

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

04 Oct 2023

### Whole-Body Cryotherapy (WBC) for COVID-19 recovered patients having anosmia or severe hyposmia

#### Protocol summary

##### Study aim

Demonstrating that repeated cold exposure would improve olfactory function. It was hypothesized that high-dose WBC (five 3-min long sessions of whole body cryotherapy over 1 week) would result in more benefits than low-dose WBC (two 3-min long sessions of whole body cryotherapy over 1 week).

##### Design

Pilot randomized controlled trial with a parallel group design of forty-five COVID-19 recovered patients with anosmia or severe hyposmia, enrolled between February 2021 and April 2021. Olfactory function was assessed before and after intervention for each participant.

##### Settings and conduct

WBC sessions were conducted at the Cryotherapy Center of Bezannes, France. The day before and the day following the assigned intervention, each participant was examined by a physician who evaluated their sense of smell.

##### Participants/Inclusion and exclusion criteria

Participants had to be COVID-19 recovered patients with residual anosmia or severe hyposmia after diagnosis of SARS-CoV-2 infection (positive PCR test). Participants with medical contraindications to Whole-Body Cryotherapy were excluded.

##### Intervention groups

There were two intervention groups and one control group. In the first intervention group (high-dose WBC) participants received daily sessions (5 days over one week) of WBC. Each session was 3 minutes in length and was performed in a cryotherapy chamber exposing individuals to freezing dry air at a temperature of -90°C. In the second intervention group (low-dose WBC), the intervention was similar but participants received only two WBC sessions over one week.

##### Main outcome variables

Our main outcome variable was participants' score change on a Visual Analog Scale. We used a straight horizontal line of 100 mm with "0" indicating no loss of

the sense of smell compared to what it was before COVID-19 infection and "100" indicating complete loss.

#### General information

##### Reason for update

##### Acronym

CRYOTAN

##### IRCT registration information

IRCT registration number: **IRCT20210708051817N1**

Registration date: **2021-07-14, 1400/04/23**

Registration timing: **retrospective**

Last update: **2021-07-14, 1400/04/23**

Update count: **0**

##### Registration date

2021-07-14, 1400/04/23

##### Registrant information

##### Name

Fabien LEGRAND

##### Name of organization / entity

University of Reims Champagne Ardenne

##### Country

France

##### Phone

+33 3 26 91 38 90

##### Email address

fabien.legrand@univ-reims.fr

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2021-02-01, 1399/11/13

##### Expected recruitment end date

2021-05-01, 1400/02/11

##### Actual recruitment start date

2021-02-15, 1399/11/27

**Actual recruitment end date**

2021-04-19, 1400/01/30

**Trial completion date**

2021-05-01, 1400/02/11

**Scientific title**

Whole-Body Cryotherapy (WBC) for COVID-19 recovered patients having anosmia or severe hyposmia

**Public title**

Whole Body Cryotherapy (WBC) for treating anosmia / hyposmia

**Purpose**

Treatment

**Inclusion/Exclusion criteria****Inclusion criteria:**

recovered COVID-19 patients (asymptomatic for at least 3 weeks) anosmia or severe hyposmia (more than 50 percent reduction of olfactory acuity)

**Exclusion criteria:**

medical contraindications to Whole-Body Cryotherapy

**Age**

From **18 years** old to **79 years** old

**Gender**

Both

**Phase**

N/A

**Groups that have been masked**

*No information*

**Sample size**

Target sample size: **42**

Actual sample size reached: **45**

**Randomization (investigator's opinion)**

Randomized

**Randomization description**

A permuted block randomization design at the level of the individual was used, with a block size of three individuals. In each block of three, two patients were randomly assigned to the experimental groups (low-dose WBC, high-dose WBC) and one patient to the control group. This was done using sealed envelopes. There was no allocation concealment.

**Blinding (investigator's opinion)**

Not blinded

**Blinding description****Placebo**

Not used

**Assignment**

Parallel

**Other design features****Secondary Ids**

empty

**Ethics committees****1****Ethics committee****Name of ethics committee**

Ethics Committee of the Société Française de

Cryothérapie Corps Entier

**Street address**

11 avenue du Tremblay

**City**

Paris

**Postal code**

75012 Paris

**Approval date**

2021-01-10, 1399/10/21

**Ethics committee reference number**

SFCCE-2021-3

**Health conditions studied****1****Description of health condition studied**

COVID-19 induced anosmia or severe hyposmia (defined as more than 50 percent of loss of sense of smell)

**ICD-10 code**

U07.1

**ICD-10 code description**

U07.1 COVID-19, virus identified

**Primary outcomes****1****Description**

participant's score change on the Visual Analog Scale measuring the loss of sense of smell

**Timepoint**

the day before and the day following intervention

**Method of measurement**

participant's self-report evaluation on a Visual Analog Scale 0-100 ; with "0" indicating complete loss of sense of smell compared to what it was before being infected by COVID-19; and "100" indicating full recovery of sense of smell.

**Secondary outcomes**

empty

**Intervention groups****1****Description**

Intervention group 1: high-dose Whole-Body Cryotherapy (WBC). Participants receive daily sessions of WBC in a cryotherapy chamber at temperature of -90°C. Sessions are 3 minutes in length. Intervention's duration is 5 days.

**Category**

Treatment - Other

**2****Description**

Intervention group 2: low-dose Whole-Body Cryotherapy (WBC). Participants receive daily sessions of WBC in a cryotherapy chamber at temperature of -90°C. Sessions

are 3 minutes in length. Intervention's duration is 2 days.

**Category**

Treatment - Other

**3****Description**

Control group: participants in the control group received no WBC sessions

**Category**

N/A

**Recruitment centers****1****Recruitment center****Name of recruitment center**

Cryotherapy Center "CRYOTERA"

**Full name of responsible person**

Bastien Bouchet

**Street address**

7 rue Jules Méline

**City**

Bezannes

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51430

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+33 3 26 77 97 50

**Email**

bastien.bouchet@cryotera.fr

**Sponsors / Funding sources****1****Sponsor****Name of organization / entity**

The University of Reims Champagne Ardenne

**Full name of responsible person**

Fabien Legrand

**Street address**

9 Boulevard de la Paix

**City**

Reims

**Postal code**

51100

**Phone**

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**Email**

fabien.legrand@univ-reims.fr

**Grant name**

non pharmacological interventions

**Grant code / Reference number**

NPI-2021-2

**Is the source of funding the same sponsor organization/entity?**

Yes

**Title of funding source**

The University of Reims Champagne Ardenne

**Proportion provided by this source**

100

**Public or private sector**

Public

**Domestic or foreign origin**

Domestic

**Category of foreign source of funding**

empty

**Country of origin****Type of organization providing the funding**

Academic

**Person responsible for general inquiries****Contact****Name of organization / entity**

The University of Reims Champagne Ardenne

**Full name of responsible person**

Fabien Legrand

**Position**

Assistant Professor

**Latest degree**

Ph.D.

**Other areas of specialty/work**

Health Promotion

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**Person responsible for scientific inquiries****Contact****Name of organization / entity**

The University of Reims Champagne Ardenne

**Full name of responsible person**

Guillaume Polidori

**Position**

Professor

**Latest degree**

Ph.D.

**Other areas of specialty/work**

Health Technology Assessment

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## Person responsible for updating data

### Contact

**Name of organization / entity**

Société Française de Cryothérapie Corps Entier

**Full name of responsible person**

Bastien Bouchet

**Position**

Manager

**Latest degree**

Master

**Other areas of specialty/work**

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**Email**

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## Sharing plan

**Deidentified Individual Participant Data Set (IPD)**

Yes - There is a plan to make this available

**Study Protocol**

Yes - There is a plan to make this available

**Statistical Analysis Plan**

Yes - There is a plan to make this available

**Informed Consent Form**

Yes - There is a plan to make this available

**Clinical Study Report**

Yes - There is a plan to make this available

**Analytic Code**

Not applicable

**Data Dictionary**

Not applicable

**Title and more details about the data/document**

we will provide all collected deidentified participants' data set in a .xls file

**When the data will become available and for how long**

data set will be available as of 1 September 2021 for one full year

**To whom data/document is available**

data set will be available for people working in academic institutions

**Under which criteria data/document could be used**

data can be used for scientific purposes

**From where data/document is obtainable**

person to be contacted: fabien.legrand@univ-reims.fr

**What processes are involved for a request to access data/document**

write an email explaining what for you might need the data set

**Comments**