

1 **INTERNATIONAL CONTINENCE SOCIETY (ICS) REPORT ON THE TERMINOLOGY**
2 **FOR SEXUAL HEALTH IN MEN WITH LOWER URINARY TRACT (LUT) / PELVIC FLOOR (PF)**
3 **DYSFUNCTION – VERSION 15**

4
5 *Ervin Kocjancic, Omer Acar, Eric Chung, Bernard Haylen*, Valerio Iacovelli, Jorge Jaunarena, Jennifer*
6 *Locke, Alexandra Millman, Irmira Nahon, Samuel Ohlander, Ran Pang, Mauricio Plata*

7
8 *Standardization Steering Committee ICS*,*
9 *ICS Working Group on Sexual Health in men with LUT/PF dysfunction*
10

11 **Ervin Kocjancic:** Department of Urology, University of Illinois at Chicago, College of Medicine, Chicago, Illinois,
12 US. ervkoc@gmail.com

13 **Ömer Acar:** Department of Urology, University of Illinois at Chicago, College of Medicine, Chicago, Illinois, US.
14 oacar2@uic.edu

15 **Eric Chung:** Department of Urology, Greenslopes Private Hospital, Brisbane, Australia. ericchg@hotmail.com

16 **Joaquin Alvarez Garzon:** Department of Urology, Hospital Privado Universitario de Córdoba, Argentina.
17 joacoalvarezgarzon@gmail.com

18 **Bernard Haylen:** Department of Gynaecology, University of New South Wales, Sydney, Australia.
19 bernard@haylen.co

20 **Valerio Iacovelli:** Department of Urology, Tor Vergata University of Rome, San Carlo di Nancy General Hospital
21 - GVM Care and Research, Rome, Italy. valerio.iacovelli85@gmail.com

22 **Jorge Jaunarena:** Centro de Urologia CDU, Instituto Alexander Fleming, Buenos Aires, Argentina.
23 jorgejaunarena@gmail.com

24 **Jennifer Locke:** Department of Urology, University of Toronto, Sunnybrook Health Sciences Centre, Toronto,
25 Canada. jennlocke@gmail.com

26 **Alexandra Millman:** Department of Urology, University of Illinois at Chicago, College of Medicine, Chicago,
27 Illinois, US. alexi.millman@gmail.com

28 **Irmira Nahon:** Discipline of Physiotherapy, Faculty of Health, University of Canberra, Australia.
29 irmira.nahon@canberra.edu.au

30 **Samuel Ohlander:** Department of Urology, University of Illinois at Chicago, College of Medicine, Chicago, Illinois,
31 US. sohlände@uic.edu

32 **Ran Pang:** Department of Urology, Guang An Men Hospital, Beijing, China. pangran2002@gmail.com

33 **Mauricio Plata:** Department of Urology, Fundación Santa fe de Bogotá University, Universidad de los Andes
34 School of Medicine, Bogotá, Colombia. mauricio.plata@fsfb.org.co

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38 **Correspondence to:**

39 Dr. Ervin Kocjancic
40 University of Illinois at Chicago,
41 College of Medicine,
42 Department of Urology
43 Chicago, IL, US
44 E-mail: ervkoc@gmail.com
45 Phone: 312-996-9330
46 Fax: 312-413-0495

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71 **ABSTRACT**

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73 **Introduction:** The terminology for sexual health in men with lower urinary tract (LUT) and
74 pelvic floor (PF) dysfunction has not been defined and organized into a clinically based
75 consensus Terminology Report. The aim of this Terminology Report is to provide a definitional
76 document within this context that will assist clinical practice and research.

77

78 **Methods:** This Report combines the input of the members of Sexual Health in Men with LUT
79 and PF Dysfunction working group of the International Continence Society (ICS), assisted at
80 intervals by external referees. Appropriate core clinical categories and a sub-classification
81 were developed to give coding to definitions. An extensive process of ... rounds of internal
82 and external review was involved to exhaustively examine each definition, with decision-
83 making by collective opinion (consensus). The Committee retained evidence-based
84 definitions, identified gaps, and updated or discarded outdated definitions. Expert opinions
85 were used when evidence was insufficient or absent.

86

87 **Results:** A Terminology Report for sexual health in men with LUT and PF dysfunction,
88 encompassing 223 (201 *NEW*) separate definitions, has been developed. It is clinically based
89 with the most common diagnoses defined. Clarity and user-friendliness have been key aims
90 to make it interpretable by practitioners and trainees in all the different specialty groups
91 involved. Conservative and surgical managements are major additions and appropriate
92 figures have been included to supplement and clarify the text. Emerging concepts and
93 measurements, in use in the literature and offering further research potential, but requiring
94 further validation, have been included as an appendix. Interval (5-10 year) review is
95 anticipated to keep the document updated.

96

97 **Conclusion:** A consensus-based Terminology Report for sexual health in men with LUT and PF
98 dysfunction has been produced to aid clinical practice and research. The definitions that have
99 been adopted are those that are most strongly supported by the literature at this time or are
100 considered clinical principles or consensus of experts' opinions.

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103 **DISCLOSURES:**

104 **Ervin Kocjancic:** Neomedic (Speaker honorarium), NexHand (Patent owner), Allergan (Consultant),

105 Pfizer (Speaker honorarium), Astellas (Consultant), Boston Scientific (Consultant)

106 **Ömer Acar:** No disclosures

107 **Eric Chung:** No disclosures

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115 **Samuel Ohlander:** No disclosures

116 **Ran Pang:** No disclosures

117 **Mauricio Plata:** Astellas (Speaker), Neomedic (Speaker), Pfizer (Speaker)

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120 **WORDS: ABSTRACT:** 309 words; **TEXT:** ... words

121 **FIGURES:** 3

122 **TABLES:** 7

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136 **INTRODUCTION**

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138 Currently there is no comprehensive document addressing all elements required for
139 diagnoses applicable to sexual health in men with lower urinary tract (LUT) and pelvic floor
140 (PF) dysfunction. The term “diagnosis” is defined by “the determination of the nature of a
141 disease” by clinical symptoms and signs and laboratory investigations.¹ Such a specific report
142 requires a full outline of the terminology for all symptoms, signs, diagnostic tools, and
143 therapeutic options for sexual health in males with LUT and PF dysfunction. Sexual
144 dysfunctions are a large group of conditions that have been classified by the International
145 Classification of Diseases, 10th Edition (ICD-10) by the World Health Organization as organic
146 or as non-organic even though a multifactorial etiology is often presumed.²

147 This Terminology Report is inherently and appropriately a definitional document,
148 collating the definitions of terms, that is, words used to express a defined concept in a
149 particular branch of study; sexual health in men with LUT and PF dysfunction. Emphasis has
150 been on comprehensively including terms in current use in the relevant peer-reviewed
151 literature. The aim is to assist clinical practice and research. Explanatory notes on definitions
152 have been referred, where possible, to the “Footnotes section.” Table 1 lists the number of
153 definitions: (i) new; (ii) changed; (iii) total by section, compared with the previous male-
154 inclusive reports.^{3,4,5,6}

155 As in earlier ICS Reports, qualities for a male-specific terminology report should be:

156 (A) User-friendly: It should be able to be understood by all clinical and research users.

157 (B) Clinically-based: Symptoms, signs, validated investigations and imaging should be
158 presented for use in forming diagnoses.

159 (C) Origin: Where a term's existing definition (from one of multiple sources used) is deemed
160 appropriate, that definition will be included and duly referenced.

161 (D) Able to provide explanations: Where a specific explanation is deemed appropriate to
162 explain a change from earlier definitions or to qualify the current definition, this will be
163 included as an addendum to this paper (Footnote [FN] 1,2,3 . . .). Wherever possible,
164 evidence-based medical principles will be followed.

165 A previous “backbone” terminology ICS paper on adult male lower urinary tract and
166 pelvic floor symptoms and dysfunctions⁵ has been previously published lacking the analysis
167 of sexual male aspects. Disorders in functional urology often overlap with sexual dysfunctions,

168 therefore we needed to promote this update in order to focus on male sexual health features.
 169 Dysfunctions in sexual health have been defined in section 1 and their anatomical relation has
 170 been reported in section 2. Clinical and diagnostic aspects of sexual dysfunctions have been
 171 discussed in sections 3 to 6. According to diagnosis, 7 sections have been developed to define
 172 conservative and surgical treatments of male sexual dysfunctions as primary conditions or as
 173 secondarily related to benign prostatic obstruction (BPO), urethral stricture disease,
 174 overactive bladder (OAB), chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) and
 175 prostate cancer.

176 Commonly accepted terminology is needed given its influence on clinician approach
 177 to clinical conditions, their studies and investigations of analyses, and for a proper
 178 communication with the patients. Thus, this Terminology Report has a crucial role as it is able
 179 to provide definitions which are critical in facilitating research, enabling clinicians to
 180 communicate accurately to each other, to their patients, and health care systems. This work
 181 also enhances the training of future clinicians.

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Section	New definitions/descriptions	Changed definitions/descriptions	Total
Possible definitions and dysfunctions	38	8	46
Anatomical definitions	15	0	15
Symptoms and questionnaires	20	2	22
Signs, examination, and investigations	33	9	42
Conservative and pharmacological treatment	17	0	17

Surgical treatment	6	0	6
BPO treatment and sexual health	9	0	9
Urethral stricture disease and sexual health	8	0	8
Overactive bladder and sexual health	11	2	13
Chronic prostatitis / chronic pelvic pain syndrome and sexual health	11	1	12
Prostate cancer and sexual health	29	0	29
Treatments that warrant further investigation	4	0	4
Total	201	22	223

183 **Table 1:** Total, new, and changed definitions. BPO: Benign prostatic obstruction.

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185 **SECTION 1: OUTLINE OF POSSIBLE DEFINITIONS AND DYSFUNCTIONS IN SEXUAL HEALTH**

186 **1.1 Erectile function:** Complex mechanism of involuntary, neuropsychological, hormone-
187 mediated vascular event that occurs when blood rapidly flows into the penis and becomes
188 trapped in its spongy chambers. **(NEW)**

189 **1.2 Sexual dysfunction:** Difficulty experienced by an individual or a couple during any stage
190 of normal sexual activity; including desire, arousal, and orgasm. Sexual dysfunction requires
191 a person to feel significant distress and interpersonal strain for at least 6 months.⁵ **(NEW)**

192 **1.3 De-novo (postoperative) sexual dysfunction symptoms:** Symptoms related to sexual
193 dysfunction that were not reported before surgery.⁷ **(NEW)**

194 **1.4 Erectile function recovery:** Return to baseline erectile function after treatment. **(NEW)**

195 **1.4.1 Erectile function after treatment for prostate cancer:** Ability to have successful

196 intercourse by patient self-report after any treatment for prostate cancer. **(NEW)**

197 **1.5 Erectile dysfunction (ED):** Consistent or recurrent inability to attain and/or maintain a

198 penile erection sufficient for sexual satisfaction and/or sexual intercourse.⁶ **(CHANGED)**

199 **1.5.1 Vasculogenic ED:** Erectile dysfunction which is secondary to a problem with

200 arterial inflow (e.g. atherosclerosis) or venous outflow (e.g. venous leak). **(NEW)**

201 **1.5.2 Neurogenic ED:** Erectile dysfunction which is secondary to pathology of the

202 central (e.g. spinal cord injury) or peripheral (e.g. diabetic neuropathy) nervous

203 system. **(NEW)**

204 **1.5.3 End-organ ED:** Erectile dysfunction which is due to pathology within the penis

205 itself (e.g. Peyronie’s disease). **(NEW)**

206 **1.5.4 Situational ED:** Erectile dysfunction which only occurs in certain circumstances

207 (e.g. with a partner but not during masturbation). Generally understood to be due to

208 psychological factors. **(NEW)**

209 **1.5.5 Endocrine ED:** Erectile dysfunction secondary to an endocrine pathology, most

210 commonly hypogonadism, but may also be due to hyperprolactinemia, thyroid

211 dysfunction and diabetes mellitus. **(NEW)**

212 **1.5.6 Mixed ED:** Erectile dysfunction which has an organic cause as well psychogenic

213 factors (e.g. anxiety or depression) playing a role. **(NEW)**

214 **1.6 Male hypoactive sexual desire disorder:** Persistent or recurrent deficiency or absence of

215 sexual or erotic thoughts or fantasies and desire for sexual activity.^{FN1.1}⁶ **(NEW)**

216 **1.7 Sexual aversion disorder:** Persistent or recurrent extreme aversion to, and avoidance of,

217 all or almost all, genital sexual contact with a sexual partner which causes distress or

218 interpersonal difficulty.⁸ **(NEW)**

219 **1.8 Hypogonadism:** A term introduced to signify low testosterone levels associated with

220 infertility, sexual dysfunction, and systemic alterations (such as decreased muscle mass,

221 depressed mood, sleep disturbances, loss of body hair, lethargy). It has more recently been

222 used interchangeably with the idea of low testosterone production alone.⁹ **(NEW)**

223 **1.8.1 Low testosterone:** Serum total testosterone level being less than 300 ng/dL. ^{FN1.2}

224 ⁹ Threshold for low testosterone in the International System of Units: 11 nmol/l (US),

225 12 nmol/l (Europe). **(NEW)**

226 **1.8.2 Testosterone deficiency:** A state of low testosterone production combined with
227 symptoms and/or signs that are associated with low serum total testosterone.^{9,10}
228 **(NEW)**

229 **1.9 Libido:** A person's overall sexual drive or desire for sexual activity. **(NEW)**

230 **1.9.1 Altered libido:** Complaint of change in interest in sexual activity.⁵

231 **1.9.2 Decreased libido:** Complaint of decreased interest in sexual activity in
232 comparison with previous experience.⁵

233 **1.9.3 Increased libido:** Complaint of increased interest in sexual activity in comparison
234 with previous experience.⁵

235 **1.10 Ejaculatory function**

236 **1.10.1 Ejaculation:** Process related to semen expulsion from the urethra.¹¹ **(NEW)**

237 **1.10.2 Orgasm:** Sensation of pleasure that accompanies sexual climax.¹¹ **(NEW)**

238 **1.10.3 Emission:** Process in which semen is deposited from the vas deferens in the
239 urethra.¹¹ **(NEW)**

240 **1.10.4 Ejection:** Synchronic contractions of the bulbospongiosus and ischiocavernosus
241 muscles and external urethral sphincter that allows semen to be expelled antegrade
242 through the urethra.¹¹ **(NEW)**

243 **1.11 Ejaculatory dysfunction (EjD):** Complaint of alteration of the emission or expulsion of
244 seminal fluids during ejaculation.⁵

245 **1.11.1 Anejaculation:** Complaint of absence of seminal fluid emission or expulsion.
246 May be associated with the absence of the sensation of orgasm or anorgasmia.⁵

247 **1.11.2 Delayed ejaculation:** Primary or acquired complaint of an increase in the time
248 taken for ejaculation to occur.⁵ **(CHANGED)**

249 **1.11.2.1 Primary delayed ejaculation:** A lifelong experience of delayed
250 ejaculation in all or almost all (75%-100%) occasions of coital activity, which
251 causes distress.⁶ **(NEW)**

252 **1.11.2.2 Acquired delayed ejaculation:** A distressing lengthening of
253 ejaculatory latency that occurs in most (>50%) coital experiences after a period
254 of normal ejaculatory function and/or a clinically meaningful change that
255 results in distress.⁶ **(NEW)**

256 **1.11.3 Premature ejaculation (PE):** Complaint of a persistent or recurrent pattern of
257 too rapid achievement of ejaculation during partnered sexual activity, that is, before

258 the individual wishes it.⁵ It is accompanied by negative personal consequences, such
259 as distress, bother, frustration, and/or the avoidance of sexual intimacy.⁶ **(CHANGED)**

260 **1.11.3.1 Lifelong (primary) premature ejaculation:** Ejaculation that always or
261 nearly always occurs prior to or within about 1 minute of vaginal penetration
262 from the first sexual experience.¹² **(NEW)**

263 **1.11.3.2 Acquired premature ejaculation:** A clinically significant and
264 bothersome reduction in latency time, often to about 3 minutes or less.¹²
265 **(NEW)**

266 **1.11.4 Retrograde ejaculation:** Expulsion of seminal fluid into the bladder because of
267 bladder neck dysfunction and/or disturbances involving the peri-montanal area in the
268 presence of otherwise normal emission and expulsion. There can be no or small
269 amounts of antegrade ejaculation. Retrograde ejaculation is defined independently
270 from the sensation of orgasm.⁶ **(NEW)**

271 **1.11.5 Anhedonic ejaculation:** Ejaculation without the pleasurable sensation of
272 orgasm.⁶ **(NEW)**

273 **1.11.6 Hematospermia:** Complaint of the appearance of visible blood in the seminal
274 fluid. Color of the seminal fluid may be red or brown.¹⁴

275 **1.12 Orgasmic disorder:** Presence of either of the following on all or almost all (75% - 100%)
276 occasions of sexual activity; marked delay in, marked infrequency of, or absence of orgasm;
277 markedly reduced intensity of orgasmic sensations.⁷

278 **1.12.1 Anorgasmia (male):** The inability to reach orgasm despite adequate and
279 prolonged sexual stimulation leading to adequate sexual arousal which might or might
280 not lead to personal distress.⁶ **(NEW)**

281 **1.12.2 Hypohedonic orgasm:** Lifelong or acquired decreased or low level of sexual
282 pleasure with orgasm.⁶ **(NEW)**

283 **1.13.3 Dysorgasmia:** Painful orgasm. **(NEW)**

284 **1.13 Post-orgasmic illness syndrome:** Flu-like incapacitating physical and mental symptoms
285 occurring within a few minutes to a few hours after an ejaculation, which usually lasts 3 to 7
286 days.⁶ **(NEW)**

287 **1.14 Sexual arousal disorder:** Lack of, or significantly reduced, sexual interest or arousal.^{FN1.3}

288 ⁷

289 **1.15 Post-5-Alpha reductase inhibitor syndrome:** Persistent sexual, neurological, physical,
290 and mental adverse reactions in patients who have taken 5-alpha reductase enzyme inhibitors
291 (finasteride and dutasteride).¹³ **(NEW)**

292 **1.16 Benign prostatic hyperplasia (BPH):** A term that is used exclusively to describe the
293 histologic changes related to benign prostatic growth.^{FN1.4, FN1.5} ¹⁴ **(NEW)**

294 **1.17 Benign prostatic enlargement (BPE):** A term describing increased volume of the gland
295 usually secondary to BPH. The precise volume that determines the lower limit of BPE remains
296 to be defined; 20 mL has been suggested.¹⁴ **(NEW)**

297 **1.18 Benign prostatic obstruction (BPO):** A term used to describe bladder outlet obstruction
298 (BOO) secondary to BPE and, therefore, usually due to BPH.¹⁴ **(NEW)**

299 **1.19 Prostatitis:** An inflammatory disease of the prostate generally affecting younger men
300 and causing pain and discomfort mostly in the perineal and scrotal region which can be
301 associated with LUTS and/or sexual dysfunction.¹⁵ Prostatitis covers a wide range of clinical
302 conditions including acute bacterial prostatitis, chronic bacterial prostatitis, chronic pelvic
303 pain syndrome (inflammatory and noninflammatory), and asymptomatic inflammatory
304 prostatitis. **(NEW)**

305 **1.20 Overactive bladder (OAB) syndrome:** Urinary urgency, usually accompanied by
306 increased daytime frequency and/or nocturia, with urinary incontinence (OAB-wet) or
307 without (OAB-dry), in the absence of urinary tract infection or other detectable disease.^{FN1.6}
308 ¹⁶

309 **1.21 Sexual activity urinary incontinence or coital urinary incontinence:** Complaint of urinary
310 incontinence associated with or during sexual activity and sexual arousal.^{7,17} **(CHANGED)**

311 **1.22 Climacturia:** Involuntary loss of urine at the time of orgasm. **(NEW)**

312 **1.23 Sexual arousal incontinence or foreplay incontinence:** Complaint of involuntary loss of
313 urine during sexual arousal, foreplay and/or masturbation.^{18,19} **(NEW)**

314 **1.24 Penile pain with intercourse (Male dyspareunia):** Complaint of any penile discomfort
315 occurring during intercourse. May be caused by penile disease, vaginal anatomy (eg, vaginal
316 tightening, scarring, or exposed mesh) and/or may relate to various positions with
317 intercourse.⁵

318 **1.24.1 Hispareunia:** male partner pain with vaginal intercourse after female
319 reconstructive surgery.⁷ **(CHANGED)**

320 **1.25 Chronic sexual pain disorder:** Sexual activity may induce a central sensitization process
321 characterized by hypersensitivity or hyperalgesia before, during or after sexual activity.²⁰

322 **(CHANGED)**

323 **1.26 Pain:** A subjective phenomenon described as an unpleasant sensory and emotional
324 experience associated with actual or potential tissue damage, or described in terms of such
325 damage. Pain should be characterized by site, type, frequency, duration, precipitating and
326 relieving factors. The word pain comes from the Latin "poena" meaning a fine or a penalty.²¹

327 **1.26.1 Acute pain:** Pain related to acute trauma, infection or other well-defined
328 disease process.⁹³

329 **1.26.2 Chronic pain:** Persistent or continuous/recurrent pain for at least 6 months. If
330 non-acute and central sensitization pain mechanisms are well documented, then the
331 pain may be regarded as chronic, irrespective of the time period.⁹³

332 **1.26.3 Pelvic pain syndrome:** Occurrence of persistent or recurrent episodic pelvic
333 pain associated with symptoms suggestive of lower urinary tract, sexual, bowel or
334 gynecological dysfunction. There is no proven infection or other obvious disease.²²

335 **1.26.4 Perineal pain syndrome:** Perineal pain syndrome is the occurrence of
336 persistent or recurrent episodic perineal pain, which is either related to the
337 micturition cycle or associated with symptoms suggestive of urinary tract or sexual
338 dysfunction. There is no proven infection or other obvious disease.²²

339 **1.26.5 Scrotal pain syndrome:** Scrotal pain syndrome is the occurrence of persistent
340 or recurrent episodic scrotal pain which is associated with symptoms suggestive of
341 urinary tract or sexual dysfunction. There is no proven epididymo-orchitis or other
342 obvious disease.²²

343 **1.26.6 Male chronic genital pain syndromes:** Male genital pain syndromes are often
344 associated with symptoms suggestive of lower urinary tract and sexual dysfunction.
345 Common complaints: genital pain, uncomfortable urination, dysuria, sensation of
346 residual urine, increased daytime frequency, slow stream, urgency, dyspareunia.
347 Absence of infection, previous operations, or other obvious disease.²¹

348 **1.26.6.1 Chronic (persistent or recurrent) epididymal pain syndrome:** Pain is
349 specific/localized to the epididymis. i. Persistent or recurrent episodic pain. ii.
350 Spontaneous, or reproduced by digital pressure and physical activities. iii.
351 Lower urinary tract symptoms or sexual dysfunction.

352 **1.26.6.2 Chronic (persistent or recurrent) penile pain syndrome:** Pain within
353 the penis that is not primarily in the urethra and may be: i. Persistent or
354 recurrent. ii. Spontaneous, or reproduced by digital pressure and physical
355 activities. iii. Lower urinary tract symptoms or sexual dysfunction.

356 **1.26.6.3 Chronic (persistent or recurrent) prostate pain syndrome:** see 1.30.

357 **1.26.6.4 Chronic (persistent or recurrent) scrotal pain syndrome:** Chronic
358 scrotal pain (generic term used when the site of pain is not clearly in the testis
359 or epididymis). i. Persistent or recurrent episodic pain, unilateral or bilateral.
360 ii. Spontaneous, or reproduced by digital pressure and physical activities. iii.
361 Pain is not in the skin of the scrotum but perceived within its contents. iv.
362 Lower urinary tract symptoms or sexual dysfunction.

363 **1.26.6.5 Chronic (persistent or recurrent) testicular pain syndrome:** i.
364 Persistent or recurrent episodic pain. ii. Spontaneous, or reproduced by digital
365 pressure and physical activities. iii. Lower urinary tract symptoms or sexual
366 dysfunction.

367 **1.26.7 Chronic prostatitis / Chronic pelvic pain syndrome (CP/CPPS):** Persistent or
368 recurrent prostate and/or pelvic pain, associated with symptoms suggestive of urinary
369 tract and/or sexual dysfunction. No proven infection or other obvious pathology is
370 present to account for the symptoms. Pain may be referred to the bladder, perineum,
371 testicles, penis and/or groin.²¹ (**CHANGED**)

372 **1.26.7.1 Symptoms of CP/CPPS:** Intermittent pain. Persistent or recurrent
373 pain. Dyspareunia and/or erectile dysfunction. Voiding and post micturition
374 symptoms (for example: hesitancy, intermittency, feeling of incomplete
375 emptying, dysuria). (**CHANGED**)

376 **1.26.7.2 National Institutes of Health (NIH) prostatitis classification system.**
377 Prostatitis is classified as acute bacterial prostatitis (category I), chronic
378 bacterial prostatitis (category II), chronic prostatitis (CP)/chronic pelvic pain
379 syndrome (CPPS, category III) and asymptomatic inflammatory prostatitis
380 (category IV).^{FN1.7, FN1.8}^{23,24}

381 **1.26.7.2.1 Acute bacterial prostatitis:** Characterized by severe
382 symptoms of prostatitis, systemic infection and acute bacterial urinary

383 tract infection, requires hospitalization and parenteral fluid-antibiotic
384 therapy.¹⁵

385 **1.26.7.2.2 Chronic bacterial prostatitis:** Caused by chronic bacterial
386 infection of the prostate with or without symptoms of prostatitis. It is
387 usually associated with recurrent urinary tract infections caused by the
388 same bacterial strain.¹⁵

389 **1.26.7.2.3 Chronic pelvic pain syndrome:** Characterized by chronic
390 pelvic pain and lower urinary tract symptoms in the absence of urinary
391 tract infection. It is subdivided into inflammatory (3A) and
392 noninflammatory (3B) categories depending on the presence/absence
393 of leukocytes in expressed prostatic secretion.¹⁵

394 **1.26.7.2.4 Asymptomatic inflammatory prostatitis:** Characterized by
395 histopathological evidence of prostatic inflammation in the absence of
396 genitourinary symptoms. This is usually an incidental finding during
397 evaluation for other conditions such as elevated PSA.⁹

398 **Footnotes for section 1**

399 1.1: History should include duration of symptoms, identification of disorder, impact on quality of life,
400 and partner relationship. Partner interviews may be very helpful as erectile dysfunction, delayed or
401 premature ejaculation in males with hypoactive sexual desire disorder result in a 4–30 times increased
402 risk of female partner desire, arousal or orgasmic disorder.

403 1.2: The diagnosis of low testosterone should be made only after two total testosterone
404 measurements taken on separate occasions with both conducted in the morning (until 10 am).⁹

405 1.3: This disorder should include 3 of the following: (i) Absent/reduced interest in sexual activity; (ii)
406 Absent/reduced sexual/erotic thoughts or fantasies; (iii) No/reduced initiation of sexual activity and
407 unreceptive to partner's attempts to initiate; (iv) Absent/reduced sexual excitement/pleasure during
408 sexual activity in almost all or all (75% - 100%) sexual encounters; (v) Absent/reduced sexual
409 interest/arousal in response to any internal or external sexual/erotic cues (written, verbal, visual); (vi)
410 Absent/reduced genital or non-genital sensations during sexual activity in almost all or all (75% -100%)
411 sexual encounters.

412 1.4: Epidemiological studies have demonstrated consistent evidence for an association between lower
413 urinary tract symptoms (LUTS)/benign prostatic hyperplasia (BPH) and sexual dysfunction, regardless
414 of age, other comorbidities and various lifestyle factors.²⁵

415 1.5: Several possible pathophysiological mechanisms exist, including NOS/NO (the nitric oxide
416 synthase) and the Rho-kinase activation pathways, autonomic hyperactivity, pelvic ischemia and
417 microvascular dysfunction, inflammatory pathways, sex hormones, iatrogenic and psychological
418 factors.²⁶

419 1.6: According to the EpiLUTS study, patients with ED had 3 times more storage LUTS, 2.6 times more
420 voiding LUTS and 4 times more voiding and storage LUTS.^{27,28} In this study, both OAB wet and OAB dry
421 were associated with worse sexual health, reduced sexual activity, and diminished enjoyment of sex
422 ($P < 0.0001$) when compared with patients without OAB.^{27,28} Coyne et al. conclude that the impact of
423 OAB in sexual health is evident in both men and women, and sexual health should be assessed in
424 patients presenting with OAB.²⁹ This was also shown by a nested case-control study, where not only
425 was ED more frequent in OAB patients, but this group had significantly reduced sexual activity and
426 sexual enjoyment because of urinary symptoms³⁰ (including first void after waking up from sleep and
427 last void before sleep).⁵

428 1.7: Several factors have been proposed to establish a connection between chronic pelvic pain and
429 sexual dysfunction, including vasculogenic, endocrine, neurogenic and psychological determinants.
430 Shoskes et al. established that patients with chronic pelvic pain are more likely to have nitric oxide-
431 mediated vascular endothelial dysfunction compared to asymptomatic controls, which could
432 contribute to sexual dysfunction.³¹ Psychological factors including anxiety have been described by Mo
433 et al. and Cortes et al.^{32,33}, and depression is more frequent in men with chronic pelvic pain and SD.^{32,34}

434 1.8: CP/CPPS patients are more likely to present with sexual dysfunction or depression.³⁵ Lee et al.
435 found that SD was present in 72% of patients with CP/CPPS and most of them (42%) had both ED and
436 ejaculatory dysfunction.³⁶ Also, patients with SD and CP/CPPS had significantly worse symptoms and
437 quality of life. Another study designed to estimate the prevalence of CP/CPPS in Austria found that
438 IIEF-5 was significantly worse in patients with moderate or severe symptoms, thus showing a negative
439 impact of CP/CPPS on sexual function.³⁷ These patients are also more likely to present with erectile
440 dysfunction and premature ejaculation.²³

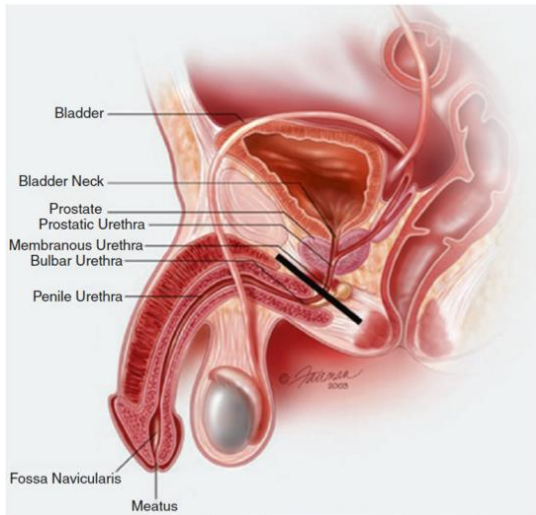
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447 **Figure 1:** Sagittal view of the male urethra. The bold line delineates the anterior from posterior urethra. Furr J.,
 448 Gelman J. (2020) Functional Anatomy of the Male Urethra for the Reconstructive Surgeon. In: Martins F.,
 449 Kulkarni S., Köhler T. (eds) Textbook of Male Genitourethral Reconstruction.

450 **2.1 Urethral meatus:** The distal termination of the urethra. An orthotopic urethral meatus is
 451 a vertically-oriented slit-like opening located on the glans penis.³⁸ **(NEW)**

452 **2.2 Fossa navicularis:** The distal portion of the penile urethra, located within the glans penis,
 453 just proximal to the urethral meatus.^{FN2.1} ³⁸ **(NEW)**

454 **2.3 Penile urethra:** The portion of the urethra extending from the urethral meatus to the
 455 distal part of the bulbocavernosus muscle. The lumen is centered in and completely invested
 456 by the corpus spongiosum.^{FN2.2, FN2.3} ³⁸ **(NEW)**

457 **2.4 Bulbar urethra:** The portion of the urethra between the distal membranous urethra until
 458 the conjunction of the left and right corpus cavernosum. The lumen is surrounded by and sits
 459 eccentrically toward the dorsal portion of the bulbospongiosus of the corpus spongiosum.³⁸
 460 **(NEW)**

461 **2.5 Membranous urethra:** The portion of the urethra which traverses the perineal membrane
 462 and is surrounded by the striated external urethral sphincter.³⁸ **(NEW)**

463 **2.6 Prostatic urethra:** The portion of the urethra extending from the bladder neck to the
 464 proximal edge of the membranous urethra.³⁸ **(NEW)**

465 **2.7 Bladder neck:** The most proximal part of the urethra, creating its connection with the
466 bladder. **(NEW)**

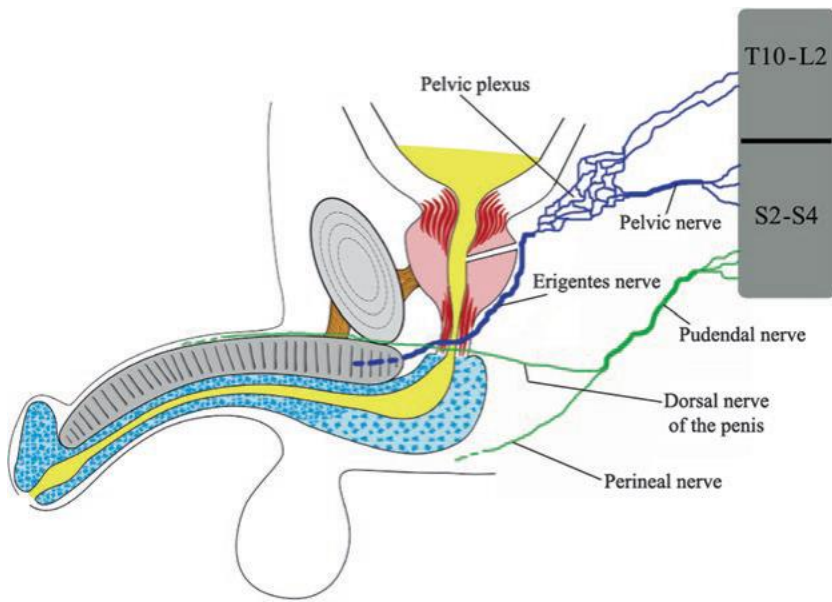
467 **2.8 Cavernous nerves (“Nervi Erigentes”):** These nerves are formed from the distal end of the
468 pelvic plexus and supply sympathetic and parasympathetic innervation to the corpora
469 cavernosa. The cavernous nerves are located at 3 and 9 o’clock positions at the level of the
470 membranous urethra and at 2 and 10 o’clock positions at the level of the proximal bulbar
471 urethra. These nerves are at risk during PFUI (and its repair) as well as bulbar urethroplasty.³⁹
472 **(NEW)**

473 **2.9 Pudendal nerves:** These nerves arise from the S2-S4 spinal nerves and provide somatic
474 innervation to the pelvis and perineum. The pudendal nerve travels with the pudendal vessels
475 in Alcock’s canal, before giving off the inferior rectal nerve and perineal nerve, and then
476 terminating as the dorsal nerve of the penis.^{39,40(chap109)} **(NEW)**

477 **2.10 Perineal nerves:** Branches of the pudendal nerves (7.14), the perineal nerves supply
478 motor innervation to the bulbocavernosus and ischiocavernosus muscles as well as sensory
479 innervation via the posterior scrotal and bulbourethral nerves.^{39,41(chap5)} **(NEW)**

480 **2.11 Dorsal nerves of the penis:** These nerves are the terminal branches of the pudendal
481 nerves. They travel through the deep perineal pouch, exiting just inferior to the pubic
482 symphysis and then run along the dorsal surface of the corpora to reach the glans. The supply
483 sensory innervation to the penis and in particular the glans.^{39,41(chap5)} **(NEW)**

484

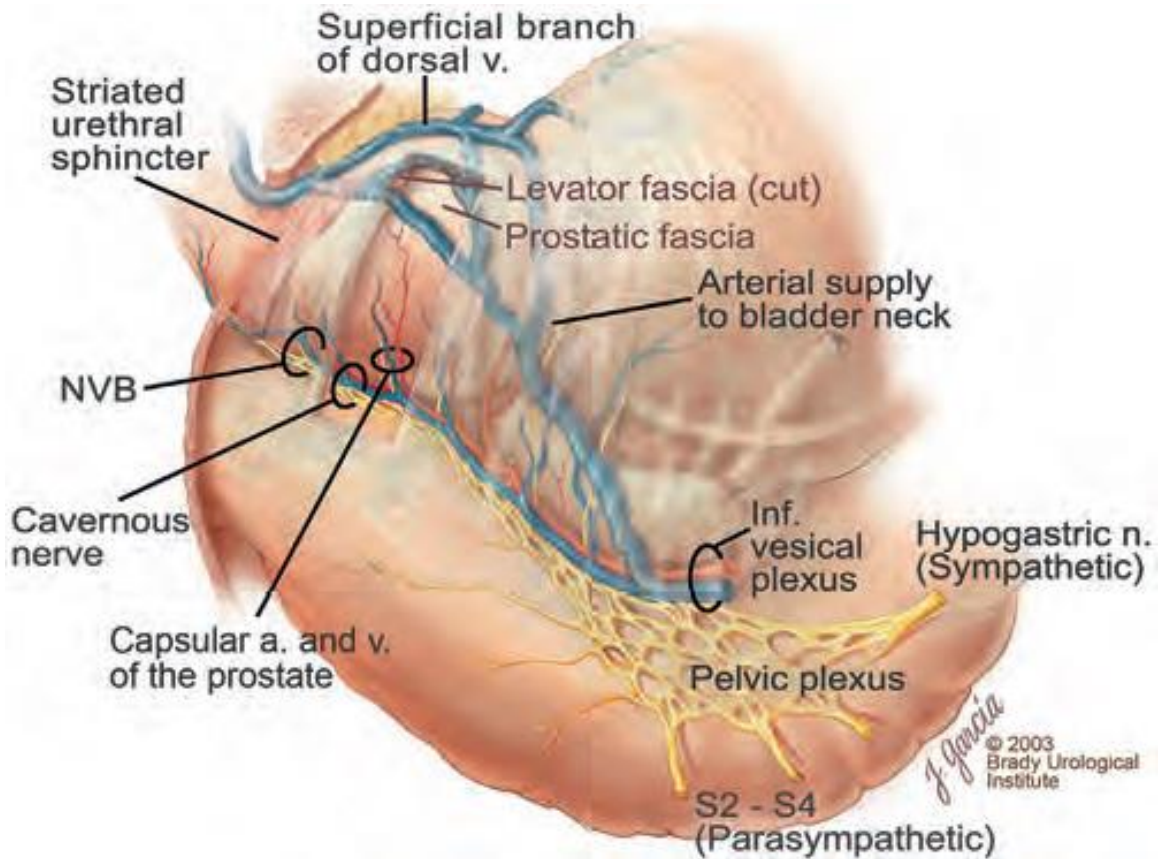


485

486 **Figure 2:** Relationship of the nerves to the urethra. From: Palminteri E, Lumen N, Preto M, Waterloos M. Impact
 487 of Urethral Reconstruction on Sexual Function. In: Martins FE, Kulkarni SB, Köhler TS, eds. *Textbook of Male*
 488 *Genitourethral Reconstruction*. Cham: Springer International Publishing; 2020:427-435.

489

490



491

492 **Figure 3:** Anatomical landmarks related to prostatic neurovascular bundle (NVB).40

493

494 **2.14 Neurovascular bundle (NVB):** Concentration of nerves that are situated posterolaterally
495 and symmetrically to the prostate that are important in preservation of erectile function. The
496 nerves running through the NVB travel outside the capsule of the prostate and Denovilliers
497 fascia until branches perforate the capsule where they enter the prostate.⁴² **(NEW)**

498 **2.15 Cavernous nerve:** Postganglionic parasympathetic nerves that facilitate penile erection.
499 They arise from cell bodies in the inferior hypogastric plexus where they receive the
500 preganglionic pelvic splanchnic nerves (S2-S4).⁴² **(NEW)**

501

502 **Footnotes for section 2:**

503 2.1: An older term “glanular urethra” should not be used.³⁸

504 2.2: The term pendulous urethra is no longer used.

505 2.3: As per the 2002 Stockholm WHO conference and according to the 2010 International Consultation
506 on Urethral Strictures, the terms “anterior” and “posterior” urethra should not be used.³⁸

507

508 **SECTION 3: SYMPTOMS AND QUESTIONNAIRES**

509 **A-) SYMPTOMS**

510 **3.1 Symptom:** Any morbid phenomenon or departure from the normal in structure, function,
511 or sensation, possibly indicative of a disease or health problem. Symptoms are either
512 volunteered by, or elicited from the individual, or may be described by the individual's partner
513 or caregiver.^{3,4}

514 **3.2 Complaint:** The description of the symptom.¹

515 **3.3 Main (Chief) Complaint:** The symptom that a patient states as the main reason for
516 seeking medical advice.¹ The degree of “bother (worry, concern)” for other symptoms can be
517 variable.⁴³

518 **3.4 Lower urinary tract symptom (LUTS):** A symptom related to the lower urinary tract; it
519 may originate from the bladder, prostate, urethra, and/or adjacent pelvic floor or pelvic
520 organs, or at times be referred from similarly innervated anatomy, for example, lower ureter.

521 FN3.1 ⁵ **(CHANGED)**

522 **3.5 Urgency:** Complaint of sudden, compelling desire to pass urine which is difficult to
523 defer.^{5,44,45}

524 **3.6 Urinary incontinence (UI):** Complaint of involuntary loss of urine.⁵

525 **3.7 Urgency urinary incontinence (UUI):** Complaint of involuntary loss of urine associated
526 with urgency.⁵

527 **3.8 Daytime (urinary) frequency:** Number of micturitions during daytime (awake hours).

528 **3.9 Nocturia:** The number of times urine is passed during the main sleep period. Having
529 woken to pass urine for the first time, each urination must be followed by sleep or the
530 intention to sleep. This should be quantified using a bladder diary.⁵

531 **3.10 Ejaculatory pain:** Complaint of pain, pressure, or discomfort felt in the perineum,
532 suprapubic region and/or penis during ejaculation, but may continue for a time afterwards.⁵

533 **3.11 Decreased (low) semen volume:** Complaint of smaller amount of seminal fluid than
534 normal or previously experienced.⁵

535 **3.12 Increased (high) semen volume:** Complaint of higher amount of seminal fluid than
536 normal or previously experienced.⁵

537 **3.13 Semen sequestration:** Trapping of ejaculate in the bulbar urethra, resulting in a
538 decreased force and volume of emission; often secondary to damage to the perineal nerves
539 and/or bulbospongiosus muscle. Manual pressure on the perineum at the level of the bulbar
540 urethra may be required to expel sequestered semen.³⁹ **(NEW)**

541 **3.14 Penile shortening:** A subjective or objective decrease in penile length. Well known to be
542 associated with plication procedures for Peyronie's disease, it is also associated with penile
543 revascularization procedures, anastomotic and augmented urethroplasty, hypospadias
544 repair, and prostate cancer treatment such as radical prostatectomy.^{39,46} **(NEW)**

545 **3.15 Intimacy and sexual avoidance:** Unwillingness or reluctance of engaging in sexual
546 activity or intimacy with others.^{19,47} **(NEW)**

547 **3.16 Pain:** A subjective phenomenon described as an unpleasant sensory and emotional
548 experience associated with actual or potential tissue damage, or described in terms of such
549 damage.²¹

550 **3.17 Chronic pelvic pain:** Characterized by persistent pain lasting longer than 6 months or
551 recurrent episodes of abdominal/pelvic pain, hypersensitivity or discomfort often associated
552 with elimination changes, and sexual dysfunction often in the absence of organic etiology.^{21,48}

553 **3.18 Penile sexual pain:** Penile pain that occurs prior to penetration (ie when an erection
554 occurs), with penetration or post-coital.²¹

555 **3.19 Perineal sexual pain:** may occur during intercourse or after intercourse.²¹

556 **3.20 Orgasmic pain (during ejaculation):** pain may be felt on the penis, ano-rectum, perineum
557 or in the whole pelvis.⁴⁹ **(CHANGED)**

558

559 **B-) QUESTIONNAIRES**

560 **3.21 American Urological Association (AUA) Symptom Index (AUA-SI) for Benign Prostatic**
561 **Hyperplasia (BPH):** A symptom index for BPH which was developed and validated by a
562 multidisciplinary measurement committee of the AUA. It includes 7 questions covering
563 frequency, nocturia, weak urinary stream, hesitancy, intermittency, incomplete emptying,
564 and urgency.^{FN3.2} ⁵⁰ **(NEW)**

565 **3.22 International Prostate Symptom Score (IPSS):** An 8-question written screening tool used
566 to screen for, rapidly diagnose, track the symptoms of, and suggest management of the
567 symptoms of BPH. It contains the seven questions of the AUA symptom index for BPH and
568 one question related to the patient's perceived quality of life (bother score).^{FN3.3} ⁵¹ **(NEW)**

569 **3.23 International Index of Erectile Function (IIEF):** A multi-dimensional and validated self-
570 report instrument for the evaluation of male sexual function.^{FN3.4} ⁵² **(NEW)**

571 **3.24 Sexual Health Inventory for Men (SHIM):** The SHIM questionnaire (also known as the
572 IIEF-5) is an abridged and slightly modified 5-item version of the 15-item IIEF, to diagnose the
573 presence and severity of ED in clinical settings.^{FN3.5} ⁵³ **(NEW)**

574 **3.25 Erection Hardness Score (EHS):** A single-item instrument that asks men to rate erection
575 hardness on a scale that ranges from 0 (penis does not enlarge) to 4 (penis is completely hard
576 and fully rigid).⁵⁴ **(NEW)**

577 **3.26 Male Sexual Health Questionnaire (MSHQ):** A tool for assessing key domains of sexual
578 function and satisfaction in aging men with urogenital symptoms of LUTS and sexual
579 dysfunction. It consists of 25 questions that constitute subscales for Erection, Ejaculation, and
580 Satisfaction.^{FN3.6} ⁵⁵ **(NEW)**

581 **3.27 Premature Ejaculation Profile (PEP):** A self-report questionnaire used to assess 4
582 components of PE: satisfaction with sexual intercourse, control over ejaculation, ejaculation-
583 related distress, and interpersonal difficulty. Each of the 4 individual items is assessed on a
584 5-point scale, and the scores are averaged to provide an index PE score.⁵⁶ **(NEW)**

585 **3.28 Index of Premature Ejaculation (IPE):** A 10-item validated tool which was developed to
586 evaluate sexual satisfaction, control, and distress in men with PE.⁵⁷ **(NEW)**

587 **3.29 Brief male sexual function inventory (BMSFI):** A validated, self-administered 11-item
 588 inventory evaluating male sexual function. There are five domains: Sexual Drive, Erections,
 589 Ejaculation, Problem Assessment, and Overall Satisfaction.^{FN3.7 58} **(NEW)**

590

591 **C-) QUESTIONNAIRES FOR OVERACTIVE BLADDER AND CORRELATION WITH SEXUAL**
 592 **DYSFUNCTION (NEW)**

Questionnaire	Contents	Correlation with SD
OAB-SS (OAB symptom score)	Total score is a sum of four-item scores based on a self-administered questionnaire about four symptoms: daytime frequency (0–2), nighttime frequency (0–3), urgency (0–5), and urgency incontinence (0–5). ⁵⁹	In patients with diabetes, the component of urge incontinence has the strongest impact on ED (OR 4.06, P = 0.013), followed by nocturia (OR 2.71, P < 0.01) and urgency (OR 1.87, P = 0.046). The OR of ED in patients with OAB or OAB wet compared with no OAB was 1.82 (P = 0.056), and 3.6 (P = 0.026), respectively. ^{60,61}
OAB-q (OAB Questionnaire) and HRQL (Health-Related Quality of Life)	33 items that assess impact of OAB bother score and its impact on QOL	Low correlation with SD. ⁶²
OAB-q SF (OAB-q Short Form)	6 items that address urgency, urinary incontinence and nocturia and score them from 1 to 6 based on bother. ⁶³	No validation for sexual QOL
IPSS	See 3.22	There is a strong correlation between IPSS and erectile

		function, intercourse satisfaction, orgasmic and sexual desire. IPSS is also strongly correlated with IIEF. ⁶⁴
CLSS (Core Lower Urinary Tract Symptom Score)	10 symptoms: daytime frequency, nocturia, urgency, urgency incontinence, stress incontinence, slow stream, straining, incomplete voiding, bladder pain, and urethral pain.	Total score and all symptoms but daytime frequency and incomplete voiding have a significant relationship with total IIEF-5 score. ⁶⁵
BFLUTS (Bristol Female Lower Urinary Tract Symptoms Questionnaire)	Among other LUTS, this questionnaire assesses frequency, urgency, nocturia and urgency urinary incontinence.	OAB symptoms have a negative impact on sexual life, especially in patients with OABwet. ^{65,66}
ICIQ-OAB (International Consultation on Incontinence Questionnaire)	4 items: frequency, urgency, nocturia and UUI and bother scale from 0-10 of each item.	The ICIQ-mLUTSsex is an addition of 4 items to assess impact of sex life: erection, ejaculation, pain during ejaculation and impact of urinary symptoms on sex life.

593 **Table 2:** OAB questionnaires, and their correlation with sexual dysfunction.

594

595 **Footnotes for section 3**

596 3.1: LUTS are often associated with male sexual dysfunctions.

597 3.2: History taking in a man presenting with ED should include questions about; age, comorbid medical
598 (endocrinopathies, cardiovascular diseases, neurological disorders) and psychological conditions,
599 prior surgeries, medications, family history of vascular disease, substance use, tobacco use.⁶⁷

600 3.3: The specific LUTS can be divided into storage symptoms (urgency, frequency, nocturia, and urge
601 incontinence) and voiding symptoms (poor stream, hesitancy, feeling of incomplete emptying).
602 Patients are classified into having none or mild, moderate, or severe LUTS based on the IPSS (0–7, 8–
603 21, and 21–35 points, respectively).⁶⁸

604 3.4: The IIEF consists of 15 questions that quantify 5 domains (sexual desire, erectile function,
605 intercourse satisfaction, ejaculatory/orgasmic function, overall sexual satisfaction). The erectile
606 function domain quantifies ED severity on a scale of 5-30, with scores of:

- 607 ● 26-30: normal erectile function
- 608 ● 18-25: mild ED
- 609 ● 11-17: moderate ED
- 610 ● ≤10: severe ED

611 3.5: The SHIM score characterizes the severity of the patient’s ED in the following manner:

- 612 ● 22-25: No ED
- 613 ● 17-21: Mild ED
- 614 ● 12-16: Mild-to-moderate ED
- 615 ● 8-11: Moderate ED
- 616 ● 5-7: Severe ED

617 3.6: A 4-question version of the ejaculation subscale of MSHQ is also available to measure ejaculatory
618 dysfunction.

619 3.7: The BMFSI originally developed by O’Leary has been adapted for use in patient with urethral
620 stricture disease by Erickson et al.⁶⁹

621

622 **SECTION 4: SIGNS AND EXAMINATION**

623 **A-) GENERAL SIGNS AND EXAMINATION FINDINGS**

624 **4.1 Cardiovascular examination:** Part of the physical examination that should include
625 assessment of vital signs (especially blood pressure and pulse) and signs of hypertensive or
626 ischemic heart disease as well as peripheral vascular disease.^{FN4.1, FN4.2} **(NEW)**

627 **4.2 Gynecomastia:** Excessive development of male breast tissue which may or may not be a
628 sign of underlying endocrinological disorder.^{FN4.3} **(NEW)**

629 **4.3 Sarcopenia:** A clinical condition characterized by loss of skeletal muscle and function. It
630 might be a sign of hypogonadism. **(NEW)**

631

632 **B-) PENILE EXAMINATION**

633 **4.4 Peyronie's disease:** A connective tissue disorder involving the growth of fibrous plaques
634 in the soft tissue of the penis. Specifically, scar tissue forms in the tunica albuginea, causing
635 pain, abnormal curvature, erectile dysfunction, indentation, loss of girth and shortening.

636 **(NEW)**

637 **4.5 Stretched penile length:** The penile length as measured by a rigid centimeter ruler, which
638 is placed along the dorsal side of the penis (flaccid, and stretched as comfortably as possible),
639 extending in a parallel fashion from the pubopenile skin junction to the tip of the glans where
640 the pre-pubic fat pad was pushed to the bone.⁷⁰ **(NEW)**

641 **4.6 Penile curvature:** Abnormal bend in the penis occurring during erection which might lead
642 to sexual dysfunction by impairing the ability to penetrate and/or causing pain in the
643 tumescent state. **(NEW)**

644 **4.7 Buried penis:** A congenital or acquired condition in which penis is partially or totally
645 embedded underneath the skin of the abdomen, thigh, or scrotum. **(NEW)**

646 **4.8 Phimosis:** Partial or complete inability to retract the prepuce due to adhesion between
647 the glans and the prepuce or a preputial ring.⁵

648 **4.9 Paraphimosis:** Entrapment of the prepuce behind the glans.⁵

649 **4.10 Hypospadias:** Refers to the urethral meatus sited on the ventral surface of the penis,
650 either congenital or acquired, proximal to its normal position on the tip of the glans.⁵

651 **4.11 Epispadias:** Refers to the urethral meatus sited on dorsal surface of the penis, either
652 congenital or acquired, proximal to its normal position on the tip of the glans.⁵

653 **4.12 Urethral meatal stenosis:** Narrowing of the distal opening of the urethra which may be
654 congenital or occur secondary to infection, inflammation, or as a result of surgical (open or
655 endoscopic) intervention.⁵ **(CHANGED)**

656 **4.13 Lichen sclerosus (LS):** A chronic, inflammatory disease affecting genital skin that is
657 characterized by hypomelanotic and sclerotic changes, often resulting in phimosis, meatal
658 stenosis, and even pan-urethral strictures.⁷¹ **(NEW)**

659

660 **C-) SCROTAL EXAMINATION FINDINGS**

661 **4.14 Epididymitis / epididymo-orchitis:** The inflammatory condition involving epididymis +/-
662 testis. Affected structures may be swollen and tender, and if severe, the inflammatory process
663 may involve the whole scrotal content and the scrotal skin as well.⁵ **(CHANGED)**

664 **4.15 Cystic dilatations of the epididymis:** Epididymal cysts (or spermatocele) and hydroceles
665 (fluid collections between the visceral tunica albuginea and parietal layer of the testicular
666 peritoneum) are usually benign. The examination of these structures would be generally non-
667 tender and without pain.⁵ **(CHANGED)**

668 **4.16 Inguinal hernia:**

669 **4.16.1 Indirect inguinal hernia:** Protrusion of abdominal content through inguinal
670 canal down to the scrotal sac, causing swelling, discomfort and jeopardizing the
671 vascular supply of the herniated intestinal segment. **(NEW)**

672 **4.16.2 Direct inguinal hernia:** Protrusion of abdominal content through a weakness of
673 the posterior wall of the inguinal canal medial to the inferior epigastric vessels. **(NEW)**

674 **4.17 Varicocele:** Abnormal dilation of pampiniform venous plexus which drains blood from
675 each testicle. Varicocele is graded based on the degree of dilation. **(NEW)**

676 **4.17.1 Subclinical varicocele:** Seen on doppler ultrasound imaging, no varicocele on
677 exam.

678 **4.17.2 Grade 1 varicocele:** Palpable with valsalva maneuver. **(NEW)**

679 **4.17.3 Grade 2 varicocele:** Palpable when standing, without valsalva maneuver.
680 **(NEW)**

681 **4.17.4 Grade 3 varicocele:** Visible on inspection. **(NEW)**

682 **4.18 Testicular mass:** Palpation of a mass originating from testis. This might be originating
683 from the testicular parenchyma or its appendages and may be cystic or solid in nature and
684 related to a benign or malignant (more commonly) neoplastic process. **(NEW)**

685 **4.19 Nonpalpable testis:** Absence of testis in the hemiscrotum or inguinal canal. This can be
686 a finding related to cryptorchidism (undescended testicle), testicular atrophy or vanishing
687 testis. **(NEW)**

688 **4.20 Testicular torsion:** Torsion of the spermatic cord structures that leads to vascular
689 compromise involving the ipsilateral testicle. Physical examination might reveal a tender,
690 swollen and erythematous hemiscrotum on the affected side. **(NEW)**

691 **4.21 Absence of vas deferens:** Congenital absence of vas deferens in the hemiscrotum. It may
692 be either unilateral or bilateral. FN4.4 **(NEW)**

693 **4.22 Atrophic testis:** Testicular dimensions being smaller than expected. Consistency of
694 atrophic testes might be softer than usual. Diminished testicular size may be accompanied by
695 loss of function. **(NEW)**

696

697 **D-) DIGITAL RECTAL EXAMINATION FINDINGS**

698 **4.23 Rectal and prostate examination:** Digital rectal examination (DRE) that is generally done
699 with the patient standing and bent over the examining table, or with the patient in the left
700 lateral knees bent position, or in the lithotomy position.⁵ It provides valuable information
701 regarding prostate size, consistency, pelvic floor muscle tone, anal sphincter tone,
702 constipation, and rectal/anal canal masses. It might also raise suspicion for prostate
703 cancer.^{FN4.4} **(CHANGED)**

704 **4.24 Anal tone:** increased or decreased anal sphincter tone might suggest similar changes in
705 the urinary sphincter and may indicate neurologic disease.^{FN4.5}⁵

706 **4.25 Prostate tenderness:** DRE of the prostate is usually painless. Pain with prostatic
707 palpation may be indicative of chronic prostatitis / chronic pelvic pain syndrome.^{FN4.6}⁵
708 **(CHANGED)**

709

710 **E-) NEUROLOGICAL SIGNS AND EXAMINATION FINDINGS**

711 **4.26 Overall neurological status:** Assessment of the abnormalities of speech, gait, as well as
712 upper and lower extremity dexterity which should be noted as they may indicate a
713 neurological cause for the sexual dysfunction.⁵ **(CHANGED)**

714 **4.27 Penile, scrotal, or perianal sensory deficits:** Neurological examination findings that may
715 indicate damage or injury to sacral roots or nerves.⁵ **(CHANGED)**

716 **4.28 Glans hypoesthesia:** Reduced sensitivity of the glans penis. This may be associated with
717 hypospadias and its treatment, penile revascularization procedures, bulbar urethroplasty.^{FN4.7}
718 ^{39,46} **(NEW)**

719 **4.29 Bulbospongiosus reflex (BSR):** A reflex contraction of the striated muscle of the pelvic
720 floor (anal sphincter) and the bulbospongiosus muscle that occurs in response to various
721 stimuli in the perineum or genitalia.⁵

722 **4.30 Cremasteric reflex:** Contraction of the ipsilateral cremaster muscle, drawing the testis
723 upwards, when the upper inner aspect of the thigh is stroked longitudinally.⁵

724

725 **Footnotes for section 4**

726 4.1: As obesity is one of the most important risk factors for ED, it should be assessed and documented
727 during ED work-up.

728 4.2: Abdominal or femoral artery bruits and asymmetric or absent lower extremity pulses may be
729 indicative of underlying vasculogenic etiology. Skin and hair pattern evidence of vascular insufficiency
730 should be noted.

731 4.3: General physical examination of patients with ED should include assessment for signs of
732 testosterone deficiency (e.g., gynecomastia, underdeveloped facial/pubic/axillary hair), penile skin
733 lesions and placement/configuration of the urethral meatus, documentation of flaccid stretched
734 penile length (especially if the man is considering penile prosthesis implantation or surgical
735 intervention), the presence/absence of a palpable plaque, general assessment of the scrotal skin and
736 palpation of the testicles to assess for size, consistency, and location.

737 4.4: Congenital absence of vas deferens is commonly associated with cystic fibrosis that occurs as a
738 result of a mutation in the CFTR gene. A smaller percentage of patients might have unilateral renal
739 agenesis.

740 4.5: Digital rectal examination (DRE) is not required for evaluation of ED; however, BPH is a common
741 comorbid condition in men with ED and may merit evaluation and treatment. During DRE, prostate
742 size and consistency can be estimated, although DRE tends to underestimate true prostate size. DRE
743 may also allow assessment of the bulbocavernosus reflex, which provides information on neural
744 integrity of the pelvis. Anal tone can help in the assessment of pelvic floor muscle tone and may be
745 used to teach and tailor pelvic floor muscle exercises.⁶⁷

746 4.6: Non-urological conditions such as anal fissure, abscess or hemorrhoids or other painful situations
747 of the anal canal can elicit pain upon DRE.

748 4.7: Although less recognized, penile hypoesthesia may not be limited to the glans. Procedures
749 requiring penile disassembly may also result in penile shaft hypoesthesia.

750

751 **SECTION 5: INVESTIGATIONS**

752 **A-) LABORATORY TESTS**

753 Blood tests are not normally included in ICS Terminology Reports. However, certain serum-based
754 measurements hold critical importance in the diagnosis and treatment of ED.

755 **5.1 Testosterone:** Total testosterone can be measured in men with ED to determine if
756 testosterone deficiency (TD) is present.^{FNS.1}⁶⁷ **(NEW)**

757 **5.1.1 Free testosterone:** Fraction of total testosterone that is unbound plasma to proteins.
758 **(NEW)**

759 **5.1.2 Sex hormone binding globulin (SHBG):** A plasma protein that is produced by the liver
760 and transports sex hormones (estradiol, testosterone, dihydrotestosterone) in the blood as
761 biologically inactive forms. **(NEW)**

762 **5.1.3 Bioavailable testosterone:** Bioavailable testosterone represents an assessment of the
763 biologically active testosterone in serum. It includes the free plus weakly protein bound
764 fractions of testosterone and is calculated by a formula integrating serum albumin, SHBG, and
765 total testosterone. **(NEW)**

766 **5.2 Prostate specific antigen (PSA):** Serum prostate specific antigen (PSA) level is measured
767 for prostate cancer screening and to gather additional information about the size of the
768 prostate and associated inflammatory changes.^{FN5.2} **(NEW)**

769

770 **B-) IMAGING STUDIES**

771 **5.3 Retrograde urethrography (RUG):** Imaging of the urethra with serial fluoroscopic images
772 during retrograde injection of contrast material. The patient should be positioned obliquely
773 in order to adequately visualize the urethra. Used mainly to diagnose urethral strictures or
774 diverticula, it is also of use to diagnose and stage urethral trauma.^{5,72} **(NEW)**

775 **5.4 Voiding cystourethrography (VCUG):** Imaging of the bladder, bladder neck, urethra, and
776 prostate during voiding. The principal use is determining the site of any obstruction, for
777 example, bladder neck or prostate. It can also detect vesico-ureteric reflux, vesical or urethral
778 fistulae, vesical or urethral diverticula and strictures.^{5,72}

779 **5.5 Sonourethrography:** Ultrasound examination of the urethra, providing information on the
780 location and length of stricture as well as the degree of spongiofibrosis.⁷³ **(NEW)**

781 **5.6 Dynamic infusion cavernosometry and cavernosography (DICC):** A combined evaluation
782 of intracavernosal pressures and radiographic assessment of penile blood flow. It is used to
783 identify vasculogenic leak in patients being considered for penile vascular surgery.^{FN5.3} ^{40(chap27)}
784 **(NEW)**

785 **5.7 Penile duplex ultrasonography:** Use of real-time ultrasound with and without vasoactive
786 medications for pharmacologically induced erection to evaluate the flow velocities in the
787 dorsal penile and cavernosal arteries.^{40(chap27)} **(NEW)**

788 **5.8 Pudendal angiography:** Imaging of the pudendal arteries for patency using injection of
789 intravascular contrast and fluoroscopic imaging.^{FN5.4 40(chap40)} **(NEW)**
790

791 **C-) OTHER DIAGNOSTIC TESTS / PROCEDURES**

792 **5.9 Cystourethroscopy:** Direct visual inspection of the urethra and bladder with a rigid or
793 flexible cystoscope. It is the gold-standard for diagnosing the presence or absence of urethral
794 stricture disease, however it is not sufficient for complete staging.⁷² **(NEW)**

795 **5.10 Urodynamic Studies (UDS):** Measurement of all the physiological parameters relevant
796 to the function and any dysfunction of the lower urinary tract. Urodynamic investigations
797 generally involve an individual attending with a comfortably full bladder for free (no catheter)
798 uroflowmetry and post-void residual (PVR) measurement prior to filling cystometry and
799 pressure-flow study.^{FN5.5}

800 **5.11 Nocturnal penile tumescence (NPT) testing:** A diagnostic test for evaluating the penile
801 veno-occlusive mechanism. Penile rigidity is monitored using a specialized device (often the
802 Rigiscan®) for at least two consecutive nights. Three periods of penile tip rigidity of greater
803 than 70%, lasting for at least 10 minutes each, each night, defines normal nocturnal erectile
804 function.^{FN5.6 46,74} **(NEW)**

805 **5.12 Pudendal somatosensory evoked potentials (SEP):** A neurophysiologic test which can
806 be used to support the diagnosis of a neurogenic cause of erectile dysfunction. The test should
807 be performed as per the International Federation of Clinical Neurophysiology guidelines. A
808 latency time >48ms is considered abnormal (the mean normal latency is 37ms).^{74,75} **(NEW)**

809

810 **Footnotes for section 5**

811 5.1: Routine blood work-up of ED that includes the measurements of serum testosterone,
812 glucose/hemoglobin A1c, and in some cases serum lipids.⁶⁷

813 5.2: Studies that might be appropriate in some men if recent laboratory results are not available. These
814 include; serum BUN/Cr, fasting lipids, fasting glucose or hemoglobin A1c, and morning testosterone,
815 thyroid function studies (i.e. thyroid-stimulating hormone, free T4) and PSA.^{6,7}

816 5.3: DICC useful in patients with a history of pelvic trauma or those with primary (lifelong) erectile
817 dysfunction. Nevertheless, it is not commonly used within the context of ED diagnostic work-up.

818 5.4: After PFUI, if neither pudendal artery is intact, the patient may benefit from penile artery
819 revascularization before PFUI repair in order to improve erectile potency.

820 5.5: Urodynamic studies might need to be conducted if sexual dysfunction is thought to be originating
821 from lower urinary tract dysfunction. Better assessment and treatment of the underlying urinary
822 condition with the help of urodynamic studies might serve to improve the management of sexual
823 health-related problems.

824 5.6: A normal NPT rules out a veno-occlusive cause of erectile dysfunction, but other etiologies are
825 still possible.

826

827 **SECTION 6: DIAGNOSES**

828 **6.1 Erectile dysfunction (ED):** Consistent or recurrent inability to attain and/or maintain a
829 penile erection sufficient for sexual satisfaction and/or sexual intercourse.⁶ **(CHANGED)**

830 **6.2 Hypogonadism:** A term introduced to signify low testosterone levels associated with
831 infertility. It has more recently been used interchangeably with the idea of low testosterone
832 production alone.⁹ **(NEW)**

833 **6.3 Premature ejaculation (PE):** Complaint of a persistent or recurrent pattern of too rapid
834 achievement of ejaculation during partnered sexual activity, that is, before the individual
835 wishes it.⁵ It is accompanied by negative personal consequences, such as distress, bother,
836 frustration, and/or the avoidance of sexual intimacy.⁶ **(CHANGED)**

837 **6.4 Retrograde ejaculation:** Expulsion of seminal fluid into the bladder because of bladder
838 neck dysfunction in the presence of otherwise normal emission and expulsion. There can be
839 no or small amounts of antegrade ejaculation. Retrograde ejaculation is defined
840 independently from the sensation of orgasm.⁶ **(NEW)**

841 **6.5 Benign prostatic obstruction (BPO):** A term used to describe bladder outlet obstruction
842 (BOO) secondary to BPE and, therefore, usually due to BPH. Bladder outlet obstruction is an
843 urodynamic entity and can only be diagnosed via pressure-flow studies.¹⁴ **(NEW)**

844 **6.6 Prostatitis:** An inflammatory disease of the prostate generally affecting younger men and
845 causing pain and discomfort mostly in the perineal and scrotal region which can be associated
846 with LUTS and/or sexual dysfunction.¹⁵ **(NEW)**

847 **6.7 Overactive bladder (OAB) syndrome:** Urinary urgency, usually accompanied by increased
848 daytime frequency and/or nocturia, with urinary incontinence (OAB-wet) or without (OAB-
849 dry), in the absence of urinary tract infection or other detectable disease.¹⁶

850 **6.8 Male chronic genital pain syndromes:** Male genital pain syndromes are often associated
851 with symptoms suggestive of lower urinary tract and sexual dysfunction. Common
852 complaints: genital pain, uncomfortable urination, dysuria, sensation of residual urine,
853 increased daytime frequency, slow stream, urgency, dyspareunia. Absence of infection,
854 previous operations, or other obvious pathology.²¹

855 **6.9 Chronic prostatitis / Chronic pelvic pain syndrome (CP/CPPS):** Persistent or recurrent
856 prostate and/or pelvic pain, associated with symptoms suggestive of urinary tract and/or
857 sexual dysfunction. No proven infection or other obvious pathology is present to account for
858 the symptoms. Pain may be referred to the bladder, perineum, testicles, penis and/or groin.⁷⁶
859 **(CHANGED)**

860 **6.10 Urethral stenosis:** A narrowing of the anterior urethra, caused by spongiofibrosis of the
861 corpus spongiosum.³⁸ **(NEW)**

862 **6.11 Posterior urethral stenosis:** Narrowing of the membranous urethra, prostatic urethra,
863 or bladder neck, when the prostate is still in-situ.^{38,77} **(NEW)**

864 **6.12 Vesicourethral anastomotic stenosis (VAS):** Narrowing of the posterior urethra after
865 radical prostatectomy.⁷⁷ **(NEW)**

866 **6.13 Lichen sclerosus (LS):** A chronic, inflammatory disease affecting genital skin that is
867 characterized by hypomelanotic and sclerotic changes, often resulting in phimosis, meatal
868 stenosis, and even pan-urethral strictures.^{FN6.1} ⁷¹ **(NEW)**

869 **6.14 Urethral trauma**

870 **6.14.1 Blunt urethral trauma:** An injury to the urethra from a non-penetrating injury.
871 May include straddle injuries, deceleration injuries, penile fracture, and pelvic fracture
872 urethral injuries.³⁸ **(NEW)**

873 **6.14.2 Iatrogenic urethral trauma:** Injury to the urethra resulting from
874 instrumentation of the urethra, such as with cystoscopy or catheterization, or
875 treatment of disease in the urethra or prostate, such as urethral dilation, transurethral
876 resection of the prostate, prostate radiation, or radical prostatectomy.³⁸ **(NEW)**

877 **6.14.3 Pelvic fracture urethral injury (PFUI):** A urethral distraction injury, typically
878 involving the bulbomembranous junction. Previously known as *pelvic fracture urethral*
879 *distraction defects*, this term should be reserved for cases of PFUI with loss of urethral
880 continuity.^{38,78} **(NEW)**

881 **6.14.4 Penetrating urethral trauma:** Injury to the urethra resulting from an object
882 passing into or through the urethra from outside the body. Gunshot wounds, stab
883 injuries, and penile amputation are examples of penetrating urethral trauma. **(NEW)**

884 **5.14.5 Straddle Injury:** Injury to the bulbar urethra resulting from a blunt trauma
885 which compresses the bulbar urethra against the inferior pubic rami. May be remote,
886 or even not recalled by the patient.⁷⁹ **(NEW)**

887 **6.15 Post-infectious stricture:** Urethral stricture disease developing as a result of gonococcal
888 and nongonococcal (*Ureaplasma urealyticum*, *Mycoplasma genitalium*, schistosomiasis, and
889 tuberculosis) urethritis.^{38,79} **(NEW)**

890 **6.16 Prostate cancer (CaP):** Development of cancer from the prostate gland.^{FN6.2} ⁴⁰ **(NEW)**

891 **6.16.1 Localized:** Cancer confined to the gland of the prostate.^{FN6.3} ⁸⁰ **(NEW)**

892 **6.16.2 Locally-advanced:** Spread of prostate cancer outside the prostate capsule,
893 involvement of the seminal vesicles or involvement of adjacent organs without distant
894 metastasis. **(NEW)**

895 **6.16.3 Metastatic:** Distant spread of prostate cancer to other areas of the body
896 beyond the pelvis, most notably bone and lymph nodes. Spread can also occur to the
897 liver and lungs. **(NEW)**

898

899 **Footnotes for section 6**

900 6.1: Lichen sclerosus was previously known as *Balanitis Xerotica Obliterans (BXO)*, but this term is no
901 longer in widespread use.

902 6.2: The most common pathologic subtype of prostate cancer is adenocarcinoma. Other types include
903 small cell carcinoma, neuroendocrine tumor, urothelial carcinoma and sarcoma.⁴⁰

904 6.3: Localized prostate cancer can be categorized based on PSA, PSA density, clinical stage digital rectal
905 exam, grade group, amount of cancer on biopsy and imaging results. This risk stratification allows for
906 better prediction of survival and appropriate counselling regarding treatment options.⁸⁰

907

908 **SECTION 7: CONSERVATIVE AND PHARMACOLOGICAL TREATMENTS FOR SEXUAL**
909 **DYSFUNCTION (GENERAL)**

910 **7.1 Psychotherapy:** Psychotherapy and psychosexual counseling focus on helping patients
911 and their partners improve communication about sexual concerns, reduce anxiety related to
912 entering a sexual situation and during a sexual situation, and discuss strategies for integrating
913 ED treatments into their sexual relationship.⁶⁷ **(NEW)**

914 **7.2 Lifestyle recommendations:** Dietary changes, weight loss, physical activity increases, and
915 smoking cessation that may improve overall health and ameliorate the comorbidities
916 associated with ED.⁶⁷ **(NEW)**

917 **7.3 Herbal therapy:** Plant-derived remedies that can provide alternatives for men to improve
918 their sexual health.^{FN7.1} ⁸¹ **(NEW)**

919 **7.4 Phosphodiesterase type 5 inhibitors (PDE5i):** Oral medication used to block the action of
920 phosphodiesterase type 5 on cyclic guanosine monophosphate in the smooth muscle cells
921 causing a vasodilation of the arteries in the corpora cavernosa of the penis facilitating an
922 erection during sexual stimulation.^{FN7.2, FN7.3} **(NEW)**

923 **7.4.1 On-demand dosing of PDE5i:** PDE5i being taken prior to anticipated sexual
924 intercourse. **(NEW)**

925 **7.4.2 Daily dosing of PDE5i:** PDE5i being taken on a daily basis, irrespective of sexual
926 activity.^{FN7.4} **(NEW)**

927 **7.4.3 Instructions in the appropriate use of PDE5i:** Instructions that include the fact
928 that sexual stimulation is necessary and that more than one trial with the medication
929 may be required to establish efficacy. It should include information regarding the

930 medications' characteristics with regard to the onset of action, duration of action, and
931 whether food intake limits efficacy. Discussion on side effects should include common
932 PDE5i side effects as well as drug-specific side effects. **(NEW)**

933 **7.5 Vacuum erection device (VED):** Negative-pressure chambers that provide passive
934 engorgement of the corpora cavernosa, together with a constrictor ring placed at the base of
935 the penis to retain blood within the corpora.²⁵ **(NEW)**

936 **7.6 Intraurethral alprostadil:** Topical application of the vasoactive agent alprostadil, which is
937 an analogue of prostaglandin E1. Herein, a specific formulation of alprostadil in a medicated
938 pellet (MUSE™) that includes a permeation enhancer in order to facilitate absorption of
939 alprostadil is administered via the urethral meatus.²⁵ **(NEW)**

940 **7.6.1 In-office test of intraurethral alprostadil:** An in-office consultation that has to
941 be made with every patient being prescribed intraurethral alprostadil that includes
942 instructions about the method, initial dose-titration, detailed counseling regarding
943 possible adverse reactions and actions to take in response to potentially serious side
944 effects.⁶⁷ **(NEW)**

945 **7.7 Intracavernous injection (ICI):** Injecting vasoactive agents into the corpus cavernosa of
946 the penis to produce an erection. The four substances commonly used in clinical practice are
947 alprostadil, papaverine, phentolamine, and atropine.^{FN7.5} ⁶⁷ **(NEW)**

948 **7.7.1 Single agent:** ICI of alprostadil **(NEW)**

949 **7.7.2 Bimix:** ICI of papaverine + phentolamine **(NEW)**

950 **7.7.3 Trimix:** ICI of alprostadil + papaverine + phentolamine **(NEW)**

951 **7.7.4 Quadmix:** ICI of alprostadil + papaverine + phentolamine + atropine **(NEW)**

952 **7.8 In-office injection test:** An in-office consultation that has to be made with every patient
953 being recommended ICI of vasoactive agents which aims to determine the appropriate dose
954 and medication(s) to produce sufficient duration of response and to minimize AEs.^{FN7.6} ⁶⁷
955 **(NEW)**

956 **7.9 Penile rehabilitation:** Program that aims to help men regain the ability to achieve
957 erections sufficient for satisfactory sexual intercourse during rehabilitation from prostate
958 cancer treatment, and ultimately return to pretreatment erectile function.^{FN7.7} ⁸² **(NEW)**

959

960 **Footnotes for section 7**

961 7.1: Panax ginseng, Butea superba, Epimedium herbs (icariin), Tribulus terrestris, Securidaca
962 longipedunculata, Piper guineense, and yohimbine have been investigated for ED.⁸¹

963 7.2: The FDA-approved oral PDE5i available for management of ED in the U.S. include sildenafil,
964 tadalafil, vardenafil, and avanafil. Several other PDE5i have been approved for use in other countries.⁶⁷

965 7.3: For men with LUTS/BPH and ED, sildenafil and tadalafil appear to have similar efficacy to treat
966 ED. There are no studies of vardenafil or avanafil that focused on men with LUTS/BPH and ED. All
967 studies of men with LUTS/BPH and ED used daily dosing because of the beneficial urinary tract effects
968 of PDE5i.⁶⁷

969 7.4: This approach is particularly suitable for tadalafil 5mg.

970 7.5: Only alprostadil is FDA-approved in the U.S. for ICI.⁶⁷

971 7.6: This in-office test also helps the man achieve confidence with the technique and to facilitate
972 adherence.⁶⁷

973 7.7: The use of any intervention or interventions whose goal is broadly thought of as being aimed at
974 restoring satisfactory erectile functioning.⁸²

975

976 **SECTION 8: SURGICAL TREATMENTS FOR SEXUAL DYSFUNCTION (GENERAL)**

977 **8.1 Implantation of penile prosthesis:** The surgical implantation of a penile prosthesis for
978 patients who do not respond to more conservative therapies or who prefer a permanent
979 solution to their ED.²⁵ **(NEW)**

980 **8.1.1 Inflatable penile prosthesis (IPP):** The penile prosthesis type which can be
981 inflated by the patient to create an erection on demand and deflated at other times.¹⁰

982 **(NEW)**

983 **8.1.1.1 3-piece IPP:** The IPP type which consists of a fluid-filled reservoir
984 implanted under the abdominal wall, a pump and a release valve placed in the
985 scrotum, and two inflatable cylinders inside the penis.¹⁰ **(NEW)**

986 **8.1.1.2 2-piece IPP:** The IPP type which works in a similar way as the 3-piece
987 IPP, but the fluid reservoir is part of the pump implanted in the scrotum.¹⁰

988 **(NEW)**

989 **8.1.2 Semirigid (malleable) penile prosthesis (MPP):** The penile prosthesis type which
990 consists of two flexible rods that are placed inside the penis. Once implanted with the
991 malleable prosthesis, the penis can be bent away from the body for sexual intercourse
992 and toward the body for concealment.²⁵ **(NEW)**

993 **8.2 Penile artery revascularization:** A variety of surgical techniques that may be used to
994 reestablish arterial flow to the penis. This is generally reserved for patients with proven
995 pudendal or penile arterial anomalies secondary to post-traumatic lesions or congenital
996 disorders.⁴⁶ **(NEW)**

997 **8.3 Treatments that warrant further investigation (see appendix):** Low-intensity
998 extracorporeal shock-wave therapy (LI-SWT), Platelet-rich plasma (PRP) therapy,
999 Intracavernosal stem cell therapy, Nerve graft.

1000

1001 **SECTION 9: TREATMENTS FOR LUTS/BPH AND RELATED SEXUAL DYSFUNCTIONS**

1002 **A-) CONSERVATIVE AND PHARMACOLOGICAL TREATMENT OPTIONS FOR LUTS/BPH**

1003 **9.1 Watchful waiting:** Recommended treatment option for patients with an IPSS score of less
1004 than 7 who feel that their symptoms are manageable and do not have signs of postrenal
1005 compromise. This treatment consists of the patient decreasing their fluid intake, minimizing
1006 caffeinated and alcoholic beverages, and avoiding cholinergic medications.^{67,25} **(NEW)**

1007 **9.2 Phytotherapy:** Utilization of herbal preparation (plant extracts) to address LUTS/BPH
1008 either alone or in combination with oral pharmacotherapy.^{FN9.1} ⁶ **(NEW)**

1009 **9.3 Alpha-blockers:** The first-line pharmacotherapeutic options for LUTS/BPH which are
1010 effective at relieving emptying phase symptoms via blockade of the alpha-adrenergic
1011 receptors in the prostate and the bladder neck.⁸³ **(NEW)**

1012 **9.3.1 Alpha-blocker and ejaculatory dysfunction (EjD):** Alpha-adrenergic antagonists
1013 may cause anejaculation. The effect of alpha-blockers on EjD in men with LUTS is
1014 significantly affected by two agents (tamsulosin and silodosin). The other alpha-
1015 blockers have little or no impact on EjD.⁶ **(NEW)**

1016 **9.4 5-Alpha reductase inhibitors (5-ARI):** Medications that inhibit the enzyme responsible for
1017 the conversion of testosterone to dihydrotestosterone (DHT), which is a more potent
1018 androgen and is responsible for prostate growth and development. There are 2 drugs in this
1019 category; finasteride inhibits only type 2 of 5-AR, and dutasteride inhibits both types 1 and
1020 2.⁸³ **(NEW)**

1021 **9.4.1 5-ARI and sexual dysfunction:** The effect of 5ARI on sexual function in men with
1022 LUTS is modest with effects on penile erection, ejaculation, sexual desire, and includes
1023 a small risk of post-finasteride syndrome.^{FN9.2} ⁶ **(NEW)**

1024 **9.5 Beta-3 agonists:** A medication class which can be used to improve storage phase LUTS.
 1025 Mirabegron, a beta-3 agonist, exerts its clinical effect via relaxation of the bladder smooth
 1026 muscle and increasing bladder storage capacity. **(NEW)**

1027 **9.6 Anticholinergics (Antimuscarinics):** Medications that exert their clinical effect via blocking
 1028 muscarinic (predominantly M3 type) receptors in the bladder and can be used to address
 1029 storage phase LUTS.⁸⁴ **(NEW)**

1030 **9.7 Phosphodiesterase type 5 inhibitors (PDE5i):** PDE5i might be used to address LUTS/BPH
 1031 by inhibition of the PDE5 in the prostate, causing smooth muscle relaxation by a mechanism
 1032 similar to the one postulated for alpha blockers. **(NEW)**

1033

1034 **B-) SURGICAL TREATMENT OPTIONS FOR LUTS/BPH⁸⁵**

1035

Treatment	Potential sexual side effect
Alpha-blockers	Retrograde ejaculation, reversible anejaculation
5-Alpha reductase inhibitors	Erectile dysfunction, loss of libido, reduction of ejaculate volume, post-finasteride syndrome
Transurethral resection of prostate (TURP)	Retrograde ejaculation, anejaculation, erectile dysfunction
Transurethral incision of prostate (TUIP)	Retrograde ejaculation (lower risk than TURP)
Simple prostatectomy	Retrograde ejaculation, anejaculation
Laser prostatectomy	Retrograde ejaculation (lower risk than TURP)

1036 **Table 3:** Potential sexual side effects related to LUTS/BPH treatment.^{FN9.3, FN9.4}

1037

1038 **Footnotes for section 9**

1039 9.1: They are derived from the roots, seeds, bark, or fruits of the various plants used. Saw palmetto
 1040 (serenoa repens), pygeum africanum, cucurbita pepo, secale cereale, urtica dioica and quercetin have
 1041 all been reported as possible treatments for LUTS/BPH.⁶

1042 9.2: The impact on ejaculation is likely more significant than that on erection and libido. There seems
1043 to be no significant difference between the two agents that are currently available.⁶

1044 9.3: Interventions for LUTS/BPH have numerous sexual side effects, including retrograde ejaculation,
1045 orgasmic dysfunction, and erectile dysfunction. Sexual side effects from surgical treatments are more
1046 likely to be permanent than those from medical treatments, which can often be reversed by stopping
1047 medical treatment or switching to an alternative treatment.

1048 9.4: Surgical interventions which involve resection and/or incision at the level of bladder neck (TURP,
1049 TUIP, open prostatectomy) increase the risk of retrograde ejaculation.

1050

1051 **SECTION 10: TREATMENTS FOR URETHRAL STRICTURE DISEASE AND RELATED SEXUAL**
1052 **DYSFUNCTIONS**

1053 **A-) NOMENCLATURE OF URETHRAL STRICTURE DISEASE**

1054 **10.1 Urethral stenosis:** A narrowing of the anterior urethra, caused by spongiofibrosis of the
1055 corpus spongiosum.³⁸ **(NEW)**

1056 **10.2 Posterior urethral stenosis:** Narrowing of the membranous urethra, prostatic urethra,
1057 or bladder neck, when the prostate is still in-situ.^{FN10.1,10.2 38,77} **(NEW)**

1058 **10.3 Vesicourethral anastomotic stenosis (VAS):** Narrowing of the posterior urethra after
1059 radical prostatectomy.^{FN10.2 77} **(NEW)**

1060

1061 **B-) SURGICAL TREATMENT OPTIONS FOR URETHRAL STRICTURE DISEASE⁸⁵**

Treatment	Potential sexual side effects
Direct visual internal urethrotomy (DVIU)	Erectile dysfunction
Penile urethroplasty	Poor penile cosmesis, erectile dysfunction (lower risk than bulbar urethroplasty)
Bulbar urethroplasty	Erectile dysfunction, penile curvature, penile shortening, glans hypoesthesia, semen sequestration

Posterior urethral reconstruction	Erectile dysfunction, penile curvature, penile shortening, glans hypoesthesia, semen sequestration, retrograde ejaculation
-----------------------------------	--

1062 **Table 4:** Treatment modalities addressing urethral stricture disease, and their sexual health-related side
1063 effects.^{FN10.3}

1064

1065 **Footnotes for section 10:**

1066 10.1: Commonly secondary to treatment for prostate cancer such as brachytherapy or external beam
1067 radiation. May also be secondary to treatments for BPH such as TURP.

1068 10.2: Posterior urethral stenosis and vesicourethral anastomotic stricture are preferred over other
1069 terms such as bladder neck stenosis or contracture, prostatic urethral stenosis, and
1070 bulbomembranous stricture.

1071 10.3: Other terms such as visual internal urethrotomy (VIU) and optical internal urethrotomy (OIU)
1072 are sometimes used, but DVIU is the preferred term. Erectile dysfunction after DVIU occurs at a rate
1073 between around 2-10% of cases; mechanisms include damage to the cavernous nerves, fistula
1074 creation between corpus cavernosum and spongiosum, and fibrosis from extravasation of irrigant and
1075 infectious complications.⁸⁶

1076

1077 **SECTION 11: TREATMENTS FOR OVERACTIVE BLADDER AND RELATED SEXUAL**
1078 **DYSFUNCTION**

1079 **A-) CONSERVATIVE AND PHARMACOLOGICAL TREATMENT OPTIONS FOR OAB**

1080 **11.1 Behavioral treatments for OAB:** considered first-line treatment, these therapies aim at
1081 symptomatic improvement by changing behavioral and environmental issues. **(NEW)**

1082 **11.1.1 Bladder training:** It consists of a program of patient education, along with a
1083 scheduled voiding regimen with gradually adjusted voiding intervals.^{FN 11.1}⁸⁷

1084 **11.1.2 Prompted voiding:** is used to teach people to initiate their own toileting
1085 through requests for help and positive reinforcement from caregivers, often done in
1086 combination with a scheduled voiding regimen, typically every 2h.⁸⁷

1087 **11.1.3 Double voiding:** The patient is taught to urinate, relax, and attempt to urinate
1088 again. It is especially useful for patients with incomplete voiding and high post-void
1089 residue.⁸⁷ **(CHANGED)**

1090 **11.1.4 Scheduled or timed voiding:** A passive toileting assistance program, initiated
1091 and maintained by caregivers for patients who cannot participate in independent
1092 toileting. It is a fixed voiding schedule.⁸⁷

1093 **11.1.5 Self-monitoring:** This strategy is part of bladder training and consists of
1094 registering voiding habits in a bladder diary. **(NEW)**

1095 **11.1.6 Habit training:** Consists of a toileting schedule matched to the individual's
1096 voiding patterns based on their voiding diary. The toileting schedule is assigned to fit
1097 a time interval that is shorter than the person's normal voiding pattern and precedes
1098 the time period when incontinent episodes are expected.⁸⁷

1099 **11.1.7 Lifestyle modifications:** Weight loss and smoking cessation have been shown
1100 to reduce LUTS, urgency and urinary incontinence in patients with OAB.⁸⁸ **(NEW)**

1101 **11.1.8 Dietary modifications:** Consists of reducing or eliminating bladder irritants
1102 from the diet.^{FN 11.2}⁸⁷ **(CHANGED)**

1103 **11.2 Pelvic floor muscle training (PFMT):** Exercise to improve PFM strength, endurance,
1104 power, relaxation, or a combination of these parameters.⁸⁷

1105 **11.3 Frequency volume chart (FVC):** The recording of the time of each micturition together
1106 with the volume voided for at least 24 hours. Ideally a minimum of 3 days of recording (not
1107 necessarily consecutive) will generally provide more useful clinical data. It is relevant to
1108 discriminate between daytime and night-time micturition.⁵

1109 **11.3.1 Bladder diary:** Adds to the FVC, the fluid intake, pad usage, incontinence
1110 episodes, the degree of incontinence and the circumstances at the time of the leakage.
1111 Episodes of urgency and sensation might also be recorded, as might be the activities
1112 performed during or immediately preceding the involuntary loss of urine. Additional
1113 information obtained from the bladder diary involves: severity of incontinence in
1114 terms of leakage episodes and pad usage.⁵

1115 **11.4 Pharmacologic treatment for OAB:** considered second-line treatment, may be used in
1116 combination with first-line treatments. **(NEW)**

1117 **11.4.1 Antimuscarinics:** see 9.6.

1118 **11.4.2 Beta-3 agonists:** see 9.5.
 1119 **11.4.3 Combination therapy:** this treatment consists of administering an
 1120 antimuscarinic together with a beta-3 agonist.^{FN11.3}⁸⁹ **(NEW)**
 1121 **11.4.4 PDE5i:** This treatment reduces OAB symptoms through the phosphodiesterase
 1122 - nitric oxide pathway.^{FN11.4}⁹⁰ **(NEW)**

1123

1124 **B-) SURGICAL (INVASIVE) TREATMENT OPTIONS FOR OAB**

1125 **11.5 Third-line treatment for OAB:** these therapies include intradetrusor botulinum toxin
 1126 injection, peripheral tibial nerve stimulation (PTNS) and sacral neuromodulation. **(NEW)**

1127 **11.5.1 Intradetrusor botulinum toxin injection:** injection of onabotulinumtoxinA in
 1128 the bladder wall to induce detrusor muscle relaxation. **(NEW)**

1129 **11.5.2 Peripheral (or posterior tibial) nerve stimulation (PTNS):** A neuromodulation
 1130 technique that consists in stimulating the posterior tibial nerve with a transcutaneous
 1131 or percutaneous electrode to modulate the neuronal activity of bladder nerves that
 1132 share the same dorsal root as the posterior tibial nerve (S3). **(NEW)**

1133 **11.5.3 Sacral neuromodulation (SNM):** this neuromodulation technique consists in
 1134 percutaneously implanting a set of electrodes in the S3 foramen connected to an
 1135 external (temporary) or subcutaneous (permanent) stimulator to modulate the
 1136 activity of bladder nerves. **(NEW)**

1137 **11.6 Fourth-line treatment for OAB:** considered as last resort for patients that have failed all
 1138 previous treatments, these include augmentation cystoplasty and urinary diversion. **(NEW)**

1139

Treatment	Effect on SD
Lifestyle modifications	A healthy lifestyle has been shown to reduce OAB, SD and their risk factors. ^{91,92}
Antimuscarinics	Transdermal oxybutinin for OAB showed an improvement in patient's sex life, a positive effect on relationships and an increase in sexual interest. ⁹³
PDE5i	A well-known treatment for SD, daily tadalafil has been shown to also improve OAB symptoms. ⁹⁰
Sacral neuromodulation	Some studies have shown improvement in sexual function in neurogenic patients. ^{94,95}

1140 **Table 5:** Effect of OAB treatments on sexual dysfunction.

1141

1142 **Footnotes for section 11**

1143 11.1: In the past, bladder training has also been referred to as bladder drill, bladder discipline, bladder
1144 re-education, and bladder retraining. Specific goals are to correct faulty habit patterns of frequent
1145 urination, improve control over bladder urgency, prolong voiding intervals, increase bladder capacity,
1146 reduce incontinent episodes, and restore patient confidence in controlling bladder function.

1147 11.2: Bladder irritants include oxalate-rich food (ie spinach, orange, berries, chocolate, coffee, black
1148 tea, tofu, soya, sodas), alcoholic drinks and spicy food.

1149 11.3 PDE5i have also been combined with β 3-adrenoceptor agonists with good results.⁹⁶

1150 11.4 Despite it hasn't been officially recommended in international guidelines, the effects of PDE5i
1151 have been well established in randomized clinical trials and have a positive effect in patients with SD.⁹⁰

1152

1153 **SECTION 12: TREATMENTS FOR CHRONIC PROSTATITIS / CHRONIC PELVIC PAIN SYNDROME**
1154 **AND RELATED SEXUAL DYSFUNCTION⁹⁷⁻⁹⁹ (NEW)**

1155

1156 **A-) CONSERVATIVE AND PHARMACOLOGICAL TREATMENT OPTIONS FOR CHRONIC**
1157 **PROSTATITIS / CHRONIC PELVIC PAIN SYNDROME (CP / CPPS)**

1158 **12.1 Non-pharmacological therapies for CP / CPPS:** these therapies aim at symptomatic
1159 improvement by changing behavioral and environmental issues and also include minimally-
1160 invasive therapies with a low risk for adverse events.¹⁰⁰ **(NEW)**

1161 **12.1.1 Acupuncture:** procedure that consists in inserting acupuncture needles in
1162 specific anatomic locations or "acupoints".¹⁰¹ **(NEW)**

1163 **12.1.2 Lifestyle modifications:** treatment based on avoiding irritant food, having a
1164 balanced diet, adopting certain sexual habits, avoiding perineal trauma and having a
1165 healthy lifestyle.¹⁰² **(NEW)**

1166 **12.1.3 Physical activity:** treatment based on a regular exercise program.¹⁰³ **(NEW)**

1167 **12.1.4 Extracorporeal shockwave therapy:** periodic stimulation of the perineum with
1168 extracorporeal low-energy shockwaves.¹⁰⁴ **(NEW)**

1169 **12.1.5 Transrectal thermotherapy:** application of transrectal radiofrequency
1170 hyperthermia on the prostate.¹⁰⁵ **(NEW)**

1171 **12.1.6 Cystoscopy and bladder hydrodistention:** procedure that consists in distending
 1172 the bladder during cystoscopy, at a pressure of 80 to 100 cmH₂O, lasting 1 to 2
 1173 minutes and up to 2 times.^{49,106} **(CHANGED)**

1174 **12.1.7 Neuromodulation:** see 11.5.3

1175 **12.1.8 Transurethral resection:** see 9.10

1176 **12.1.9 Pelvic floor muscle training (PFMT):** see 11.2

1177 **12.2 Pharmacological therapies for CP / CPPS: different treatments that aim at alleviating**
 1178 **and controlling CP and CPPS via pharmacological pathways.** ¹⁰⁷ **(NEW)**

1179 **12.2.1 Alpha blockers:** see 9.3

1180 **12.2.2 5-alpha reductase inhibitors (5-ARI):** see 9.4

1181 **12.2.3 Antibiotics:** this treatment is indicated for chronic bacterial prostatitis
 1182 (category II of the NIH, see 1.30.2). ¹⁰⁷ **(NEW)**

1183 **12.2.4 Anti-inflammatories:** nonsteroidal anti-inflammatory drugs (NSAIDs)
 1184 treatment is based on decreasing the pain mediated by inflammatory pathways. ¹⁰⁷
 1185 **(NEW)**

1186 **12.2.5 Phytotherapy:** see 9.2

1187 **12.2.6 Nerve blockade/Epidural pain pump:** treatment based on the administration
 1188 of analgesics directly into the epidural space with a small catheter and a pump. **(NEW)**

1189 **12.1.7 Botulinum toxin injections of the prostate⁸⁵ and/or bladder (see 11.5.1)**

1190 **12.1.8 Phosphodiesterase type 5 inhibitors (PDE5i):** see 7.4. PDE5i may alleviate
 1191 Cp/CPPS symptoms by reducing oxidative stress and inflammation on the prostate and
 1192 pelvic floor. ¹⁰⁸ **(NEW)**

1193

Treatment	Direct effect on SD
Tension reduction, relaxation, physical therapy, lifestyle modifications	Usually beneficial ⁹⁷⁻⁹⁹
Psychotherapy and multidisciplinary pain management	Usually beneficial ⁹⁷⁻⁹⁹
Nonsteroidal anti-inflammatory drugs (NSAID)	No direct effect on SD

Opioids	Chronic use is associated with worsening of SD ¹⁰⁹
Tricyclic antidepressants (TCA)	Amitriptyline may have a negative impact on arousal and libido, especially on depressive patients ¹¹⁰
Anticonvulsants	Pregabalin may cause ED, anorgasmia and loss of libido ¹¹¹
PDE5i	May improve CPPS symptoms as well as SD ¹¹²
Pentosan polysulfate (PPS)	No direct effect on SD
Intravesical therapy (Pentosan polysulfate, DMSO, hyaluronic acid, chondroitin sulfate)	No direct effect on SD
Bladder hydrodistention	No direct effect on SD
Nerve blockade/Epidural pain pump	No direct effect on SD
Botulinum toxin injection	No direct effect on SD
Neuromodulation	Some studies have shown improvement in sexual function in neurogenic patients ^{94,95}
Transurethral resection	Retrograde ejaculation

1194 **Table 6:** Treatment modalities addressing CP/CPPS, and their sexual health-related side effects.

1195

1196 **SECTION 13: TREATMENTS FOR PROSTATE CANCER AND RELATED SEXUAL DYSFUNCTIONS**

1197 **A-) CONSERVATIVE, PHARMACOLOGICAL, AND NONSURGICAL TREATMENT OPTIONS FOR**
 1198 **PROSTATE CANCER**

1199 **13.1 Active surveillance (AS):** A treatment plan that involves closely watching a patient's
 1200 condition but not giving any treatment unless there are changes in test results that show the
 1201 condition is getting worse. This is suitable for men with favorable-risk prostate cancer (very
 1202 low to low-risk) who wish to avoid treatment associated harm. Intervention for cure is
 1203 pursued in those who experience disease progression while on active surveillance.¹¹³ **(NEW)**

1204 **13.2 Watchful waiting (WW):** Waiting until the disease progresses to intervene with a
 1205 palliative approach. Historically the aim of watchful waiting was to avoid treatment
 1206 altogether among men with a limited life expectancy and advanced disease detected in an
 1207 era when screening was not routine.⁴⁰ **(NEW)**

1208 **13.3 Androgen deprivation therapy (ADT):** An antihormone therapy used to control prostate
1209 cancer. Prostate cancer cells require androgens to grow. ADT reduces the levels of androgens
1210 in the body thereby slowing prostate cancer growth and progression.^{FN13.1} ¹¹⁴ **(NEW)**

1211 **13.4 Radiation therapy:** Delivery of ionizing radiation treatments to the prostate to control
1212 or kill malignant cells.^{FN13.2} ¹¹⁵ **(NEW)**

1213 **13.4.1 Brachytherapy:** Delivery of radioactive material sealed in needles, seeds, wires
1214 or catheters directly into the prostate gland for curative management of prostate
1215 cancer.^{115,116} **(NEW)**

1216 **13.4.1.1 Low-dose rate (LDR) brachytherapy:** Utilizes radioactive seeds that
1217 are implanted based on pretreatment and intraoperative image-guidance
1218 according to a computer plan.^{FN13.3} ¹¹⁵ **(NEW)**

1219 **13.4.1.2 High-dose rate (HDR) brachytherapy:** Utilizes temporary catheters
1220 implanted in the prostate to allow for the delivery of a high-activity radiation
1221 source.^{FN13.4} ¹¹⁵ **(NEW)**

1222 **13.4.2 External beam radiation therapy (EBRT):** A form of radiation therapy that uses
1223 multiple radiation beams and/or arcs to provide a highly conformal treatment of the
1224 prostate with normal tissue sparing of adjacent organs, such as the rectum and
1225 bladder.¹¹⁵ **(NEW)**

1226 **13.4.3 Conformal radiation therapy:** A type of 3D radiation therapy that uses
1227 computer-generated images to show the size and shape of the tumor. As a result, a
1228 higher and more effective dose of radiation can be delivered directly to cancerous
1229 cells.¹¹⁷ **(NEW)**

1230 **13.4.4 Intensity-modulated radiation therapy (IMRT):** A type of 3D radiation therapy
1231 that uses computer-generated images to show the size and shape of the tumor. Thin
1232 beams of radiation of different intensities are aimed at the tumor from many angles.
1233 This type of radiation therapy reduces the damage to healthy tissue near the
1234 tumor.^{118,119} **(NEW)**

1235 **13.4.5 Stereotactic body radiation therapy (SBRT):** A form of radiation therapy that
1236 uses photon-based IMRT to deliver hypofractionated radiation usually in five or fewer
1237 fractions of treatment to kill malignant cells.¹¹⁵ **(NEW)**

1238 **13.4.6 Proton beam radiation therapy:** A type of radiation therapy that uses streams
1239 of protons (tiny particles with a positive charge) to kill tumor cells. This type of

1240 treatment can reduce the amount of radiation damage to healthy tissue near a
1241 tumor.¹¹³ **(NEW)**

1242 **13.5 Focal therapy:** Tissue-preserving strategy aimed to target the cancer and not the whole
1243 organ when it is morphometrically possible to do so and thus reduce damage to collateral
1244 tissues.¹²⁰ **(NEW)**

1245 **13.5.1 Cryotherapy:** Focal delivery of the cryoprobe transrectally to the prostate to
1246 induce extremely low temperatures with subsequent thawing. This process results in
1247 direct cellular injury and a delayed inflammation-mediated mechanism of cellular
1248 destruction.¹²⁰ **(NEW)**

1249 **13.5.2 High-intensity focused ultrasound (HIFU):** Focal delivery of ultrasonic waves
1250 (frequencies 0.8 to 3.5 MHz) to selectively initiate cellular damage. The energy of the
1251 ultrasonic waves is absorbed by the target tissue and converted to heat causing
1252 coagulative necrosis. Furthermore, inertial cavitation is caused by alternating cycles
1253 of compression and rarefaction.¹²⁰ **(NEW)**

1254 **13.5.3 Irreversible electroporation:** Delivery using a Nanoknife system to deploy a
1255 low-energy direct current to a targeted region within the prostate.¹²¹ **(NEW)**

1256 **13.5.4 Laser ablation:** Utilization of a laser to focally ablate the tissue.¹²¹ **(NEW)**

1257 **13.5.5 Photodynamic therapy:** Use of pharmacological agents that become active in
1258 the presence of light (photosensitizers) to kill malignant cells.¹²¹ **(NEW)**

1259 **13.5.6 Radiofrequency ablation (RFA):** Use of a bipolar radiofrequency ablation probe
1260 transperineally to deliver radio waves that heat and destroy abnormal cells.^{121,122}
1261 **(NEW)**

1262

1263 **B-) SURGICAL TREATMENT OPTIONS FOR PROSTATE CANCER**

1264 **13.6 Radical prostatectomy (RP)⁸⁵**

1265 **13.6.1 Nerve spare:** Avoidance of electrocautery and high anterior release with careful
1266 lateral dissection and gentle lateral traction preserves the neurovascular bundles
1267 (NVBs; Figure 3) as they course anterior to Denovilliers' fascia at the posterolateral
1268 edge of the prostate.^{FN13.5, FN13.6} ¹²³ **(NEW)**

1269 **13.6.2 Salvage prostatectomy:** Operative removal of the prostate with the goal of
1270 successfully eradicating locally recurrent cancer after definitive radiation therapy.^{FN13.7}
1271 ⁴⁰ **(NEW)**

1272

1273

Treatment	Potential sexual side effect
Active surveillance (AS)	Erectile dysfunction, loss of sexual desire ^{124,125}
Androgen deprivation therapy (ADT)	Ejaculatory dysfunction, erectile dysfunction, hypogonadism, loss of sexual desire, orgasmic disorder, penile shortening ^{126,127}
Focal therapy	Erectile dysfunction ^{120,128}
Radiation therapy	Ejaculatory dysfunction, erectile dysfunction ¹²⁹
Radical prostatectomy (RP)	Climacturia, ejaculatory dysfunction, erectile dysfunction, orgasmic dysfunction, peyronie's, penile shortening ¹³⁰⁻¹³²
Watchful waiting (WW)	-

1274 **Table 7:** Potential sexual side effects of each prostate cancer treatment.

1275

1276 Footnotes for section 13

1277 13.1: ADT is used as a radiosensitizer with radiation therapy to cure localized prostate cancer or alone
1278 to control locally-advanced or metastatic prostate cancer.

1279 13.2: Radiation therapy is used in combination with androgen deprivation therapy to treat localized
1280 prostate cancer with curative intent.¹¹⁵

1281 13.3: Standard LDR brachytherapy is 120 Gy.¹³³

1282 13.4: Standard HDR brachytherapy is 38 Gy delivered in 4 fractions, 2 times daily for 2 days.¹³³

1283 13.5: The sparing of nerves during radical prostatectomy is the only method to date that can
1284 preserve erectile function.^{134,135}

1285 13.6: A meta-analysis of studies with > 12 months follow-up post RP reported that use of bilateral
1286 nerve spare with associated with a 60% erectile function recovery rate (95% CI 58.0-62.0; 21 studies)
1287 compared to a rate of 47% (95% CI 42.0 - 53.0; 12 studies for use of a unilateral nerve-sparing
1288 technique).¹²³

1289 13.7: To be a candidate the patient must have excellent health with a life expectancy of more than 15
1290 years, no evidence of metastatic disease with prostate biopsy, histologic grade, clinical examination
1291 findings and serum PSA levels suggesting localized disease).⁴⁰

1292

1293 **AREAS FOR FURTHER RESEARCH**

1294 This consultation was performed by several experts in the field of male sexual dysfunction
1295 and functional urology. The definitions have different levels of empirical support, and some
1296 are based on expert clinical opinion, rather than a strong evidence base. Further research
1297 should be conducted to determine the support for these definitions and that, where
1298 necessary, appropriate modifications will be made to reflect these research findings.

1299

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1301 No discussion on terminology should fail to acknowledge the fine leadership shown by the ICS
1302 over many years. The legacy of that work by many dedicated clinicians and scientists is
1303 present in all the Reports by the different Standardization Committees and Working Groups.
1304 It is pleasing that the ICS leadership has accepted this vital initiative as a means of progress in
1305 this important and most basic area of Terminology and its Standardization.

1306



1307

1308

1309 This document has involved ... rounds of full review, by coauthors, of an initial draft (OA, EK)
1310 with the collation of comments and figures. Included in the review process were as follows:
1311 (i) 6 external expert reviewers; (ii) an open ICS website review; (iii) ICS Standardisation
1312 Steering Committee review and (iv) ICS Board of Trustees review.

1313 The process was subject to live meetings in Florence (September 2017, planning), and in-
1314 person Working Group Meetings in Philadelphia (August 2018), and Gothenburg (September
1315 2019). There were also 2 teleconferences (March and May 2019). Thereafter, we held
1316 monthly online Working Group Meetings, between February - November 2020. Versions 8 to
1317 13 underwent comprehensive reformatting based on the comments of BH (Ex chair, ICS SSC),
1318 which included structural changes, redactions, and revisions with regard to scientific content.

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1322 ICS SSC) and further revisions were applied based on his recommendations. Version 15 was
1323 subject to ICS website publication and an open public forum discussion again through the ICS
1324 website and ICS social media accounts. We’d like to express our sincere gratitude to everyone
1325 who provided formal and/or informal feedback throughout this process. Version ... was sent
1326 for ICS Board review. As there were no significant changes, Version ... was submitted to
1327 Neurourology and Urodynamics in ... to appear in the Journal in ... This document and all the
1328 **NEW** or **CHANGED** definitions will be uploaded to the **ICS GLOSSARY** (www.ics.org/glossary)
1329 where immediate electronic access to definitions and document download is available.

1330

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- 1713
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1715 **Appendix:**

1716

1717 **Low-intensity extracorporeal shock-wave therapy (LI-SWT):** Extracorporeal application of
1718 low intensity shock wave which is a kind of acoustic wave that carries energy and that, when
1719 propagating through a medium, can be targeted and focused noninvasively to affect a distant
1720 selected anatomic region. When LI-ESWT is applied to penis, the shock waves interact with
1721 the targeted tissues and induce a cascade of biological reactions which in turn triggers
1722 neovascularization with subsequent improvement of the blood supply.¹³⁶ **(NEW)**

1723

1724 **Platelet-rich plasma (PRP) therapy:** PRP is an autologous product obtained from whole blood
1725 that contains high concentrations of platelet-derived growth factors and provides
1726 a fibrin framework over platelets that has the potential to support the regenerative matrix
1727 and promote recovery in damaged tissues. PRP therapy denotes intracavernosal injection of
1728 autologous platelet-rich plasma concentrates to address erectile dysfunction.¹³⁷ **(NEW)**

1729

1730 **Intracavernosal stem cell therapy:** Intracavernosal injection of stem cells, which are derived
1731 from multiple tissue sources (such as bone marrow, adipose tissue) and have the potential
1732 for self-replication, proliferation and differentiation, to restore erectile function.¹³⁸ **(NEW)**

1733

1734 **Nerve graft:** Interposition of sural nerve graft at the time of RP is proposed to help recovery
1735 of erectile function in men who had both cavernous nerves resected.¹³⁹ **(NEW)**