Psychology Holzel (mindfulness and brain scans) Cheat Sheet

by Zmodak27 via cheatography.com/194079/cs/40448/

AIMS OF THIS EXPERIMENT

1) To identify if regular participation in Mindfulness-Based Stress Reduction (MBSR) leads to measurable neurological changes, which might be associated with trait changes related to mindfulness practice.

2) To identify brain structures which changed as a result of an eight-week MBSR programme.

MINDFULNESS

This study focuses on the effects of mindfulness, a stress-reduction technique used to improve wellbeing. This technique develops awareness of the present moment and encourages compassionate and non-judgemental attitudes

Mindfulness is practiced by millions all around the world

It has also been incorporated into treatment programmes for people with conditions including anxiety, chronic pain and substance abuse due to the increasing amount of evidence supporting its positive impact on wellbeing

MEASURING CHANGES IN MINDFULNESS

1) – the ability to observe

2) - – the ability to describe

3) - the ability of passing thoughts and feelings in a non-judgemental way

4) -the ability to be non-reactive

5) - awareness of actions

LOCALISATION OF FUNCTION

Certainly, here's a simpler explanation: The study also looks at how different parts of the brain do different jobs. For example, one part called the hippocampus helps with memory and emotions, and another part called the insula helps with being aware of things. One way to understand what these brain parts do is to see how they change when you practice a skill over time.

One way of finding out the function of different brain structures is to monitor how they change over time following regular practice of a certain skill.

To learn about the link between mindfulness and localisation of function, Britta Hölzel and her colleagues used MRI scans to create detailed models of the human brain. These models can then be used to measure microscopic changes that occur in specific brain structures following mindfulness practice

Researchers have some understanding of the function of many brain structures, and once they know which brain structures are affected by mindfulness, they can start to work out how it improves wellbeing.

PREVIOUS RESEARCH OF LOCALISATION OF FUNCTION

Studies have shown that experienced meditators have significantly more grey matter in some key brain structures compared with non-meditators. Findings are unclear, but the hippocampus and insula have each been identified in at least two studies.

This suggests that changes in wellbeing may be linked to increases in grey matter.

MINDFULNESS BASED STRESS REDUCTION

1) Mindful Yoga: It's like gentle exercises where you move slowly and breathe, focusing on what you're doing right at that moment. You also learn to be kind to yourself and accept your body's abilities and limits.

2) Sitting Meditation: This is about paying attention to your breath and your senses, like what you see, smell, touch, or taste. It helps you become aware of your thoughts and feelings and your place in the world.

3) Body Scanning: This means paying attention to how different parts of your body feel, one at a time, until you're aware of how your whole body and mind feel.

MEASURING CHANGES IN GREY MATTER CONCENTERATION

A "voxel" is like a tiny 3D pixel used to measure the size of things in the brain. Scientists use it to compare the sizes of brain parts in different people, like those who meditate and those who don't. They can also see how these brain parts change over time. To do this, they first figure out what kind of brain tissue they're looking at, like gray matter or white matter. Then, they put all the brain images on a standard template to make sure they're comparing things properly. Finally, they use a special math trick called "smoothing" to make their data more accurate.

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CONCLUSION

Hölzel and the researchers found that doing mindfulness exercises regularly for just eight weeks can change the structure of important parts of the brain. These parts are responsible for things like learning, memory, controlling emotions, and understanding others' points of view. This might explain why people who do mindfulness often feel better. However, they didn't find the same changes in a part of the brain called the insula. It might need more than eight weeks of mindfulness practice to change that area.

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