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# Does ColdZyme mouth spray protect athletes against upper respiratory tract infection?

**Submission date**
07/09/2022

**Recruitment status**
No longer recruiting

**Registration date**
27/09/2022

**Overall study status**
Completed

**Last Edited**
03/03/2025

**Condition category**
Respiratory

[X] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[X] Individual participant data

## Plain English summary of protocol

Background and study aims
Endurance athletes appear to be more susceptible than normal to picking up infections, especially upper respiratory tract infections (URTI). Symptoms such as coughs, colds, sore throat, runny nose etc can last for up to 2 weeks, and inevitably cause disruption to training schedules and competitive performance. For this reason, researchers are interested in treatments that may reduce the risk of such illness/symptoms in athletes. They wish to test whether a mouth spray product (ColdZyme) suggested to 'block' the viruses that cause the common cold from attaching to cell surfaces in the respiratory tract, can lower the duration of symptoms and/or the number of reports of upper respiratory illness in endurance athletes.

Who can participate?
Endurance athletes (both males and females) over the age of 18 years with at least 3 years of endurance training history and no existing medical conditions

What does the study involve?
If they agree to take part, participants would be required to complete a health questionnaire to ensure they are suitable for participation, and to sign a consent form. For the duration of the monitoring period (3 months) they would be required to keep a log of all of their exercise training. They will also be required to complete a daily upper respiratory tract infection (URTI) symptom questionnaire. Finally, if they do experience any URTI symptoms, they are asked to take a self-swab from their throat using a swabbing device for later analysis (to detect any viruses or bacteria that are known to cause URTIs).
Participants will be asked to use the product in accordance with manufacturer instructions for routine preventative use and for treatment of any suspected URTI as detailed below:
1. Preventative use: "during periods when you think you may be at increased risk or have increased chances of being exposed to a cold, such as heavy training or competition periods, foreign travel or exposure to infected individuals"
2. Treatment if a URTI does occur, e.g. at the first signs of a cold.

What are the possible benefits and risks of participating?
The product should not cause any side effects or adverse reactions for anybody that is not allergic to any of the ingredients listed in the product. However, if participants experience any

adverse response, they are advised to stop use immediately and seek medical advice. This would be reported to the sponsor, manufacturer, and ethics committee for appropriate reporting. Taking the throat swab may cause mild discomfort (e.g. some people find a throat swab either tickly or a bit unpleasant) but this only lasts a few seconds. There are no significant long-term risks from this.

Where is the study run from?
University of Kent (UK)

When is the study starting and how long is it expected to run for?
October 2021 to June 2024

Who is funding the study?
Enzymatica AB (Sweden), the company that produces the product

Who is the main contact?
Prof, Glen Davison, G.Davison@kent.ac.uk

# Contact information

### Type(s)
Principal Investigator

### Contact name
Prof Glen Davison

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# Additional identifiers

### EudraCT/CTIS number
Nil known

### IRAS number

### ClinicalTrials.gov number
Nil known

### Secondary identifying numbers
CI110-UoKent

# Study information

## Scientific Title
Does ColdZyme® Mouth Spray reduce upper respiratory tract infection incidence or duration in endurance athletes?

## Study objectives
Null1: There will be no difference between treatment and placebo groups on self-report upper respiratory tract infection (URTI) duration.
Null2: There will be no difference between treatment and placebo groups on self-report URTI incidence.

Alternate1: Self-report URTI duration will be significantly shorter in the treatment group.
Alternate2: Self-report URTI incidence will be significantly lower in the treatment group.

## Ethics approval required
Old ethics approval format

## Ethics approval(s)
Approved 09/12/2021, University of Kent, School of Sport & Exercise Sciences Research Ethics and Advisory Group (REAG; Ingram Building, University of Kent, CT2 7NH, UK; +44 (0)1227 827812; ssesethics@kent.ac.uk), ref: 20_20_21

## Study design
Placebo-controlled double-blind randomized controlled trial

## Primary study design
Interventional

## Secondary study design
Randomised controlled trial

## Study setting(s)
Other

## Study type(s)
Treatment

## Participant information sheet
Not available in web format, please use the contact details to request a participant information sheet

## Health condition(s) or problem(s) studied
Upper respiratory tract infection (URTI) in healthy, free-living athletes

## Interventions
If they agree to take part, participants would be required to complete a health questionnaire to ensure they are suitable for participation, and to sign a consent form.

Randomization:
Fully double-blind, randomized design (including random sequence generation, allocation concealment, and blinding of participants and study personnel). This investigation will be conducted in a double-blind randomised manner (block randomisation). Participants will be randomly allocated to a placebo or treatment group (double-blind). The subjects will be randomised at the point of study enrolment. The randomisation list will be provided to the contract manufacturer (not involved in the study) by the responsible person at the University of Kent for the labelling of devices according to the randomisation schedule. The ratio of randomisation between ColdZyme and placebo will be 1:1. Random numbers will be assigned to the subjects in a sequential order based on the time of randomisation at each investigational site (whole blocks will be allocated to each centre). All research staff directly involved in the study will remain blinded throughout. The randomisation list will be concealed from the investigational sites. It will be stored under lock and key until database closure. The investigational devices are identical in appearance, packaging and labelling of the bottle and outer carton, to keep subjects and (blinded) research staff blinded to treatment assignment.

Participants will be monitored for 3 months and will only use the product in accordance with manufacturer instructions if they believe they need to do so for one of two reasons: for preventative use (e.g. during periods of increased risk, such as heavy training or competition periods, foreign travel or exposure to infected individuals) and also for treatment (e.g. at first signs of a cold). They then use one dose (two puffs) every 2 hours (minimal gap between doses), up to a maximum of 6 times per day, until symptoms resolve.

The primary outcome is upper respiratory tract infection (URTI) symptoms as measured using the Jackson common cold questionnaire. This will be completed daily during the study monitoring period (i.e. 3 months for each participant). For the duration of the monitoring period (3 months) they would be required to keep a log of all of their exercise training. Finally, if they do experience any URTI symptoms, they are asked to take a self-swab from their throat using a swabbing device for later analysis (to detect any viruses or bacteria that are known to cause URTIs).

## Intervention Type
Device

## Phase
Not Applicable

## Drug/device/biological/vaccine name(s)
ColdZyme® Mouth Spray

## Primary outcome measure
URTI episode duration recorded using the Jackson common cold questionnaire completed daily by participants during the 3-month monitoring period

## Secondary outcome measures
1. URTI parameters (number of episodes; severity ratings) recorded using the Jackson common cold questionnaire completed daily by participants during the 3-month monitoring period during their enrolment in the study
2. URTI episodes with swab-confirmed pathogen detection: participants will be instructed to collect a “self-swab” if they experience a URTI episode (self-reported via Jackson questionnaire). They will be required to take a throat swab (at the same time) on days 1, 3, 5 and 7 (where day 1

is the first day that symptoms are present). Samples will be screened for the presence of known URTI-causing pathogens using a commercially-available respiratory pathogen qPCR panel
3. Viral load in pathogen-confirmed URTI: relative viral load will be estimated using the Ct values derived from the qPCR panel, and an internal reference gene, for the pathogen screening mentioned above on days 1, 3, 5 and 7 (where day 1 is the first day that symptoms are present)
4. Training load and absence days (days missed training due to URTI): an exercise training log will be recorded prospectively by participants for all planned physical activity (exercise training) that they take part in. For every session, they will record session duration and overall rating of perceived exertion (RPE), which will be used to estimate the overall training load. If an URTI episode causes them to miss, or adjust their training vs what was planned, they will record this on their log. This will be used to calculate missed (or otherwise affected) training for the duration of the monitoring period (3 months).

### Overall study start date
01/10/2021

### Completion date
01/06/2024

## Eligibility

### Key inclusion criteria
Endurance-trained, competitive athletes (e.g. long-distance runners, triathletes, cyclists), with a high training load (i.e. >5 hours planned training and/or activity per week)

### Participant type(s)
Healthy volunteer

### Age group
Adult

### Sex
Both

### Target number of participants
A total of 88 URTI self-report episodes are needed. It is estimated this will require a sample size of n = 114 but it is dependent on incidence rate (i.e. number of episodes per person) during the study period. It may be higher or lower if the incidence rate is low or high, respectively.

### Key exclusion criteria
1. On long-term medication
2. Currently smoking
3. Allergic to any of the ingredients in ColdZyme
4. Currently using any medication (except for contraceptives), or food supplements
5. Currently using any other relevant products or supplements (nutritional or otherwise) that may influence the common cold
6. Currently taking part in another study that may compromise the results of this study
7. Currently pregnant, breast-feeding or planning to become pregnant during the study

### Date of first enrolment

01/10/2022

**Date of final enrolment**
01/02/2024

# Locations

**Countries of recruitment**
England

United Kingdom

**Study participating centre**
**University of Kent**
School of Sport & Exercise Sciences
Chipperfield Building
Canterbury
United Kingdom
CT2 7PE

**Study participating centre**
**University of Derby**
Kedleston Road
Derby
United Kingdom
DE22 1GB

**Study participating centre**
**Newcastle University**
Newcastle upon Tyne
United Kingdom
NE2 4DR

# Sponsor information

**Organisation**
University of Kent

**Sponsor details**
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United Kingdom
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### Sponsor type
University/education

### Website
https://www.kent.ac.uk

### ROR
https://ror.org/00xkeyj56

## Funder(s)

### Funder type
Industry

### Funder Name
Enzymatica AB

## Results and Publications

### Publication and dissemination plan
The study will be submitted for consideration for publication in relevant peer-reviewed scientific journals after completion. It may also be presented at scientific conferences and other relevant meetings/symposia etc.

### Intention to publish date
01/08/2024

### Individual participant data (IPD) sharing plan
Depending on the measure, raw data will either be available on request, deposited in an institutional repository, and/or made available with the final publication in a peer-reviewed journal (e.g. as a supplement).

### IPD sharing plan summary
Stored in publicly available repository, Available on request, Published as a supplement to the results publication

### Study outputs

| Output type | Details | Date created | Date added | Peer reviewed? | Patient-facing? |
|---|---|---|---|---|---|
| Basic results | | | 16/12/2024 | No | No |

| | | | | |
|---|---|---|---|---|
| Dataset | 17/12/2024 | 03/03/2025 | No | No |
| Results article | 28/02/2025 | 03/03/2025 | Yes | No |