

REVIEW

Anatomy of Sex: Revision of the New Anatomical Terms Used for the Clitoris and the Female Orgasm by Sexologists

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Sexual medicine experts and sexologists must spread certainties on the biological basis of the female orgasm to all women, not hypotheses or personal opinions. Therefore, they must use scientific anatomical terminology. The anatomy of the clitoris and the female orgasm are described in textbooks, but some researchers have proposed a new anatomical terminology for the sexual response in women. The internal/inner clitoris does not exist: the entire clitoris is an external organ. The clitoris is not composed of two arcs but of the glans, body, and crura or roots. "Clitoral bulbs" is an incorrect term from an embryological and anatomical viewpoint: the correct term is "vestibular bulbs." The bulbocavernosus muscles are implicated in inferior vaginismus, while the pubo-vaginal muscle is responsible for superior vaginismus. The clitoral or clitoris-urethro-vaginal complex has no embryological, anatomical and physiological support: the vagina has no anatomical relationship with the clitoris, and the clitoris is a perineal organ while the supposed G-spot is in the pelvic urethra. G-spot/vaginal/clitoral orgasm, vaginally activated orgasm, and clitorally activated orgasm, are incorrect terms: like "male orgasm," "female orgasm" is the correct term. The "vaginal" orgasm that some women report is always caused by the surrounding erectile organs (triggers of female orgasm). The male penis cannot come in contact with the venous plexus of Kobelt or with the clitoris during vaginal intercourse. Also, female ejaculation, premature ejaculation, persistent genital arousal disorder (PGAD), periurethral glans, vaginal-cervical genitosensory component of the vagus nerve, and G-spot amplification, are terms without scientific basis. Female sexual satisfaction is based on orgasm and resolution: in all women, orgasm is always possible if the female erectile organs, i.e. the female penis, are effectively stimulated during masturbation, cunnilingus, partner masturbation, or during vaginal/anal intercourse if the clitoris is simply stimulated with a finger. Clin. Anat. 28:293–304, 2015. © 2014 Wiley Periodicals, Inc.

Key words: clitoris; clitoral complex; G-spot; vaginal orgasm; female sexual function; G-spot amplification

INTRODUCTION

Orgasm is a normal psycho-physiological function of humans: women have the right to feel sexual pleasure, and for this reason sexual medicine experts and sexologists must spread certainties on the biological basis of the female orgasm to all women, not

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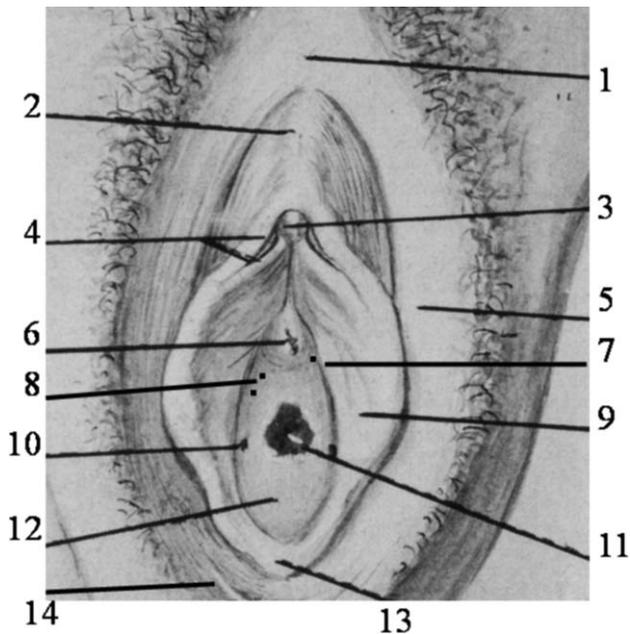


Fig. 1. The vulva (from Puppo, 2011a). 1. Anterior commissure; 2. Clitoral body covered by the prepuce; 3. Clitoral glans; 4. Labia minora: the lateral parts form the prepuce of the clitoris, the medial parts form the frenulum of the clitoris; 5. Labia majora; 6. External urethral orifice; 7. Duct of Skene's gland; 8. Ducts of minor vestibular glands; 9. Labia minora; 10. Duct of Bartholin's gland; 11. Vaginal orifice; 12. Hymen; 13. Frenulum of labia minora; 14. Posterior commissure.

hypotheses or personal opinions, and they must use scientific sexual terminology. The embryology, anatomy and physiology of the female erectile organs, triggers of orgasm, are often neglected by sexological and sexual medicine textbooks, and some researchers have proposed and divulged new anatomical and physiological terminology for the sexual response in women. The aim of this review is to clarify whether these new terms used for the clitoris and female orgasm by sexual medicine experts and sexologists have a scientific basis.

CLITORAL TERMINOLOGY WITHOUT SCIENTIFIC BASIS

For some researchers the clitoris is also an "internal/inner" organ: "except for the labia, glans clitoris and vaginal introitus, the female urogenital tissues are internal" (O'Connell et al., 1998); "the internal clitoris may have individual differences bigger than 100%" (Gravina et al., 2008); "the internal clitoris is, in fact, involved and stimulated during penetration" (Buisson et al., 2010); "The G-spot (or area) is composed of individually different amounts of cavernosal tissue from the inner clitoris" (Jannini et al., 2010); "contact of the internal clitoris and the AVW... stimulation of the external or internal clitoris" (Jannini et al., 2012); "sexual pleasure from vaginal penetra-

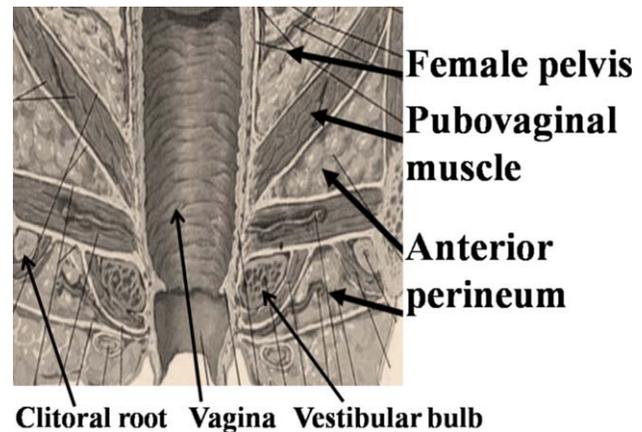


Fig. 2. The female perineum (from Puppo, 2014a).

tion, leading to orgasm, could result from indirect stimulation of the inner clitoris" (Jannini et al., 2014); "the internal portion of the clitoris" (Vaccaro et al., 2014); "the external component of the clitoral complex is the glans" (Oakley et al., 2014).

The external female genitalia, or vulva, are formed by the labia majora and vestibule, with its erectile apparatus: clitoris, vestibular bulbs with the pars intermedia, and labia minora. These structures are external to the urogenital diaphragm in the superficial anterior perineal region (Figs. 1 and 2). The entire clitoris is an external genital organ: the glans and body covered by the prepuce are visible/free while the roots are hidden, so the "internal" clitoris does not exist (Dickinson, 1949; Masters and Johnson, 1966; Testut and Latarjet, 1972; Chiarugi and Bucciante, 1975; Standring, 2008; Paulsen and Waschke, 2011; Puppo, 2013a, 2014a,c; Netter, 2014).

Some researchers have stated: "the clitoris is composed of two arcs, the first consisting of two corpora cavernosa along the right and left ischiopubic ramus; they join on the summit of the vulva to form a bend 90 degrees forward: the raphe; the raphe ends in the glans clitoris, the visible part of the clitoris. The second arc consists of two bulbs that surround the lateral walls of the vagina" "the bulbs and cavernous bodies forming the erectile root of the clitoris" "the double arch of the cavernous bodies and bulbs of the clitoris" (Buisson, 2010; Buisson et al., 2010; Jannini et al., 2012, 2014); "the bulbs of the clitoris" (O'Connell et al., 1998, 2005, 2008; Gravina et al., 2008; Jannini et al., 2010, 2012, 2014); "the components of the clitoris, including the glans, body, crura, bulb, and root" (Oakley et al., 2014).

The clitoris is the homologue of the male's glans and corpus cavernosa (Fig. 3). The clitoris, in the free part of the organ, is composed of the glans and the body located inside the prepuce; in its hidden part the clitoris is composed of the roots or crura, which are located alongside the ischiopubic ramus. The roots are joined under and in front of the pubic symphysis and constitute the body of the clitoris (not the "raphe"),

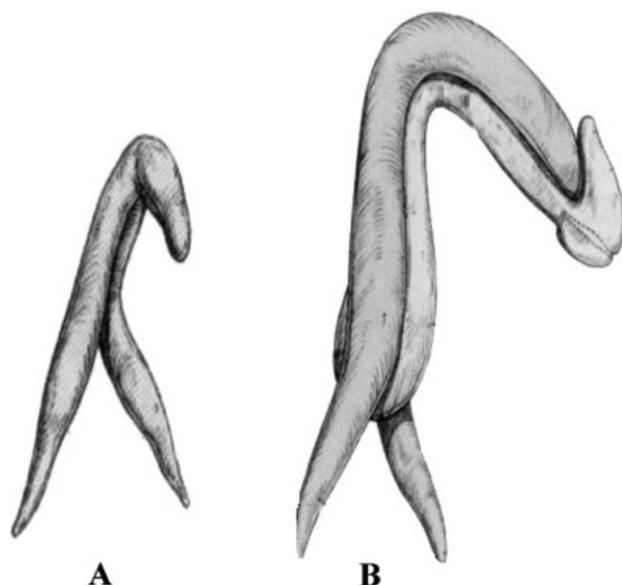


Fig. 3. The clitoris and the penis (from Puppo, 2011a, 2014a). **A.** Clitoris: corpora cavernosa (roots and body) and glans; **B.** Penis: corpora cavernosa and corpus spongiosum (glans, pars intermedia, and bulb).

which terminates in the glans. The roots, as in males, are covered by the ischiocavernosus muscles (Fig. 4). The clitoris is not composed of “two arcs” (Dickinson, 1949; Masters and Johnson, 1966; Testut and Latarjet, 1972; Chiarugi and Bucciante, 1975; Standring, 2008; Paulsen and Waschke, 2011; Puppo, 2011a, 2011b, 2013a, 2014a,c; Netter, 2014).

The vestibular bulbs correspond to the bulb of the penis. They are two erectile organs situated in the anterior region of the perineum (i.e., bulbo-clitoral region), and they are covered by the bulbocavernosus muscles (Figs. 3 and 4), which are implicated in inferior vaginismus, while the pubovaginal muscle is responsible for superior vaginismus (Fig. 5). “Bulbs of the clitoris” is an incorrect term from an embryological and anatomical viewpoint. The bulbs do not in fact develop from the phallus and they do not belong to the clitoris (as the male bulb does not belong to the male corpora cavernosa): the correct term for these female structures is vestibular bulbs (Dickinson, 1949; Masters and Johnson, 1966; Testut and Latarjet, 1972; Chiarugi and Bucciante, 1975; Standring, 2008; Paulsen and Waschke, 2011; Puppo, 2011a, 2011b, 2013a, 2014a; Netter, 2014).

FEMALE PENIS, NOT CLITORAL COMPLEX

Some researchers have stated: “distal vagina, distal urethra... should be included in the term clitoris” (O’Connell et al., 1998); “The presence of pseudocavernous tissue (clitoral bulb) in the anterior vaginal mucosa is a frequent but not universal finding (86%)” (Gravina et al., 2008); “a comprehensive overview of the anatomy of the distal vagina... the lateral walls

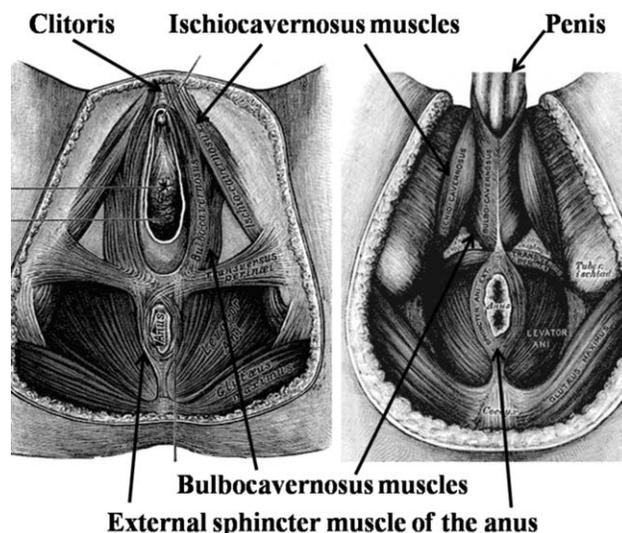
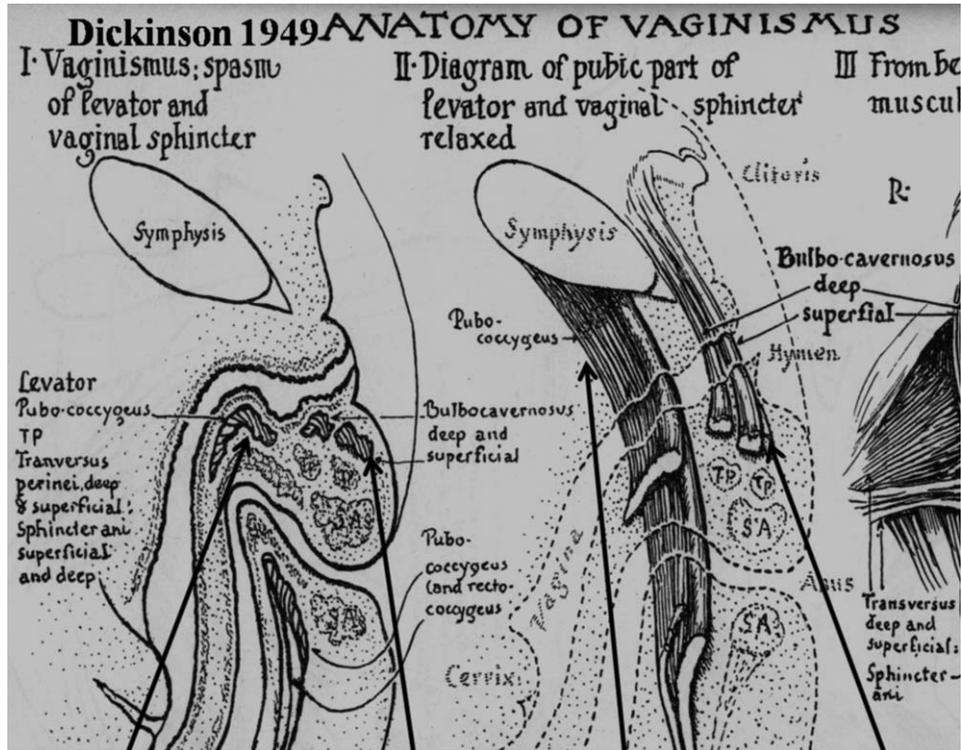


Fig. 4. Female and male superficial perineal muscles (from Wikipedia/Perineum).

are very different from the posterior vaginal wall... The other components are the walls of the vagina and its associated exocrine glands... The labia, like the clitoris, are derived embryologically from the undifferentiated phallus... the clitoris itself, in turn, being covered by the vulva... Deep to the vaginal wall mucosa laterally lies only the clitoris... distal urethra... The distal vagina is a structure that is so interrelated with the clitoris that it is a matter of some debate whether the two are truly separate structures... the distal vagina, the site of the female sexual response... the Clitoro-Urethro-Vaginal Complex... The clitoral complex, composed of the distal vagina, urethra, and clitoris, is the location of female sexual activity, analogous to the penis in men” (O’Connell et al., 2008); “clitoral complex... the clitoris-urethro-vaginal (CUV) complex” (Gravina et al., 2008; Buisson et al., 2010; Jannini et al., 2010, 2012, 2014; Oakley et al., 2014; Vaccaro, 2014; Vaccaro et al., 2014); “clitoral complex is analogous to the male penis” (Vaccaro, 2014); “Beyond the G-spot... the CUV complex a definition that more accurately and scientifically describes the true nature of the G-spot” (Jannini et al., 2014).

The definition of “clitoral complex” is based on the studies by O’Connell et al. (2008), but in this article, published by the *Journal of Sexual Medicine*, O’Connell et al. fail to describe the “anatomy of the distal vagina,” because nothing is written about the size of the “distal vagina” or its gross and microscopic anatomical structure! In addition: the female urethra is only 3- to 4-cm long and the authors do not clarify the meaning of “distal urethra”; they do not define the differences between the lateral and posterior walls of the vagina; there are no exocrine glands in the walls of the vagina; the labia minora and the vagina are not formed from the phallus; the clitoris is not “covered by the vulva,” it is a part of the vulva, and it does not lie deep to the vaginal wall mucosa laterally; the distal vagina is not the site of the female sexual response;



The pubovaginalis muscle is responsible for superior vaginismus.
The bulbocavernosus muscles are responsible for inferior vaginismus.

Fig. 5. Inferior and superior vaginismus (from Puppo, 2014a).

the vagina and clitoris are two separate structures: the vagina has no anatomical relationship with the clitoris (Fig. 6) (Dickinson, 1949; Masters and John-

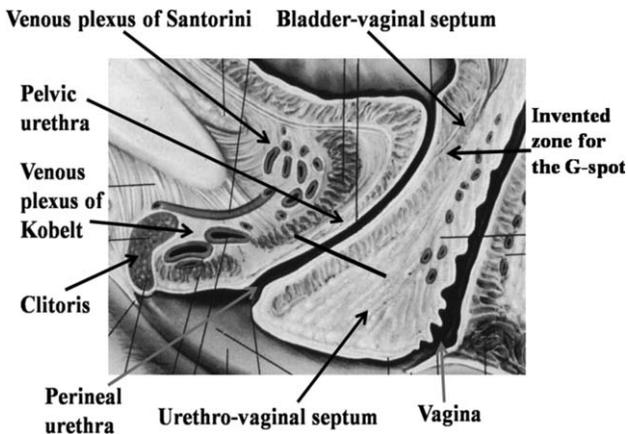


Fig. 6. The vagina has no anatomical relationship with the clitoris (from Puppo, 2011a, 2014a,b).

son, 1966; Testut and Latarjet, 1972; Chiarugi and Bucciante, 1975; Standring, 2008; Paulsen and Waschke, 2011; Puppo, 2011a, 2011b, 2013a, 2014a,c; Netter, 2014)!

There is no “clitoral bulb” in the anterior vaginal mucosa, and the clitoris (therefore also the supposed “CUV complex”) is a perineal organ, while the supposed Gräfenberg spot (G-spot) is in the pelvic urethra. Moreover, the “clitoral complex” cannot be analogous to the male penis: there is no vagina in the male penis! As a matter of fact, “clitoral or clitoris-urethro-vaginal complex” has no embryological, anatomical and physiological support, and it cannot “scientifically describe the true nature of the [non-existent] G-spot”!

The female external genitals/vulva, i.e. labia majora and female erectile organs, at rest, are juxtaposed though separated by the vaginal opening, and correspond to the scrotum and penis of the male. The correct and simple anatomical term to describe the cluster of erectile tissues (i.e. clitoris, vestibular bulbs and pars intermedia, labia minora, and corpus spongiosum of the female urethra) responsible for female

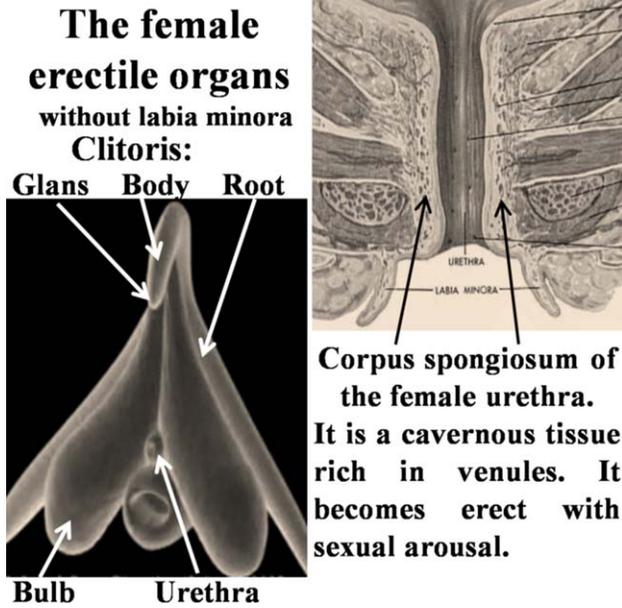


Fig. 7. The female erectile organs (from Puppo, 2014a).

orgasm, is "female penis" (Figs. 7–9, Supporting Information Video 1 online) (Laqueur, 1992; Puppo, 2011a,b, 2013a, 2014a,c).

FEMALE PRIAPISM, NOT PGAD

It is possible to have priapism in females, as in males: a rare condition associated with prolonged erection of the clitoris, an erection lasting for more than 6 hr and unassociated with genital arousal, caus-

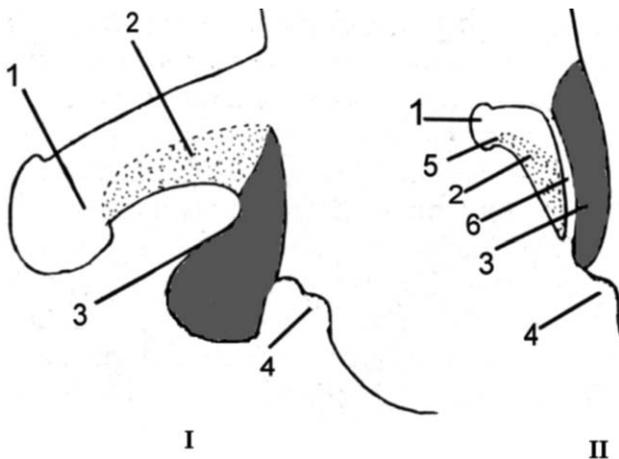
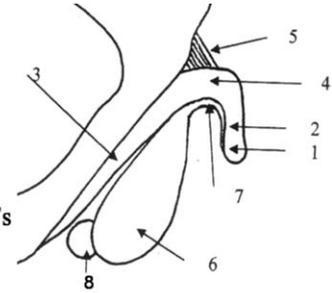


Fig. 8. Labia minora and the male penis (from Puppo, 2011a, 2014a). **A:** 1, Penis; 2, Part corresponding to the labia minora; 3, Scrotum; 4, Anus. **B:** 1, Clitoris; 2, Labia minora; 3, Labia majora; 4, Anus; 5, Frenulum; 6, Sulcus nympholabialis.

The female penis

without labia minora
 1, Glans. 2, Body.
 3, Root. 4, Angle.
 5, Suspensory ligament.
 6, Bulb. 7, Corpus spongiosum. 8, Bartholin's gland.



The female penis

without vestibular bulbs and glans

Corpora cavernosa
Kobelt's venous plexus
Corpus spongiosum (pars intermedia)

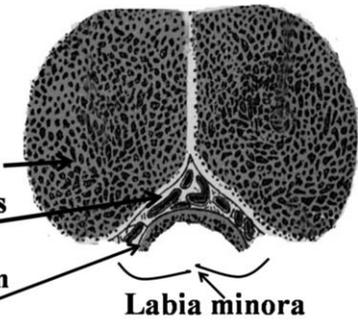


Fig. 9. The female penis (from Puppo, 2011a, 2014a).

ing engorgement, swelling, and pain in the clitoris and immediately adjacent area. The mechanism of female priapism is not well understood, but it is likely to be similar to that of male priapism (Arntzen and de Boer, 2006; Unger and Walters, 2014).

Male priapism is a persistent penile erection that continues hours beyond, or is unrelated to sexual stimulation; subtypes of priapism include: ischemic (veno-occlusive, low flow) priapism is a nonsexual, persistent erection characterized by little or no cavernous blood flow; nonischemic (arterial, high flow) priapism is a nonsexual, persistent erection caused by unregulated cavernous arterial inflow (Montague et al., 2003).

"The physiologic mechanism of female priapism involves impaired outflow of blood from the corpora cavernosa from either direct venous obstruction or failure of the alpha-adrenergic relaxation system. This can lead to severe engorgement, swelling, and, in severe cases, thrombosis and fibrosis. Female priapism can be very embarrassing as well as painful, and must be treated urgently to alleviate symptoms" (Unger and Walters, 2014).

The treatment of female priapism depends on its etiology, Arntzen and de Boer stated in 2006: "Most reported cases of female priapism describe the association with the use of antidepressant and other psychotropic drugs, all with alpha-adrenergic blocking potential, such as trazodone, bupropion, citalopram and nefazodone. In male cases, several other psychoactive drugs have been implicated. Treatment in the cases cited above consisted of discontinuing the offending medication or providing symptomatic pain relief. Serious permanent damage where treatment has been delayed has been reported in men but not in

women. Furthermore, the association between congenital clitoromegaly and priapism has also not been reported previously. With this concern in mind, we felt justified to resort to management options described for male priapism but hitherto not for female priapism, i.e. the direct injection with epinephrine and heparin, followed by aspiration to provide immediate decompression."

Unger and Walters stated in 2014: "In the setting of medication-induced priapism, most case reports describe complete resolution with cessation of the offending agent in combination with conservative measures such as oral analgesics and the application of ice packs to the affected area. Given what has been reported on the success of treatment with alpha-adrenergic injectable therapies, pseudoephedrine was administered around the clock for 24 hr at its maximal safe dose, and resulted in significant improvement in the patient's condition."

The definition of persistent genital arousal disorder (PGAD) is equal to that of female priapism. PGAD is not a newly recognized condition, and if the "genital arousal" is unwanted, why use "arousal"? This term could suggest that women should end up feeling "abnormal" in regard to sexuality. Restless genital syndrome (ReGS) includes restless legs and/or an overactive bladder, and it can include PGAD but it cannot be defined as PGAD. Female priapism is a more accurate term than PGAD or ReGS. It is not a sexual medicine disease but a gynecological/urological disease. Treatments prescribed for male priapism should be also be therapeutic for female priapism (Puppo, 2013a,c).

THE G-SPOT DOES NOT EXIST: IS IT A SCIENTIFIC FRAUD?

The term "G-spot" was coined by Addiego et al. in 1981 and refers to an "erotically sensitive spot" located in the pelvic urethra and palpable through the anterior vaginal wall (Fig. 6).

In their 358-page book "The Science of Orgasm," Komisaruk et al. (2006), make only a passing mention of the G-spot (though in this book the anatomy and physiology of the clitoris is also missing): "Stimulation of the pelvic nerve may also occur with stimulation of the area of the G-spot (the area of the female prostate gland) and may also account for the reports of orgasm and 'female ejaculation' from the urethra experienced by some women." As so little is mentioned about the G-spot in such a thick, detailed book focused specifically on orgasm, one can only infer that the G-spot, if it does indeed exist, is devoid of importance in the female orgasm.

In 1981, Addiego et al. reported the findings of their investigation: "A karyotypically normal, multiparous woman suffered for a decade with urinary stress incontinence. During that time she had learned to inhibit an orgasmic response which led to bedwetting. Although the liquid produced did not appear to be urine, she falsely concluded that her orgasmic expulsion was a manifestation of urinary incontinence. At the April 1979 testing session, the subject identified

an erotically sensitive spot, palpable through the anterior wall of her vagina." The patient also did not fail to mention that "Around this time her physician told her that she had a grade one cystocele." After completing the physical examination, the physician recorded: "The cervix was clean and the vaginal mucosa was normal, with a very slight cystocele evident. The subject noted an area of increased sensitivity during palpation along the urethra. It coincided with a fairly firm area ~2 cm by 1.5 cm, with the long axis along the course of the urethra. This area was palpated, and the subject reported that it caused the sensation of having to urinate. Further digital stimulation made the sensation pleasurable. The area grew ~50% larger upon stimulation. No contraction of the spot could be elicited voluntarily or involuntarily." Based on these findings, Addiego et al. concluded that: "the orgasms she experienced in response to the Gräfenberg stimulation felt much the same, whether or not they were accompanied by expulsion."

Pawlik's triangle, a region that corresponds to Lieutaud's triangle in the bladder, is located on the anterior vaginal wall. The mucosa of this region of the anterior vaginal wall is smooth and has little resistance; hence, it can easily bulge into the vagina of a woman with a cystocele (Testut and Latarjet, 1972; Chiarugi and Bucciante, 1975; Puppo, 2013a, 2014b). Of all potential candidates to investigate for establishing the existence of an erotically sensitive spot in the vagina, it is quite surprising that Addiego et al. chose to report their findings from a woman with a cystocele. Such a woman is surely not the ideal subject for identifying an "erotically sensitive spot" or for detecting the G-spot.

Addiego et al. stated in 1981: "¹After this case study was submitted for publication, the subject reported that there has now been one exception to this. She said she had recently experienced orgasm accompanied by ejaculation in response to cunnilingus, but without Gräfenberg spot stimulation." Addiego et al. concluded "the area palpated in the subject was the Gräfenberg spot" and statements that "the orgasms she experienced in response to the Gräfenberg stimulation" and "she agreed with our conclusion" have no scientific basis. Moreover, Gräfenberg did not describe a vaginal spot in his 1950 article. In fact, the title of his article was "The role of the urethra in female orgasm," not the role of the vagina in female orgasm.

Although Gräfenberg did describe some cases of female and male urethral masturbation and illustrated the corpus spongiosum of the female urethra, he did not describe an orgasm of the intraurethral glands (or female prostate). Gräfenberg wrote the following on page 146 of his 1950 article: "An erotic zone always could be demonstrated on the anterior wall of the vagina along the course of the urethra... During orgasm this area is pressed downwards against the finger like a small cystocele protruding into the vaginal canal... Analogous to the male urethra, the female urethra also seems to be surrounded by erectile tissues like the corpora cavernosa. In the course of sexual stimulation the female urethra begins to enlarge and can be felt easily. It swells out greatly at the end

of orgasm. The most stimulating part is located at the posterior urethra, where it arises from the neck of the bladder." Gräfenberg wrote later, on page 147 in the same article: "Occasionally the production of fluids is so profuse that a large towel has to be spread under the woman to prevent the bed sheets from getting soiled... If there is the opportunity to observe the orgasm of such women, one can see that large quantities of a clear transparent fluid are expelled not from the vulva, but out of the urethra in gushes... I am inclined to believe that 'urine' reported to be expelled during female orgasm is not urine, but only secretions of the intraurethral glands correlated with the erogenous zone along the urethra in the anterior vaginal wall."

Addiego et al. in 1981 made a hotchpotch of the thoughts and ideas set forth and expounded on pages 146 and 147 of Gräfenberg's 1950 article: the intraurethral glands are not the corpus spongiosum of the female urethra!

In 2008, Gravina et al. claimed that they had ultrasound images of the G-spot, but no such images were included in the article published by the *Journal of Sexual Medicine*. In addition, they stated: "Gräfenberg described an erogenous zone located in the anterior vaginal wall and subsequent studies have correlated the focus of female sensitivity with the external urethral sphincter... between the thickness of urethrovaginal space, or G-spot... clitoris-urethrovaginal complex, also known as the G-spot": therefore Gravina, Jannini et al. wrote three definitions of G-spot in the same article and each of them is incorrect!

The debate about the existence of the G-spot degenerated to an unprofessional level when Emmanuele Jannini (an andrologist) et al. wrote the following in 2010: "Their claims [on the nonexistence of the G-spot] are mostly based on a poorly researched review article, written by an author [Dr Terence Hines] who is almost unknown in academic medicine and who has never published on the field, where the G-spot has been defined as 'a modern gynecologic myth.'" Hines's article (2001) was published in the peer-reviewed American Journal of Obstetrics and Gynecology, so Jannini's verbal assault on the Hines article and the journal's credibility is unjustified. His attack could even be interpreted as offensive to both Dr Hines and the Journal.

Ostrzenski stated in 2012 that the anatomical existence of the G-spot was documented in one cadaver dissection of an 83-year-old woman, but he did not state why the anatomical structure documented is the G-spot; besides, no clinical sexual history of the subject was presented. Ostrzenski stated in 2014 that "This study advances our anatomical and histological understanding of the G-spot complex"; Ostrzenski et al. stated in 2014 "The anatomy of the G-spot complex was confirmed": in these two articles, Ostrzenski did not say why this "complex" was the G-spot, and no clinical sexual history of the subjects was presented; so there was no evidence that they ever had so-called G-spot complex orgasms from penile-vaginal intercourse or by digital stimulation of the anterior vaginal wall. Moreover, in all three articles, the authors stated they had no conflict of interest, but

Ostrzenski has an interest in proving the presence of a G-spot that should have been declared, since he runs a cosmetic plastic gynecology clinic where the list of the procedures includes G-Spot Augmentation or G-Spotplasty (Ostrzenski, Procedures/URL). In addition, these three articles published by the *Journal of Sexual Medicine*, *BJOG*, and *EJOGRB* are similar: there are the same figures (Fig. 2 in the *Journal of Sexual Medicine*, Fig. 1 in *BJOG*, Fig. 1 in *EJOGRB*); there are also scientific errors (for example, the supposed G-spot complex has no role in "the genesis of anterior vaginal ballooning bio-mechanisms") and "inappropriate" references. For example, Ostrzenski stated in 2012 "The G-spot gene has been identified," but this is a misreading of the reference he quotes, i.e. Upton et al. 2008: "G-spot" in genetics is a sequence of four or more guanines!

In 2007, Spike, a bioethicist at Florida State University's College of Medicine, considered that doctors who allegedly enhance women's G-spots are profiting from their [women's] insecurities and "they are engaging in something more like medical fraud." He also wrote that the G-spot is "like a folk tale. You can prove that something exists if you find it, but if you don't find it, that doesn't prove that it doesn't exist. The G-spot belongs in the same category as angels and unicorns."

In 2007, the "Committee Opinion" by the American College of Obstetricians and Gynecologists stated: "Other procedures, including vaginal rejuvenation, designer vaginoplasty, revirgination, and G-spot amplification, are not medically indicated, and the safety and effectiveness of these procedures have not been documented. Women should be informed about the lack of data supporting the efficacy of these procedures and their potential complications, including infection, altered sensation, dyspareunia, adhesions, and scarring."

The G-spot has become the center of a multimillion dollar business: G-spot amplification, also called G-spot augmentation, G-Spotplasty or the G-shot, is a cosmetic surgery procedure for temporarily increasing the size and sensitivity of what some believe to be the G-spot, which is located about half way between the pubic bone and the cervix about 3 in. into the pelvis, in which a dermal filler or a collagen-like material is injected into the bladder-vaginal septum. If the supposed G-spot is located on the anterior vaginal wall between the vagina and the urethra, why is the dermal filler injected into the bladder-vaginal septum for G-spot amplification? All published scientific data indicate that the G-spot does not exist (and the female prostate has no anatomical structure that can cause an orgasm) and that G-spot amplification is an unnecessary and inefficacious medical procedure. As a matter of fact, Gräfenberg discovered no G-spot in 1950 (Fig. 6): the supposed G-spot must not be identified with Gräfenberg's name and female genital cosmetic surgery should be considered female genital mutilation type IV (Puppo, 2013b, 2014b,c).

The claims by Frank Addiego, Beverly Whipple, Emmanuele Jannini, Odile Buisson, Helen O'Connell, Adam Ostrzenski, Susan Oakley, Christine Vaccaro, *Journal of Sexual Medicine*/Irwin Goldstein, Barry



Fig. 10. Stimulation of the female penis (not the G-spot, which does not exist) with finger in vagina can produce orgasms in all women if the partner also moves the hand (from Puppo, 2011a, 2014a,b).

Komisaruk, Stuart Brody, Chiara Simonelli, and others, have no scientific basis (Puppo, 2013a, 2014b).

Orgasms with a finger in the vagina are possible in all women, but the partner must also move the hand in a circle to stimulate all the female erectile organs (Fig. 10) (from Puppo, 2011a, 2014b).

Rubio-Casillas and Jannini stated in 2011: "New insights from one case of female ejaculation"; Jannini et al. stated in 2012: "The phenomenon of female ejaculation refers to an expulsion of fluid from the urethra that is different from urine."

In the vaginal vestibule (this is the correct term: periurethral glans is a term without scientific basis), the external orifice of the urethra is seen with the paraurethral (Skene's) ducts opening on both sides (Fig. 1). Their length is 0.5–3 cm and they are found in women, with the intraurethral (Skene's) glands considered as the female prostate. This structure can be affected by the same diseases as its male counterpart, including carcinoma and prostatitis (Zaviacic et al., 2000; Puppo, 2011b, 2013a). The secretion of these glands is expelled through the urethral meatus or through the orifices of the paraurethral ducts into the vaginal vestibule, which corresponds to the dorsal wall of the male cavernosa urethra (while the labia minora correspond to the ventral wall); female prostate secretion during orgasm corresponds to the emission phase of male ejaculation (Puppo, 2011b, 2013a).

Studies by Shafik et al. (2009) revealed that opinions differ over whether female ejaculation exists. These authors found that female orgasm was not associated with the appearance of fluid coming from the vagina or urethra.

From a physiological point of view, the term "female emission" is more accurate than female ejaculation (in a few women there is a powerful emission): in the male, this corresponds to the emission of seminal fluid into the prostatic urethra. The lack of the

ejaculation phase in the female could explain why women do not have a refractory period and are able to have multiple orgasms (Puppo, 2011b, 2013a,d).

VAGINAL ORGASM DOES NOT EXIST

Some researchers use the terms "vaginally activated orgasm (VAO) as the climax obtained during vaginal penetration, without direct stimulation of the external clitoris" or "vaginal orgasm (VO)" (Jannini et al., 2012, 2014); "A woman's history of vaginal orgasm is discernible from her walk" (Nicholas et al., 2008); "Vaginal orgasm is more prevalent among women with a prominent tubercle of the upper lip" (Brody and Costa, 2011).

Vaginal orgasm has no scientific basis and the term was invented by Freud. Laqueur (1992) stated: "In 1905, for the first time, a doctor claimed that there were two kinds of orgasm and that the vaginal sort was the expected norm among adult women... Medical authorities in French, German, and English during Freud's time, and stretching back to the early seventeenth century, were unanimous in holding that female sexual pleasure originated in the structures of the vulva generally and in the clitoris specifically. No alternative sites were proposed. The vagina is defined simply as the passage from the vulva to the uterus which serves to evacuate the menses, contain the male organ during copulation, and expel the product of fecundation. The vagina is not very sensitive, and indeed the anterior wall is so insensitive that it can be operated on without much pain to the patient. This may be hyperbole, but it suggests that to nineteenth-century authorities the vagina was an unlikely candidate for the locus of sexual pleasure in women... And of course Freud himself points out that biology has been obliged to recognize the clitoris as the true substitute for the penis... Freud, in short, must have known that what he wrote in the language of biology regarding the shift of erotogenic sensibility from the clitoris to the vagina had no basis in the facts of anatomy or physiology". For Laqueur, the theory of Freud is an instrument for making women accept their social role.

The vagina has no anatomical structure that can cause an orgasm (and the vaginal-cervical genitosenesory component of the vagus nerve is a hypothesis without scientific basis) (Puppo, 2011a,b, 2013a, 2014a). In fact, in women with vaginal agenesis (congenital absence of the vagina), the sexual responses of the artificial vagina are identical to those of the normal vagina (Supporting Information Video 1 online).

Following the pattern of normal vaginal reaction, the first anatomical evidence of an excitement-phase response to sexual stimulation appears in the form of mucoid material on the walls of the artificial vagina. When plateau-phase levels of sexual response are achieved, localized vaginal vasocongestion is apparent: just as an orgasmic platform develops in the outer third of the normal vaginal barrel, so an orgasmic platform constantly develops in the outer third of the artificial vaginal barrel (it is caused by erection of the vestibular bulbs). The clitoral sexual response of

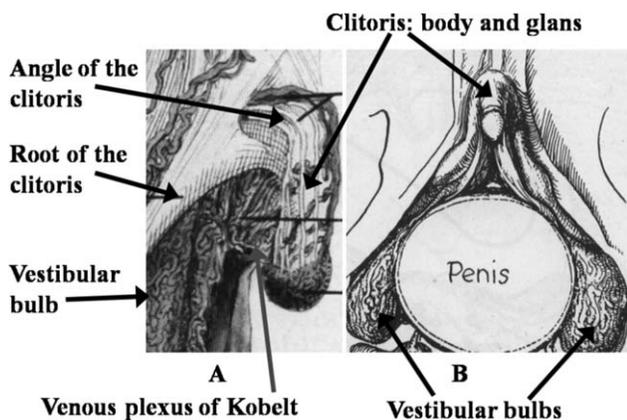


Fig. 11. The penis cannot come into contact with the clitoris or the venous plexus of Kobelt (from Puppo, 2013a; 2014b,c).

the artificial vagina is the same as that of the normal vagina. The labia minora of women with an artificial vagina turn the sex-skin color bright red, just as do the labia minora of normal nulliparous women, when an advanced plateau phase of sexual excitement is attained. When this sign of impending orgasm occurs (presuming that effective sexual stimulation is continued), orgasm is sure to follow in women with an artificial vagina, just as it does in women with the normally constituted vaginal barrel. The characteristic physiological expression of orgasm in both artificial and normal vaginas is the onset of regularly recurring contractions of the orgasmic platform (they are due to the contractions of the bulbocavernosus muscle) and the involuntary contractions of the perineal muscles (Masters and Johnson, 1966).

The "vaginal" orgasm that some women report is always caused by the surrounding erectile organs (triggers of female orgasm) (Puppo, 2011a,b, 2013a, 2014a).

Some researchers have stated: "the pumping effect on the Kobelt plexus may play a part in the trigger of the vaginal orgasm" (Buisson et al., 2010); "the root of the clitoris is particularly stretched by the penis and compressed against the anterior vaginal wall and the pubic symphysis" (Buisson et al., 2010; Jannini et al., 2012); "a sonography of an erected penis penetration allows visualization of the clitoral complex modification... the root of the clitoris is ascending and completely widened by the penis... The special location of the Kobelt plexus seems also interesting: first, it is located on the top of the double vault which is situated on the G-spot area, then it drains toward vaginal veins" (Jannini et al., 2010); "that vaginal displacement by the penis to allow the clitoris to come into direct contact with the anterior vaginal wall may affect pleasure" (Oakley et al., 2014); "the Kobelt venous plexus seemed to be repeatedly compressed by the penis" (Jannini et al., 2014).

Regardless of the positioning of the clitoral body, the penis rarely comes into direct contact with the clitoral glans during active coition. In fact, clitoral retraction, which always develops during the plateau phase

and elevates the clitoral body from its normal pudendal-overhang positioning, further removes the glans from even the theoretical possibility of direct penile contact (Masters and Johnson, 1966). The male penis cannot come into contact with the venous plexus of Kobelt or with the clitoris during vaginal intercourse; the Kobelt plexus cannot "play a part in the trigger of the vaginal orgasm," it drains not toward the vaginal veins but towards the venous plexus on Santorini, and it cannot be compressed by the penis; the root of the clitoris cannot be stretched by the penis and the entire clitoris has no anatomical relationship with the anterior vaginal wall (Figs. 6 and 11) (Testut and Latarjet, 1972; Chiarugi and Buc-ciante, 1975; Standring, 2008; Paulsen and Waschke, 2011; Puppo, 2013a, 2014a,c; Netter, 2014).

McMahon et al. stated in 2013: "Premature ejaculation (PE) is a male sexual dysfunction characterized by ejaculation that always or nearly always occurs prior to or within about one minute of vaginal penetration, the inability to delay ejaculation on all or nearly all vaginal penetrations, and negative personal consequences." Jannini et al. in 2011 mentioned "The controversial role of PDE5 inhibitors in the treatment of premature ejaculation."

Sexual medicine experts consider PE only in the case of vaginal intercourse. PE is considered the cause of failure of vaginal orgasm in the partner, with negative psychological consequences for males. The vaginal orgasm does not exist, so the duration of penile-vaginal intercourse is not important for a woman's orgasm. Many men think long intercourse is the key to having orgasms during intercourse, but long intercourse is not helpful to women and some females may be grateful to get it over with quickly. PE does not exist if both partners agree that the quality of their sexual encounters is not influenced by efforts to delay ejaculation. Male ejaculation does not automatically mean the end of sex for women; touching and kissing can be continued almost indefinitely. Non-coital sexual acts after male ejaculation can be used to produce orgasm in women. PE has become the center of a multimillion dollar business, but PE during vaginal intercourse is not a male sexual dysfunction. Sexual dysfunctions are conditions in which the ordinary physical responses of sexual function are impaired. The functions of the human body must be studied in the subject: questionnaires about male ejaculation and female orgasm must assess masturbation (Puppo, 2013e).

FEMALE ORGASM: A SCIENTIFIC TERM FOR ALL WOMEN

Female sexual physiology was first described in Dickinson's textbook in 1949 and subsequently by Masters and Johnson in 1966. Dickinson wrote in 1949: "Exalting vaginal orgasm while decrying clitoris satisfaction is found to beget much frustration. Orgasm is orgasm, however achieved." Masters and Johnson, in 1966, agreed and stated: "Orgasm is the subjective perception of a peak of pleasure to sexual stimuli. Physiologically, it is a brief episode of physical

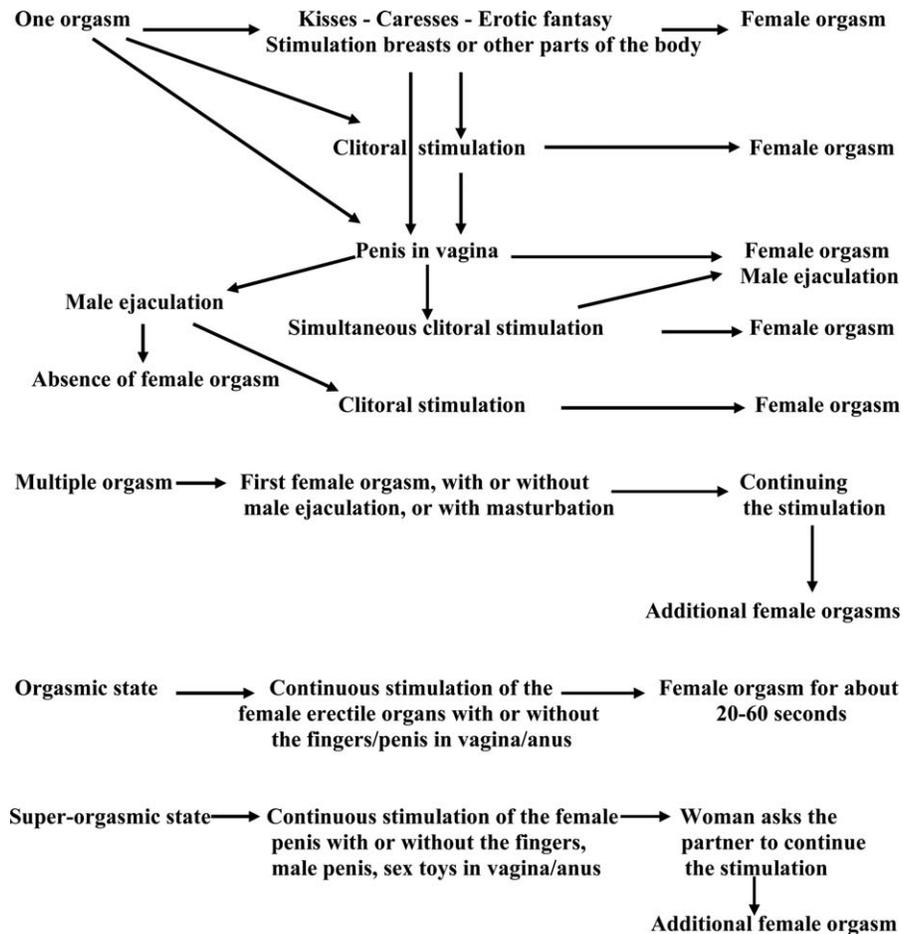


Fig. 12. The female orgasm in all women (from Puppo, 2011a, 2014a).

release from the vasocongestive and myotonic increment developed in response to sexual stimuli. Physiologically all female orgasms follow the same reflex response patterns, no matter what the source of sexual stimulation. An orgasm that comes from rubbing the clitoris cannot be distinguished physiologically from one that comes from intercourse or breast stimulation alone. The primary focus for sensual response in the human female is the clitoris. The clitoris responds with equal facility to both somatogenic and psychogenic forms of stimulation, and is truly unique in the human organ system in that its only known function is that of serving as an erotic focus for both afferent and efferent forms of sexual stimulation. The minor labia were determined to be almost as perceptive to superficial tactile sensation as the clitoral glans. The minor labia are as important almost as the clitoris as a source of erotic arousal."

The majority of women worldwide do not have orgasms during intercourse: as a matter of fact, female sexual dysfunctions are popular because they are based on something that does not exist, i.e. the vaginal orgasm. Sexual medicine experts, sexologists

and psychologists must use the (scientific) term "female orgasm" (Fig. 12) (Puppo, 2011a, 2014a), so women worldwide will not feel inferior or abnormal for not reaching a "vaginal" orgasm or "vaginally activated orgasm," and for the few women who report "vaginal" orgasms (they use the term because in the mass-media, and in sexual education, the sexologists use it), the use of "female orgasm" makes no difference!

Female sexual satisfaction is based on orgasm and resolution (Puppo, 2011ab, 2013a, 2014a). In 1949, Dickinson wrote about the long-term sequelae of female sexual excitement without orgasm: "Vulvo-vaginal changes in excitement. Chronic or persisting alterations due to strong, long continued and close-set repetition of excitation are the following: (1) Inflammation at mouth of duct of vulvo-vaginal gland. (2) Prominent veins in certain locations about vulva. (3) Varicosities of bulb, and of pars intermedia toward clitoris. (4) Varicosities in base of broad ligament. (5) Varicosities in upper part of broad ligament. (6) Enlargement of clitoris. (7) Labial enlargement. (8) Levator thickening and irritability, followed by

relaxation. (9) Hymen gaping, worn, ironed out or disappearing. (10) Chronic bladder base congestion. (11) Hemorrhoids.”

CONCLUSIONS

Female orgasm is possible in all women, always with effective stimulation of the female erectile organs, e.g. the female penis, during masturbation, cunnilingus, partner masturbation, and also during vaginal/anal intercourse simply by stimulating the clitoris with a finger (Puppo, 2011a, 2013a). Masters and Johnson reported in 1966 on the importance of development by partners of specific coital techniques to facilitate clitoral stimulation and that the female superior coital position allows direct stimulation of the clitoris to be achieved easily with the fingers (Puppo, 2014c, Free Audioslides).

As with “male orgasm,” “female orgasm” is the correct term. G-spot/vaginal/clitoral orgasm, vaginally activated orgasm, clitorally activated orgasm, clitoral or clitoris-urethra-vaginal complex, clitoral vagina, clitoral urethra, clitoral bulbs, clitoral raphe, internal clitoris, are without scientific basis and they not accepted by experts in human anatomy. Findings from the disciplines of embryology, anatomy, and physiology about the congestive structures of the vulva, which are homologous to men’s erectile organs, must form the basis of the biological discourses about the female orgasm.

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