



AALBORG UNIVERSITY
STUDENT REPORT

Can mindfulness alter pain sensitivity?

2. Semester project - Spring 2018

Group *number*



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STUDENT REPORT

2st Semester, Project

School of Medicine and Health

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Title:

Can mindfulness alter pain sensitivity?

Theme:

Biomedical Signals and Information

Project period:

Spring 2018 02/02/2018 - --/2018

Project group:

-

Participants:

Supervisors:

Pages: –

Appendix: –

Handed in: –

Synopsis



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Preface

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1 | Background

1.1 Alternative methods for pain treatment

Alternative methods for treating pain not involving medication is being explored in the aid of treating patients without risking the side effects of taking medication. The alternative methods of Chiropractic therapy, acupuncture, yoga, massage therapy, hypnosis, biofeedback and mindfulness meditation will be presented and discussed in the following sections.

1.1.1 Chiropractor

Adjustment and manipulation of the spinal cord to reduce pressure on the nerves running down the spinal cord. In a study by [Peterson2012] evaluating 506 patients with acute and chronic back pain after 3 month of chiropractic treatment. Patients undergoing chiropractic treatment show improvements in their condition, the effect is ongoing after 3 month. [Peterson2012]

1.1.2 Acupuncture

Acupuncture is a treatment where small sterile needles are inserted into the skin of the patient. The needles are inserted at specific acupuncture points related to the type of pain that the patient is experiencing. [Dhanani2011] In a study by [Junnilla1983] acupuncture has shown promising results in reducing pain in patients with soft tissue round the shoulder joint, headaches, neck and shoulder pain, arthritis/osteoarthritis and low back pain. A total of 348 patients were evaluated. The mean reduction of the entire patient group was 68 %. Showing best results in soft tissue round the shoulder joint, showing a mean reduction of pain by 79 %. The headache and neck and shoulder patients had a mean reduction by 74 %. Patients with arthritis/osteoarthritis showed a mean reduction by 58 % and the patients with low back pain had a mean reduction by 50 %. In 80 % of the patients the effect of the treatment lasted for more than 3 month and 32 % over one year. [Junnilla1983]

1.1.3 Yoga

Yoga is a form of mind to body practice discipline, or tradition originating from India. In the practice of yoga different physical postures, breathing techniques and more are the routine. Yoga is both a form of personal evolution, but most popular because of the exercise which benefits the health. A review by [Whitehead2017] found that yoga could improve the functionality of the back and a slight effect of treating pain compared to

non-yoga participants.¹

1.1.4 Hypnosis

Factors as anxiety, depression and other states of mood and the general the social life of the patient has been shown to play a role in chronic pain. these mechanisms might be altered by hypnosis. In the literature hypnosis has shown positive to relieve pain, but only on a short term basis. [Dhanani2011]²

1.1.5 Mindfulness meditation

Enhanced emotion regulation, cognitive control, acceptance and positive mood have been linked with health benefits as well as pain modulation. These mechanisms has been shown to be modulated during mindfulness meditation practice. A study by Perlman et al. ([Perlman2010]) shows that practicing meditation could not lower the intensity of pain, but instead lower pain unpleasantness in the participants. The findings on meditation and pain modulation are split, but experiments in controlled settings are still needed to confirm if the effect of mindfulness meditation works on pain modulation. [Zeidan2012, Perlman2010]

When using a placebo analgesia the typical response is increased activation of the dorsolateral prefrontal cortex during anticipation of pain. Effect that predicts reductions in pain perception and activity of pain related brain regions. Mindfulness does not involve DLPFC activation. [Zeidan2012]

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The method of mindfulness meditation will be used for method to relief pain in this project.

1.2 Mindfulness meditation

Mindfulness is often defined as being in the mental state of Non-Elaborative, non-judgmental awareness [Zeidan2012, Zeidan2016]. Practicing mindfulness meditation includes control over sensory, emotional and cognitive happenings. Hereby the ability to control these sensations without being distracted by them as so the ability to abstract from past and future representations of memory. Two popular practices of mindfulness meditation, focused attention (FA) and open monitoring (OM) are of the most well prac-

¹FiXme Note: Maybe a bit more text here?

²FiXme Note: maybe a bit more text here?

³FiXme Note:and then we need something like: or maybe a summary of alle the methods and then saying, because of this and this, mindfulness meditation will be looked further upon as method for reliving pain...

ticed types of meditation. [Zeidan2016]

Focused attention

FA is the training of concentration, where one keeps his or her focus at an object or specific thing, only focusing on that thing. Often the flow of breath is the focus, when practicing FA meditation. When any disturbance comes by, like a thought, sound or other environmental distractions, which will often lead to a drift in attention, the person should always bring his or her attention back to the focus. [Zeidan2016]

This kind of meditation has shown to enhance focus and concentration. ..

Open monitoring

OM is the cultivation of open presence, where the mind is open to anything, not focusing on any specific thing, just being in the present. If any thought or disturbance comes by, the thought or sensation should be noticed briefly, but then left without thinking more over it. It is believed that this form of meditation is easier to learn when the person masters the meditation of FA, whereby the OM form is easier to master. [Zeidan2016]

This kind of meditation has been shown to reduce pain more compared to FA, likely because the areas of the brain affected during this form of meditation is...[Perlman2010]

The neural mechanisms behind mindfulness meditation in relieving pain has been researched and in experiments where stimulating with nociceptive pain there has been shown an increase in activity of the orbitofrontal cortex when meditating. Participants telling that they are able to feel the pain but able to deal with it better during meditation focusing on the breath. The same mechanisms working in analgesia is not the same as the mechanisms during meditation, why the two methods don't interfere with each other. [Jacob2016]

The different areas of the brain show either a reduction or increase in activity when performing meditation. When practicing meditation the person trains the mind, and areas of specific regions will grow. [Zeidan2012]need a bit more elaboration....

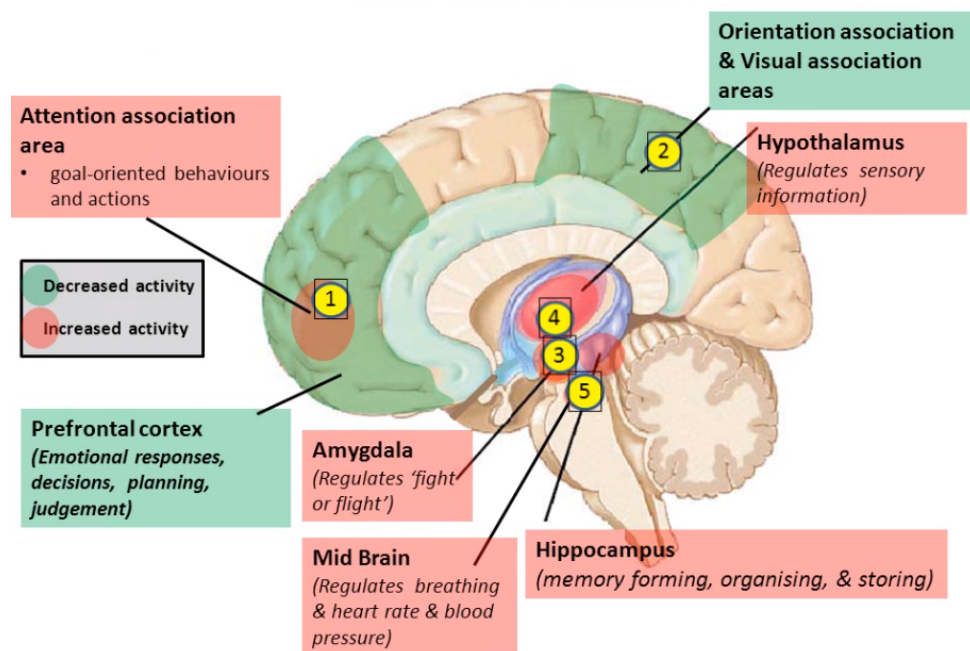


Figure 1.1: Image of the brain and activation of specific brain regions when practicing meditation

.... The figure needs to be changed to another one of better citation, but this was the best i could find by now :).

The method of mindfulness meditation will not make the pain go away, but the patient will be able to deal with the pain easier, as mentioned, making the patient engage more in the treatment than focusing on and reeling on the medication. [Jacob2016] Very little mindfulness training can have an effect, the study by [Zeidan2012] explaining an effect of training mindfulness meditation examined for 20 min sessions for 4 days of mindfulness meditation, but most studies conduct the experiments for a period of more than six weeks. [Zeidan2012]

FA and OM can alter pain in different ways... OM is more effective in reducing pain after extensive meditation training compared to FA. [Varilly2012]

2 | Methods

3 | Data analysis

4 | Results

5 | Appendices