

Mindfulness @ Monash

The health benefits of meditation and being mindful

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Mindfulness, the most scientifically investigated form of meditation, has been the subject of a huge growth of interest in clinical and scientific circles in recent years. The evidence is suggesting that learning to pay attention may be the most important skill we ever learn. Why? What are the health benefits of meditation? How are modern scientific methods being used to investigate meditation and its benefits? These and other questions will be explored in this introductory article.

The importance of paying attention is not a new concept as this quote from William James, the father of modern psychology, indicates.

"The faculty of voluntarily bringing back a wandering attention over and over again, is the very root of judgment, character, and will. No one is *compos sui* (competent) if he have it not. An education which should improve this faculty would be the education par excellence."¹

Mindfulness, in its simplest and most

- ! Mind wandering to neutral topics
- ! Mind wandering to pleasant topics
- ! Mind not wandering from what one is currently doing

You might feel tempted to answer that we are happiest when the mind is

what is not happening is a cognitive achievement that comes at an emotional cost¹

Why would that be?

A study into the effect of mobile phone use on the chance of having a Motor Vehicle Accident (MVA) found that within 5 minutes of using a mobile phone the risk of a motor vehicle accident is over 400% higher, that is, we are more than four times as likely to have an MVA.³

! Preparation for tissue repair

These two studies highlight some of the issues about inattention and the loss of focus associated with multitasking. Firstly, when our mind is wandering we are not paying attention to what we are doing. This results in more mistakes, less efficiency, and less enjoyment. Secondly, what is the mind doing when we are not paying attention? Well, we might be wishing to experience happiness resulting from the imagination, but this only gives us a very superficial experience of the life we are actually leading and never leads to a stable and deeply satisfying level of wellbeing. In fact, the constant desire to be somewhere else (some other place or time) can produce a slowly growing sense of dissatisfaction with where we are here and now. Furthermore, when we are not paying attention is the time when the mind gets up to 'mischief' in the form of worry and rumination which are at the very heart of anxiety and depression.

Mindfulness and the 'fight-or-flight' response

When we are not paying attention we often make mountains out of mole-hills and perceive stressors that don't even exist, except in our imaginations that is. This amplifies our level of stress enormously which takes a toll on our mental and physical health.

The "fight or flight response" is a natural, necessary and appropriate response to a threatening situation if it is based on a clearly perceived actual, real-time, threat – say confronting a person-eating tiger. This turbo-charge of energy is coded into our systems by nature in order to preserve life. It is associated with:

- ! Increased blood flow: dynamic circulation
 - ! Elevation of blood-pressure, heart rate
 - ! Diversion of blood-flow to the muscles and away from gut and skin (going pale)
- ! Increased metabolism
 - ! Increased metabolic rate
 - ! Increased respiration and opening up of airways
 - ! Mobilisation of energy (glucose and fat) stores
- ! Armed defences
 - ! Blood gets thicker (platelet adhesiveness) to stop bleeding faster
 - ! Mobilises immune cells

- reduced activity in the amygdala
- ! Clinical
 - ! E.g. pain management, symptom control, coping with major illnesses like cancer, reduced allostatic load and metabolic benefits, hormonal changes, improved genetic function and repair and possibly slower ageing
- ! Improved performance
 - ! E.g. sport, academic, leadership
- ! Spiritual
 - ! E.g. deep peace, insight, oneness, transcendence

Academic Performance

We know from experience that when we are distracted, stressed, depressed or anxious we function far less effectively. This is because the regions of the brain that gather and process information are working poorly at such times. It is primarily a problem with attention but we don't have to be stressed to notice that much of the time we are not focused on the things we need to be focused on. For example, sitting in a lecture and the mind is out the door, or studying at the desk and the attention is out the window. Learning mindfulness not only helps us to function better under pressure but also helps us to utilise our time better, to focus, and to foster a growth mindset which is more conducive to learning.

Neuroplasticity

Neurons that fire together, wire together

Hebb's hypothesis

For better or for worse, how we consistently think and behave will 'wire' itself into the brain. We now understand that the brain is constantly rewiring itself right throughout our lives. From a therapeutic perspective, it also means that we can 'unwire' unhelpful patterns of thought and behaviour and wire in helpful ones. This has significant implications for the development and management of anxiety and depression. Meditation research is literally changing the way we understand the brain. The Mind and Life Institute is a collaboration of top scientists engaged in research in this field¹¹ and the book 'The Brain that Changes Itself' by Norman Doige gives a great overview for those who would like to read further on this topic.

Brain scans measuring the thickness of the 'grey matter' in long-term mindfulness meditators indicates that it is thicker particularly in the areas associated with the senses, memory and executive functioning. This may be slowing down the ageing of the brain and reversing the negative effects of long term stress and depression.^{12 13}

Default mental activity

There are two main modes of brain activity.

1. Active tasks: tasks associated with paying attention
2. Default states: when mind is inattentive, idle, recalling past, daydreaming, ruminating ...

Interestingly, brain regions active in 'default states' in young adults also show the early changes found in the elderly with Alzheimer's Disease (AD).¹⁴ The reason is not known but it may have to do with wear and tear on the brain through too much default activity, or we may be practicing inattention, or perhaps it relates to the stressful effects of going over the past almost constantly. We do know that inattention is not healthy for the brain – it is like physical inactivity for the body.

Having leisure activities where we don't pay attention (principally watching television) also seems to be associated with an unhealthy brain and a lifelong risk of AD. According to one of a number of studies, those who have less than average diversity in leisure activities, spend less time on them, and practice more passive leisure activities (principally TV) were nearly four times as likely to develop dementia over 40-year follow-up compared to those who rate higher than average on these parameters.^{15 16} "Among leisure activities, reading, playing board games, playing musical instruments, and dancing were associated with a reduced risk of dementia."¹⁷

A high level of default mental activity is associated with poorer mental health such as depression and anxiety. In people who are trained in mindfulness meditation however it has been found that the level of default mental activity is reduced. Even when default mental activity is present the areas of the brain involved with self-monitoring are also active, meaning that the person is aware of this mental activity and is able to be more objective about it and not be so drawn into it.¹⁸

Training attention

Attention, like any other skill, can be trained. When we first start formal meditation practice we tend to find that we are on automatic pilot much of the time and are unaware of moment-to-moment experience. Development of attention is gradual, progressive and requires regular practice.¹⁹ Impatience for progress is a distraction and an impediment to progress in itself, so it's best to be patient and gentle on ourselves and allow benefits to come in their own time. The benefits do not come without effort – unhelpful habits on the other hand do not take any effort to reinforce.

Mindfulness is a mental discipline involving training attention. It is not a method of distracting ourselves or tuning out, it is about tuning in – hence people perform better when they are most mindful, sometimes called 'the zone' or a 'flow state'. The anxious, stressed or depressed state of mind is the distracted state, hence the negative impact upon performance. It is not primarily a relaxation exercise although relaxation is a common 'side-effect'.

Mindfulness and depression

Mindfulness-Based Cognitive Therapy (MBCT) was developed by some prominent psychologists from the work of Jon Kabat-Zinn. Mindfulness is more than just having a time out from worry for a few minutes a couple of times a day, it is a way of teaching us to use the mind in a different way and to live more consciously. MBCT more than halves the relapse rate for people who have had depression in the past from 78% to 36%.²⁰

MBCT reduces relapse by changing relationships to negative thoughts and emotions (non-attachment to them) rather than by changing belief in thought content as is the case with conventional cognitive therapy.²¹ In a sense, we don't have to control negative thoughts and emotions, but we don't have to be controlled by them either.

Mindfulness not only reduces depressive symptoms but it also reduces the reactivity of the amygdala which tends to be very overactive in people with depression.²²

In adolescents, mindfulness reduced symptoms of anxiety, depression, and somatic distress, and increased self-esteem and sleep quality.²³

Mindfulness has also been found to enhance doctors' wellbeing, and reduce mood disturbance and burnout (the three hallmarks of burnout being emotional exhaustion, depersonalization and a lack of personal accomplishment). It also increased empathy, responsiveness to their patients, greater conscientiousness and more emotional stability.²⁴

Meditation and ageing

Work by the team led by Australia's Nobel Prize winning researcher, Elizabeth Blackburn, has found that meditation may slow genetic ageing and enhance genetic repair.²⁵ If one considers all of the affects of allostatic load mentioned before, it is probably not surprising that something such as meditation would help to slow and possibly even reverse to some extent the ageing process.

Mindfulness and craving

Meditation can be very helpful in making

This is the zone and it is when we are most happy, effective and mindful.

Formal mindfulness practices

A day is just like a book. If it isn't punctuated it becomes a blur and makes little sense.

These 'punctuation marks' are times of consciously coming to rest so that we can remind ourselves to be present and pay attention. For this reason the two following practices are suggested. The 'full stop' could be practiced anything from 5 to 30 minutes twice a day depending on motivation and opportunity, and the 'comma' for 15 seconds to 2 minutes as often as you remember throughout the day. The comma is particularly useful between having completed one activity and beginning another.

Conclusion

In summary, what meditation can teach us may have tremendously useful effects on our physical and psychological wellbeing because it:

1. Improves how effectively we function
2. Has direct benefits by changing the body physiologically and metabolically
3. Has indirect benefits by improving our lifestyle
4. Enhances relationships and compassion
5. Improves the way we cope with life challenges
6. Enriches our enjoyment of life

Further reading

- ! Full Catastrophe Living: Kabat-Zinn
- ! Meditation, Pure and Simple: Gawler
- ! Mindfulness-Based CBT: Segal et al
- ! Know Thyself: Hassed

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