvic floor muscle) recruitment alongside three sets of 8 to 12 sustained close to maximum (pelvic floor muscle) contractions repeated three to four times per week.”

Practical Recommendations from Donnelly and Moore

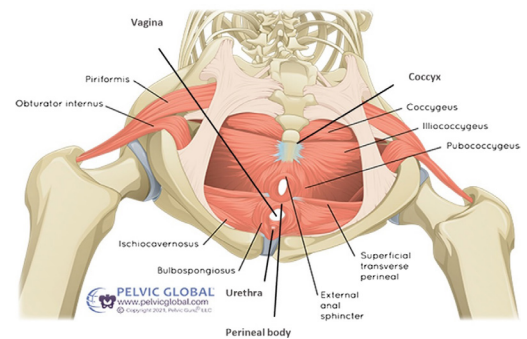
- Conduct a specific incontinence history
- Educate athletes to de-normalize leaking
- Consider red-flags relevant to the female athlete and symptoms of PFD
- Recognize modifiable and nonmodifiable risk factors for PFD
- Screen for symptoms of PFD beyond urinary incontinence
- Consider recording non time-loss health problems in injury surveillance systems to include PFD
- Facilitate access to self-management techniques, strength and conditioning options, and adjuncts for managing and treating PFD via athlete education and signposting as required
- Expand the multidisciplinary sports medicine team to include access to PFM specialists such as (uro)gynecologists and physical therapists
- Create supportive perinatal athlete policy and guidance within sporting organizations
- Apply the 6Rs framework (a perinatal-specific return-to-sport framework) to proactively manage perinatal athletes
- Ensure postpartum athletes have the option to access a pelvic health evaluation

Further resources on how to manage and support the perinatal athlete are provided in the supplementary content file

<http://links.lww.com/CSMR/A139>.

Reference:

Donnelly GM, Moore IS. Sports medicine and the pelvic floor. *Curr Sports Med Reports*. 2023; 22(3):82-90. DOI: 10.1249/JSR.0000000000001045



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What Is the Pelvic Floor?

The pelvic floor constitutes a group of muscles and connective tissues cradled within the pelvis that support the pelvic organs, prevent the leakage of urine and feces, allow for defecation and urination as necessary, and make sexual function possible. Roughly 66% of the pelvic floor muscle mass is comprised of slow-twitch fibers, the other 34% being fast-twitch fibers. The pelvic floor muscles lengthen in anticipation of impact with the ground, as in running and jumping, and it is possible that factors surrounding this are related to incontinence. However, the current evidence remains conflicting.

What is PFD?

PFD is an overarching term that includes within it numerous symptoms and diagnoses. Likewise, the causes of PFD are numerous. In short, “Anything that impacts the natural behavior of the (pelvic floor muscles) can lead to PFD,” according to Donnelly and Moore. PFD can include both urinary and rectal incontinence, prolapse of pelvic organs, trouble urinating or defecating and pelvic floor pain disorders, e.g., vaginismus, vulvodynia.