



American Urogynecologic Society

Advancing Female Pelvic Medicine and Reconstructive Surgery

## RESIDENT LEARNING OBJECTIVES

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*The committee endorses the ACGME Competency and Required Skills below as appropriate for Medical Students.*

**Key: Table for Medical Student Urogynecology learning objectives**

- 1<sup>st</sup> column: Learning objectives
- 2<sup>nd</sup> column: Levels of Competence as define by GE Miller in *The assessment of clinical skills/competence performance*. (Acad Med 1990;65:S637-7) Abbreviations used in the second column for recommended levels of competence are:

**K = knows      KH = knows how      SH = shows how      D = does**

- 3<sup>rd</sup> column: Evaluation Methods as described in the Accreditation Council for Graduate Medical Education (ACGME) and the American Board of Medical Specialties (ABMS) Toolbox of Assessment Methods. Version 1.1 September 2000. [www.acgme.org](http://www.acgme.org) . Abbreviations used in the third column for suggested evaluation methods are:

**MCQ = Multiple Choice Examinations**

**SOR = Standardized Oral**

ACGME Competency and Required Skill
<p><b>1. Patient Care</b></p> <ul style="list-style-type: none"> <li>a. Caring and respectful behaviors</li> <li>b. Interviewing</li> <li>c. Informed decision-making</li> <li>d. Develop &amp; carry out patient management plans</li> <li>e. Counsel &amp; educate patients &amp; families</li> <li>f. Performance of procedures                             <ul style="list-style-type: none"> <li>i. Routine physical exam</li> <li>ii. Medical procedures</li> </ul> </li> <li>g. Preventive health services</li> <li>h. Work within a team</li> </ul>
<p><b>2. Medical Knowledge</b></p> <ul style="list-style-type: none"> <li>a. Investigatory &amp; analytic thinking</li> <li>b. Knowledge &amp; application of basic sciences</li> </ul>
<p><b>3. Practice-Based Learning &amp; Improvement</b></p> <ul style="list-style-type: none"> <li>a. Analyze own practice for needed improvements</li> <li>b. Use of evidence from scientific studies</li> <li>c. Application of research and statistical methods</li> <li>d. Use of information technology</li> <li>e. Facilitate learning of others</li> </ul>
<p><b>4. Interpersonal &amp; Communication Skills</b></p> <ul style="list-style-type: none"> <li>a. Creation of therapeutic relationship with patients</li> <li>b. Listening skills</li> </ul>
<p><b>5. Professionalism</b></p> <ul style="list-style-type: none"> <li>a. Respectful, altruistic</li> <li>b. Ethically sound practice</li> <li>c. Sensitive to cultural, age, gender disability issues</li> </ul>
<p><b>6. Systems-Based Practice</b></p> <ul style="list-style-type: none"> <li>a. Understand interaction of their practices with the larger system</li> <li>b. Knowledge of practice and delivery systems</li> <li>c. Practice cost effective care</li> <li>d. Advocate for patients within the health care system</li> </ul>

**Exam**

**KF = Key Features Exam**  
**SP = Standardized Patients**

**OSCE = Objective Structured Clinical Exam**  
**GR = Global Rating**

Medical Student Urogynecology Learning Objectives	Levels of Competence	Evaluation Methods
<b>Basic Sciences</b>		
<b>EMBRYOLOGY</b>		
<p><b>Objective:</b> The resident should demonstrate an understanding of the development of the female urinary tract, lower reproductive tract, pelvic floor, and lower gastrointestinal tract and their interrelationships.</p> <ol style="list-style-type: none"> <li>1. Understand the normal development of the bladder, urethra, vulva, vagina, rectum, and anal canal.</li> <li>2. Understand the temporal and anatomic embryologic interrelationships within the urinary tract, reproductive tract and lower gastrointestinal tract, and how mullerian and urinary anomalies develop and can coexist</li> <li>3. Understanding the relationship of the urogenital ridge and the subsequent development of the mature kidney, including the timing and progressive appearance of the three sets of excretory organs.</li> <li>4. Understand the stages in growth and positioning of the mature kidney and ureters. K MCQ 2a, 2b</li> <li>5. Understand the mechanisms responsible for the normal and abnormal development and positioning of the components of the female urinary, reproductive and lower gastrointestinal tracts.</li> </ol>	<p>K</p> <p>K</p> <p>K</p> <p>K</p> <p>K</p>	<p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p>
<b>ANATOMY</b>		
<p><b>Objective:</b> The resident should demonstrate an understanding of the normal anatomy, anatomic interrelationships and variations of the bony pelvis, pelvic girdle and pelvic floor musculature, nerve supply, vasculature, lymphatic drainage, connective tissue supports and the pelvic viscera including the bladder, ureters, urethra, vagina, uterus, rectum, sigmoid colon, small bowel surrounding structures.</p> <ol style="list-style-type: none"> <li>1. Understand the anatomic components and relationships of the pelvic organs. Understand the interplay between the bony pelvis, the three levels of vaginal support and levator ani muscle complex in maintaining a biaxial vagina</li> <li>2. Understand the innervation, blood supply, and lymphatic drainage of these structures</li> </ol>	<p>K</p> <p>K</p>	<p>MCQ 2a, 2b</p> <p>MCQ, OSCE 2a,2b</p>

<ol style="list-style-type: none"> <li>3. Understand the changes in position and electromyographic activity of pelvic floor musculature at rest and with strain, sudden and sustained increases in intra-abdominal pressure, and voluntary muscle contraction.</li> <li>4. Understand and be able to trace the course of the ureters from the kidney to the bladder and identify adjacent structures along their course in the context of common locations and mechanisms of operative injury.</li> <li>5. Understand the anatomy of the retropubic, paravaginal, pararectal, and presacral spaces.</li> <li>6. Understand the normal anatomy of the perineal body. Understand the anatomic relationships of the levator ani complex and anal sphincters in maintaining fecal continence</li> </ol>	<p>K</p> <p>K</p> <p><b>K</b></p> <p><b>K</b></p>	<p>MCQ 2a, 2b</p> <p>MCQ, OSCE, SP 1f, 2a, 2b</p> <p>MCQ, OSCE, SP 1f, 2a, 2b</p> <p>MCQ, OSCE, SP 1f, 2a, 2b</p>
<p><b>PHYSIOLOGY</b>  <b>Objective:</b> The resident should demonstrate a working understanding of the normal function of the lower urinary tract during the filling and voiding phases, the factors responsible for anal continence, and the key elements involved in normal pelvic floor support.</p> <ol style="list-style-type: none"> <li>1. Understand the reflex arcs responsible and basic neurologic circuits responsible for coordinated functioning and volitional control of the bladder and urethra.</li> <li>2. Understand the autonomic and somatic neurologic control of lower urinary tract function</li> <li>3. Understand the normal voiding frequency and capacity using voiding diaries. Understand the urodynamic volume/pressure relationships of urethra and bladder during filling and emptying, including normal voiding mechanisms. Understand the methods of determining post-void residual (PVR).</li> <li>4. Understand the role of neurotransmitters and receptors in coordinated bladder and urethral function. Understand the concept of receptor specificity in anti-cholinergic therapy, and the side effect profile relative to receptor specificity. Understand the strengths and limitations of pharmacologic interventions to regulate lower urinary tract function.</li> <li>5. Understand the various elements of the functional sphincteric mechanisms of the urethra in controlling bladder/urethral pressure gradients during filling and emptying.</li> </ol>	<p><b>K</b></p> <p><b>K</b></p> <p><b>K, D</b></p> <p><b>K</b></p> <p><b>K, D</b></p>	<p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 1d, 1e, 1f, 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ, OSCE 1d, 1e, 1f, 2a, 2b</p>

<p>Understand the role of the pelvic floor musculature and the rationale for recommending pelvic floor muscle exercises and electrical stimulation therapies for both stress and urge urinary incontinence. Understand the effects of pharmacologic agents on urethral tone, and the rationale for various therapies, including topical estrogen, tricyclic anti-depressants and alpha agonists.</p> <p>6. Understand the neurologic control of the pelvic floor musculature and its role in maintaining pelvic floor support at rest, with voiding, defecation, and in response to both sudden and sustained increases in intra-abdominal pressure. Understand the use of EMG in this evaluation.</p> <p>7. Understand the effects of vaginal delivery, lack of estrogen support, aging, obesity, health habits (like smoking, chronically straining at bowel movements, and chronic cough), and pelvic surgery on lower urinary tract function; pelvic floor connective tissue, muscle, and vascularity; and lower intestinal function</p>	<p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p>	<p>MCQ 1f, 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p>
<p><b>THE URINARY TRACT IN PREGNANCY</b>  <b>Objective:</b> The resident should demonstrate a thorough understanding of the morphologic and physiologic changes to the urinary tract in pregnancy. He/she should be able to demonstrate this understanding in the care of patients with symptoms or signs of urinary tract abnormalities and determine their significance in pregnancy.</p> <p>1. In Pregnancy</p> <p>2. Counsel the patient on the potential effects of vaginal delivery, including operative vaginal delivery and the use of episiotomies, on the function of the pelvic floor.</p>	<p><b>K</b></p> <p><b>K</b></p>	<p>MCQ 2a,2b</p> <p>D MCQ, OSCE, SP, KF 1a,1e, 2a,2b, 4a,4b, 5b, 5c</p>
<p><b>URINARY TRACT DYSFUNCTION HISTORY AND PHYSICAL EXAMINATION</b>  The resident should be able to perform a complete history and screening physical examination to evaluate lower urinary tract symptoms and signs.  Objective (History)</p> <p>1. Understand revised ICS terminology as related to signs and symptoms of lower urinary tract dysfunction.</p> <p>2. Evaluate the severity and extent of disability caused by symptoms. Understand the use of Quality of Life (QOL) measurement tools / questionnaires for urinary incontinence, anal incontinence, pelvic organ prolapse and sexual</p>	<p><b>D</b></p> <p><b>D</b></p>	<p>MCQ, OSCE, SP, KF 1a,1b, 2a,2b, 4b</p> <p>MCQ, OSCE, SP, KF 1a,b, 2a, 4b, 5c</p>

dysfunction		
3. Evaluate past medical and surgical histories as they might relate to urinary tract symptoms.	<b>D</b>	MCQ, OSCE, SP, KF 1a,b, 2a, 4b, 5c
4. Evaluate the possible relationship of current medications to lower urinary tract symptoms.	<b>D</b>	MCQ, OSCE, SP, KF 1a,b, 2a, 4b, 5c
5. Understand the relationship of other organ systems to lower urinary tract dysfunction	<b>K</b>	MCQ 2a,b
6. Understand possible psychosocial and psychosexual relationships to lower urinary tract symptomatology.	<b>K</b>	MCQ 2a,2b, 5c
<b>Objective (Physical Examination)</b>		
1. Perform a thorough physical examination including neurologic examination and evaluation of pelvic floor reflexes.	<b>D</b>	OSCE, SP, KF 1f
2. Perform an exam to include PVR, POPQ, prolapse defect analysis and straining Q-tip determination for evaluation of urethral mobility and pelvic organ prolapse at rest and with Valsalva, recumbent and erect.	<b>D</b>	OSCE, SP, KF 1f
3. Perform an evaluation of levator ani muscle tone at rest and during contraction		
4. Perform a cough stress test in the recumbent and standing positions to document the sign of stress urinary incontinence.	<b>D</b>	OSCE, SP, KF 1f
<b>URINARY INCONTINENCE: GENERAL CONSIDERATIONS</b> <i>Objective:</i> Given a patient with a complaint of involuntary loss of urine, the resident should be able to confirm the symptom, diagnose its etiology, counsel the patient and initiate an appropriate treatment plan.		
1. Understand the different types of urinary incontinence, their causes, symptom complexes, physical findings, and distinctions. Understand the difference between symptoms (eg urge urinary incontinence, stress urinary incontinence, nocturnal enuresis), symptom syndromes (eg overactive bladder, painful bladder) and urodynamic diagnostic categories (eg detrusor overactivity, urodynamic stress incontinence, chronic urinary retention with incontinence).	<b>K</b>	MCQ, 2a, 2b
2. Understand the minimum elements of an evaluation, including history of symptoms, past	<b>K, KH</b>	MCQ, OSCE, SP, KF

<p>medical history, PVR, urinalysis, urine culture and voiding diary. Understand the concept of empiric treatment of symptom syndromes. Understand the indications for and performance of the various urodynamic tests used to evaluate urinary incontinence, including provocative multichannel cystourethrometry, urethral pressure profilometry and pressure-voiding studies.</p> <p>3. Understand the various medical and surgical approaches to specific types of urinary incontinence, and be able to provide an adequate spectrum for the majority of patients suffering from the more common of these conditions.</p> <p>4. Recognize the economic impact of urinary incontinence in the United States.</p> <p>5. Understand the psychological, social, and sexual impact of urinary incontinence.</p>	<p><b>K, KH</b></p> <p><b>K</b></p> <p><b>K</b></p>	<p>1f, 2a, 2b 3b</p> <p>MCQ, OSCE, SP, KF 1d,1e, 1f, 2a, 2b, 3b, 4a,</p> <p>MCQ 6a, 6c</p> <p>MCQ 5c, 6a, 6b, 6c</p>
<p><b>STRESS INCONTINENCE</b>  Objectives: The resident should understand the principles involved in the confirmation of the diagnosis of stress incontinence. He/she should know when referral for further evaluation is necessary and be able to perform appropriate management either nonsurgical or surgical once the diagnosis is established.</p> <p>1. Know the definition of stress urinary incontinence versus urodynamic stress incontinence.</p> <p>2. Understand the underlying anatomic abnormality that allows urinary loss in this condition.</p> <p>3. Understand the various tests, their indications, limitations, and performance in establishing the diagnosis (e.g. Q-tip test, single-channel versus multi-channelcystometrogram, simultaneous bladder and urethral pressure measurements).</p> <p>4. Know the various approaches, both nonsurgical and surgical, for the treatment of urodynamic stress incontinence. Understand the difference between traditional and minimally invasive surgical approaches, eg open Burch versus laparoscopic Burch, and traditional pubovaginal sling versus mid-urethral sling.</p> <p>5. Know and be able to perform the various operative repairs appropriate to the treatment of urodynamic stress incontinence. (see .Procedures. on page 16)</p>	<p><b>K</b></p> <p><b>K</b></p> <p><b>KD</b></p> <p><b>K</b></p> <p><b>D</b></p>	<p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ, OSCE, KF, 1f, 2a, 2b</p> <p>MCQ, 1d, 1f, 2a, 2b</p> <p>OSAT, OR EVAL. 1f</p>

<p>6. Understand the benefits, risks, and how to decide on a vaginal versus abdominal versus combined surgical procedures for the correction of urodynamic stress incontinence. Understand the high-risk factors for failure of anti-incontinence procedures. Understand the relative indications for urethropexy versus sling versus urethral bulking agents.</p> <p>7. Understand the relationship of urodynamic stress incontinence and pelvic relaxation.</p> <p>8. Is able to discuss risks, benefits, and expected outcomes of nonsurgical and surgical management of SUI.</p> <p>9. Understand the evaluation and management of failed surgery for urodynamic stress incontinence, including treatment of Intrinsic Sphincteric Deiciency(ISD) with and without urethral mobility. Understand the use of urethral bulking agents.</p>	<p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p>	<p>MCQ 1e, 1f. 2a, 2b</p> <p>MCQ 1f, 2a, 2b</p> <p>MCQ, OSCE, KF 1a, 1b, 1c, 1d, 1e, 2a, 2b</p> <p>MCQ, OSCE, KF 1a, 1b, 1c, 1d, 1e, 2a, 2b</p>
<p><b>URGE INCONTINENCE</b> Objective: The resident should know the etiology, signs, symptoms, diagnosis, and treatment of detrusor over activity</p> <p>1. Understand the terms: urge incontinence and nocturnal enuresis as symptoms; overactive bladder as a clinical syndrome; idiopathic detrusor overactivity and neurogenic detrusor over activity as urodynamic diagnoses, and synonyms.</p> <p>2. Understand the pathophysiology of the condition.</p> <p>3. Understand the clinical presentation of the condition and other conditions from which it must be distinguished.</p> <p>4. Understand the diagnostic measures required to identify the condition, and their respective indications</p> <p>5. Understand the various treatment modalities, including fluid management, behavior modification, pelvic floor exercises, pharmacotherapy, and electrical stimulation. Understand thereceptor specificity and side effect profile of respective anti-cholinergic agents</p> <p>6. Is able to discuss risks, benefits, and expected outcomes of nonsurgical and surgical management of urge incontinence.</p>	<p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p> <p><b>K,D</b></p> <p><b>K,D</b></p>	<p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ, OSCE, KF 1a, 1b, 1c, 1d, 1e, 2a, 2b</p> <p>MCQ, OSCE, KF 1a, 1b, 1c, 1d, 1e, 2a, 2b</p>
<p><b>NEUROSTIMULATION</b></p>		

<ol style="list-style-type: none"> <li>1. Understand the indications for neurosacral modulation in the treatment of lower tract dysfunction, including recalcitrant detrusor overactivity, non-obstructive urinaryretention and painful bladder syndrome.</li> <li>2. Understand the theory of the mechanism of neuromodulation.</li> <li>3. Understand the alternative techniques available, including posterior tibial nerve stimulation and pudendal nerve stimulation</li> </ol>		
<p><b>MIXED URINARY INCONTINENCE</b> Objective: The resident should understand the principles involved in the diagnosis and treatment of mixed incontinence.</p> <ol style="list-style-type: none"> <li>1. Understand the definition of mixed urinary incontinence.</li> <li>2. Understand the combination of underlying abnormalities leading to this condition.</li> <li>3. Understand the clinical presentation of the condition and other conditions from which it must be distinguished.</li> <li>4. Understand that a mixed condition may require a mixture of treatments for optimal bladder control (ie. treatment of stress and urge components). These modalities may include pelvic floor muscle exercises with or without biofeedback, electrical stimulation, pharmacotherapy, and/or surgical repair.</li> <li>5. Describe the possible outcomes of initial treatment (ie. S + U both better; S better, U the same or worse; S the same or worse, better; S + U both unchanged or worse), and how to adjust treatment to treat the persistent symptoms.</li> </ol>	<p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p>	<p>MCQ, 2a, 2b</p> <p>MCQ, 2a, 2b</p> <p>MCQ, 2a, 2b</p> <p>MCQ, 2a, 2b</p> <p>MCQ, 2a, 2b</p>
<p><b>VOIDING ABNORMALITIES</b> Objective: The resident should be able to recognize and understand the management of abnormal voiding, including urinary retention with associated urinary incontinence.</p> <ol style="list-style-type: none"> <li>1. Understanding the normal mechanisms of voiding in women</li> <li>2. Understand the terminology related to mechanism of voiding, including valsalva voiding, and post-void residual.</li> <li>3. Understand the various definitions of a normal PVR.</li> <li>4. Understand the pathophysiology of abnormal voiding, including urethral obstruction and detrusor hypoactivity.</li> </ol>	<p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p>	<p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p>

<p>5. Understand the relationship between pelvic floor surgery and postoperative voiding difficulties. Understand the clinical presentation of abnormal voiding. Understand the terminology for symptoms of abnormal voiding, including intermittency, hesitancy, straining, incomplete emptying and dribbling. Understand the complications associated with urinary retention.</p> <p>6. Understand the evaluation of abnormal voiding, including simple and complex uroflowmetry, and pressure-voiding studies. Understand the urodynamic categories of bladder outlet obstruction, detrusor sphincter dyssynergia, detrusor underactivity and acontractile detrusor.</p> <p>7. Understand the various treatments used for this condition and their risks and benefits, including intermittent self-catheterization, double voiding, Crede maneuver, cholinergic drugs and sacral neuromodulation.</p>	<p><b>K</b></p> <p><b>K</b></p> <p><b>K, D</b></p>	<p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ. OSCE, KF 2a, 2b</p>
<p><b>URINARY TRACT INFECTION</b> Objective: The resident should be able to diagnose and treat acute, persistent and recurrent infection of the urinary tract in both pregnant and non-pregnant women.</p> <p>1. Understand terminology (e.g. asymptomatic bacteriuria, sterile pyuria, persistent infection, recurrent infection)</p> <p>2. Understand pathophysiology (e.g. host responses, age relationship, urinary retention, influence of pregnancy, etc.)</p> <p>3. Understand the relationship between host susceptibility factors, anatomy, and bacterial virulence factors as they relate to infection risk and renal involvement.</p> <p>4. Understand clinical presentation (e.g. influence of site of infection upon clinical picture, difference between complicated and uncomplicated infections)</p> <p>5. Understand methods and significance of diagnostic techniques and indications for in-depth evaluation</p> <p>6. Understand modes of therapy for acute and chronic infection.</p> <p>7. Understand indications for and methods of prophylaxis for recurrent disease.</p>	<p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p> <p><b>K,D</b></p> <p><b>K,D</b></p>	<p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ, OSCE, SP, KF 1a, 1b, 1c, 1d, 1e, 2a, 2b</p> <p>MCQ, OSCE, SP, KF 1a, 1b, 1c, 1d, 1e 2a, 2b</p>
<p><b>PAINFUL BLADDER SYNDROME</b></p>		

<ol style="list-style-type: none"> <li>1. Understand the ICS terminology of painful bladder syndrome, and differentiate this from other pain syndromes, eg painful urethra / vulva / vagina / pelvis syndromes.</li> <li>2. Understand signs and symptoms of painful bladder syndrome. Understand the role of graded questionnaires in the evaluation.</li> <li>3. Understand the indications for endoscopy and radiologic studies in the evaluation</li> <li>4. Understand the various proposed mechanisms of pathophysiology, including epithelial GAG layer disruption, potassium permeability, and neuropathic</li> <li>5. Understand the treatment modalities available, including intra-vesical instillations, oral re-coating therapy, analgesics and neuromodulation. Understand the indication and success of operative intervention, such as augmentation cytoplasty, ileal diversion and cystectomy</li> </ol>		
<p><b>URETHRAL DISORDERS</b> Objective: The resident should demonstrate the ability to diagnose and manage conditions referable to the urethra</p> <ol style="list-style-type: none"> <li>1. Understand the definitions of painful urethral syndrome, infectious urethritis, atrophic urethritis, urethral prolapse and urethral diverticulae.</li> <li>2. Understand pathophysiology infectious urethritis, atrophic urethritis, urethral caruncle and urethral diverticulae.</li> <li>3. Understand clinical presentation of infectious and noninfectious urethritis, atrophic urethritis, urethral prolapse and urethral diverticulae</li> <li>4. Understand role of urethral cultures, endoscopy and radiologic studies in the evaluation of urethral disorders.</li> <li>5. Understand methods of prophylaxis and treatment, both medical and surgical, and their indications and contraindications.</li> </ol>	<p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p>	<p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p>
<p><b>INTRAOPERATIVE INJURIES</b> Objective: The resident should demonstrate an ability to prevent, identify, and manage urinary tract injuries which occur during pelvic surgery. He/she should show an understanding of appropriate surgical repair of these injuries, although he/she may not always be responsible for performing these repairs.</p>		

<ol style="list-style-type: none"> <li>1. Understand the normal and variant anatomical relationships of the ureter, bladder, and urethra to the female reproductive tract.</li> <li>2. Demonstrate the accepted precautions necessary to prevent urinary tract injury.</li> <li>3. Enumerate the investigations used to diagnose urinary tract injury both intraoperatively and postoperatively</li> <li>4. Describe, perform or call for consultation the management of these injuries when discovered immediately at the time of surgery based on location of injury status of operative field (e.g. Infection, malignancy), and condition of the patient.</li> <li>5. Describe, perform or call for consultation the management of urinary tract injury when discovered in the postoperative period or later.</li> </ol>	<p><b>K</b></p> <p><b>D</b></p> <p><b>D</b></p> <p><b>D</b></p> <p><b>D</b></p>	<p>MCQ 2a, 2b</p> <p>MCQ, OSCE, OSAT 1f, 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ, OSAT, SP, KF 2a, 2b</p> <p>MCQ, OSCE, SP, KF 2a, 2b</p>
<p><b>URINARY TRACT FISTULAE</b>  Objectives: The resident should demonstrate knowledge of the etiology, prevention, recognition, diagnosis, and management of fistulae involving the urinary tract.</p> <ol style="list-style-type: none"> <li>1. Understand the difference between congenital and acquired lesions</li> <li>2. Understand the risk factors for the formation of acquired urinary tract fistulae. Understand methods of preventing or minimizing the influence of these factors.</li> <li>3. Understand the classification of urinary tract fistulae including vesicovaginal fistulae, ureterovaginal fistulae, urethrovaginal and uterovaginal fistulae and how to identify and diagnose the types.</li> <li>4. Know the clinical presentation of a urinary tract fistula</li> <li>5. Understand the evaluation of fistula tracts. Understand the role of office tests in the evaluation. Understand the indications for cystoscopy and radiologic studies in the evaluation.</li> <li>6. Understand the treatment approaches to urinary tract fistulae based upon etiology, size, and location. Understand the use of vascularized grafts, both vaginal and abdominal, in select patients.</li> </ol>	<p><b>K</b></p> <p><b>K</b></p> <p><b>KH</b></p> <p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p>	<p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ, KF, OSAT 2a, 2b</p> <p>MCQ, OSCE, SP 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p>
<p><b>HEMATURIA / NEOPLASIA</b>  Objective: The resident should be able to screen for and</p>		

<p>evaluate hematuria, and be aware of the potential for urinary tract neoplasia in the female patient.</p> <ol style="list-style-type: none"> <li>1. Understand the definition of hematuria and microhematuria, and their relationship to RBC's versus dipstick on the urinalysis.</li> <li>2. Understand the clinical presentation of the various lesions that can cause hematuria, both benign and malignant.</li> <li>3. Understand the steps in evaluation of hematuria. Know the indications for referral to evaluate focal lesions.</li> <li>4. Understand the management of these lesions.</li> </ol>	<p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p>	<p>MCQ 2a, 2b</p> <p>MCQ, OSCE, KF, SP 2a, 2b</p> <p>MCQ 2a, 2b</p>
<p><b>PELVIC ORGAN PROLAPSE PATHOPHYSIOLOGY</b> Objective: The resident should demonstrate an understanding of the prevalence, etiology, predisposing factors, and symptomatology associated with pelvic organ prolapse.</p> <ol style="list-style-type: none"> <li>1. Understand the normal support of the vagina (Levels I, II, and III), uterus, bladder, and rectum.</li> <li>2. Understand the anatomic and structural factors associated with pelvic organ prolapse.</li> <li>3. Understand the neuromuscular changes in the pelvic floor associated with genital prolapse.</li> <li>4. Understand the relationship of childbearing, age, hormonal factors, and genetic factors to pelvic organ prolapse.</li> <li>5. Understand the anatomic and symptomatic consequences of abnormal pelvic floor support.</li> </ol>	<p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p> <p><b>k</b></p>	<p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p>
<p><b>DIAGNOSIS</b> Objective: The resident should be able to identify, stage the severity of, and discern the symptomatology associated with pelvic organ prolapse.</p> <ol style="list-style-type: none"> <li>1. Understand the anatomy of various anterior vaginal wall defects, including midline, lateral, and transverse cystocele and anterior enterocele.</li> <li>2. Understand the anatomy of various defects in uterine support, including attenuated cervical ligaments, detachment of the pubocervical ring, cervical elongation and combined defects. Understand the anatomic defects associated with post-hysterectomy apical prolapse, including vault detachment, apical enterocele, anterior enterocele, posterior enterocele and</li> </ol>	<p><b>K</b></p> <p><b>K</b></p>	<p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p>

<p>combined defects.</p> <ol style="list-style-type: none"> <li>3. Understand the anatomy of various posterior vaginal wall defects, including rectocele, perineal descent, and posterior enterocele.</li> <li>4. Understand the anatomy of different perineal defects, including bulbocavernosus muscle attenuation, external anal sphincter defects, recurrent fourth degree lacerations, and cloaca.</li> <li>5. Understand the criteria for staging of pelvic organ prolapse according to the International Continence Society (ICS) grading system and how it compares with the other classification systems.</li> <li>6. Perform a pelvic organ prolapse assessment according to the POP-Q guidelines.</li> <li>7. Know the symptoms associated with various types and increasing stage of pelvic organ prolapse</li> <li>8. Recognize the frequent disparity between objective anatomic findings and clinical symptoms</li> </ol>	<p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p>	<p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ, OSCE 1f, 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p>
<p><b>TREATMENT OF PELVIC ORGAN PROLAPSE</b>  Objective: The resident should be able to identify the patient requiring treatment and establish a plan of treatment for the patient with pelvic organ prolapse.</p> <ol style="list-style-type: none"> <li>1. Understand the indications for treatment. K</li> <li>2. Understand the nonsurgical options for treatment, including care and use of pessaries, and administration of vaginal estrogen.</li> <li>3. Understand the possible side effects of nonsurgical treatment, such as infection, ulceration, urinary incontinence or retention associated with pessary use.</li> <li>4. Understand the options for surgical correction by vaginal, abdominal, laparoscopic, and combined routes based on anatomy, functional needs, and health status of the patient. Understand the difference between obliterative and restorative repairs, and the indication for each.</li> <li>5. Know and be able to perform the various operative repairs appropriate to the treatment of pelvic organ prolapse. Understand the relative indications and contra-indications to uterine or cervical preservation in performance of surgical repairs. Understand the traditional</li> </ol>	<p><b>K</b></p> <p><b>K</b></p> <p><b>KH</b></p> <p><b>K</b></p> <p><b>K</b></p>	<p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ, OSATS, SP, KF 2a, 2b</p> <p>MCQ, OSCE &lt; SP 2a, 2b</p>

<p>procedures for uterine suspension. (See .Procedures., page 16)</p> <ol style="list-style-type: none"> <li>6. Understand the outcome and possible complications of surgical correction.</li> <li>7. Be able to counsel the patient on treatment plan, including side-effects, risk, failure, and complications.</li> <li>8. Recognize the economic impact of pelvic organ prolapse in the United States Understand the psychological, social, and sexual impact of pelvic organ prolapse</li> </ol>	<p><b>D</b></p> <p><b>K</b></p> <p><b>K</b></p>	<p>OSCE, SP 1e, 4a, 4b, 2a, 2b, 5a, 5b, 5c</p> <p>MCQ 6a, 6b, 6c</p> <p>MCQ 1e, 5c</p>
<p><b>GRAFTS</b> Objective: The resident should understand the indications for use of grafts materials in pelvic reconstructive surgery, their characteristics and their potential complications.</p> <ol style="list-style-type: none"> <li>1. Understand the categories of graft materials, eg biografts (autografts, allografts, xenografts) and synthetic grafts.</li> <li>2. Understand the vital characteristics of synthetic grafts, eg pore size, mono versus polyfilament, materials type.</li> <li>3. Understand the relative indications for, and complications associated with, each category of grafts.</li> <li>4. Understand the management of graft complications, both surgical and non-surgical.</li> </ol>		
<p><b>FECAL INCONTINENCE</b> Objective: The resident should be able to demonstrate an understanding of the prevalence, etiology, predisposing factors, symptomatology, and management of fecal incontinence.</p> <ol style="list-style-type: none"> <li>1. Understand the different types of fecal incontinence, including anal incontinence, their causes, symptom complexes, physical findings, and distinctions.</li> <li>2. Understand the functional, anatomic, and neurologic abnormalities which may be associated with fecal incontinence. Including the role of stool consistency, colon transit time, anorectal sensation, the coordination of rectal emptying with pelvic floor muscle relaxation, and anorectal muscle tone in the maintenance of fecal control.</li> <li>3. Understand the autonomic and somatic neurologic control of anorectal function.</li> <li>4. Understand the use and limitations of physical</li> </ol>	<p><b>K</b></p> <p><b>K</b></p> <p><b>K</b></p> <p><b>K,D</b></p>	<p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ, OSCE, KF, SP</p>

<p>examination, indications for anal manometry, pudendal nerve terminal motor latencies, anal sphincter electromyography, and radiographic imaging studies.</p>		<p>1a, 1b, 1d, 1f 2a, 2b</p>
<p><b>TREATMENT OF FECAL INCONTINENCE</b></p> <ol style="list-style-type: none"> <li>1. Understand the role of paralytic agents, dietary modification, bulking agents, paralytic agents, pelvic floor physiotherapy, electrical stimulation therapy and enemas used in the management of anorectal incontinence.</li> <li>2. Understand the indications, risks and benefits, and success of various surgical approaches to specific types of fecal incontinence, including overlapping anal sphincteroplasty, gracilis muscle transposition, artificial anal sphincter. Role of newer available surgical options (sacral modulation) in treating patients with fecal incontinence. (Dis Colon Rectum 2004 Aug; 47(8), 1350-7. Indications for diversion colostomy for patients with recurrent fecal incontinence after failed surgery</li> <li>3. Counsel the patient on the cost, risks and benefits and expected outcome for nonsurgical and surgical management of fecal incontinence.</li> <li>4. Recognize the economic impact of fecal incontinence in the United States.</li> <li>5. Understand the psychological, social, and sexual impact of fecal incontinence.</li> </ol>	<p><b>K</b></p> <p><b>K</b></p> <p><b>D</b></p> <p><b>K</b></p> <p><b>K</b></p>	<p>MCQ. OSCE, SP, KF 1a, 1b, 1d, 1f, 2°, 2b</p> <p>MCQ 1a, 1b, 1d, 1f 2a, 2b</p> <p>OSCE, SP 1e, 2a, 2b, 4a, 4b, 5a, 5b, 5c</p> <p>MCQ 6a, 6b, 6c</p> <p>MCQ 1e, 5c</p>
<p><b>GASTROINTESTINAL TRACT FISTULAE</b> Objective: The resident should demonstrate an understanding of the prevalence, etiology, predisposing factors, prevention, recognition, symptomatology, diagnosis and management of gastrointestinal tract fistulae.</p> <ol style="list-style-type: none"> <li>1. Understand factors leading to the formation of gastrointestinal tract fistulae including the role of vaginal delivery, abdominal pelvic surgery, diverticular disease, inflammatory bowel disease, neoplasm and radiation.</li> <li>2. Understand methods of preventing and minimizing the influence of these factors.</li> <li>3. Understand the classification of gastrointestinal tract fistulae including enterocutaneous, enterovaginal, colovesicular, colovaginal, and rectovaginal fistulae and how to identify and diagnose the types.</li> <li>4. Know the clinical presentation of GI tract fistulae.</li> </ol>		

<p>5. Understand the treatment approaches to GI tract fistulae based upon etiology, size and location. Describe the surgical and nonsurgical management of rectovaginal fistulae including how to decide on the approach eg. abdominal, vaginal, transanal, transperineal or a combination. Understand the use of diverting colostomy.</p>		
<p><b>DEFECATION DISORDERS AND CONSTIPATION</b> Objective: The resident should demonstrate an understanding of normal bowel function and how abnormal bowel function relates to other pelvic floor path physiology.</p> <ol style="list-style-type: none"> <li>1. Understand normal bowel function from ingestion to defecation. <b>K</b></li> <li>2. Understand the conditions of constipation, defecation disorder, irritable bowel syndrome, nonrelaxing puborectalis, intussusception and rectal prolapse. <b>K</b></li> <li>3. Understand the relationship between defecation disorders, perineal descent, pelvic organ prolapse, rectal prolapse and neuromuscular function of the pelvis. <b>K</b></li> <li>4. Understand the role of stool consistency, colon transit time, anorectal sensation, the coordination of rectal emptying with pelvic floor muscle relaxation, and anorectal muscle tone in the maintenance of normal bowel function from ingestion to defecation. <b>K</b></li> <li>5. Understand the use of physical examination, anal manometry, pudendal nerve terminal motor latencies, sphincter electromyography, and radiographic imaging studies, including defecography and transit studies, in the evaluation of constipation and defecation disorders. <b>DK</b></li> </ol>		<p>MCQ 2a, 2b</p> <p>MCQ 2a, 2b</p> <p>MCQ 2a,2b</p> <p>MCQ 2a.2b</p> <p>MCQ, OSCE, KF, SP 1a, 1b, 1d, 1f 2a, 2b</p>
<p><b>TREATMENT OF DEFECATION DISORDERS AND CONSTIPATION</b></p> <ol style="list-style-type: none"> <li>1. Understand the non-surgical techniques for prevention and treatment of defecation disorders and constipation, including, bowel stimulating agents, bulking agents, pelvic floor physiotherapy, enemas, dietary modification, promotion of improved bowel habits, and electrical stimulation. <b>K</b></li> <li>2. Counsel the patient on the cost, risks and benefits and expected outcome for nonsurgical and surgical management of constipation. <b>D</b></li> <li>3. Recognize the economic impact of constipation in the United States. <b>K</b></li> </ol>		<p>MCQ, OSCE, SP, KF 2a, 2b</p> <p>OSCE, SP 1e, 2a, 2b, 4a, 4b, 5a, 5b, 5c</p> <p>MCQ 6a, 6b, 6c</p>

<p><b>FEMALE SEXUAL FUNCTION</b></p> <p>Objective: be able to demonstrate an understanding of the normal female sexual function and how abnormal sexual function relates to other pelvic floor pathophysiology.</p> <ol style="list-style-type: none"> <li>1. Understand the normal biologic sexual response in woman as it relates to the genital and extragenital sexual structures.</li> <li>2. Be able to discuss the role of psychological and biological factors in a woman's sexual response.</li> <li>3. Be able to compare and contrast the model by Masters, Johnson and Kaplan to the biopsychosocial model of Basson.</li> <li>4. Understand the role of neurotransmitters and receptors in normal sexual function including estrogen, total and free testosterone, SHBG, DHEA and PDE-5.</li> <li>5. Understand the use of Quality of Life (QOL) questionnaires.</li> <li>6. Understand the affect of pelvic organ prolapse, incontinence and pelvic pain on sexual function.</li> </ol>		
<p><b>FEMALE SEXUAL DYSFUNCTION</b></p> <p>Objective: The resident should demonstrate an understanding of the prevalence, etiologies, predisposing factors, recognition, symptomatology, diagnosis and management of female sexual dysfunction.</p> <ol style="list-style-type: none"> <li>1. Understand the international consensus development conference classification of female sexual</li> <li>2. Understand the treatment approaches to FSD based on the classification.</li> <li>3. Understand the various treatment modalities including psychotherapy, couples counseling, behavioral modification, physical therapy, various devices and lubricants and the indications for pharmacotherapy including its strengths and limitations.</li> <li>4. Be able to take a complete history including sexual, psychosocial and medical and perform a complete physical exam as it relates to sexual function.</li> <li>5. Understand the use and limitations of the physical examination, Quality of Life questionnaires and laboratories tests in the diagnosis and management. Be able to develop an individualized treatment plan including when</li> </ol>		

to refer for further evaluation.		
<p><b>PROCEDURES</b></p> <p><b>URODYNAMIC EVALUATION</b></p> <p><b>OBJECTIVE:</b>  The resident should understand the methodology of the various urodynamic evaluations, the information each can provide, and the limitations attached to each study. He/she should be able to put together a minimum workup for a patient presenting with lower urinary tract complaints. The resident should understand:</p> <ol style="list-style-type: none"> <li>a. terminology</li> <li>b. various methods, instruments, media, and techniques for performing the test</li> <li>c. the information of value to be gleaned from the test</li> <li>d. the limitations of the test</li> <li>e. the differences between static and dynamic use of the method, including performance of the study in various positions</li> <li>f. significant controversies in the interpretation or usefulness of the test when the problem encountered is beyond the scope of the test and what to do next.</li> </ol> <ol style="list-style-type: none"> <li>a. Single channel cystometry</li> <li>a. Multi-channel cystometry</li> <li>b. Profilometry</li> <li>c. Radiography</li> <li>d. Uroflowmetry</li> <li>e. Electromyography</li> <li>f. Endoscopy</li> <li>g. Ultrasonography</li> </ol>	<p>KH</p> <p>D</p> <p>K</p>	
<p><b>PRIMARY ANTI-INCONTINENCE PROCEDURES</b></p> <ol style="list-style-type: none"> <li>1. Understand and perform an open retropubic suspension. Understand the various laparoscopic approaches to retropubic urethropexy. Understand and perform the Tanagho modification.</li> <li>2. Understand the difference between a pubovaginal and mid-urethral sling. Understand and perform a mid-urethral sling, using either a retropubic or trans-obturator approach.</li> <li>3. Understand a urethral bulking procedure.</li> </ol>	<p>D</p> <p>D</p> <p>KH</p>	
<p><b>APICAL VAGINAL SUSPENSION WITH HYSTERECTOMY</b></p> <ol style="list-style-type: none"> <li>1. Understand and perform an open abdominal uterosacral reattachment. Understand the laparoscopic uterosacral reattachment. Understand the various approaches to cul de sac obliteration.</li> <li>2. Understand and perform a vaginal uterosacral suspension. Understand the use of cul de sac obliteration.</li> </ol>	<p>D</p> <p>D</p>	

<ul style="list-style-type: none"> <li>3. Understand an abdominal sacrocolpopexy, using both open and laparoscopic approaches.</li> <li>4. Understand a sacrospinous ligament suspension, using both unilateral and bilateral approaches.</li> <li>5. Understand an iliococcygeus fascia suspension.</li> </ul>	<p><b>KH</b></p> <p><b>KH</b></p> <p><b>KH</b></p>	
<p><b>APICAL VAGINAL SUSPENSION WITH UTERINE SUSPENSION</b></p> <ul style="list-style-type: none"> <li>1. Understand the traditional procedures for uterine suspension, eg round ligament suspension, Manchester procedure, LeFort partial colpocleisis and uteropexy.</li> </ul>	<p><b>KH</b></p>	
<p><b>APICAL VAGINAL SUSPENSION AFTER PRIOR HYSTERECTOMY</b></p> <ul style="list-style-type: none"> <li>1. Understand the vaginal versus abdominal versus combined approaches. Understand the use of cul de sac obliteration and graft augmentation.</li> </ul>	<p><b>KH</b></p>	
<p><b>ANTERIOR COMPARTMENT REPAIRS</b></p> <ul style="list-style-type: none"> <li>1. Understand and perform an anterior colporrhaphy.</li> <li>2. Understand and perform an open abdominal paravaginal repair. Understand a laparoscopic paravaginal repair.</li> <li>3. Understand a vaginal paravaginal repair.</li> </ul>	<p><b>D</b></p> <p><b>D</b></p> <p><b>KH</b></p>	
<p><b>POSTERIOR COMPARTMENT REPAIRS</b></p> <ul style="list-style-type: none"> <li>1. Understand and perform a posterior colporrhaphy, and differentiate from a site specific repair. D</li> <li>2. Understand and perform a perineorrhaphy. D</li> <li>3. Understand a vaginal paravaginal repair. KH</li> <li>4. Understand an external anal sphincteroplasty. Understand a cloaca repair. KH</li> </ul>	<p><b>D</b></p> <p><b>D</b></p> <p><b>KH</b></p> <p><b>KH</b></p>	
<p><b>COLPOCLIESIS</b></p> <ul style="list-style-type: none"> <li>1. Understand a colpocliesis. Understand the difference between a partial and complete colpocliesis.</li> </ul>	<p><b>KH</b></p>	
<p><b>CYSTOSCOPY</b></p> <ul style="list-style-type: none"> <li>1. Understand and perform a cystoscopy. Be able to identify the normal anatomic landmarks, and abnormal lesions. D, KH</li> <li>2. Understand a hydrodistension procedure for Chronic Interstitial Cystitis. KH</li> <li>3. Understand a bladder biopsy. D</li> </ul>	<p><b>DKH</b></p> <p><b>KH</b></p> <p><b>D</b></p>	

<b>URETHRAL DIVERTICULUM</b> 1. Understand the difference between a traditional diverticulum repair and a Spence procedure.	<b>KH</b>	
<b>URINARY TRACT INJURIES</b>  1. Understand and perform the repair of an uncomplicated cystotomy. Understand the repair of a complicated cystotomy.  2. Understand the different approaches to repair of an ureteral injury. Understand the placement of ureteral stents.  3. Understand the repair of a urethral injury.	<b>DKH</b>  <b>KH</b>  <b>KH</b>	
<b>FISTULAE</b> 1. Understand a vesicovaginal fistula repair. 2. Understand a rectovaginal fistula repair. 3. Understand a urethrovaginal fistula repair. 4. Understand ureterovaginal fistula repair. 5. Understand a uterovaginal fistula repair.	<b>KH</b> <b>KH</b> <b>KH</b> <b>KH</b> <b>KH</b>	
<b>CYSTOMETRY</b> 1. Understand and perform a single channel cystometry 2. Understand a multi-channel cystometry	<b>D</b> <b>NH</b>	
<b>PESSARY FITTING</b> 1. Understand and perform pessary fitting.	<b>D</b>	
<b>SELF CATHERIZATION</b> 1. Understand and perform/be able to teach	<b>D</b>	

## References

### Anatomy

1.  
DeLancey JOL: Structural aspects of the extrinsic continence mechanism. Obstetrics and Gynecol. 72:91, 1988.
2.  
DeLancey JOL: Pubovesical ligament: A separate structure from the urethral supports (pubourethral ligaments). Neurology Urodynam 8:57, 1989.
3.  
DeGroat WC: Anatomy and physiology of the lower urinary tract. Urol Clin North Am 20:383-401, 1993.
4.  
Webster C and Brubaker L. Normal pelvic floor physiology. Obstet and Gynecol Clin North Am 25:707-722. 1998.
5.  
Elbadawi A. Neuromorphologic basis of vesicourethral function. I. Histochemistry, ultrastructure, and function of intrinsic nerves of the bladder and urethra. Neruourol Urodyn 1:3, 1982.

6.  
Chai TC and WD Steers. Neurophysiology of Micturition and Continence in Women. *Int Urogynecol J* 8:85-97. 1997.
7.  
Strohbehn K. Normal pelvic floor anatomy. *Obstet and Gynecol Clin of North Am* 25: 683-706, 1998.
8.  
Aronson MP, Lee RA, Berquist TH. Anatomy of the and related structures in continent women studied with magnetic resonance imaging. *Obstet and Gynecol* 76:846-851, 1990.
9.  
DeLancey JOL. Anatomic aspects of vaginal eversion after hysterectomy. *Am J Obstet Gynecol* 166: 1717-1728, 1992.
10.  
Nichols DH, Milley PS, Randall CL. Significance of restoration of the supportive structures of normal vaginal depth and axis. *Obstet Gynecol* 36:251-256, 1970.
11.  
DeLancey JOL. Three-dimensional analysis of urethral support: The .hammock. hypothesis.. *Neurourol Urodyn* 11:306-308, 1992.

#### Definition of Terms

1.  
Abram P, Cardozo L, Fall M, et al. The Standardization of Terminology of Lower Urinary Tract Function: Report from the Standardization Sub-Committee of the International Continence Society. *Neurourology and Urodyn* 21:167-178, 2002.

#### Epidemiology of Pelvic Floor Dysfunction Etiology, Inciting and Promoting Factors

1.  
Olsen AL, Smith VJ, Bergstrom JO, Clark AM. Epidemiology of surgically managed pelvic organ prolapse and urinary incontinence. *Obstet and Gynecol* 89:501-506,1997.
2.  
Mant J, Painter, Vessey M. Epidemiology of genital prolapse: Observation from the Oxford Family Planning Association Study. *Br J Obstet Gynecol* 104:579-585,1997.
3.  
Smith ARB, Hosker GL, Warrell DW. The role of partial denervation of the pelvic floor in the etiology of genitourinary prolapse and stress incontinence of urine: A neurophysiologic study. *Br J Obstet Gynecol* 96:24-28,1989.
4.  
Diokno AC, Brock BM, Brown MB, et al: Prevalence of urinary incontinence and other urological symptoms in the noninstitutionalized elderly. *J Urol* 136:1022-1025, 1986.
5.  
Fantl JA, Bump RC, Elser DM, et al. Efficacy of estrogen supplementation in the treatment of urinary incontinence. *Obstet Gynecol* 88:745-740,1996.

6.  
Sultan AH, Kamm MA, Hudson CN, et al. Anal-sphincter disruption during vaginal delivery. *N Engl J Med* 329:1905-1911, 1993
7.  
Wilson L, Brown JS, Shin GP et al: Annual direct cost of urinary incontinence. *Obstet Gynec* 98:398-406, 2001.
8.  
Thomas Tm, Plymat KR, Blannin J et al: Prevalence of urinary incontinence. *BMJ* 281:1231-1245, 1980.
9.  
Bump RC and Norton PA, Epidemiology and Natural History of Pelvic Floor Dysfunction. *Obstet and Gynecol Clin of N Am.*25:723, 1998.
10.  
Herzog AR, Fultz NH: Prevalence and incidence of urinary incontinence in community-dwelling populations. *J Am Geriatr Soc* 38:273, 1990.
11.  
Brown JS, Seeley DG, Fong J, et al: Urinary Incontinence in older women: who is at risk? *Obstet Gynecol* 87: 715,1996.
12.  
Fultz NH, Herzog AR, Raghunathan TE, Wallace RB, Diokno AC. Prevalence and severity of urinary incontinence in older African American and Caucasian women. *J Gerontol*: 54A(6): M1-5; 1999.
13.  
Thom DH, Brown JS. Reproductive and hormonal risk factors for urinary incontinence in later life: a review of the clinical and epidemiologic literature. *J Am Geriatr Soc* 1998; 46:1411-7.

14.

Bump RC, Sugerman HJ, Fantl JA et al. Obesity and the lower urinary tract function in women: effect of surgically induced weight loss. *Am J Obstet Gynecol* 167:392, 1992.

15.

Farrell SA, Allen VM, Baskett TF. Parturition and Urinary Incontinence in Primiparas. *Obstet Gynecol.* 97:350; 2001.

16.

Luber K, Choe JY, Boero S. Demographics and distribution of disease among women seeking care for incontinence and prolapse; current observations and future projections. *Int Urogynecol J* 1999; 10(2):S10.

17.

Snooks SJ, Swash M. Abnormalities of innervation of the urethral striated sphincter musculature in incontinence. *Br J Urol* 1984;56: 401-5.

#### Evaluation of Pelvic Organ Prolapse

1.

Baden WF, Walker TA. Genesis of the vaginal profile: A correlated classification of vaginal relaxation. *Clin Obstet Gynecol* 15:1048-1054, 1972.

2.

Bump RC, Mattiason A, Bo K, Brubaker LT, et al. The standardization of terminology of female pelvic floor dysfunction. *Am J Obstet Gynecol* 175:10-17, 1996.

3.

Cundiff GW, Harris RL, Coates KW et al. Clinical predictors of urinary incontinence in women. *Am J Obstet Gynecol* 177:2620-2666, 1997.

4.

Swift SE, Herring M. Comparison of pelvic organ prolapse in the dorsal lithotomy compared with the standing position. *Obstet Gynecol* 91:961-964, 1998.

5.

Shull BL. Pelvic organ prolapse: anterior, superior, and posterior vaginal segment defects. *Am J Obstet Gynecol* 181:6-11, 1999.

#### Evaluation of Urinary Incontinence

1.

Fantl JA, Newman DK, Colling J, DeLancey JO, Keeys C, Loughery R., et al. Urinary incontinence in adults: acute and chronic management. *Clinical Practice Guidelines no.2, 1996 update*. Rockville, Maryland: Agency for Health Care Policy and Research, U.S. Department of Health and Human Services, Public Health Service, 1996 March; AHCPR publications no. 96-0682.

2.

Brubaker L. Initial assessment: the history in women with pelvic floor problems. *Clin Obstet Gynecol* 41:657;1998.

3.

Uebersax JS, Wyman JF, Shumaker SA, McClish DK, Fantl JA, and the Continence Program for Women Research Group. Short Forms to Assess Life

Quality and Symptom Distress for Urinary Incontinence in Women: The Incontinence Impact Questionnaire and the Urogenital Distress Inventory. *Neurourology and Urodynamics* 14:131;1995.

4.

Diokno AC, Wells TJ, Brink CA. Comparison of self-reported voided volume with cystometric bladder capacity. *J Urol* 137:698; 1987.

5.

Larson G, Victor A. The frequency-volume chart in stress incontinent women. *Neurourol Urodyn* 1:23; 1992.6.

6.

Wyman JF, Choi SC, Harkins SW et al. The urinary diary in evaluation of urinary incontinence: a test retest analysis. *Obstet Gynecol* 71:82:1988.

7.

Howard D, DeLancey JOL, Tunn R, Ashton-Miller JA. Racial Differences in the structure and function of the stress urinary incontinence mechanism in women. *Obstet Gynec* 95:713, 2000.

8.

Kadar N. The value of bladder filling and the clinical detection of urine loss and selection of patients for urodynamic testing. *Br J Obstet Gynecol* 95:698;1988.

9.

Nygaard I, Holcomb R. Reproducibility of the seven-day voiding diary in women with stress incontinence. *Int Urogynecol J* 11:15, 2000.

10.

Sand PK, Brubaker LT, Novak T. Standing incremental cystometry as a screening method for detrusor instability. *Obstet Gynecol* 77:453; 1991.

11.

McGuire EJ, Fitzpatrick CC, Wan J, et al. Clinical assessment of urethral sphincter function. *J Urol* 150:1452;1993.

12.

Sorenson S, Gregersen H, Sorensen SM: Long term reproducibility of urodynamic investigations in healthy fertile females. *Scand J Urol Nephrol* 114:35, 1988.

12.

Weber AM, Walters MD. Cost-effectiveness of urodynamic testing before surgery for women with pelvic organ prolapse and stress incontinence. *Am J Obstet Gynecol* 183:1338-46, 2000.

13.

Weber AM, Taylor RJ, Wei JT, Lemack G, Piedmonte MR, Walters MD. The cost-effectiveness of preoperative testing (basic office assessment vs. urodynamics) for stress incontinence. *BJU Int* 89:356-363, 2002.

14.

Weidner AC, Myers ER, Visco AG, Cundiff GW, Bump RC. Which women with stress incontinence require urodynamic evaluation? *Am J Obstet Gynecol* 184:20-27, 2001.

15.

Videla FL, Wall LL. Stress incontinence diagnosed without multichannel urodynamic studies. *Obstet Gynecol* 91:965-968, 1998.

16.

Summit RL, Stovall TG, Bent AE, Ostergard DR. Urinary incontinence: correlation of history and brief office evaluation with multichannel urodynamic testing. *Am J Obstet Gynecol* 166:1835-40, 1992.

## Burch Colposuspension and Paravaginal Repair For Stress Urinary Incontinence

1. Richardson AC, Edmonds PB, Williams NL. Treatment of stress urinary incontinence due to paravaginal defect. *Obstet Gynecol* 57:357-362, 1981.
2. Shull BL and Baden WF. A six-year experience with paravaginal defect repair for stress urinary incontinence. *Am J Obstet Gynecol* 160:1432-1439, 1989.
3. Burch JC. Cooper's ligament urethrovesical suspension for stress incontinence: Nine years experience- results, complications, technique. *Am J Obstet Gynecol* 100:764-774, 1968.
4. Tanagho EA: Colpocystourethropexy: The way we do it. *J Urol* 116:751-753, 1976.
5. Bergman A, Elia G. Three surgical procedures for genuine stress incontinence: Five-year follow-up of a prospective randomized study. *Am J Obstet Gynecol* 173:66-71, 1995.
6. Colombo M, Milani R, Vitobello D, Maggioni A. A randomized comparison of Burch colposuspension and abdominal paravaginal defect repair for female stress urinary incontinence. *Am J Obstet Gynecol* 175:78-84, 1996.

## Intrinsic Sphincter Deficiency Pubovaginal Slings

1. Sand PK, Bowen LW, Panganiban R, et al. The low pressure urethra as a factor in failed retropubic urethropexy. *Obstet Gynecol* 69:399-402, 1987.
2. Theofrastous JP, Bump RC, Elser DM, et al. Correlation of valsalva leak point pressures and urethral pressure profilometry variable with measures of incontinence severity in women with genuine stress incontinence. *Am J Obstet Gynecol* 173:407-414, 1995.
3. Young SB, Rosenblatt PL, Pingeton DM, et al. The mersilene mesh suburethral sling: A clinical and urodynamic evaluation. *Am J Obstet Gynecol* 173:1719-1726, 1995.
4. Leach GA, Dmochowski RR, Appell RA, et al: Female stress urinary incontinence clinical guidelines panel summary report on surgical management of female stress urinary incontinence. *J. Urol* 158:875-880, 1997.
5. Fenner DE. New Surgical Mesh. *Clinical Obstet and Gynecol* 43:650-658, 2000.
6. Govier FE, Gibbons RP, Correa RJ, et al: Pubovaginal slings using fascia lata for the treatment of intrinsic sphincter deficiency. *J Urol* 157:117-121, 1997.
- 7.

O.Reilly KJ and Govier FE. Intermediate term failure of pubovaginal slings using cadaveric fascia lata: a case series. J Urol 167:1356-1358, 2002.

#### Tension Free Vaginal Tape

1.  
Ulmsten U and Petros P. Intravaginal slingplasty (IVS): An Ambulatory Surgical Procedure for Treatment of Female Urinary Incontinence. Scand J of Urol Nephrol 29:75-82,1995.
2.  
Ulmsten U, Falconer C, Johnson P, Jomaa M, Lanner L, Nilsson CG, Olsson I. A multicenter study of tension-free vaginal tape (TVT) for surgical treatment of stress urinary incontinence. Int Urogynecol J Pelvic Floor Dysfunct 9:210-3, 1998
3.  
Olsson I, Kroon U. A three-year postoperative evaluation of tension-free vaginal tape. Gynecol Obstet Invest 48:267-9,1999
4.  
Mutone N, Mastropietro M, Brizendine E, Hale D. Effect of tension-free vaginal tape procedure on urodynamic continence. Obstet Gynecol. 98:638-645. 2001
5.  
Rezapur M, Falconer C, Ulmsten U. Tension free vaginal tape in stress incontinent women with intrinsic sphincter deficiency- a long-term follow-up. Int Urogynecol J Pelvic Floor Dysfunct. Suppl2:S15-18, 2001.

#### Anterior Colporrhaphy for Repair of Anterior Wall Defects

1.  
Weber AM, Walters MD, Piedmont MR, Ballard LA. Anterior Colporrhaphy: a randomized trial of three surgical techniques. Am J Obstet Gynecol 185:1304-1306, 2001.
2.  
Flood CG, Drutz HP, Waja L. Anterior colporrhaphy reinforced with Marlex mesh for the treatment of cystoceles. Int Urogynecol J Pelvic Floor Dyfunct 9:200-204. 1998.
3.  
Weber AM and Walters MD. Anterior vaginal prolapse: review of anatomy and techniques of surgical repair. Obstet Gynecol 89:311-318, 1997.
4.  
Shull BL, Benn SJ, Kuehl TJ. Surgical management of prolapse of the anterior vaginal segment: an analysis of support defects, operative morbidity, and anatomic outcome. Am J Obstet Gynecol. 171:1429-36, 1994.

### Sacrospinous Ligament Suspension and McCall's Culdoplasty

1.  
McCall ML: Posterior culdoplasty: surgical correction of enterocele during vaginal hysterectomy: a preliminary report. *Obstet Gynecol* 10:595-598, 1957.
2.  
Webb MJ, Aronson MP, Ferguson LK, Lee RA. Posthysterectomy vaginal vault prolapse: Primary repair in 693 patients. *Obstet Gynecol* 92:281-285, 1998.
3.  
Colombo M, Milani R. Sacrospinous ligament fixation and modified McCall Culdeplasty during vaginal hysterectomy for advanced uterovaginal prolapse. *Am J Obstet Gynecol* 179:13-20, 1998.
4.  
Morley GW, DeLancey JOL. Sacrospinous ligament fixation for eversion of the vagina. *Am J Obstet Gynecol* 158:872-881, 1988.
5.  
Nichols DH. Sacrospinous ligament fixation for vaginal eversion after hysterectomy. *Am J Obstet Gynecol* 142:901-904, 1982.

### Uterosacral Ligament Suspension

1.  
Shull BL, Bachofen C., Coates KW, Kuehl TJ. A transvaginal approach to repair of apical and other associated sites of pelvic organ prolapse with uterosacral ligaments. *Am J Obstet Gynecol.* 183:1356-1373, 2000.
2.  
Coates KW, Kuehl TJ, Bachofen CG, Shull BL. Analysis of surgical complications and patient outcomes in a residency training program. *Am J Obstet Gynecol* 184:1383-1385, 2001.
3.  
Barber MD, Visco AG, Weidner AC, Amundsen CL, Bump RC. Bilateral uterosacral ligament vaginal vault suspension with site-specific endopelvic fascia defect repair for treatment of pelvic organ prolapse. *Am J Obstet Gynecol* 183:1402-1410, 2000.

### Abdominal Sacrocolpopexy

1.  
Timmons MC, Addison WA et al. Abdominal Sacral Colpopexy in 163 women with posthysterectomy vaginal vault prolapse and enterocele. *J of Reprod Med.* 37:323-326, 1992.
2.  
Given FT, Muhlendorf IK, and Browning GM. Vaginal length and sexual function after colpopexy for complete uterovaginal eversion. *Am J Obstet Gynecol* 169:284-288, 1993.
3.  
Cundiff GW, Harris RL, Coates KW et al. Abdominal sacral colpoperniopy: A new approach for correction of posterior compartment defects and perineal descent associated with vaginal vault prolapse. *Am J Obstet Gynecol* 177:1345-1355, 1997.

4. Visco AG, Weidner AC, Barber MD et al. Vaginal mesh erosion after abdominal sacral colpopexy. *Am J Obstet Gynecol*. 184:297-302, 2001.

#### Posterior Colporrhaphy

1. Weber AM, Walters MD, Ballard LA, Booher DL, Piedmonte MR. Posterior vaginal prolapse and bowel function. *Am J Obstet Gynecol* 179:1446-9, 1998
2. Kahn MA, Stanton SL. Posterior colporrhaphy: its effects on bowel and sexual function. *Br J Obstet Gynaecol*. 104:82-6. 1997.
3. Mellgren A, Anzen B, Nilsson BY, Johansson C, Dolk A, Killgren P, Bremmer S, Holmstrom B. Results of rectocele repair. A prospective study. *Dis Colon Rectum* 38:7-13, 1995.
4. Cundiff GW, Weidner AC, Visco AG, Addison WA, Bump RC. An anatomic and functional assessment of the discrete defect rectocele repair. *Am J Obstet Gynecol* 179:1451-6, 1998.
5. Kenton K, Shott S, Brubaker L. Outcome after rectovaginal fascia reattachment for rectocele repair. *Am J Obstet Gynecol* 181:1360-3, 1999.
6. Porter WE, Steele A, Walsh P, Kohli N, Karram MM. The anatomic and functional outcomes of defect-specific rectocele repairs. *Am J Obstet Gynecol* 181:1353-8, 1999.

#### Prolapse Surgery and Sexual Function

1. Paraiso MFR, Ballard LA, Walters MD, et al. Pelvic support defects and visceral and sexual function in women treated with sacrospinous ligament suspension and pelvic reconstruction. *Am J Obstet Gynecol* 175:1423-1431, 1993.
2. Weber AM, Walters MD, Piedmonte MR. Sexual function and vaginal anatomy before and after surgery for pelvic organ prolapse and urinary incontinence. *Am J Obstet Gynecol* 182:1610-1615, 2000.
3. Rogers BR, Kakmerer-Doak D, Vellarreal A, Coates K, Qualls C. A new instrument to measure sexual function in women with urinary incontinence and/or pelvic organ prolapse. *Int. Urogynecology J Pelvic Floor Dyfunct* 184:552-558, 2001.
4. Rogers GR, Villarreal A, Kammerer-Doak, Qualls C. Sexual function in women with and without urinary incontinence and/or pelvic organ prolapse. *Int Urogynecol J Pelvic Floor Dysfunction*. 12:361-365, 2001.

## Pathophysiology and Evaluation of Fecal Incontinence

1.  
Kiff ES, Swash M. Slowed conduction in the pudendal nerves in idiopathic (neurogenic) fecal incontinence. *Br J Surg*; 71: 614-6, 1984.
2.  
Rockwood TH, Church JM, Fleshman JW et al. Fecal Incontinence Quality of Life Scale: quality of life instrument for patients with fecal incontinence. *Dis Colon Rectum* 42: 1525-1532, 1999.
3.  
Donnelly VS, O'Herlihy C, Campbell DM, O'Connell PR. Postpartum fecal incontinence is more common in women with irritable bowel syndrome. *Dis Colon Rectum* 41: 586-589, 1998.
4.  
Keating JP, Stewart PJ, Evers AA, et al. Are special investigations of value in the management of patients with fecal incontinence? *Dis Colon Rectum* 40: 896-901, 1997.
5.  
Rieger NA, Wattochow DA, Sarre RG, et al. Prospective trial of pelvic floor retraining in patients with fecal incontinence. *Dis Colon Rectum*: 40: 821-6, 1997.
6.  
Jorg JMN, Wexner SD. Etiology and management of fecal incontinence. *Dis Colon Rectum* 36: 77, 1993

## Overlapping Anal Sphincterplasty

1.  
Fleshman JW, Peters WR, Shemesh EI, Fry FD, Kodner IF. Anal sphincter reconstruction: Anterior overlapping muscle repair. *Dis Colon Rectum* 1992; 34: 739-43.
2.  
Wexner SD, Marchetti F, Jagelman DG. The role of sphincteroplasty for fecal incontinence reevaluated: a prospective physiologic and functional review. *Dis Colon Rectum* 1996; 34: 22-30.
3.  
Gilliland R, Altomere DF, Moreira H et al. Pudendal neuropathy is predictive of failure following anterior overlapping sphincterplasty. *Dis Colon Rectum* 41: 1516-1522, 1998.
4.  
Malouf AJ, Norton CS, Engel AF, Nicholls RJ, Kamm MA. Long-term results of overlapping anterior anal-sphincter repair for obstetric trauma. *Lancet* 355: 260-265, 2000.
5.  
Wong WD, Jensen LL, Bartolo DC, Rothenberger DA. Artificial anal sphincter. *Dis Colon Rectum* 1996; 33: 1345-51

## Non-Surgical Management of Urinary Incontinence

1. Godec CJ. Timed voiding: a useful tool in the treatment of urinary incontinence. *Urology*; 23:97;1994.
2. Dougherty M, Bishop K, Mooney R et al. Graded pelvic muscle exercise. Effect on stress urinary incontinence. *J Reprod Med* 39:684;1993.
3. Wyman JF, Fantl JA. Bladder training in ambulatory care management of urinary incontinence. *Urol Nursing* 11; 11, 1991.
4. Miller JM, Aston-Miller JA, DeLancey JOL. A pelvic muscle precontraction can reduce cough-related urine loss in selected women with mild SUI. *J of the American Geriatric Society*, 46:870, 1998.
5. Bo K, Larsen S. Pelvic floor muscle exercise for the treatment of female stress urinary incontinence: classification and characterization of responders. *Neurourol Urodyn* 11:492, 1992.
6. Nygaard IE, Kreder KJ, Lepic MM, et al. Efficacy of pelvic floor muscle exercise in women with stress, urge, and mixed incontinence. *Am J Obstet Gynecol* 174:120, 1996.
7. Peattie AB, Plevnik S, Stanton SL. Vaginal cones: a conservative method of treating stress incontinence. *Br J Obstet Gynaecol* 95:1049, 1988.
8. Sand PK, Richardson DA, Staskin DR, et al. Pelvic floor electrical stimulation in the treatment of stress incontinence: a multicenter, placebo-controlled trial. *Am J Obstet Gynecol* 173:72, 1995.
9. Brubaker L, Benson JT, Bent A, et al. Transvaginal electrical stimulation for female urinary incontinence. *Am J Obstet Gynecol* 177:536, 1997.
10. Diokno AC, Lapidus J. Oxybutynin: a new drug with analgesic and anticholinergic properties. *J Urol* 108:308, 1977.
11. Abrams P, Freeman R, Anderstrom C, et al. Tolterodine, a new antimuscarinic agent: as effective but better tolerated than oxybutynin in patients with an overactive bladder. *Br J Urol* 81:801, 1998.

## Surgical Management of Urinary Incontinence/Randomized trials and consensus papers

1. Leache GE, Dmochowski RR, Appell RA, Blaivas JG, Hadley HR, Luber KM, Mostwin JL, O'donnell PD, Roehrborn CG. Female stress urinary incontinence clinical guidelines panel summary report on surgical management of female stress urinary incontinence. *J Urol* 158(3): 875, 1997.

2.  
Black NA, Downs SH. The effectiveness of surgery for stress incontinence in women: a systematic review. *Br J Urology* 78: 497, 1996.
3.  
Iosif CS. Results of various operations for urinary stress incontinence. *Arch Gynecol* 233:93, 1983.
4.  
Van Geelen JM, Theeuwes AGM, Eskes TKAB, Martin C. The clinical and urodynamic effects of anterior vaginal repair and Burch colposuspension. *Am J Obstet Gynecol* 1:137, 1988.
5.  
Beck RP, McCormick S, Nordstrom L. A 25-year experience with 519 anterior colporrhaphy procedures. *Obstet Gynecol* 78:1001, 1991.
6.  
Tanagho EA. Colpocystourethropexy: The way we do it. *J Urol* 116:751, 1976.
7.  
Bergman A, Elia G: Three surgical procedures for stress urinary incontinence: five-year follow-up of a prospective randomized trial, *Am J Obstet Gynecol* 173:66, 1995.
8.  
Columbo M, Scalabrino S, Maggioni A, et al. Burch colposuspension versus Marshall-Marchetti-Krantz urethropexy for primary stress urinary incontinence: A prospective randomized clinical trial. *Am J Obstet Gynecol* 171:1573, 1994.
9.  
Columbo M, Milani R, Vitobello D, Maggioni A. A randomized comparison of Burch colposuspension and abdominal paravaginal defect repair for female stress urinary incontinence. *J Urol* 158:875, 1997.
10.  
Bowen LW, Sand PK, Ostergard DR. Unsuccessful Burch retropubic urethropexy: A case-controlled urodynamic study. *Am J Obstet Gynecol*. 160, 452, 1989.
11.  
Wiskind AK, Creighton SM, Stanton SL. The incidence of genital prolapse after the Burch colposuspension. *Am J Obstet Gynecol* 167: 399, 1992.
12.  
Shull BL. Baden WF. A six-year experience with paravaginal defect repair for stress urinary incontinence. *Am J Obstet Gynecol* 160:1432, 1989.
13.  
Ross JW: Laparoscopic Burch repair compared to laparotomy Burch for cure of urinary stress incontinence. *In Urogynecol J* 6:323, 1995.
14.  
Marinkovic S, Mian H, Evanlovich M, Poplawsky D, Novi J, Frey C, Yap W. Analysis of early outcome: Burch procedure versus pubovaginal sling. *Int Urogynecol J and Pelvic Floor Dysfunc* 9:94, 1998.
- 15.

Enzelsberger H, Helmer H, Schatten C. Comparison of Burch and Iyodura sling procedures for repair of unsuccessful incontinence surgery. *Obstet Gynecol* 88:251, 1996.

16.

Appell RA. Primary slings for everyone with stress incontinence? The argument for. *Int Urogynecol J and Pelvic Floor Dysfunc* 9:249, 1998.

17.

Chaikin DC, Rosenthal J, Blaivas JG. Pubovaginal fascial sling for all types of stress urinary incontinence: long-term analysis. *J Urol* 160:1312, 1998.

18.

Cross CA, Cespedes RD, McGuire EJ. Our experience with pubovaginal slings in patients with stress urinary incontinence. *J Urol* 159:1195, 1998.

19.

Breen JM, Geer BE, May GE. The fascia lata suburethral sling for treating recurrent urinary stress incontinence. *Am J Obstet Gynecol*;177(6):1363, 1997.

20.

Kreder KJ and Austin JC. Treatment of stress urinary incontinence in women with urethral hypermobility and intrinsic sphincter dysfunction. *J Urol* 156:1995, 1996.

21.

Nilsson CG, Kuuva N, Falconer C, Rezapour M, Ulmsten U. Long-term results of the tension-free vaginal tape (TVT) procedure for surgical treatment of female stress urinary incontinence. *Int Urogynecol J* S5-S8, 2001.

22.

Gorton E., Stanton S., Monga A, Wiskind AK, Lentz GM, Bland DR. Periurethral collagen injection: a long-term follow-up study. *Br J Urol* 84:966, 1999.

23.

Diokno AC, Hollander JB, Alderson TP. Artificial urinary sphincters for recurrent female urinary incontinence: indications and results. *J Urol* 137:778, 1987.

#### Pelvic Floor disorders in Pregnancy

1.

O.Boyle AL, Davis GD, Calhoun BC. Informed consent and birth: Protecting the pelvic floor and ourselves. *Am J Obstet Gynecol*. 2002;187:981-983.

2.

Cook TA, Mortensen NJM. Management of Faecal Incontinence Following Obstetric Injury. *Br J Surg*.1998;85; 293-299.

3.

Sultan AH, Kamm MA, Hudson CN, Bartram CI. Third Degree obstetric anal sphincter tears: risk factors and outcomes of primary repair. *BMJ* 1994; 308:887-890.

4.

Varma A, Gunn J, Gardiner A, Lindow S, Duthie G. Obstetrical Anal Sphincter Injury: Prospective Evaluation and Incidence. *Dis Colon Rectum* 1999;42:1537-43.

5.

Thorp JM, Norton PA, Wall LL, et al. Urinary Incontinence in pregnancy and the puerperium: A prospective study. *Am J Obstet Gynecol* 1999; 181: 266-73.

6.

Viktrup L. The symptom of stress incontinence caused by pregnancy or delivery in primiparas. *Obstetrics and Gynecology* 1992; 79(6): 945-9.

7.

Viktrup L, Lose G. The risk of stress incontinence 5 years after first delivery. *American Journal of Obstetrics and Gynecology* 2001; 185: 82-7.

8.

Snooks SJ, Swash M, Mathers SE, Henry MM. Effect of vaginal delivery on the pelvic floor: a 5-year follow-up. *British Journal of Surgery* 1990; 77: 1358-1360.

9. Persson J, Wolner-hanssen P, Rydhstroem H. Obstetric risk factors for stress urinary incontinence: A Population-based study. *Obstetrics and gynecology* 2000; 96: 440-5.
10. Signorelo LB, Harlow BL, Chekos A, Repke JT. Postpartum sexual functioning and its relationship to perineal trauma: A retrospective cohort study of primiparous women. *American Journal of Obstetrics and Gynecology* 2001; 184(%): 881-890.
11. Glazener CMA. Sexual Function after childbirth: women.s experiences, persistent morbidity and lack of professional recognition. *British Journal of obstetrics and Gynaecology* 1997; 104: 330-335.
12. Klein MC, Gauthier RJ, Robbins JM, et al. Relationship of episiotomy to perineal trauma and morbidity, sexual dysfunction, and pelvic floor relaxation. *Am J Obstet Gynecol* 1994; 171: 591-598.
13. Lundquist M, Olsson A, Nissen E, Norman M. Is it necessary to suture all lacerations after a vaginal delivery? *Birth* 2002; 27(2): 79-85.
14. Gordon B, Mackrodt C, Fern E, et al The Ipswich Childbirth study: 1. A randomized evaluation of two stage postpartum perineal repair leaving the skin unsutured. *British Journal of Obstetrics and Gynaecology* 1998; 105: 435-44.
15. Sangalli MR, Marti MC. Results of sphincter repair in postobstetric fecal incontinence. *J Am Coll Surg* 1994; 179: 583-586.
16. Fischman, SH, Rankin, EA, Soeken KL, and Lenz, ER. Changes in sexual relationships in postpartum couples. *JOGN Nursing* 1986; 15:58-63.
17. Grand A. The choice of suture materials and techniques for repair of perineal trauma: an overview of the evidence from controlled trials. *Brit J Obstet Gynaecol* 1989; 96: 1281-1289.
18. Ketcham KR, Pastorek JG, Letellier RL. Episiotomy Repair: Chromic versus polyglycolic acid suture. *S Med J* 1994; 87: 514-517.
19. Kettle C, Jahanson RB. Absorbable synthetic suture material for perineal repair (Cochrane Review). *The Cochrane Library, Issue 4, 2000. Oxford: Update Software.*

#### Interstitial Cystitis

1. N'Dow JM, Dublin N, Cody DJ, Neal DE, Grant AM. Urinary diversion and bladder reconstruction/replacement using intestinal segments for intractable incontinence or following cystectomy (Protocol for a Cochrane Review). In: *The Cochrane Library, Issue 4, 2002. Oxford: Update Software.*

2.  
Peters KM. The diagnosis and treatment of interstitial cystitis. *Urologic Nursing*. 2000;20(2):101-7, 131.
3.  
Bjerklund Johansen TE, Weidner W. Understanding chronic pelvic pain syndrome. *Current Opinion in Urology*. 2002;12(1):63-7.
4.  
Rosamilia A, Dwyer PL, Dwyera PL. Pathophysiology of interstitial cystitis. *Current Opinion in Obstetrics & Gynecology*. 2000;12(5):405-100.
5.  
Sant GR, Theoharides TC. Interstitial cystitis. *Current Opinion in Urology*. 1999;9(4):297-302.
6.  
Rosamilia A, Dwyer PL. Interstitial cystitis and the gynecologist. *Obstetrical & Gynecological Survey*. 1998;53(5):309-19
7. Hanno P, Keay S, Moldwin R, Van Ophoven A, International Consultation on IC - Rome, September 2004/Forging an International Consensus: progress in painful bladder syndrome/interstitial cystitis. Report and abstracts, *Int Urogynecol J Pelvic Floor Dysfunct* 2005 Jun;16 Suppl 1:S2-S34.

#### **Graft Materials**

1. Davila GW, Drutz H, Deprest J, Clinical implications of the biology of grafts: conclusions of the 2005 IUGA Grafts Roundtable, *Int Urogynecol J Pelvic Floor Dysfunct* 2006 Jun;17 Suppl 1:S51-5.
2. Dwyer PL, Evolution of biological and synthetic grafts in reconstructive pelvic surgery, *Int Urogynecol J Pelvic Floor Dysfunct* 2006 Jun;17 Suppl 1:S10-5.
3. Deprest J, Fang Z, et al, The biology behind fascial defects and the use of implants in pelvic organ prolapse repair, *Int Urogynecol J Pelvic Floor Dysfunct* 2006 Jun;17 Suppl 1:16-25
4. Huebner M, Hsu Y, Fenner DE, The use of grafts materials in vaginal pelvic floor surgery, *Int J Gynaecol Obstet* 2006 Mar;92(3):279-88
5. Silva WA, Karram MM, Scientific basis for use of grafts during vaginal reconstructive procedures, *Curr Opin Obstet Gynecol*, 2005 Oct;17(5):519-29.
6. Culligan PJ, Blackwell L, Goldsmith LJ, Graham CA, Rogers A, Heit MH, A randomized controlled trial comparing fascia lata and synthetic mesh for sacral colpopexy, *Obstet Gynecol*. 2005 Jul;106(1):29-37
7. Paraiso MF, Barber MD, Muir TW, Walters MD, Rectocele repair: a randomized trial of three surgical techniques including graft augmentation, *Am J Obstet Gynecol*. 2006 Dec;195(6):1762-71.
8. Gandhi S, Goldberg RP, Kwon C, Koduri S, Beaumont JL, Abramov JL, Sand PK, A prospective randomized trial using solvent dehydrated fascia lata for the prevention of recurrent anterior vaginal wall prolapse. *Am J Obstet Gynecol*. 2005 May;192(5):1649-54.

## **Pelvic Prolapse and Pessary Use**

1. Heit M, Rosenquist C, Culligan P, Graham C, Murphy M, Shott S, Predicting treatment choices for patients with pelvic organ prolapse, *Obstet Gynecol* 2003; 101:1279-84.
2. Brincat C, Kenton K, Pat Fitzgerald M, Brubaker L, Sexual activity predicts continued pessary use, *Am J Obstet Gynecol*, 2004 Jul; 191(1):198-200.
3. Adams E, Thomson A, Maher C, Hagen S, Mechanical devices for pelvic organ prolapse in women, *Cochrane Database Syst Rev*, 2004; (2):CD004010.
4. Clemons JL, Aguilar VC, Sokol ER, Jackson ND, Myers DL, Characteristics that are associated with continued pessary use versus surgery after 1 year, *Am J Obstet Gynecol*, 2004 Jul; 191(1):159-64.
5. Clemons JL, Aguilar VC, Tillinghast TA, Jackson ND, Myers DL, Patient satisfaction and changes in prolapse and urinary symptoms in women who were fitted successfully with a pessary for pelvic organ prolapse, *Am J Obstet Gynecol*, 2004 Apr; 190(4):1025-9.
6. Clemons JL, Aguilar VC, Tillinghast TA, Jackson ND, Myers DL, Risk factors associated with an unsuccessful pessary fitting trial in women with pelvic organ prolapse, *Am J Obstet Gynecol*. 2004 Feb; 190(2):345-50.
7. Mutone MF, Terry C, Hale DS, Benson JT, The short-term success of pessary management of pelvic organ prolapse, *Am J Obstet Gynecol*, 2005 Jul; 193(1):89-94.
8. Barber MD, Walters MD, Cundiff GW, PESSRI Trial Group, Responsiveness of the Pelvic Floor Distress Inventory (PFDI) and Pelvic Floor Impact Questionnaire (PFIQ) in women undergoing vaginal surgery and pessary treatment for pelvic organ prolapse, *Am J Obstet Gynecol*, 2006 May; 194(5):1492-8.
9. Hanson LA, Schulz JA, Flood CG, Cooley B, Tam F, Prolapse and urinary incontinence: patient characteristics and factors contributing to success, *Int Urogynecol J Pelvic Floor Dysfunct*, 2006 Feb; 17(2):155-9.
10. ACOG Practice Bulletin Number 79: Pelvic Organ Prolapse, *Obstet Gynecol*, 2007;