

Review

# Sexual arousal and orgasm in subjects who experience forced or non-consensual sexual stimulation – a review

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## Abstract

The review examines whether unsolicited or non-consensual sexual stimulation of either females or males can lead to unwanted sexual arousal or even to orgasm. The conclusion is that such scenarios can occur and that the induction of arousal and orgasm does not indicate that the subjects consented to the stimulation. A perpetrator's defence simply built upon the fact that evidence of genital arousal or orgasm proves consent has no intrinsic validity and should be disregarded.

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## 1. Introduction

In normal consensual sex, the sexual arousal and the possible subsequent achievement of orgasm are usually the welcomed outcome of the activity. Consensual sexual activity obviously entails a willingness of both parties to partake of the activity and thus the mental state of the participants is usually one of happy acceptance of the sexual arousal and possibly the orgasm induced. In fact it is often thought that lack of this “accepting” state can be a hindrance to becoming aroused and orgasmic. What then of a non-consenting male or female who is subjected to sexual stimulation either by force, fear or because of an impaired conscious resistance to the stimulation (sleep, drug, alcohol or hypnosis induced), can they experience sexual arousal and orgasm involuntarily or even against their will?

The present review attempts to answer this question especially in relation to a perpetrators defence against an alleged sexual assault that “they (the victim) must have consented (and/or enjoyed it) because they became sexually aroused and even had an orgasm”. The review

is divided into three sections, the first part deals with sexual aspects common to males and females, the second part deals with female victims. The third part deals with male victims.

## 2. What do we mean by sexual arousal?

Like all simple questions the answer turns out to be more complicated than at first thought. Human sexual arousal occurs as a mental state and as a physical state; in normal sexual arousal both occur simultaneously. However, it is possible to be mentally sexually aroused without showing any genital manifestations of arousal (vaginal/clitoral blood engorgement and vaginal lubrication for women, penile tumescence or erection in men). Contrarily, it is possible to exhibit these genital manifestations of arousal but not feel mentally aroused. Indeed, it is even possible to feel disgusted by the genital manifestations of arousal if it is thought to be a highly inappropriate response to the inducing sexual stimuli viz getting an erection to the naked body of one's mother or sister or by a violent scenario.

What comes first, (i) the central state of sexual arousal that then activates genital arousal which activates a heightening of the central state of arousal by positive genital feedback, or (ii) the genital stimulation

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that activates a central state of arousal which then further activates genital arousal by positive feedback from the central arousal? The answer is that either can occur first depending on the manner of the initiation of the sexual activity. Unexpected but acceptable genital/body caressing can lead to a near-instantaneous central arousal while sexual stimuli from any of the non-haptic senses (hearing, vision, smell) and fantasy can initiate the central aroused state.

How would a perpetrator of the alleged sexual assault know or infer that the assaulted was sexually aroused/and or having an orgasm?

In the case of females the sexual stimulation (if successful) would create physical changes in the body of the aroused subject as indicated by:

- (i) increased pulse (heart) rate,
- (ii) increased blood pressure,
- (iii) increased respiration (breathing rate),
- (iv) increased blood flow to breasts, engorgement of breasts and engorgement of areolae (pigmented area around nipple),
- (v) nipple erection,
- (vi) increased blood flow to vagina and labia,
- (vii) increased engorgement (trapping of blood) of pelvic area with blood,
- (viii) clitoral tumescence (engorgement with blood),
- (ix) increased formation of vaginal fluid (lubrication) possibly leaking out onto labia and inner thighs,
- (x) irregular contractions of pelvic muscles around vagina (circumvaginal muscles),
- (xi) regular pelvic muscle contractions at orgasm,
- (xii) involuntary vocalizations at or during orgasm (cries, grunts, groans, gasps,, exclamations, screams) or involuntary spoken self-report (viz “I’m coming”).

Those changes that would be most obvious to the sexual stimulator of a female would likely be i, iii, v, viii, but especially ix, x, xi and xii.

In the case of males the changes that occur would normally include:

- (i) increased pulse (heart) rate,
- (ii) increased blood pressure,
- (iii) increased respiration (breathing rate),
- (iv) nipple erection,
- (v) tumescent to fully erect penis,
- (vi) elevation of testicles by contracted scrotum to perineum,
- (vii) rhythmic contractions of pelvic muscles,
- (viii) ejection of seminal fluid,
- (ix) involuntary vocalisations at ejaculation/orgasm (cries, grunts, groans, gasps, exclamations) or involuntary spoken self-report (viz “I’m coming”).

The most obvious changes to the sexual stimulator of a male would be i, iii, v, vii, viii and ix. In males, the experience of viii would clearly identify that an orgasm had taken place.

### 3. What is an orgasm?

When human beings of either sex are sexually stimulated and if the stimulus is maintained it can lead to a peak or culmination of the induced sexual arousal that causes certain mental (subjective) and physical manifestations (body changes) that are normally described as the experience of an orgasm. It represents the ultimate human ecstatic state without recourse to drugs. The degree to which these changes vary between individuals, especially females, is extensive; some can have orgasms so intense and overpowering that they become momentarily unconscious<sup>1</sup> yet others may have difficulty in recognising the changes from those of high sexual arousal. It is not unknown for subjects to make mistakes about their body reactions at orgasm even in the laboratory.<sup>2,3</sup> Males have little or no difficulty in identifying that they have experienced an orgasm (see orgasms in men below) but in women, the achievement of orgasm appears to be less facile and recognising that it has occurred and is different from a high peak of sexual arousal can be difficult for some. Consciousness is not a requirement for orgasm to be generated because they can occur in men<sup>4</sup> and women during sleep.<sup>5,6</sup> Although the mental activity that takes place at orgasm is highly subjective, when written descriptions of the feelings made by males and females with obvious gender cues removed are compared by independent judges no obvious differentiations between the male and female ones could be identified.<sup>7</sup> This suggests that the mental activity of orgasm that occurs in males and females is probably more similar than different. This conclusion has also been reached from the study of Mah and Bli-nik<sup>8</sup> who asked the question in men and women “Do all orgasms feel alike?”

Because the exact neural activity of the mental (cerebral) occurrence and discharge of the orgasm is still so poorly understood current definitions use the reported or observed physical changes that occur (usually pelvic muscular and cardiovascular) with an emphasis that it is the culmination or most intense pleasurable moments of the sexual arousal.

### 4. Can an involuntary orgasm be induced?

In one sense all orgasms are involuntary in that they normally cannot be created by the will alone but need a sexual stimulus. Sexual stimulation, from whatever source, activates the brain and then if excitatory enough induces a brain response – the orgasm. The cerebral activation is not under direct conscious control per se but it can be facilitated (viz by use of fantasy) or it can be repressed (viz in posttraumatic stress syndrome). Allowing physical sexual stimuli to occur and continue would normally be under direct conscious control, the subject

(especially females) usually being the “gate controller” of such activity. But in situations where there was threat or violence, hypnosis, the possible influence of alcohol, medication, drugs or their combination the normal socio-sexual control becomes inoperative. However, the question as posed can also be interpreted to mean “Can an orgasm be induced in a subject despite their not wanting one?” Looking at all the available evidence (see this review) the answer appears to be “yes” but it will be partly dependent on the responsiveness of the individual to inhibit sexual stimuli. This varies over a wide relatively normal distribution.

Bancroft and his co-workers<sup>9</sup> have postulated a “dual control” of sexual response. The description initiated from studies with males but the concept has obvious application also in women. The proposal is that there are excitatory and inhibitory systems in operation and the balance of these determines what occurs in any specific situation. Stimuli assessed as sexual and non-threatening activate the excitatory, those that are appraised as a threat activate the inhibitory reducing the chance of sexual arousal. Individuals, however, will vary in their ability for excitation and inhibition. The propensity for these traits can be measured by questionnaire.<sup>10</sup> Thus a person with a low propensity for inhibition may become sexually aroused even by threatening sexual stimuli. Someone, however, with a high propensity for inhibition may be unable to become aroused even in relatively unthreatening situations which may lead to sexual dysfunction. A further and important aspect of the concept is that arousal induced by one type of stimulus can become recruited to activate the arousal response to another stimulus, a process described as “excitation transfer”.<sup>11</sup> A threatening situation could enhance the response to a coexisting sexual stimulus in individuals with a low ability to inhibit sexual responses.

Kime<sup>12</sup> reviewed the response to aberrant sexual behaviour that caused stress and concluded that sexual arousal and orgasm can occur.

## 5. Orgasms in females

Definitions of female orgasm have been attempted in numerous scientific publications; Levin<sup>13</sup> tabled some 13 from authors of a variety of backgrounds while more recently Mah and Binik<sup>8</sup> repeated the exercise with a doubling of author’s definitions. Despite the increased numbers the latter authors had to conclude that a satisfactory universal definition of orgasm could not be accomplished. A major problem in defining orgasm in women compared to men is the greater emphasis that is given to the subjective or self-report as opposed to physiological signs. This is because observations in some women who claim to have experienced an orgasm do not

always confirm that genital muscular contractile activity occurred.<sup>2,14</sup>

Notwithstanding all these difficulties, an operational definition for females would be thus:

“An orgasm in the human female is a variable, transient peak sensation of intense pleasure creating an altered state of consciousness usually with an initiation accompanied by involuntary, rhythmic contractions of the pelvic striated circumvaginal muscles often with concomitant uterine and synchronous anal contractions and myotonia (tonic muscular spasms) that resolves the sexually induced pelvic vasocongestion (sometimes only partially) and the myotonia usually with an induction of feelings of well-being, contentment and lassitude”.<sup>15</sup>

Although the range of activities that can initiate orgasm in individuals is extensive (Kinsey et al.<sup>1</sup> quote subjects being brought to orgasm by having their eyebrows stroked, or by having the hairs on their body gently blown or by having pressure applied to their teeth alone!) a non-violent programme carried out with the aim of making a female engage in sexual activity (passive or active) despite her unwillingness to do so, would usually entail the following hierarchical behaviour:

- (i) initiation of sexual arousal created by words, cuddling, kissing (lips and with tongue),
- (ii) manual manipulation/stimulation of breasts/areolae/nipples,
- (iii) pelvic area stimulation involving caressing of inside of thighs, perineum (area between bottom of vaginal opening and anus), labia (vaginal lips), clitoris,
- (iv) insertion of finger(s) into vagina, stroking of vaginal walls, repeated insertion/removal of finger(s) into/out of the vaginal introitus (entrance),
- (v) repeated stroking of labia, clitoris with fingers lubricated with vaginal fluid. A more extreme arousal may also use,
- (vi) insertions/withdrawals of lubricated finger into anus, stroking of rectal walls.

These activities would normally create sexual arousal in a subject (indicated by the various body changes listed in the previous section – What is Sexual Arousal?).

Depending on the individual sensitivity to sexual stimulation the activities if continued can create enough arousal to induce orgasm with its attendant mental and physical sequelae described in the previous section.

According to Masters and Johnson<sup>16</sup> whatever the sexual stimuli applied, if successful in eliciting an orgasm, the orgasmic response was the same. Thus vaginal stimulation was said to create the same orgasmic response as clitoral stimulation. With more specific measurement techniques, unavailable to Masters and Johnson, it is becoming clear that stimuli focussed on the upper (anterior) vaginal wall creates a different balance of muscular activity at orgasm than does stimuli focussed solely on the clitoris.<sup>17</sup> Moreover strong digital stimulation of the upper vaginal wall (which includes the so-called “G-spot”<sup>18</sup>)

can induce rapid sexual arousal to orgasm in subjects especially sensitive to such stimulation.<sup>19</sup>

While there are a number of objective signs of female orgasm that have been observed under laboratory conditions (see Meston et al.<sup>18</sup> for references) none can be completely relied on. Other than the female reporting that she has had an orgasm there is at the moment no known validated forensic test to show that a woman has had an orgasm. Subjects however, are often aware at orgasm of a racing pulsing heartbeat, pelvic flutterings/contractions and the sudden surge of orgasmic pleasure usually followed by a physical and mental relaxation.

#### 6. If the subject had an orgasm does it mean that she consented?

Induction of sexual arousal and orgasm by unsolicited, non-consensual sexual stimulation is likely to be under-reported by victims because of the obvious embarrassment of succumbing to the stimulation and thus appearing to others to have accepted and enjoyed it. There is a case series in the literature about this occurring in male victims who were in extremely threatening situations (Sarrel and Masters,<sup>20</sup> see section on males) but remarkably little published material in relation to females. However, it is known from laboratory studies with women who are visually exposed to sexually explicit videos that they can show increased blood flow to their vaginas (indicating effective genital sexual arousal) despite the fact that their subjective reports or conscious perception of the stimuli indicates that they were not excited or aroused.<sup>21</sup> There thus appears to be an autonomous mechanism that creates sexual arousal at a sub-cortical level (i.e., not perceived) to activate an increase in genital blood flow. This increase in vaginal blood flow would lead to an increase in the production of vaginal lubricating fluid.<sup>22</sup> It may well be a basic mechanism to create automatically the conditions (a lubricated vagina) for painless penile penetration without genital abrasion if enforced coitus subsequently occurs. Thus “genital arousal” can occur in a sexually stimulated female even though she perceives/reports no “conscious central (brain) sexual arousal”.

It was expected that fear or fright which activates the sympathetic nervous system and causes the release of adrenaline into the blood circulation and the release of the neurotransmitter nor-adrenaline at the sites of the sympathetic nerve endings (both acting as vasoconstrictors of blood vessels in most non-genital areas) would also cause a reduced blood flow to the vagina but in fact the laboratory evidence is that activation of the sympathetic system can actually enhance such blood flow facilitating genital arousal and the resultant lubrication.<sup>23</sup> Thus a female subject who is afraid or frightened during a sexual assault would not necessarily have unresponsive genitals to the sexual manipulations of her violator. A

similar situation occurs in males who are sexually stimulated under threat (see section on males).

#### 7. Clinicians reports

A manual search of the literature in Pubmed under the headings sexual assault, unsolicited sexual arousal, did not recall any dedicated papers on the subject of sexual assault victims becoming aroused and/or orgasmic. A brief study by Ringrose<sup>24</sup> however, about the elicitation of pelvic reflexes in rape victims, reported that in 25 cases of rape only one reported orgasm as a result of the sexual assault, an incidence of 4%. The low incidence may be due to embarrassment or the shame of giving a positive answer.

Anecdotal reports (personal communications obtained by e-mail) from three clinicians and a senior nurse therapist all involved in treating/counselling victims of sexual assault described unsolicited sexual stimuli creating sexual arousal and even orgasm.

Clinician A sent the following comments:

“I (have) met quite a lot of victims (males) who had the full sexual response during sexual abuse.”

“I (have) met several female victims of incest and rape who had lubrication and orgasm.”

Clinician B replied:

“I have heard from some of my female patients that they have lubricated during rape, but not achieve orgasm. It does not mean that they could not have an orgasm.”

Clinician C replied:

“... many of us occasionally see women who experience orgasm during abusive sex. ...” and are told by the abused that a comment from the abuser was “you must have enjoyed it – so what’s the problem?”

The senior nurse-therapist said when interviewed by one of the authors (R.J.L.):

“Approximately 1 in 20 women who come to the clinic (an established NHS, CHS Sexual and Marital Relationships clinic in a large provincial English city) for treatment because of sexual abuse report that they have had an orgasm from previous unsolicited sexual arousal. It is not detailed in the (professional) literature because the victims usually do not want to tell/talk about it because they feel guilty, as people will think that if it happened they must have enjoyed it. The victims often say, “My body let me down”. Some however, cannot summon the courage to say even that.”

The incidence of orgasm from unsolicited sexual arousal of approximately 5% quoted in the above interview is remarkably similar to the 4% reported by Ringrose<sup>24</sup> but both sources believe that these figures are probably underestimates due to embarrassment.

In an Internet Forum for (professional) clinical and scientific discussion about female sexual problems (August 2000) a question was raised about a marital rape/kidnapping case where an estranged husband kidnapped his wife and forcibly performed sex on her during which activity she had an orgasm, namely “does orgasm in this sort of context equal consent?”. Four replies were received from clinicians of whom three answered that in their opinion orgasms can occur in women in this type of rape experience without consent. The fourth however, a female doctor specialising in women’s sexual matters, opined that “reflex responses to vaginal penetration and stimulation (lubrication) are one thing but an orgasm is entirely different. This is not typically a reflex response in women, in particular if the experience is not at all pleasurable. Given that this is not documented in the literature, I personally believe, that for a woman to have an orgasm, she needs to be at least on some level, mentally and emotionally invested in the experience... Fear, repulsion and pain are not conducive to orgasm. Psychological acquiescence or complacency does not mean the woman did not enjoy the experience, and on some level, love her husband.”

A number of aspects in this unique reply need comment. First, orgasms arise from sexual arousal just like vaginal lubrication and if the subject being aroused has weak powers of inhibiting arousal (see section above on the dual control model of sexual arousal) then orgasm may occur. Secondly, according to Sipski<sup>25</sup> there is evidence from women with spinal cord injury supporting the hypothesis that orgasm is a reflex response of the autonomic nervous system. Thirdly, while fear, repulsion and pain may not be conducive to orgasm in most in some individuals they can facilitate and cause arousal. Fourthly, speculation about any possible residual subconscious love for the husband without an in depth psychological examination is just that, mere speculation.

### 8. A study of female victims of sexual assault

Ensink and Van Berlo<sup>26</sup> interviewed female victims about the traumatic sequelae of their sexual assault. In this study, one of the questions asked was about physical response and/or lubrication during the assault (this part of the study has not yet been published). The wording of the question was ‘It sometimes happens that women physically respond to sexual assault. This means that it seems that they are physically aroused or become lubricated, although they find the experience dreadful. Physically responding definitely does not mean that the assault experience is sexually exciting for you. It could also be a reaction of anxiety. Rapists sometimes exploit this and say: ‘She enjoyed it herself!’

‘Did you experience a physical response?’

Out of 58 victims, 12 (21%) answered “yes” to this question although they experienced (mentally) the assault as dreadful. The mean age of these 12 victims was 32 (range 19–44 years). Ten were penetrated vaginally during the assault and 9 were assaulted by someone they knew. Six victims felt attracted to the perpetrator before the rape. Eight of the rapists tried to sexually arouse the woman. The assaults took place between one month and three years before the interview (mean: 10.7 months). Eleven out of the twelve rapists used violence to affect the assault which was excessive in two cases.

### 9. Orgasms in males

Unlike females the recognition that a male has experienced an orgasm is usually not a problem because although orgasm and the ejaculation of semen are actually created by distinct mechanisms<sup>27</sup> it is extremely rare for the former not to accompany the latter. An operational definition of orgasm in males is similar to that already given for the female except for the addition of the ejaculatory events thus:

“An orgasm in the human male is a variable, transient peak sensation of intense pleasure creating an altered state of consciousness usually with an initiation accompanied by involuntary, rhythmic contractions of the pelvic striated muscles that forcefully eject the semen often with concomitant and synchronous anal contractions and myotonia (tonic muscular spasms) that resolves the sexually induced penile vasocongestion and the myotonia usually with an induction of feelings of well-being, contentment and lassitude”.

### 10. If the male has an erection does it indicate consent?

The penile erectile mechanism is created early in foetal life: ultrasound images of erections have been obtained as early as 16 weeks of foetal development. Erections occur without any sexual stimulation in babies.<sup>28,29</sup> Erection and orgasm are induced more easily in pre- and early adolescent boys than in older males. Slight physical stimulation of the genitals, a general increase in stress and body tension and generalised emotional situations can create erections even though no specific sexual stimulation is present.<sup>4</sup> There is a long list of stimuli that can bring about erections in pre-adolescent boys including punishment, fear of punishment, boxing and wrestling, being scared, anger, harsh words, being yelled at and fear of big boys.<sup>30</sup> Because of the extensive stimuli that could cause erections in young males<sup>4</sup> Kinsey et al.’s interpretation was that pre-adolescent boys erect indiscriminately to a whole array of emotional response (anger, fright, pain, etc.) but that by their late teens they have normally become conditioned

by experience to respond only to direct physical genital stimulation or to psychic stimulation of sexual content. Thus boys subjected to enforced or non-consensual sexual stimuli either because of force or fear will become erect especially if they are frightened by the scenario.

Sarrel and Masters<sup>20</sup> collected a case series where adult males molested by women who used forced assaults, physical restraint or believable threats of physical violence, responded sexually with an erection and were forced to undertake coital activity. More recently Struckman-Johnson and Struckman-Johnson<sup>31</sup> gave a questionnaire to 204 college men who were predominantly heterosexual asking about pressured or forced sexual touch or intercourse since age 16. Some 34% had experienced coercive sexual contact, 24% from women and 4% from men. This was achieved in 88% of the reported incidents either by persuasion, bribery, intoxication, threat of love withdrawal or by force (12%). Interviews with 10 of the respondents revealed that the fear of telling others about the event was a problem. A laboratory study<sup>32</sup> showed that anxiety-inducing threats of an electric shock actually enhanced erectile responses to erotic stimuli. It is clear that both young and adult males can have maintained erections not only to non-consensual sexual stimulation but even to such stimulation when they are exposed to fearsome scenarios.

### 11. Hypnotism and non-consensual sexual activity

Published cases in which subjects have allegedly been hypnotised and then sexually assaulted or were told to undertake sexual activities are infrequent and have produced complex scientific and legal arguments. Most involve male hypnotists abusing female patients/subjects<sup>33–37</sup> but a case exists of a possible use of hypnotism to facilitate homosexual seductions.<sup>38</sup> The contentious area is whether or not a hypnotised subject can be coerced into doing something he or she does not wish to do.

This problem has been discussed over many years by a number of authors<sup>35,36,39,40</sup> and the majority opinion appears to be that hypnotism cannot be used to induce people to commit wrongful acts against themselves or others viz non-consenting acts cannot be coerced.

Another way of looking at the problem is whether “powerlessness” occurs in hypnotised subjects. Again this has been a much debated subject without a definitive answer. Lynn et al.<sup>40</sup> reviewed the literature and their own research and came to the conclusion that it is idiosyncratic and that as many factors are involved it may occur in some subjects but not in others. Both Perry<sup>35</sup> and Hoencamp<sup>36</sup> have detailed many possible factors/reasons/explanations as to why subjects respond to the hypnotist’s demands or behaviour making proving the use of hypnotism as a tool to create coercion or

powerlessness far from simple. If powerlessness does occur but cannot be proven the perpetrator may use the subject’s lack of ability to refuse or reject the sexual advances as evidence of consent.

Hypnotism can and has been used to facilitate removal of clothing, to allow sexual access to a subject’s body and to create misperceptions of reality in the subject so that the sexual abuse is masked or disguised as something else.<sup>41</sup> The perpetrator can use suggestions of a very hot day on the beach or that they are going swimming to get the subject to undress and put on a bathing costume.<sup>36</sup> Another ploy is to suggest that the imposed sexual behaviour was part of a therapy, in one case the alleged perpetrator directly told the hypnotised patient (number 5 in the paper) to masturbate (presumably in front of him) and although the subject did not want to she was talked “through” it.<sup>36</sup>

The creation of orgasm by mental imagery alone without any genital or physical stimulation has been reported to occur in the laboratory in just 10 female subjects (see Levin<sup>42</sup> for references). The actual induction of sexual arousal to orgasm in a woman by hypnotic commands alone is even rarer credited in one patient by Hoenig and Hamilton<sup>43</sup> and by Macvaugh<sup>44</sup> in a therapeutic manual aimed to help non-orgasmic women patients. An attempt however to induce nocturnal emissions (which would create ejaculations/orgasms) by post-hypnotic suggestion in 3 males was a failure.<sup>45</sup>

### 12. Conclusion

The review has examined whether unsolicited or non-consensual sexual stimulation of either males or females can create unwanted sexual arousal even to the induction of an orgasm. Despite a limited published literature, case and anecdotal reports the conclusion from them is that such scenarios can occur and that the induction of arousal and even orgasm does not permit the conclusion that the subjects consented to the stimulation. A perpetrator’s defence against the alleged assault built solely on the evidence that genital arousal or orgasm in the victim proves consent has no intrinsic validity and should be disregarded.

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