Resistance to extinction in appetitive and aversive conditioning of the sexual response

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The purpose of this study is to investigate basal sexual conditioning mechanisms among healthy males and females. This study will investigate how stimuli acquire or lose sexually rewarding properties. This knowledge may help in the treatment of...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Other condition
Study type	Observational non invasive

Summary

ID

NL-OMON35474

Source
ToetsingOnline

Brief title
Extinction in appetitive and aversive sexual conditioning

Condition

- Other condition

Synonym
hypersexuality, hyposexuality, sexual motivation disorders

Health condition

seksuele aandoeningen

Research involving
Human

Sponsors and support

Primary sponsor: Leids Universitair Medisch Centrum
Source(s) of monetary or material Support: NWO

Intervention

Keyword: Conditioning, Extinction, Response, Sexual

Outcome measures

Primary outcome

Results from the fysiological measurement of sexual arousal (vaginal pulse amplitude (VPA) is assessed by a vaginal photoplethysmograph; and penile circumference changes), subjective ratings of valence and sexual arousal (results from questionnaires), automatic approach tendencies (results from an implicit approach/avoidance computertask).

Secondary outcome

n.v.t.

Study description

Background summary

Having too little sexual desire is the most common sexual problem among women (Mercer et al., 2003; Simons & Carey, 2001). American and English nationwide studies report a lifetime prevalence of 30-40%, and a prevalence of 10% for persistent low sexual desire problems (Laumann, Paik, Rosen, 1999). A low level of desire is usually accompanied by a low level of sexual arousal, and frequently associated with sexual dissatisfaction (Basson, 2007). Excessive sexual desire, or hyperactive sexual desire, is mostly observed in men, and appears to be associated with paraphilia-related disorders (Kafka, 2007). Both hypo- and hyperactive sexual desire can cause marked personal distress and marital discord, and hypersexuality is a serious social problem when it develops into sexually abusive behavior. Very little is known about causes of hypo- and hyperactive sexual desire disorders, and for both empirically validated treatments are lacking (Kafka, 2007; ter Kuile, Both, van Lankveld,

2009). Insight in the underlying mechanisms of sexual motivation is essential to understand these disorders, and is needed to guide prevention as well as psychological and/or pharmacological treatment thereof. Sexual behaviour, particularly orgasm, is regarded as a rewarding event, which can reinforce learning (Agmo, 1999). The positive affect produced by sexual stimulation can become associated to environmental stimuli, and these stimuli can thereby become conditioned sexual incentives. Repeated exposure to the same stimuli while experiencing sexual reward will enhance the strength of conditioning, and the intensity of the experienced reward will probably determine the incentive properties of the conditioned stimuli (Agmo et al., 2004). By contrast, negative emotional experiences, or the absence of expected positive experiences, may also become associated with stimuli that used to have incentive value, resulting in less attraction or even aversion to these incentives. In the aetiology of sexual desire disorders conditioning may play a pivotal role; for instance low desire may be caused by a lack of association between sexually rewarding experiences and stimuli, resulting in a limited number of potential sexual incentives, and it may be caused by negative sexual experiences that changed the initial positive valence of sexual incentives into a negative one.
The present study investigates the process through which stimuli become cues for sexual reward and acquire motivational value (appetitive conditioning) and how stimuli become cues for punishment and acquire a negative value (aversive conditioning). The aim of the proposal is to study mechanisms that may facilitate or impair sexual response. Although many theories of human sexual behavior assume that sexual stimuli obtain arousing properties through associative learning (Hardy, 1964; Byrne, 1986), systematic research on sexual reward learning is largely limited to studies in animals, mainly rats (Pfaus, Kippin, Centeno, 2001). In these studies, the paradigm of classical conditioning is often used in which a specific stimulus (the *conditional* stimulus, or CS), for example a smell, is repeatedly paired with stimulation eliciting sexual response (the *unconditional* stimulus, or US). After pairing, the particular smell is in itself able to elicit a sexual response (the *conditioned* response, or CR). Following conditioning, the CS can be repeatedly presented without US to study extinction of the conditioned response. Such experimental procedures are used to systematically investigate sexual reward learning and neurobiological influences on this learning (Pfaus, Kippin, Centeno, 2001). This kind of research in humans is extremely scarce, especially in women, while it is likely to yield important knowledge about mechanisms underlying sexual motivation and related disorders such as hypo- and hypersexuality.

Study objective

The purpose of this study is to investigate basal sexual conditioning mechanisms among healthy males and females. This study will investigate how stimuli acquire or lose sexually rewarding properties. This knowledge may help in the treatment of sexual motivation disorders such as too little and

excessive sexual desire. Generally, it is assumed that in these disorders sexual reward learning by classical conditioning plays an essential role. In humans, however, experimental research on sexual reward learning is scarce. In this research, basic phenomena such as extinction in sexual conditioning will be studied in humans. We suppose that repeated associations between a neutral stimulus and sexual stimulation results, through classical conditioning, in a learned appetitive sexual response to this stimulus. In a comparable manner, repeated associations between a sexual erotic stimulus and painful stimulation results, also through the mechanism of classical conditioning, in a learned aversive sexual response to this stimulus. Following conditioning, the stimulus can be repeatedly presented without the unconditional stimulus (e.g. the sexual erotic or painful stimulation) to study extinction of the conditioned response. Such experimental procedures can be used to systematically investigate sexual reward learning. This kind of research in humans is extremely scarce, while it is likely to yield important knowledge about mechanisms underlying sexual motivation and related disorders such as hypo- and hypersexuality. Previous studies have shown that appetitively and aversively conditioned genital responses and subjective affect did not extinguish significantly during the extinction phase, suggesting resistance to extinction. Subsequently, resistance to extinction of conditioned sexual responses may have important clinical implications.

Study design

The experimental design involves differential conditioning with one stimulus (the CS+) being followed by the sexual appetitive US during the conditioning phase, whereas another stimulus (the CS-) never is followed by the US. Which neutral stimulus is paired with the sexual appetitive stimulus is counterbalanced among subjects. In the acquisition phase, in which the CS+ and CS- are presented 10 times each, the CS+ is always immediately followed by the US. During the subsequent extinction phase, the CS+ and CS- will be presented 24 times each. Thus, the basic design in this study is a 2 (stimulus; CS+ versus CS-) x 48 (trial) design with stimulus and trial as within-subjects variables.
The design for the aversive conditioning study is comparable to experiment 1 and is also a 2 (erotic stimulus; CS+ versus CS-) x 48 (trial) design with stimulus and trial as within-subjects variables. Similar to experiment 1, which of the two pictures served as the CS+ or the CS- will be counterbalanced.

Study burden and risks

The visit to the LUMC will take approximately 2 hours. There are nor isks associated with participation in this study. The apllication of the painful stimulus is harmless, but can be perceived as inconvenient.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

- Age < 18 or > 45 years
- Body Mass Index (BMI) > 19
- Heterosexual orientation

Exclusion criteria

- Pregnancy or lactation
- A diagnosis of affective, psychotic or substance related disorder according to DSM-IV-TR
- Having undergone a hysterectomy or prolapse surgery
- Current or recurrent use (less than 4 weeks before participation) of medication that may affect sexual response. To determine possible sexual side-effects the *Farmacotherapeutisch

kompas* 2011 will be used.
- Current or previous disorders of the genitals that may influence the sexual response or the measurement of the response
- Other medical disorders that may influence the sexual response or the measurement of the response.

Study design

Design

Study type: Observational non invasive

Masking:	Single blinded (masking used)
Control:	Uncontrolled
Primary purpose:	Basic science

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	23-12-2011
Enrollment:	60
Type:	Actual

Ethics review

Approved WMO

Date:	22-12-2011
Application type:	First submission
Review commission:	METC Leiden-Den Haag-Delft (Leiden) metc-ldd@lumc.nl

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL37747.058.11