Disorders of urinary and fecal continence, as well as genital and rectal support, are common in adult women. Clinicians who address these problems include urologists, gynecologists, and colorectal surgeons. Great advances have been made in the treatment of continence and support disorders. Unfortunately, our current model of vertical integration for care of disease entities has limited a clinician’s understanding to the vertical unit in which the clinician has an expertise. This frequently leads to serial surgeries because of the lack of identification of dysfunction in an adjacent organ system of the pelvic floor. There has been little overlap in the verticalized spectrum of care provided by urologists (kidneys, ureters, bladder, urethra), gynecologists (uterus, vagina, perineum), and colorectal surgeons (colon, rectum, anus). Coexistence of dysfunction of urinary and bowel control is high and is well established. Unfortunately, clinicians who address pelvic floor dysfunction syndromes have been slow to adapt their practice styles to address all pelvic floor dysfunctions in one setting. Our concept of horizontal integration of pelvic floor dysfunction evaluation and management (Figure 1-1.1) is not new. This concept is expanding as clinicians realize the importance of a team approach to evaluation and treatment of pelvic floor dysfunction. We hoped to emphasize these principles as we prepared this textbook.

Defining the Female Pelvic Floor

The term “pelvic floor dysfunction” has different meanings for different clinicians. From our viewpoint, the female pelvic floor includes all of the structures within the bony pelvis: from pubic symphysis to coccyx and from lateral pelvic sidewall to lateral pelvic sidewall. It thus includes not only the lower urinary tract, reproductive tract, and lower gastrointestinal tract, but also the neuromuscular components of their support. The neuro-musculo-visceral anatomy of the pelvic floor is described further in Chapter 3-6. The musculature of the pelvic floor includes the levator musculature and the perineal musculature. The levator musculature provides support to all of the pelvic floor organs and is transversed by the urethra, vagina, and anus. Because the levator muscle complex provides support to all three organ systems, its weakness will result in impaired function of any, or all, of the structures that the muscles support. Muscular dysfunction can result from stretch or tear injuries to the pelvic floor muscles. However, the most common etiology for muscular dysfunction is a denervation injury from childbirth or lower back trauma. A denervation injury will result in partial paralysis of the supplied muscle groups. As a consequence, any lower back injury can result in weakness of pelvic floor support. This is especially true of the lower components of the pelvic floor. Injury to the pudendal nerve can result in dysfunction of the urethral sphincter, anal sphincter, and motor or sensory dysfunction of the perineum. Significant injury to the pudendal innervation will typically result in multisystem dysfunction, such as urinary and fecal incontinence.

The organ systems of the pelvic floor are enveloped in moderately thick layers of connective neuromuscular tissue. Labeled as endopelvic fascia, this neuromuscular tissue provides circumferential support to the three cavities that transverse the pelvic floor muscles. In addition, they constitute separating structures between the organ systems: the vesicovaginal septum and the rectovaginal septum. Lack of integrity of the fibromuscular layer between two organ systems will lead to herniation of one organ system into another. The resultant cystocele, enterocele, or rectocele may then result in dysfunction of the underlying visceral organ including disorders of urinary continence and storage, or dysfunction of fecal continence or storage. Frequently, multiple sites of fibromuscular layer damage are found. This is represented by the frequent coexistence of prolapse of the anterior and posterior vaginal walls requiring repair of both.
Concept of the Pelvic Floor as a Unit

Embryologic Origins

Our consideration of the pelvic floor organs as a single function unit is further augmented by understanding the common embryologic origin of the structures that compose the pelvic floor. The urogenital sinus and endodermal cloaca lead to the formation of the structures comprising the pelvic floor. It is therefore not surprising that symptomatic conditions can affect adjacent organ systems, a clear example being urogenital sinus irritative symptoms (Chapter 9-2). Abnormal embryologic development can thus also lead to a predisposition for pelvic floor dysfunction in certain women, including short urethra syndrome, shortened perineal body, and altered mucosal sensitivity. These factors are obviously immutable.

Obstetric Factors

The vaginal birth process represents the common denominator for many pelvic floor dysfunction symptoms. Our understanding of neuromuscular damage, which occurs during the vaginal birth process, has been enhanced with the use of neurophysiologic testing and endoanal ultrasound. As such, the vaginal birth process not only results in significant stretching of the levator musculatures in a vertical direction, but, more importantly, in stretching of the pudendal nerves in the vertical direction. Any stretch of a somatic nerve of more than 12% has been reported to lead to a degree of permanent injury to that nerve. During the vaginal birth process, perineal descent results in stretching of the pudendal nerve to a degree in which permanent injury can result. Beyond direct injury to muscles and nerves of the pelvic floor, the vaginal birth process also results in significant symptomatic as well as occult injury to the anal sphincteric mechanism. Many anal sphincter tears are symptomatic. However, it is unknown whether occult anal tears will result in subsequent fecal incontinence a few years postpartum. It is thus not surprising that there is a high incidence of postpartum flatal and fecal incontinence.

An aside should probably be made at this point. Our increased understanding of the neuromuscular consequences of the vaginal delivery process has been the subject of much debate in the recent past, especially as relating to the acceptance of elective, on-demand cesarean delivery. Many cultures around the world have already espoused and accepted this concept for various reasons, including resultant pelvic floor dysfunction. In the United States, this topic has been the subject of significant debate among obstetricians and gynecologists. The urogynecologic stance on this has been one of providing patients information regarding potential consequences of pelvic floor dysfunction and allowing patients to make a decision whether they wish to undergo an elective cesarean delivery. In a preliminary survey of pregnant women, it seems that providing women with information regarding potential pelvic floor consequences of a vaginal delivery does not