EUROPEAN BOARD EXAMINATION IN UROLOGY

List of Subjects to be Studied

This list contains the subjects to be studied for the EBU examination. One of the objectives of the EBU Accreditation Committee is to define the so-called 'core of knowledge': this is the knowledge that is considered to be essential for proper patient management in Urology.

In order to give guidelines on the extent of knowledge that is required on the subjects mentioned in this list, the following classification will be used.

A For these subjects general knowledge is required for the safe management of patients in general. No specific details on recent experimental studies and developments have to be studied. Specific surgical procedures do not have to be studied.

B For these subjects more basic knowledge is required; the pathophysiology, diagnostic procedures and treatment modalities as well as postoperative care and complications have to be studied.

C These subjects have to be studied in detail, including recent developments as published in internationally recognized urological literature during the last 5 years. In-depth knowledge is required, including embryology, pathophysiology, symptoms, diagnostic procedures, treatment modalities, complications, outcome and follow-up schemes. New developments not yet published or not accepted by the International Urological Community are not part of the examination.

Summary:
A general knowledge required
B more detailed knowledge required
C in-depth knowledge required
CONTENTS

1. History of urology
2. Embryology and normal development of the adrenal gland, kidney and collecting system and genital system
3. Anatomy of and surgical approach to the urogenital system
4. Physiology of the adrenal glands, kidney, collecting system and male reproductive system
5. Clinical examination and diagnostic procedures in urology
6. Pathophysiology of the genitourinary tract
7. Urodynamic investigation
8. Congenital and developmental anomalies of the genitourinary system
9. Adrenal diseases
10. Renovascular hypertension, disorders of renal vessels, renal transplantation
11. Specific and nonspecific infections and inflammatory diseases, including venereal diseases
12. Trauma of the genitourinary tract
13. Urolithiasis
14. Fertility and sexual function (andrology)
15. Benign prostatic hyperplasia
16. Tumours of the genitourinary tract
17. Nononcological and noninfectious diseases of the penis, scrotum, testis, epididymis and spermatic cord
18. Urinary fistulae
19. Urinary diversion and undiversion
20. Uropharmacology
21. Psychological aspects of urological disorders
22. Urological surgery
23. Special nonsurgical techniques in urology
SUBJECTS TO BE STUDIED FOR THE EUROPEAN BOARD EXAMINATION IN UROLOGY

1  HISTORY OF UROLOGY

2  EMBRYOLOGY AND NORMAL DEVELOPMENT OF THE ADRENAL GLAND, KIDNEY 
AND COLLECTING SYSTEM AND GENITAL SYSTEM

3  ANATOMY OF AND SURGICAL APPROACH TO THE UROGENITAL SYSTEM

   3.1 retroperitoneum
   3.2 adrenal glands
   3.3 renal vessels
   3.4 kidney and ureter
   3.5 bladder and urethra
   3.6 prostate and seminal vesicles
   3.7 penis
   3.8 perineum
   3.9 scrotum, testis, epididymis and spermatic cord

4  PHYSIOLOGY OF THE ADRENAL GLANDS, KIDNEY, COLLECTING SYSTEM AND 
MALE REPRODUCTIVE SYSTEM

   4.1 endocrinology of the adrenal glands
   4.2 normal renal physiology (including renin-angiotensin-aldosterone system)
   4.3 physiology and pharmacology of the renal pelvis and ureter
   4.4 physiology of the urinary bladder and urethra (micturition and continence)
   4.5 physiology of male reproduction
      4.5.1 hypothalamic - pituitary function
      4.5.2 spermatogenesis and endocrine function of the testis
      4.5.3 epididymis, vas deferens, prostate and seminal vesicles
      4.5.4 erection and ejaculation

5  CLINICAL EXAMINATION AND DIAGNOSTIC PROCEDURES IN UROLOGY

   5.1 initial evaluation
      5.1.1 history
      5.1.2 physical examination
      5.1.3 urinalysis
      5.1.4 cytology of urine, cystic fluid, prostate
      5.1.5 semen analysis (WHO standard)
5.2 imaging of the urinary tract
5.2.1 excretory (intravenous) urography
5.2.2 ultrasound + Doppler
5.2.3 voiding cystourethrography
5.2.4 antegrade and retrograde pyelography
5.2.5 urethrography
5.2.6 computed tomography
5.2.7 magnetic resonance imaging
5.2.8 angiography
5.2.9 radionuclide studies (DTPA, DMSA, MAG3, frusemide scan)

5.3 diagnostic urological instrumentation
5.3.1 catheterisation and urethral calibration
5.3.2 endoscopic procedures
5.3.2.1 urethrocystoscopy
5.3.2.2 ureterorenoscopy
5.3.2.3 pyeloscopy
5.3.3 biopsy of the kidney, prostate, bladder, testis, lymph nodes etc.
5.3.4 urodynamic studies of the upper and lower urinary tract

6 PATHOPHYSIOLOGY OF THE GENITOURINARY TRACT

6.1 aetiology, pathogenesis, pathology, pathophysiology and management of acute and chronic renal failure

6.2 aetiology, pathogenesis, pathology, pathophysiology and management of the following nephropathies:
6.2.1 haematuria
6.2.2 proteinuria
6.2.3 polyuria
6.2.4 oliguria
6.2.5 anuria
6.2.6 renal vein thrombosis
6.2.7 Goodpasture’s Syndrome
6.2.8 sickle cell disease
6.2.9 medullary sponge kidney
6.2.10 renal tubular acidosis
6.2.11 papillary necrosis
6.2.12 nephrogenic diabetes insipidus

6.3 pathophysiology of obstructive uropathy
6.3.1 effects of complete obstruction on renal function
6.3.2 effects of partial obstruction on renal function
6.3.3 renal metabolic changes in hydronephrosis
6.3.4 compensatory renal growth
6.3.5 high obstructive disorders
6.3.6 supravesical obstructive disorders
6.3.7 infravesical obstructive disorders

6.4 pathophysiology of chronic pyelonephritis/reflux nephropathy
6.5 pathophysiology of the ureter

6.6 lower urinary tract dysfunction
6.6.1 aetiology, classification, pathophysiology, diagnostic procedures, management and treatment of:
6.6.1.1 urinary incontinence
6.6.1.2 monosymptomatic nocturnal enuresis
6.6.1.3 neuropathic bladder
6.6.1.4 dysfunctional voiding
7 URODYNAMIC INVESTIGATION

7.1 mechanism of micturition C
7.2 pharmacology of the lower urinary tract C
7.3 anatomy and physiology of continence C
7.4 urodynamic studies and their effect upon management in:
7.4.1 neurogenic bladder disorder B
7.4.2 nonneurogenic bladder (dysfunctional voiding) disorder B
7.4.3 urinary incontinence B
7.5 control of the bladder and urethral sphincters by surgically implanted electrical stimulators B
7.6 urodynamic studies in upper and lower urinary tract obstruction C

8 CONGENITAL ANOMALIES OF THE GENITOURINARY SYSTEM

8.1 chromosome abnormalities and genetic anomalies A
8.2 anomalies of the kidney, renal vessels, collecting system, pelvi-ureteric junction, ureter and vesicoureteric junction
8.2.1 renal cystic disease C
8.2.2 renal dysplasia C
8.2.3 renal vascular anomalies B
8.2.4 caliceal, infundibular and pelvic anomalies B
8.2.5 pelvi-ureteric junction obstruction C
8.2.6 vesicoureteric reflux C
8.2.6.1 aetiology, classification, pathology, pathophysiology
8.2.6.2 diagnostic procedures
8.2.6.3 surgical vs conservative treatment
8.2.6.4 reflux nephropathy
8.2.7 megaureter C
8.2.7.1 classification
8.2.7.2 diagnostic procedures
8.2.7.3 treatment modalities
8.2.8 ureterocele C
8.2.9 ectopic ureter C
8.3 anomalies of the bladder
8.3.1 bladder exstrophy, cloacal exstrophy, epispadias
8.3.2 urachal anomalies
8.3.3 imperforate anus, persistent cloaca, urogenital sinus, outlet obstruction
8.3.4 bladder duplication and congenital diverticula
8.4 anomalies of the urethra and penis
8.4.1 bladder neck obstruction B
8.4.2 posterior urethral valves B
8.4.3 megalourethra
8.4.4 distal urethral stenosis in girls B
8.4.5 urethral and meatal stenosis in the male B
8.4.6 urethral duplication and congenital diverticula A
8.4.7 cystic anomalies of Cowper's glands A
8.4.8 hypospadias B
8.4.9 epispadias B
8.4.10 congenital curvature of the penis/short urethra A
8.4.11 concealed penis/webbed penis A
8.4.11 phimosis C

8.5 anomalies of the testis C
8.5.1 anorchidism, cryptorchidism and ectopy
8.5.2 hydrocele in the infant, inguinal hernia
8.5.3 testicular torsion/spermatic cord torsion

8.6 disorders of sexual differentiation A
8.6.1 differential diagnosis and evaluation of sexual ambiguity
8.6.2 management of intersexuality

8.7 anomalies of epididymis, vas and seminal vesicles C
8.8 prune-belly syndrome A
8.9 spina bifida: management of urinary problems C
8.10 oncology: see 16

9 ADRENAL DISEASES A

Aetiology, classification, pathology, pathophysiology and management of:
9.1 adrenocortical insufficiency and hyperfunction syndromes
9.2 hyperplasia and tumours of the adrenal cortex
9.3 tumours of the adrenal medulla/phaeochromocytoma and neuroblastoma

10 RENOVASCULAR HYPERTENSION, DISORDERS OF RENAL VESSELS, RENAL TRANSPLANTATION A

10.1 classification, pathology and pathophysiology, diagnosis and principles of treatment of renal vascular lesions and renovascular hypertension
10.2 renal transplantation; immunology, surgery and management of complications

11 SPECIFIC AND NONSPECIFIC INFECTIONS AND INFLAMMATORY DISEASES, INCLUDING VENEREAL DISEASES C

11.1 microbiology of genitourinary infections, including the role of bacterial adherence in urinary tract infections
11.2 pathogenesis and predisposing factors
11.3 pathology and pathophysiology, including immunobiological response
11.4 localization of the site of urinary tract infection, including imaging techniques in UTI
11.5 diagnostic procedures and treatment in:
11.5.1 nosocomial and catheter acquired infection
11.5.2 urinary tract infection in infants and children
11.5.3 urinary tract infection in (pregnant) women
11.5.4 asymptomatic bacteriuria
11.5.5 septicaemia and septic shock
11.5.6 cystitis
11.5.7 pyelonephritis
11.5.8 prostatitis (acute and chronic)
11.5.9 nonbacterial prostatitis and prostatodynia
11.5.10 urethritis
11.5.11 epididymitis and orchitis
11.5.12 seminal vesiculitis
11.5.13 sexually transmitted diseases
11.5.14 parasitic diseases
11.5.15 fungal infections
11.5.16 genitourinary tuberculosis
11.5.17 interstitial cystitis and related syndromes
11.5.18 cutaneous diseases of external genitalia
11.6 prophylaxis of infection in urological instrumentation and surgery
11.7 metabolic changes in septicaemia

12 TRAUMA OF THE GENITOURINARY TRACT
Classification, pathophysiology, diagnostic procedures, management and complications of:

12.1 trauma of the kidney and renal vessels
12.2 ureteric trauma
12.3 bladder and urethral injuries
12.4 trauma of the external genitalia
12.5 thermal, chemical and electrical injuries of the external genitalia and urethra

13 UROLITHIASIS

13.1 epidemiology
13.2 aetiology and pathogenesis
13.3 risk factors in the formation of urinary stones
13.4 calcium metabolism
13.5 oxalate metabolism
13.6 infection-induced stones
13.7 cystinuria/xanthinuria
13.8 uric acid stone formation
13.9 nephrocalcinosis and stone formation
13.10 urinary inhibitors and promoters of stone formation
13.11 crystalluria
13.12 diagnostic procedures and medical investigations
13.13 treatment modalities
   13.13.1 medical management
   13.13.2 surgical treatment
   13.13.3 endourological treatment
   13.13.4 Extracorporal Shock Wave Lithotripsy
13.14 principles of stone fragmentation
13.15 principles of stone analysis

14 FERTILITY AND SEXUAL FUNCTION (Andrology)

14.1 pathophysiology of male reproduction
14.2 aetiology and evaluation of male infertility
14.3 medical management of testicular dysfunction
14.4 surgical treatment and intervention in infertility
14.5 management of ejaculatory disorders
14.6 pathophysiology of male sexual dysfunction
14.7 aetiology and evaluation of the impotent male
14.8 medical and surgical management of impotence

15 BENIGN PROSTATIC HYPERPLASIA
Epidemiology, aetiology, pathophysiology, diagnostic procedures and treatment modalities
16 TUMOURS OF THE GENITOURINARY TRACT

16.1 **principles** of urological oncology

16.1.1 epidemiology of urogenital tumours
16.1.2 principles of carcinogenesis and cancer biology
16.1.3 cytogenetics: chromosomal abnormalities in urological tumours
16.1.4 tumour markers in urological oncology
16.1.5 immunobiology and pathology of urological cancers
16.1.6 diagnostic procedures
16.1.7 staging and patterns of dissemination
16.1.8 principles of anticancer chemotherapy
16.1.9 prognostic factors and parameters of response

16.2 **special oncology**

epidemiology, aetiology, natural history and biology, immunobiology, pathology, patterns of dissemination, diagnostic procedures, staging and treatment modalities of the following tumours:

16.3 **renal tumours**

16.3.1 renal cell carcinoma
16.3.2 Wilms' tumour
16.3.3 benign renal tumours (in adults and children)
16.3.4 transitional cell tumours of the upper urinary tract collecting system

16.4 **bladder tumours**

16.4.1 transitional cell carcinoma
16.4.2 squamous cell carcinoma
16.4.3 adenocarcinoma
16.4.4 rhabdomyosarcoma
16.4.5 benign tumours

16.5 **prostate**

16.5.1 adenocarcinoma
16.5.2 rhabdomyosarcoma
16.5.3 sarcoma

16.6 **urethra**

16.6.1 carcinoma of the male and female urethra and adnexal glands
16.6.2 benign tumours of the male and female urethra

16.7 **testis, adnexal structures and seminal vesicles**

16.7.1 germ cell tumours in children and adults including seminoma and nonseminoma
16.7.2 nongerminatal tumours
16.7.3 sex cord stromal (gonadal stromal) tumours of the testis and other tumours of the testicular adnex structures and seminal vesicles

16.8 **penis**

16.8.1 carcinoma of the penis
16.8.2 preneoplastic diseases of the penis
16.8.3 benign lesions of the penis
### 17 NONONCOLOGICAL AND NONINFECTIOUS DISEASES OF THE PENIS, SCROTUM, TESTIS, EPIDIDYMIS AND SPERMATIC CORD
Aetiology, pathology, pathophysiology, diagnostic procedures and management in:

| 17.1 | noncongenital phimosis and paraphimosis | C |
| 17.2 | dermatological lesions of the penis | B |
| 17.3 | priapism | C |
| 17.4 | Peyronie’s disease | C |
| 17.5 | gangrene of the penis and scrotum | C |
| 17.6 | noncongenital hydrocele | C |
| 17.7 | varicocele | C |
| 17.8 | cysts of testicular adnexa | B |

### 18 URINARY FISTULAE

| 18.1 | aetiology, pathogenesis and classification | C |
| 18.2 | diagnostic procedures | |
| 18.3 | general management | |

### 19 URINARY DIVERSION AND UNDIVERSION

| 19.1 | methods, indications and contra-indications of: |
| 19.1.1 | temporary diversion |
| 19.1.2 | permanent diversion |
| 19.1.3 | undiversion |
| 19.1.4 | continent/incontinent diversion |
| 19.2 | problems and complications related to urinary diversion and undiversion | |

### 20 UROPHARMACOLOGY

| 20.1 | drugs used in bacterial and other infectious diseases | C |
| 20.2 | anti-cancer drugs | |
| 20.3 | drugs influencing bladder function | |

### 21 PSYCHOLOGICAL ASPECTS OF UROLOGICAL DISORDERS

| 22 | UROLOGICAL SURGERY |
| (this whole chapter is C, unless otherwise noted) | |
| 22.1 | pre-, peri- and post-operative care | B |
| 22.2 | principles of anaesthesia in urology | B |
| 22.3 | principles of surgical urological instruments and their technology | |
| 22.4 | principles of urological surgical procedures including laparoscopy | |
| 22.5 | indications, contra-indications, complications, follow-up and evaluation in the following surgical procedures: |
| 22.6 | retroperitoneum |
| 22.6.1 | surgery of retroperitoneal fibrosis |
| 22.6.2 | surgery of retroperitoneal tumours |
| 22.6.3 | (nerve sparing) retroperitoneal lymph node dissection |
22.7 **adrenals**

22.7.1 surgery of adrenal tumours

22.8 **renal vessels and transplantation**

22.8.1 surgery of renal vessels (arteries, veins and lymphatics) and for renovascular hypertension

22.8.2 renal transplantation

22.9 **kidney**

22.9.1 principles of surgical procedures

22.9.2 nephrectomy (simple, partial, radical)

22.9.3 nephroureterectomy

22.9.4 operations for renal cysts

22.9.5 open nephrostomy

22.9.6 surgery for renal calculous disease

22.9.7 surgical management of pelvi-ureteric junction obstruction (pyeloplasty and calicoplasty)

22.9.8 surgery for renal trauma

22.9.9 percutaneous and endoscopic procedures (for drainage, treatment of renal cysts, urolithiasis, caliceal or pelvi-ureteric junction obstruction, and calico-pelvic tumours)

22.10 **ureter**

22.10.1 implantation of ureter in the bladder

22.10.2 implantation with Psoas hitch, bladder flap (Boari)

22.10.3 surgical management of megaureter, reflux and ureterocele

22.10.4 surgery for extrinsic and intrinsic ureteric stenosis

22.10.5 surgery for ureteric lithiasis

22.10.6 surgery for ureteric trauma

22.10.7 ureterostomy, cutaneous ureterostomy and transureteroureterostomy

22.10.8 ureteroplasty and ureteric substitution

22.10.9 ureterectomy

22.10.10 ureterointestinal diversion

22.10.10.1 ureterosigmoidostomy

22.10.10.2 ureterocutaneous diversion

22.10.10.3 continent urinary diversion

22.10.10.4 undiversion

22.10.11 endoscopic and percutaneous procedures (for drainage, treatment of ureteric lithiasis, ureteric stenosis and obstruction, reflux and ureterocele, as well as ureteric tumours)

22.11 **bladder**

22.11.1 cystotomy, cystostomy, cutaneous vesicostomy

22.11.2 surgery for rupture of the bladder

22.11.3 partial, total and radical cystectomy

22.11.4 surgery for bladder diverticula

22.11.5 surgery for bladder fistulae

22.11.6 pelvic lymph node dissection

22.11.7 use of intestinal segments

22.11.7.1 augmentation cystoplasty

22.11.7.2 continent urinary diversion

22.11.7.3 urinary undiversion

22.11.8 surgery for bladder extrophy

22.11.9 endoscopic and percutaneous procedures (for drainage, treatment of bladder tumours, stones and diverticula)

22.12 **female bladder neck and urethra**

22.12.1 urethrotomy, urethroplasty

22.12.2 surgical treatment of urethral diverticulum

22.12.3 surgical treatment of urethrovaginal fistulae
22.12.4 treatment of cystocele
22.12.5 cervico-urethroplasty
22.12.6 urethral reconstruction
22.12.7 suspension and sling type procedures for incontinence
22.12.8 artificial sphincter prosthesis
22.12.9 urethrectomy
22.12.10 endoscopic procedures: treatment of obstruction, incontinence, tumours

22.13 **male bladder neck and prostate**
22.13.1 open surgery of bladder neck, including Y-V plasty
22.13.2 treatment of fistulae
22.13.3 open prostatectomy for BPH, suprapubic and retropubic
22.13.4 radical prostatectomy + lymph node dissection
22.13.5 perineal prostatectomy
22.13.6 surgery for male incontinence, including artificial sphincter prosthesis
22.13.7 endoscopic procedures (for treatment of obstruction, including fibrosis, BPH, carcinoma and treatment of incontinence)

22.14 **male urethra**
22.14.1 surgery for meatal stenosis
22.14.2 urethrotomy, urethroplasty
22.14.3 surgery for urethral fistulae
22.14.4 surgery for urethral ruptures
22.14.5 surgery for urethral strictures
22.14.6 urethroplasty and urethral replacement
22.14.7 diverticulectomy
22.14.8 surgery for hypospadias and epispadias

22.15 **incontinence in the male and female**
22.15.1 suspension type procedures
22.15.2 sling procedures
22.15.3 artificial sphincter prosthesis
22.15.4 bladder neck plasty

22.16 **transurethral surgery**
22.16.1 TUR of the prostate
22.16.2 TUR of vesical neoplasms
22.16.3 visual internal urethrotomy
22.16.4 vesical litholapaxy, lithotripsy
22.16.5 transurethral management of ureteric calculi
22.16.6 intravesical chemotherapy
22.16.7 transurethral ureteropyeloscopy

22.17 **testis**
22.17.1 radical orchiectomy
22.17.2 subcapsular orchiectomy
22.17.3 orchiopexy
22.17.4 surgical management of intra-abdominal testis
22.17.5 surgery for hydrocele
22.17.6 surgery for testicular trauma
22.17.7 testicular prosthesis
22.17.8 surgery for varicocele

22.18 **epididymis and vas deferens**
22.18.1 epididymectomy
22.18.2 surgery for epididymal cysts
22.18.3 vaso-epididymostomy
22.18.4 vasectomy and vasectomy reversal

22.19 **penis**
22.19.1 circumcision
22.19.2 surgery for penile trauma
| 22.19.3 | management of priapism |
| 22.19.4 | management of curvature of the penis |
| 22.19.5 | surgery for Peyronie's disease |
| 22.19.6 | carcinoma of the penis |
| 22.19.6.1 | management of primary tumour |
| 22.19.6.2 | management of regional disease |
| 22.19.6.3 | management of recurrent disease |
| 22.19.7 | management of balanitis xerotica obliterans |
| 22.19.8 | management of condylomata acuminata |
| 22.19.9 | penile prosthesis |
| 22.19.10 | penile reconstruction |
| 22.19.11 | intersex and transsexual surgery |

**22.20 lymph node dissection**
- 22.20.1 (nerve sparing) bilateral retroperitoneal lymph node dissection for kidney and bladder carcinoma
- 22.20.2 lymph node dissection for penile and scrotal tumours

**22.21 treatment of surgical complications**

## 23 SPECIAL NONSURGICAL TECHNIQUES IN UROLOGY
Principles, technology, indications, contra-indications and complications of the following:

| 23.1 | catheterisation, dilatation |
| 23.2 | fulgeration and electrocoagulation |
| 23.3 | laser (specific use in urology) |
| 23.4 | hyperthermia, thermotherapy |
| 23.5 | cryoproduces/HIFU |
| 23.6 | ESWL |

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