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**A SELECTION OF STUDIES INTO  
MEDITATION AND MINDFULNESS**

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## Kuyken et al., 2008, Journal of Consulting and Clinical Psychology

<http://www.sciencedaily.com/releases/2008/11/081130201928.htm>

This study compared mindfulness and meditation to maintenance anti-depressants.

The current standard for preventing depression relapse is maintenance therapy with a single antidepressant. This regimen is generally effective if patients take their medications, but as many as 40 percent of them do not.

They did a randomised control trial with 123 people who had suffered repeat depressions – half received their drugs, half participated in an MBCT meditation course and were given the option of coming off anti-depressants.

After 15 months: 60% on drugs had relapse, compared to 47% who had mindfulness training

Results:

- mindfulness as effective as anti-depressants in preventing a relapse the group on the meditation and mindfulness program reported a higher quality of life, in terms of their overall enjoyment of daily living and physical well-being.

The study also showed mindfulness and meditation to be as cost-effective as prescription drugs in helping people with a history of depression stay well in the longer-term.

Unlike most other psychological therapies, it can be taught in groups by a single therapist, and patients then continue to practice the skills they have learned at home by themselves.



## Segal et al., 2010, Archives of General Psychiatry

<http://www.sciencedaily.com/releases/2010/12/101206161734.htm>

Research shows that only about 40% of people in remission for depression adhere to their medication regimen. So can mindfulness be used as a way of preventing relapse and/or bringing people off anti-depressants?

In this study they took 160 patients, age 18-65, who met criteria for major depressive disorder and had experienced at least two episodes of depression. The 84 patients in remission after 8 months were then randomly assigned to one of three treatment groups: 28 continued taking their medication; 30 had their medication slowly replaced by placebo; and 26 tapered their medication and then received mindfulness-based cognitive behavioral therapy.

During the 18-month follow-up period, relapse occurred among 38% of those in the MBCT group, 46% in the maintenance medication group and 60% in the placebo group, making both medication and mindfulness therapy at least as effective at preventing relapse.

## Geschwind et al., 2012, British Journal of Psychiatry.

<http://www.rcpsych.ac.uk/mediacentre/pressreleasesearchives/2012/mbcteffectiveness.aspx>

In this study they recruited 130 adults living in the Netherlands. Participants had experienced at least one episode of major depressive disorder and were still experiencing some residual depressive symptoms, such as fatigue, anxiety, low mood and insomnia. Of the 130 participants, 71 had had two or fewer previous episodes of depression, and 59 had had three or more episodes.

The participants were randomly allocated to two groups. One group, comprising 64 people, received eight MBCT training sessions from experienced trainers, including daily homework exercises taking 3060 minutes. The other group, comprising 66 people, were put on a waiting list for treatment and acted as a control.

They found that MBCT significantly reduced people's residual depressive symptoms, thereby improving their quality of life. On average, the MBCT group



experienced a 30-35% reduction in their residual symptoms, compared to 10% in the control group.

"Our study shows that MBCT is effective in reducing depressive symptoms – also in people with only one or two prior depressive episodes."

One final point: It's important to emphasise that dealing with emotional stress, fear and depression through mindfulness and meditation is a skill. It takes time and practice to develop.

The more practice you build up in relatively good times, the better shape you will be when hard times come.

## Kabat-Zinn, Lipworth & Burney, 1985, Journal of Behavioural Medicine

<http://www.ncbi.nlm.nih.gov/pubmed/3897551>

One of the foundational pieces of research for the establishment of meditation as a credible way of dealing with pain appeared in 1985 by Kabat-Zinn, Lipworth & Burney.

They trained 90 chronic pain patients in mindfulness meditation in a 10-week Stress Reduction and Relaxation Program

They found statistically significant reductions in:

- present moment pain
- negative body image
- inhibition of activity by pain
- mood disturbance
- psychological symptoms such as anxiety and depression

Also found pain related drug utilisation decreased, activity levels and feelings of self esteem increased



Results were independent of gender, source of referral and type of pain

15 month follow-up: improvements observed during the meditation training were maintained for all measures except present-moment pain. The majority of subjects reported continued high compliance with the meditation practice as part of their daily lives.

## Grant & Rainville, 2009, Psychosom Med

<http://www.sciencedaily.com/releases/2009/02/090203110514.htm>

A study by Montreal University researchers reports that Zen meditators have lower pain sensitivity both in and out of a meditative state.

“While previous studies have shown that teaching chronic pain patients to meditate is beneficial, very few studies have looked at pain processing in healthy, highly trained meditators. This study was a first step in determining how or why meditation might influence pain perception”.

They recruited 13 Zen meditators with a minimum of 1,000 hours of practice. They gave them a pain test and contrasted their reaction with 13 non-meditators.

Pain test: A computer controlled heat source pressed against the calves of subjects intermittently at varying temperatures.

Heat began at 43C up to a max of 53C depending on participant's sensitivity.

Quite a few of the meditators tolerated the maximum temperature, whereas all the control subjects could not.

The noticed a marked difference in how the two test groups reacted to pain testing – Zen meditators had much lower pain sensitivity (even without meditating) compared to non-meditators.

During the meditation-like conditions it appeared meditators further reduced their pain partly through slower breathing: 12 breaths per minute versus an average of 15 breaths for non-meditators. “Slower breathing certainly coincided with reduced pain and may influence pain by keeping the body in a relaxed state.” says Grant.



“While previous studies have found that the emotional aspects of pain are influenced by meditation, we found that the sensation itself, as well as the emotional response, is different in meditators.” The ultimate result? Zen meditators experienced an 18% reduction in pain intensity. “If meditation can change the way someone feels pain, thereby reducing the amount of pain medication required for an ailment, that would be clearly beneficial,” says Grant.

## Brown et al., 2010, The Journal of Pain

<http://www.manchester.ac.uk/aboutus/news/display/?id=5801>

In another study, scientists from the University of Manchester were looking at anticipation and experience of pain – the emotional impact. Although meditation is becoming increasingly popular as a way to treat things like chronic illness such as the pain caused by arthritis or depression, scientists have only just started to look into how meditation might reduce the emotional impact of pain.”

They recruited individuals with diverse range of experience with meditation: months to decades.

They gave them a pain test induced by a laser device.

The study found that particular areas of the brain were less active as meditators anticipated pain. Those with longer meditation experience (up to 35 years) showed the least anticipation of the laser pain.

They also found that people who meditate showed unusual activity (unusually low) during anticipation of pain in part of the prefrontal cortex, a brain region known to be involved in controlling attention and thought processes when potential threats are perceived.

He said: “The results of the study confirm how we suspected meditation might affect the brain. Meditation trains the brain to be more present-focused and therefore to spend less time anticipating future negative events. This may be why meditation is effective at reducing the recurrence of depression, which makes chronic pain considerably worse.”



"Although we found that meditators anticipate pain less and find pain less unpleasant, it's not clear precisely how meditation changes brain function over time to produce these effects."

"However, the importance of developing new treatments for chronic pain is clear: 40% of people who suffer from chronic pain report inadequate management of their pain problem."

## Zeidan et al., 2010, The Journal of Pain

<http://www.sciencedaily.com/releases/2009/11/091110065909.htm>

Though pain research during the past decade has shown that extensive meditation training can have a positive effect in reducing a person's awareness and sensitivity to pain, some might object that the effort, time commitment, and financial obligations required have made the treatment not practical for many patients.

This study shows that a single hour of training spread out over a three-day period (20mins per day) can produce the same kind of analgesic effect.

"This study is the first to demonstrate the efficacy of such a brief intervention on the perception of pain"

"Not only did the meditation subjects feel less pain than the control group while meditating but they also experienced less pain sensitivity while not meditating."

### Method:

Harmless electrical shocks were administered in gradual increments. The researchers measured the effect of brief sessions of mindfulness meditation training on pain awareness, measuring responses that were carefully calibrated to insure reporting accuracy. Subjects who received the meditation training were compared to controls and to groups using relaxation and distraction techniques. The researchers measured changes in the subjects' rating of pain at "low" and "high" levels during the different activities, and also changes in their general sensitivity to pain through the process of calibrating responses before the activities.

The distraction activity: a rigorous math task. This was effective in reducing the subject's perception of "high" pain. However the meditation activity had an even



stronger reducing effect on high pain, and reduced the perception of "low" pain levels as well.

The meditation training also had an effect that continued to influence the patients after the activity was concluded, resulting in a general lowering of pain sensitivity in the subjects.

This result indicated that the effect of the meditation was substantially different from the effect of the distraction activity.

"We knew already that meditation has significant effects on pain perception in long-term practitioners whose brains seem to have been completely changed – we didn't know that you could do this in just three days, with just 20 minutes a day" Zeidan said.

In first experiment, the researchers were not surprised to discover that meditation affected peoples' perception of pain because the researchers assumed that the change was mainly due to distraction, a well-known effect.

However, subsequent findings began to indicate that the effect continued outside of the periods of meditation.

We were so surprised after the first experiment that we did two more. "We recalibrated their pain thresholds after the training had started and we found that they felt less pain, compared to the control subjects" "This was totally surprising because a change in general sensitivity was not part of our hypothesis at all.

The effect of the meditation was substantially different from the effect of the distraction activity.

The paper stresses that the effect they measured in the meditation subjects was a lessening of pain but not a lessening of sensation. The calibration results showed little change in the meditation subjects' sensitivity to the sensation of electricity, but a significant change in what level of shock was perceived to be painful.

Zeidan said: "The short course of meditation was very effective on pain perception" "We got a very high effect size for the periods when they were meditating. "In fact, it was kind of freaky for me. I was ramping at 400-500 milliamps and their arms would be jolting back and forth because the current was stimulating a motor nerve. Yet they would still be asking, 'a 2?' (on a 1-10 scale) It was really surprising," he said.



Mindfulness training lessens the awareness of and sensitivity to pain because it trains subjects' brains to pay attention to sensations at the present moment rather than anticipating future pain or dwelling on the emotions caused by pain, and thus reduces anxiety.

“The mindfulness training taught them that distractions, feelings, emotions are momentary, don't require a label or judgment because the moment is already over,” Zeidan noted. “With the meditation training they would acknowledge the pain, they realize what it is, but just let it go. They learn to bring their attention back to the present.”

These findings are important because they show that meditation is much easier to use for pain management than it was previously believed – a very short, simple course of training is all that is required in order to achieve a significant effect.

“What's neat here is that this is the briefest known way to promote a meditation state and yet it has an effect in pain management.”

For depression, the UK expert in this area is Dr. Mark Williams of the Oxford Mindfulness Centre. His group is engaged in actively promoting meditation and mindfulness combined with Cognitive Behavioural Therapy for depression sufferers. Let's look at some of the research into meditation and depression.