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Investigating topical steroid withdrawal: a newly recognised medical condition

Submission date
22/09/2025

Recruitment status
No longer recruiting

Registration date
21/10/2025

Overall study status
Completed

Last Edited
13/10/2025

Condition category
Injury, Occupational Diseases, Poisoning

[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
Topical corticosteroids (TCS) are the mainstay of treatment for eczema; there are over 11 million prescriptions each year in the UK. In recent years, a growing number of people have reported a severe, life-altering and sometimes life-threatening adverse event associated with TCS use known as topical (cortico)steroid withdrawal (TSW). This occurs in some patients after cessation of long-term TCS use, and can last for months or years before the skin returns to pre-TCS treatment health. During TSW, patients report severe dermatologic symptoms, including extreme pruritus, erythema, desquamation, and neuropathic-type pain, as well as systemic symptoms including impaired thermoregulation, lymphadenopathy, weight loss, sleep, and mood disturbance.

The scale of TSW and the nature of this condition are not well understood, but its existence as an important emerging health challenge is increasingly recognised, reflected by calls from patients and carers, healthcare professionals, patient organisations, medical associations, and the UK government for urgent research into this condition. There are no formal TSW diagnostic criteria or management recommendations, which has led to a culture of mistrust and the disengagement of TSW patients from the healthcare system and a real fear surrounding TSW, reported by Dermatology specialists as well as patients and the general public. There is a pressing need for understanding in this field that would reduce the stigma and anxiety experienced by patients and healthcare providers surrounding the use of topical corticosteroids and provide answers and stratified care for TSW patients. Current research into TSW remains limited and predominantly qualitative. To address this knowledge gap, this research study will be the first quantitative study of TSW in the UK, providing insight into the scale of the problem, a detailed description of a UK TSW cohort, and an investigation into the molecular mechanisms underlying TSW.

Three research questions defined by stakeholder prioritisation form the basis of this study. Namely, 1. What is the scale of the problem of TSW in the UK? 2. What are the biological mechanisms of TSW?, and 3. Can TSW be treated? These questions will be addressed by characterising TSW epidemiology and phenotype through surveillance of the UK patient population. The study will collaborate with the TSW patient community to initiate the collection of biosamples for TSW research, investigate one possible mechanism of TSW by analysing saliva

cortisol levels, and investigate molecular mechanisms in TSW more broadly using ex vivo skin challenged with corticosteroid. Combining these data is expected to define possible approaches for TSW prevention and treatment.

Who can participate?
Adults living in the UK who have currently or previously experienced TSW can take part in the survey. Those donating biosamples must meet NIH TSW criteria. Healthy volunteers must meet similar health criteria but have no history of TSW.

What does the study involve?
This is a combined questionnaire/biosample collection and analysis research study.

Online questionnaire (n≤1000)
Initial recruitment to the online questionnaire will be advertised through social media platforms (Instagram, Facebook, Bluesky, X, TikTok, and/or LinkedIn) and websites of collaborating patient organisations: National Eczema Society, Eczema Outreach Support and Scratch That, as well as social media accounts/website created specifically for this study. The questionnaire will be live for 6 months or until 1000 responses are collected; therefore, participants will have time to consider the information sheet before consenting, on a first-come, first-served basis. The questionnaire will be anonymous, unless the participant chooses to opt in to sample donation (section below).

Saliva sample (n=50) and saliva, blood, and skin biopsy (n=3) donation for TSW participants
At the end of the online questionnaire, the participant will have the option to opt in or out of receiving more information on the recruitment of participants to donate biosamples.

If the participant opts out, their involvement in the study will be complete.

If the participant opts in, they will be asked to provide their name and email, which will then be linked to their questionnaire responses. Their questionnaire responses will be reviewed by the study team to check that the NIH TSW criteria are met.

If the participant does not meet the NIH TSW criteria, their involvement in the study will be complete.

If the participant meets the NIH TSW criteria, the participant will be sent an information sheet and consent form. The participant will have 1 month from receipt of the information sheet to decide whether to take part. The participant has the option to consent either to donating just a saliva sample, or for all three samples: saliva, blood and skin biopsy.

If more than n=50 participants, meeting the NIH TSW criteria, consent to donating saliva samples, saliva collection kits will be distributed on a first-come, first-served basis.

If more than n=3 participants, meeting the NIH TSW criteria, consent to donating saliva, blood and skin biopsy samples, participants will be selected by the study team, taking into account their phenotype, and distance from the Western General Hospital.

Saliva sample donation for healthy volunteers (n=50)
Advertising material will be circulated to staff and students at the Institute of Genetics and Cancer, University of Edinburgh, through institutional email and physical posters displayed in the

building. Potential participants will be asked to email a member of the research team, and they will be sent a participant information sheet and consent form. The participant will have 1 month from receipt of the information sheet to decide whether to take part.

For participants self-collecting saliva at home:
An at-home saliva collection kit will be mailed to the participant, along with instructions on how and when to take the sample, and a form for the participant to record the time and date that the sample was taken, and a form for TSW participants to record their symptoms at the time of taking the sample. The participant will be directed to take the sample first thing in the morning, as soon as they wake. Sample collection will involve spitting into a tube to collect a small, defined minimum volume of saliva.

For participants donating blood and a skin biopsy:
1 x 5mls EDTA blood sample will be obtained and a dressing applied.
One ellipse-shaped skin biopsy, taken from an area chosen according to the patient's preference (thigh, arm or lower back/buttock). The biopsy will be approximately 5.0 x 3.0mm. An ellipse is used to allow linear closure for a better cosmetic result. Three dissolvable sutures will be used, so suture removal is not required. An adhesive dressing will be applied, and an information sheet on post-surgical wound care will be provided.
A physical GP letter will be provided to participants who donate blood and saliva detailing the participant's involvement in the study, which the participant can provide to their GP if they wish. The study does not collect participants' GP details.

What are the possible benefits and risks of taking part?
There is no direct benefit from participating in this study, but the research being undertaken should help the understanding of TSW, and it is hoped that it will lead to better diagnosis and potential treatments in the future.

There are no particular risks attached to this study.

For participants donating blood and a skin biopsy:
• Taking blood is a routine clinical procedure. Occasionally, people are left with a temporary bruise after blood is taken.
• The skin biopsy will be performed under local anaesthetic, which will require a small injection near the site of the biopsy. The injection of local anaesthetic before the biopsy may sting, but it becomes painless after a few seconds.
• The biopsy site will be closed with 3 small stitches. The site will heal over two to four weeks, and leave a small (approximately 5mm) scar.
• There may be some discomfort while the biopsy heals. Participants can take paracetamol or ibuprofen if necessary, unless this is contraindicated.
• Your stitches will dissolve and do not need to be removed.
• There is a theoretical risk of a lumpy or keloid scar, but this is uncommon.
• The skin sample will be taken using aseptic technique, meaning that the technique is as sterile as possible so that the risk of wound infection is very low.
• Participants will be given advice on a leaflet as to how to care for the biopsy site and an information sheet to explain the procedure that they will have had to a healthcare professional if needed.
• When the stitches are in place and even after removal, it is advised that they avoid vigorous exercise, heavy lifting or contact sports for a month. This is to prevent the stitches from bursting and to ensure the wounds heal well.

Where is the study run from?
The University of Edinburgh, UK

When is the study starting and how long is it expected to run for?
September 2025 to November 2026

Who is funding the study?
National Eczema Society, UK

Who is the main contact?
Professor Sara Brown, sara.brown@ed.ac.uk

Contact information

Type(s)
Public, Scientific, Principal investigator

Contact name
Prof Sara Brown

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Additional identifiers

Integrated Research Application System (IRAS)
359164

Study information

Scientific Title
Molecular investigation of topical steroid withdrawal: a newly recognised medical condition

Study objectives
O1- Collect and analyse descriptive data from a UK topical steroid withdrawal (TSW) cohort (n≤1000)
O2- Collect 50 saliva and 3 skin biopsy samples from a UK TSW cohort to initiate the first TSW biobank
O3- Investigate systemic adrenal insufficiency using saliva samples from O2; securely store skin biopsies
O4- Investigate transcriptional response in ex vivo skin challenged with corticosteroid

O5- Combine findings to address question 3
O6- Share results with patient community; apply for substantial funding to analyse TSW skin biopsies

Ethics approval required
Old ethics approval format

Ethics approval(s)
Pending submission

Primary study design
Observational

Study design
Single-centre observational cohort study

Study type(s)
Other, Quality of life

Health condition(s) or problem(s) studied
Topical steroid withdrawal (TSW)

Interventions
• Collect information from up to 1000 UK residents who have experienced TSW through an online survey.
• Collect and analyse saliva samples from 50 people who are experiencing TSW, and 50 healthy volunteers.
• Collect and store blood and skin biopsy samples from 3 people who are experiencing TSW.

Intervention Type
Other

Primary outcome(s)
1. Topical steroid withdrawal (TSW) cohort characteristics measured using data collected from an online survey at the time of the survey. These characteristics include historical skin health and topical steroid use, symptoms and timeline of TSW, clinical management of TSW, understanding of TSW and impact of TSW.
2. Salivary cortisol levels will be measured by immunoassay using the saliva samples at one time point.
3. Blood and skin samples will be stored pending approval for use in future planned research.

Key secondary outcome(s)
There are no secondary outcome measures

Completion date
02/11/2026

Eligibility

Key inclusion criteria

For all TSW sections of the study:
1. Self-identify as currently or previously experiencing TSW
2. Aged 18 years or older
3. Resident in the UK
4. Able to give written informed consent

For TSW saliva, blood, or skin biopsy donation:
1. Must currently meet NIH TSW criteria, as assessed by the research team using questionnaire data.

For healthy volunteer saliva donation:
1. Aged 18 years or older
2. Resident in the UK

Participant type(s)
Healthy volunteer, Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Years

Upper age limit
120 Years

Sex
All

Key exclusion criteria
For TSW or healthy volunteer saliva, blood, or skin biopsy donation:
1. Pregnancy
2. Uncontrolled medical illness, eg diabetes, ischaemic heart disease, active infection
3. Current use of topical or systemic steroids (i.e. must be currently in steroid withdrawal phase)

Date of first enrolment
01/12/2025

Date of final enrolment
02/11/2026

Locations

Countries of recruitment
United Kingdom

Scotland

Study participating centre
University of Edinburgh
Old College
South Bridge
Edinburgh
United Kingdom
EH8 9YL

Sponsor information

Organisation
University of Edinburgh

ROR
https://ror.org/01nrxwf90

Organisation
NHS Lothian

ROR
https://ror.org/03q82t418

Funder(s)

Funder type
Charity

Funder Name
National Eczema Society

Results and Publications

Individual participant data (IPD) sharing plan
The data-sharing plans for the current study are unknown and will be made available at a later date.

IPD sharing plan summary
Data sharing statement to be made available at a later date