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Investigating the effects of icing on pain duration after wisdom tooth extraction

Submission date
05/11/2025

Recruitment status
Recruiting

Registration date
06/11/2025

Overall study status
Ongoing

Last Edited
06/10/2026

Condition category
Oral Health

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

Plain English summary of protocol

Background and study aims
Pain and inflammation often happen together after an injury. Pain comes from the injury itself and also from the body's immune response that causes inflammation when it starts to heal. A common method to reduce pain and inflammation right after an injury is to apply ice (cryotherapy). Early pain levels after an injury are a risk factor for developing chronic pain that lasts more than three months. However, recent research shows that stopping inflammation might actually make pain last longer. In both mice and humans, we showed that using non-steroidal anti-inflammatories (NSAIDs), like Advil or aspirin, helps reduce pain in the short-term, but could also lead to pain that lasts longer. We also found that using ice after an injury in mice made pain last longer. Getting wisdom teeth removed often causes a lot of pain and inflammation. Doctors usually suggest using ice and/or NSAIDs to manage this. No study in humans has looked at how these anti-inflammatory treatments affect how long pain lasts

Who can participate?
Adults 18 years and older who need to get at least one wisdom tooth removed at the Montreal General Hospital in Montreal, Canada.

What does the study involve?
Participants are asked to join this study while they undergo a consultation to get their wisdom teeth removed at the Montreal General Hospital, at the Oral and Maxillofacial Surgery clinic. Participants must pass the screening questionnaire and sign the informed consent form to be enrolled in the study. Two days before their wisdom tooth extraction, participants need to answer a baseline questionnaire. If they answer the questionnaire, they will be placed in one of two groups (1) Icing, or (2) No Icing. Those in the first group are instructed to apply ice to the cheek(s) they got their wisdom teeth removed for at least two days and at most seven days after their surgery. Those in the second group are instructed to apply nothing. All participants are also instructed to only use Tylenol (acetaminophen, paracetamol) for pain relief because it does not block inflammation. The study officially starts the day of the surgery and ends 14 days later. Participants are asked to answer questionnaires on a cell phone app about their wisdom tooth recovery, pain and symptoms for 14 days. Participants are asked to fill out the questionnaires two times a day for days 1 to 7 (9 a.m. and 8 p.m.) and one time a day for days 8 to 14 (8 p.m.).

What are the possible benefits and risks of participating?
There is no direct benefit to those taking part in this research. This study should give us more information on the overall effectiveness of icing to treat pain after teeth extraction and other injuries, like sports injuries. The main risks associated with the study are associated with the wisdom tooth extraction. These risks would occur regardless of study participation. The risks associated with the medication and icing also remain the same whether participants decide to participate in the study or not. The study does not have any additional risk compared to what would normally happen. The researchers will monitor any potential health conditions that could increase the risk of adverse effects before study enrolment.

Where is the study run from?
The study is being run by McGill University, in collaboration with the Research Institute of the McGill University Health Centre. The wisdom teeth surgery procedure takes place at the Montreal General Hospital Oral and Maxillofacial Surgery clinic. The questionnaires are accessible via a cell phone app and can be completed anywhere.

When is the study starting and how long is it expected to run for?
November 2025 to August 2027

Who is funding the study?
Investigator initiated and funded

Who is the main contact?
Prof. Jeffrey S. Mogil (jeffrey.mogil@mcgill.ca)

Contact information

Type(s)
Public, Scientific, Principal investigator

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Study information

Scientific Title

Investigating pain duration after cryotherapy: a parallel randomized controlled trial of postoperative third molar extraction treatment

Study objectives
Primary objective: To examine the duration of pain symptoms on a pain visual analog scale (VAS) after a surgical third molar extraction procedure in adult patients treated with or without an anti-inflammatory cryotherapy approach.

Primary hypothesis: Participants managing the acute pain and inflammation from their third molar extraction with cryotherapy will report having longer-lasting pain symptoms compared to participants managing pain but not attempting to block inflammation with ice.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 18/11/2025, MUHC Research Ethics Board (REB) (5100 boul. de Maisonneuve Ouest, 5th floor, Office 596, Montreal, H4A 3T2, Canada; +1 514-934-1934, ext 36077; reb@muhc.mcgill.ca), ref: 2026-11658

Primary study design
Interventional

Study design
Single-centre randomized controlled superiority trial with two parallel arms and 1:1 allocation

Study type(s)
Efficacy

Health condition(s) or problem(s) studied
Post-surgical pain and inflammation after wisdom tooth extraction

Interventions
Randomization: will be done 1-2 days before the wisdom tooth extraction through a computer-generated list with randomly permuted blocks of 2, 4, 6, and 8.

Cryotherapy Treatment: participants will be instructed to apply ice to the cheek(s) on the side(s) of the extracted wisdom teeth using a plastic or Ziploc bag filled with crushed ice, an ice pack, or a bag of frozen peas wrapped in a moist cloth to prevent frostbite. Ice will be applied for 20 minutes, with at least a 20-minute break in-between applications, at least 3 times a day for the first 48 hours, and then as needed for the next 5 days (up to a week). Participants will also be instructed to only take acetaminophen (maximum daily dose of 4,000 mg) for additional pain relief.

Non-Cryotherapy Treatment: participants will be instructed not to ice, nor apply cold to their surgery site. They will also be instructed to only take acetaminophen (maximum daily dose of 4,000 mg) for additional pain relief.

Intervention Type
Procedure/Surgery

Primary outcome(s)
Pain duration (time-to-event outcome; amount of time it takes for pain intensity to reach the first 0 at any time point that isn't followed by a non-0 pain rating), measured using a digital adaptation of the 10-cm pain visual analog scale (VAS) (with 0 being "no pain" and 10 being "worst pain imaginable") over 14 days post-surgery (23 assessments total: baseline, surgery day (day 0), and post-surgery (2x/day for days 1-7, and 1x/day for days 8-14)).

Key secondary outcome(s)
1. Pain intensity measured using a digital adaptation of adaptation of the 10-cm pain visual analog scale (VAS) over 14 days
2. Pain relief usage measured using self-report questionnaires over 14 days
3. Rescue medication usage measured using self-report questionnaires over 14 days
4. Post-surgical third molar oral health outcomes measured with the Oral Health-Related Quality of Life Instrument over 14 days.

Completion date
31/08/2027

Eligibility

Key inclusion criteria
1. 18+ years old
2. Normal healthy patients (ASA I) and patients with mild systemic disease (e.g., asthma) (ASA II)
3. Need at least one wisdom tooth removed after an x-ray assessment

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Years

Upper age limit
60 Years

Sex
All

Total final enrolment
0

Key exclusion criteria
1. History of chronic pain or chronic orofacial pain
2. History of chronic analgesic use
3. Known contraindication to cryotherapy (e.g., cold allergy, cold hypersensitivity, cold urticaria,

Raynaud’s disease)
4. Known contraindication to acetaminophen (e.g., hypersensitivity to acetaminophen, active liver disease or impairment)
5. Current smoking habit or smoking more than 5 times per week (e.g., cigarettes, e-cigarettes, vaping, cannabis)

Date of first enrolment
21/11/2025

Date of final enrolment
31/01/2027

Locations

Countries of recruitment
Canada

Study participating centre
Montreal General Hospital
1650 Cedar Avenue
Montreal
Canada
H3G 1A4

Sponsor information

Organisation
McGill University Health Centre

ROR
https://ror.org/04cpxjv19

Funder(s)

Funder type
Other

Funder Name
Investigator initiated and funded

Results and Publications

Individual participant data (IPD) sharing plan

The dataset generated during and/or analysed during the current study will be stored in a non-publicly available repository (McGill University Dataverse, https://borealisdata.ca/dataverse/mcgill)

IPD sharing plan summary

Stored in non-publicly available repository