# Central sensitization of chronic pain and itch: generalized and symptom-specific mechanisms.

Published: 12-06-2007
Last updated: 10-05-2024

The present research project is directed at delivering further evidence for the mechanisms underlying generalized and symptom-specific sensitization in patients with chronic pain and itching. For this purpose, 4 experiments are set up to provide...

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| **Ethical review** | Approved WMO |
| **Status** | Pending |
| **Health condition type** | Joint disorders |
| **Study type** | Observational non invasive |

## Summary

### ID

NL-OMON30317

**Source**
ToetsingOnline

**Brief title**
Central sensitization of chronic pain and itch.

### Condition

- Joint disorders
- Cornification and dystrophic skin disorders

**Synonym**
atopic eczema, fibromyalgia, pruritis sine materia, Rheumatoid arthritis

**Research involving**
Human

### Sponsors and support

**Primary sponsor:** Universitair Medisch Centrum Sint Radboud
**Source(s) of monetary or material Support:** Ministerie van OC&W

## Intervention

**Keyword:** Central sensitization, Chronic itch, Chronic pain, Quantitative Sensory Testing

## Outcome measures

### Primary outcome

The sensitivity for the different somatosensory stimuli is determined by measuring the thresholds of perception, pain and tolerance with in addition the symptom report by a 0 to 10 scale for itch and pain.

### Secondary outcome

To control for the induced psychological stress, measures of autonomic arousal (heart rate variability, skin conductance and electromyografy) are additionally assessed during one experiment.

# Study description

### Background summary

Physicians of all disciplines are frequently confronted with patients with high symptom reports that do not correspond to biomedical findings and that frequently result in enormous costs for diagnostics and treatment without satisfying results. Central sensitization of physical symptoms (i.e. central-controlled sensory sensitivity) is assumed to be primarily responsible for these high symptom reports of patients, independently of a known pathophysiological etiology. Particularly in patients suffering from chronic physical symptoms, such as chronic pain and itch, central sensitization is assumed to be involved in the maintenance and increase of physical symptoms in the long term.
In line with basic psychophysiological theories, two processes can be distinguished with respect to the symptom report of sensations of e.g. pain and itch: the tendency to react with various degrees of intensity to the sensation (quantity / non-specificity) and to ascribe a qualitative attribute to the sensation (quality / specificity of e.g., pain and itch). Recent findings of our and other research suggest that both processes might be involved in central sensitization and disregulated in patients with chronic physical symptoms, resulting in 1. generalized sensitization: the tendency to report an overall

lowered threshold to somatosensory stimuli and 2. symptom-specific sensitization: the tendency to interpret an ambiguous sensory stimulus in correspondence to the patient*s main physical symptom (e.g. pain in chronic pain patients). That is to say, patients with chronic physical symptoms may be more sensitive to somatosensory stimuli in terms of lower sensory thresholds (generalized sensitization) and simultaneously interpret / identify an ambiguous stimulus as a symptom of their main physical symptom, e.g. pain in chronic pain (symptom-specific sensitization).
In line with preliminary international findings, we recently conducted a pilot study to validate a method of assessing these phenomena for the first time in both patients with chronic pain and itch, by making use of a validated method to assess central sensitization in chronic pain: Quantitative Sensory Testing (QST). Results showed that QST enables both central sensitization mechanisms to be studied with the same experimental approach in patients with chronic pain and itch, and indicated that generalized and symptom-specific sensitization plays a role in patients with and without a known pathophysiology of their symptoms. In the present study the specific sensory, affective, cognitive and central processes, affecting these phenomena, are investigated.

## Study objective

The present research project is directed at delivering further evidence for the mechanisms underlying generalized and symptom-specific sensitization in patients with chronic pain and itching. For this purpose, 4 experiments are set up to provide insight into specific sensory, affective, cognitive and central characteristics of these sensitization phenomena in patients with chronic pain and itch.

## Study design

In this study, subjects receive different short-term stimuli (e.g., electrical, mechanical, thermal) of low intensity. In addition, a low level of short-term psychological stress and cognitions towards the stimuli are induced during one of the experiments (see protocol).

## Study burden and risks

Subjects are asked to come twice for two hours to the UMC St. Radboud. The applied sensory stimuli are standardized, of short duration and of low intensity. After the experiments, it is expected that subjects will experience a low intensity of itch and/or pain for maximal one hour. The validated questionnaires have frequently been used. Unless a time investment, no risks and disadvantages are expected of this study.

# Contacts

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# Trial sites

## Listed location countries

Netherlands

# Eligibility criteria

**Age**
Adults (18-64 years)
Elderly (65 years and older)

## Inclusion criteria

Diagnosis of rheumatoid arthritis, atopic eczema, fibromyalgia or pruritis sine materia
Age of 18 years and older
Informed consent
Female gender

## Exclusion criteria

Severe physical and psychiatric comorbidity
Double diagnoses with regard to the conditions investigated
Pacemaker use

Pregnancy

# Study design

## Design

**Study type:** Observational non invasive

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| Masking: | Open (masking not used) |
| Control: | Uncontrolled |
| Primary purpose: | Diagnostic |

## Recruitment

NL

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| Recruitment status: | Pending |
| Start date (anticipated): | 01-11-2006 |
| Enrollment: | 384 |
| Type: | Anticipated |

# Ethics review

Approved WMO

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| Application type: | First submission |
| Review commission: | CMO regio Arnhem-Nijmegen (Nijmegen) |

# Study registrations

## Followed up by the following (possibly more current) registration

No registrations found.

## Other (possibly less up-to-date) registrations in this register

No registrations found.

## In other registers

| Register | ID |
| --- | --- |
| CCMO | NL14145.091.06 |