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Investigating the effects of kisspeptin in postmenopausal women with low sexual desire

Submission date
18/12/2023

Recruitment status
No longer recruiting

Registration date
19/12/2023

Overall study status
Completed

Last Edited
17/09/2025

Condition category
Nutritional, Metabolic, Endocrine

[X] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[_] Record updated in last year

Plain English summary of protocol

Background and study aims
Hypoactive Sexual Desire Disorder (HSDD) is characterised by a lack or absence of sexual fantasies and a desire for sexual activity. Studies estimate that HSDD affects 9-26% of postmenopausal women with marked emotional and psychological distress. However, despite the high clinical and psychological burden, there are limited treatment options available. The naturally-occurring reproductive hormone kisspeptin may represent a safe pharmacological option given two recently published studies showing that administration safely enhances sexual desire and arousal in premenopausal women and men with HSDD. However, kisspeptin's effects in postmenopausal women with low sexual desire remain to be studied.

Who can participate?
Women aged ≥40 years old who are postmenopausal, right-handed, heterosexual, with HSDD (≥6-months duration) and are receiving systemic Hormone Replacement Therapy (stable dose for at least 6-months before screening to maintain that regimen).

What does the study involve?
Interested participants who meet the inclusion criteria will be asked to complete a three-stage recruitment process (i. self-reported questionnaire, ii. telephone screening, iii. face-to-face appointment) to confirm eligibility. The study consists of an initial screening visit followed by 2-weekday 4-hour visits. You will receive an injection of a natural and safe hormone (called Kisspeptin), give blood samples, answer some questionnaires and have an MRI scan with physiological monitoring (no radiation).

What are the possible benefits and risks of participating?
Despite the significant burden of HSDD in postmenopausal women, medical and psychological treatments have shown only modest benefit. This indicates a need to better understand the underlying sexual and emotional brain activity in HSDD (to help develop more effective treatments), which this study will help address. Whilst kisspeptin is a naturally occurring hormone, which has been given safely to > 500 men and women without side effects (by our group and others), a team of senior doctors will supervise visits with appropriate safety monitoring.

Where is the study run from?
Imperial College London (UK)

When is the study starting and how long is it expected to run for?
August 2023 to September 2025

Who is funding the study?
NIHR Biomedical Research Centre at Imperial College London (UK)

Who is the main contact?
Professor Waljit Dhillo, Professor Alexander Comninos and Dr Edouard Mills. The team can be contacted at Imperial.FemaleHSDD@nhs.net

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Additional identifiers

Integrated Research Application System (IRAS)
326800

Central Portfolio Management System (CPMS)
58453

Protocol serial number
23HH8444 Version 3

Study information

Scientific Title
Investigating the effects of kisspeptin in postmenopausal women with hypoactive sexual desire disorder

Study objectives
Kisspeptin administration to women with Hypoactive Sexual Desire Disorder (HSDD) modulates sexual brain processing and associated behavioural and physiological measures of sexual desire and arousal in response to visual erotic stimuli, compared to placebo.

Ethics approval required
Ethics approval required

Ethics approval(s)

Approved 11/10/2023, London - Westminster Research Ethics Committee (2 Redman Place, Stratford, London, E20 1JQ, United Kingdom; +44 (0)207 104 8066; westminster.rec@hra.nhs.uk), ref: 23/LO/0763

Primary study design
Interventional

Study design
Randomized double-blind placebo-controlled two-way crossover study

Study type(s)
Other

Health condition(s) or problem(s) studied
Postmenopausal women with distressing low sexual desire caused by Hypoactive Sexual Desire Disorder, according to the International Classification of Diseases 11th Revision (ICD-11), including categorisation as both acquired (versus lifelong) and generalised (versus situational).

Interventions
Participants will attend two study visits each for subcutaneous administration of kisspeptin (12.8 nmol/kg) and placebo (using 0.9% saline; identical in volume and appearance to kisspeptin). Study visits will be scheduled at least 1 month apart.

The study will explore changes in:
1. Brain activity, as determined by functional MRI (fMRI) in response to visual erotic stimuli
2. Peripheral physiological sexual arousal (determined by infrared thermography)
3. Behavioural measures of sexual desire and arousal.

The order of the interventions will be randomised (with the randomisation list created by an independent statistician) and counterbalanced. Participants, radiographers/study doctors interacting with the participant and data analysts will be blinded to the identity of the intervention.

Intervention Type
Biological/Vaccine

Phase
Not Applicable

Drug/device/biological/vaccine name(s)
Kisspeptin

Primary outcome(s)
Change in brain activity measured using fMRI blood oxygen level-dependent (BOLD) activity in response to visual erotic stimuli at the study visits when participants are administered kisspeptin compared to placebo

Key secondary outcome(s)
The following secondary outcome measures are assessed at study visits when participants are administered kisspeptin compared to placebo:
1. Non-task brain activity measured using fMRI resting brain activity

2. Sexual desire and arousal measured using validated psychometric questionnaires, such as the Sexual Arousal and Desire Inventory (SADI) and a behavioural potentiometer [i.e., a hand-held analogue device enabling continuous ratings] in response to visual erotic stimuli
3. General mood, anxiety, and non-sexual attention measured using validated psychometric questionnaires in response to visual erotic stimuli
4. Changes in psychometric measures of sexual desire and arousal measured using validated psychometric questionnaires such as the SADI
5. Physiological sexual arousal measured using thermography in response to visual erotic stimuli
6. Physiological sexual arousal measured using thermography [not in response to visual erotic stimuli, i.e., during non-task brain scan]
7. Blood parameters such as plasma kisspeptin and serum levels of FSH, LH, oestradiol, progesterone testosterone, and cortisol
8. Correlation analyses between fMRI brain activity in response to visual erotic stimuli and change in physiological sexual arousal measured using thermography
9. Correlation analyses between fMRI brain activity in response to visual erotic stimuli and changes in psychometric measures of sexual arousal and general mood/anxiety/non-sexual attention measured using validated psychometric questionnaires and a behavioural potentiometer
10. Correlation analyses between physiological sexual arousal measured using thermography and psychometric measures of sexual desire, arousal, and general mood/anxiety/non-sexual attention measured using validated psychometric questionnaires
11. Correlation analyses between hormonal data (plasma kisspeptin and serum levels of FSH, LH, oestradiol, progesterone, testosterone, and cortisol) and the aforementioned neuroimaging, physiological and psychometric changes.
12. Safety assessments: adverse event, blood pressure, heart rate recordings measured using standard medical laboratory methods

Completion date
29/09/2025

Eligibility

Key inclusion criteria
1. Women ≥40 years old
2. Postmenopausal (i.e., no spontaneous period for > 1 year) caused by natural menopause
3. Heterosexual
4. Right-hand dominant
5. Body mass index (BMI) 18-30 kg/m2
6. Currently in a relationship and the relationship has been stable for at least 6 months before screening
7. The participant’s partner must be sexually functional without erectile dysfunction or premature ejaculation
8. In the subject’s opinion, previously experienced “normal sexual function,” defined as a normal level of desire at some point in the past
9. Hypoactive Sexual Desire Disorder according to the International Classification of Diseases 11th Revision (ICD-11), including categorisation as both acquired (versus lifelong) and generalised (versus situational)
10. All of the following at Screening:
10.1. Patient Health Questionnaire (PHQ-9) total score is <5, and score for Question 9 is 0
10.2. Generalised Anxiety Disorder (GAD-7) total score is <5
10.3. Either Female Sexual Function Index (FSFI) total score ≤26 if diagnosed with HSDD (with or

without symptoms of decreased arousal) or subjects diagnosed with HSDD only (without symptoms of decreased arousal), FSFI desire domain score of ≤5 (regardless of total FSFI score)
10.4. Female Sexual Distress Scale - Desire/Arousal/Orgasm (FSDS-DAO) total score is >18
11. Receiving systemic Hormone Replacement Therapy (HRT) and be on a stable dose for at least 6-months prior to screening with the intention of maintaining that regimen during the study
12. Prior experience in viewing sexually explicit material
13. Participants must be able to provide full informed consent. We will make every reasonable effort to accommodate a participant who does not speak English as their first language, such as using an interpreter. However, where there is doubt as to whether the potential participant can fully understand the study, we will not be able to include them as their consent would not be fully informed and there may be difficulty in performing the tasks required for the study which would impact the data collected and hence the robustness of the study

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
40 Years

Sex
Female

Total final enrolment
44

Key exclusion criteria
1. History of any medical, psychological, or other condition, or use of any medications, including over-the-counter products, which, in the opinion of the investigators, would either interfere with the study or potentially cause harm to the participant.
2. Medical or psychological conditions that would impair their ability to participate reliably in the study or give informed consent.
3. History of major haematological, renal, thyroid, or hepatic abnormalities or significant cardiovascular disease.
4. History of significant pelvic surgery (including hysterectomy).
5. History of cancer.
6. History of unresolved sexual trauma/abuse
7. Diagnosis of another sexual disorder.
8. Receiving any other treatment for HSDD (beyond HRT) at the time of screening, such as testosterone therapy.
9. Any implanted material in the body that would preclude magnetic resonance imaging (MRI) for safety reasons.
10. Inability to tolerate MRI scanning (e.g., claustrophobia or inability to lie flat).
11. Impaired vision which would preclude the ability to view erotic material.
12. Without access at home to a telephone, or other factor likely to interfere with ability to participate reliably in the study.

13. History of hypersensitivity to any of the components administered.
14. Participation in any research study within the preceding 30 days (or 2 months if an investigational drug was administered).
15. Those who have or intend to donate blood or blood products within three months before or following study completion.

Date of first enrolment
15/01/2024

Date of final enrolment
19/06/2025

Locations

Countries of recruitment
United Kingdom

England

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Imperial College London
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Sponsor information

Organisation
Imperial College London

ROR
https://ror.org/041kmwe10

Funder(s)

Funder type
University/education

Funder Name
NIHR Imperial Biomedical Research Centre

Alternative Name(s)
NIHR Imperial BRC, Imperial Biomedical Research Centre, BRC

Funding Body Type
Private sector organisation

Funding Body Subtype
Research institutes and centers

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan
All data generated or analysed during this study will be included in the subsequent results publication.

IPD sharing plan summary
Published as a supplement to the results publication

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	version 3.0	04/10/2023	19/12/2023	No	Yes
Study website	Study website	11/11/2025	11/11/2025	No	Yes