

How does training in mindfulness meditation effect the brain structure and cognition?

Submission date 23/11/2010	Recruitment status No longer recruiting	☐ Prospectively registered ☐ Protocol
Registration date 19/05/2011	Overall study status Completed	☐ Statistical analysis plan ☐ Results
Last Edited 19/05/2011	Condition category Other	☐ Individual participant data ☐ Record updated in last year

Plain English summary of protocol
Not provided at time of registration

Contact information

Type(s)
Scientific

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Additional identifiers

Protocol serial number
25931/26960

Study information

Scientific Title
A randomised controlled trial using MRI scans and cognitive testing to determine the effect of meditation on brain structure and cognition

Study objectives

We will examine whether there is a causal relationship between meditation practice and the brain anatomy as well as number of physiological and cognitive parameters.

We are testing multiple hypotheses of training novices for 6 weeks, however our main hypotheses are:

1. Significant pre-frontal (IFG) and insular cortex density increase for meditation group (MG) measured by MRI.
2. Significant decrease in default mode network connectivity, correlated with increased insular density and improved self-regulation (stop accuracy) and error awareness
3. Significantly increased emotional stroop effect, with greater insula response to emotional distractors yet increased stroop accuracy

Ethics approval required

Old ethics approval format

Ethics approval(s)

The Local Ethics Committee on clinical research approved on the 23rd of August 2010 (ref: 25931/26960)

Primary study design

Interventional

Study design

Single centre randomised wait list controlled parallel group trial

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Meditation practice

Interventions

1. We studied normal subjects with no prior meditation, or related training undergoing intensive meditation training based on a set of breathing exercises and mindfulness techniques
2. We included 60 university students of which 30 randomly chosen subjects will practice daily 20 minutes for 6 weeks
3. The other 30 subjects (will be the waitlist for meditation training) will act as a control group to check for i.e. training effects in the cognitive tests by being a reading group with same frequency of training and focusing on the narrative content only

Intervention Type

Other

Phase

Not Applicable

Primary outcome(s)

Pre-frontal (IFG) and insular cortex density measured by MRI at baseline and 6 weeks

Key secondary outcome(s)

Measured at baseline and 6 weeks:

1. Default-mode network connectivity

2. Stop accuracy and error awareness
3. Emotional stroop

Completion date

01/03/2011

Eligibility

Key inclusion criteria

1. Either sex, aged 18-40 years, ethnic Danes
2. Right handed
3. Health subjects with no history of neurological disorders, psychological and/or psychiatric, cardiovascular or respiratory diseases, brain injury, cancer, addiction to drugs/alcohol, severe impediment to limb movement, hearing and vision
4. Normal MRI brain scan

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Lower age limit

18 Years

Upper age limit

40 Years

Sex

All

Key exclusion criteria

1. Frequent diving, high altitude climbing or flying or other activities related to the respiratory system
2. Recent biofeedback training, hypnosis and acupuncture (due to the possible modulating of the vagal output)

Date of first enrolment

03/12/2010

Date of final enrolment

01/03/2011

Locations

Countries of recruitment

Denmark

Study participating centre
Center for Functionally Integrative Neuroscience
Aarhus
Denmark
8000

Sponsor information

Organisation
Aarhus University (Denmark)

ROR
<https://ror.org/01aj84f44>

Funder(s)

Funder type
Government

Funder Name
Ministry of Health (Denmark)

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not provided at time of registration