

Meditation to Improve Level of Concentration

***Karisiddaiah Wodiyar.E. Physical Education Director, Govt First Grade College, Holalkere.**

Abstract

In this paper author looks at the role of meditation improving the concentration of students and public at large. Meditation in daily routine is the magic potion for boosting concentration and memory. Concentration is the process of focusing your mind on a singular object, either within or outside your body, and keeping this attention steady for a period of time. Meditation and concentration are the two royal roads to perfection. Only true concentration will lead to meditation. If you have a steady mind, you will see all other aspects of your life to be steady and balanced. concentrate on internal aspects – your breathing, counting numbers in your mind, or your heartbeat. One of the most important benefits of improving your concentration skills is that it increases your mental performance. You can have a greater enhancement in the ability of problem solving. It also aids you significantly in making decisions faster and in an effective manner by choosing your own thought and ideas. The idea that meditation is good for you is certainly not new, but scientists are still trying to figure out exactly why meditating so reliably improves mental and physical health. One old theory is that meditation is just like exercise: it trains the brain as if gray matter were a bundle of muscles. You work those muscles and they get stronger.

A recent paper in the journal Psychological Science tries to identify brain functions that are actually enhanced by meditating. The study shows that intensive meditation can help people focus their attention and sustain it — even during the most boring of tasks. But while participants who meditated were able to pick up visual cues better than a control group, it was not clear whether meditating helped them process the new information in a meaningful way. And the results are clear: it's not *wanting* to meditate but actually meditating that improves your brain's performance. The participants were all asked to watch a series of lines flash on a computer screen and click a mouse when they saw a line that was shorter than the others. It was a boring test, and that was the point: in order to concentrate on those little line changes, they had to focus intently. Those who were meditating at the retreat were significantly more likely than those in the wait-list group to see increasingly small differences in the lines. Their abilities improved as meditative training continued. Which suggests that meditation can help you concentrate. But the study found that while meditators were more accurate, they were not faster: those who had meditated saw differences in the lines more often than those who hadn't, but they didn't react any faster than the control group when both saw the same line discrepancies on the screen. That's important because it suggests that meditation helps your brain do something automatic — process visual stimuli — but not something more complicated: react when it happens.

Research confirms that the brain functions of frequent meditators change for the better. Meditators are less likely to find themselves at the mercy of distractions and an unruly mind than people who don't meditate. There are many different meditation techniques for concentration.

Keywords— meditators, brain functions, mindfulness, Psychological Science, Psychological Research

Introduction

Among the many meditation techniques that are easily accessible, one of the most effective and best-known ways to improve concentration is to practice mindfulness. Can you think of any task that can be performed perfectly without your giving it your full attention? Many activities, including driving, playing sports or music, reading and paying attention at work or at school, require high levels of concentration. In addition, you're more likely to derive satisfaction from homing in on and accomplishing one chosen task than from trying to juggle several at one go. As you train the mind to remain present and fully focused on one object – physical sensations or the process of breathing, for example – you learn to let go of all other thoughts and distractions as well. Among the promised psychological and physical benefits of meditation are the elimination or reduction of stress, anxiety and depression, as well as bipolar disorder, eating disorders, diabetes, substance abuse, chronic pain, blood pressure, cancer, autism and schizophrenia. It is a panacea for the individual. There are also apparent interpersonal and collective effects. Mindfulness and other Buddhist-derived meditation techniques, such as compassion and loving-kindness meditation, can perhaps increase prosocial emotions and behaviours, yielding greater social connection and altruism, tampering aggression and prejudice. 'If every eight-year-old in the world is taught meditation,' the Dalai Lama purportedly said, 'the world will be without violence within one generation.' The quote is widely shared online.

Concentration generally refers to the amount of solute contained in a certain amount of solution. To deal with concentration you must keep in mind the distinctions between solute, solvent and solution. Because varying amounts of solute can be dissolved in a solution, concentration is a variable property and we often need to have a numerical way of indicating how concentrated a solution happens to be. Over the years a variety of ways have developed for calculating and expressing the concentration of solutions.

Concentration is qualitative analysis to find the grams of solute present in a given solution or mixture. More over concentration is general term which is used to describe the solute particle in the solution. Based on the quantity of the solute particle in the particular volume solvent, we can say either more concentrated solution or less concentrated solution.

Meditation is generally understood as deep concentration on any object. In a sense, everyone meditates, because concentration is indispensable not only for survival but also for success in any walk of life. It is through the power of concentration that we can do, see, hear, or understand anything. Whether we are scientists or artists, office workers or laborers, corporate presidents or parents, we must concentrate our minds in order to accomplish our goals. An archer must concentrate on the target; a fisherman on the bobber; a speaker on the central theme of the talk, a musician on the keynote, and a dancer on the movements of the dance. The meditation improves the level of concentration in Human body.

What about meditation and attention?

Sustained attention studies indicate that meditators are better able to focus on one particular task and complete it successfully than non-meditators. They especially perform better when the task allocated was completely unexpected, an indication that preparedness and vigilance improve with consistent meditation.

Selective attention. Meditators also have an edge when it comes to picking out the most relevant stimuli to focus on. Those who practice consistently are able to limit how much attention they pay to irrelevant sensory input and thus perform better in tasks demanding selective attention.

Executive control attention. This type of attention inhibits the brain's tendency to consciously process distracting information, including thoughts relating to future or past events. Frequent mindfulness meditators have been found to perform particularly well in executive control attention as compared to non-meditators.

Meditation is both a skill and an experience — a formal exercise to cultivate awareness and compassion. By sitting with the mind, we're training it to be more open and at ease, and we consequently discover greater calm, clarity, contentment, and compassion. In doing so, we increasingly learn to have a direct experience of the present moment.

Some of this may seem abstract; it can also be helpful to describe what meditation is not:

- Meditation is not about “emptying the mind,” “clearing the mind,” or “stopping thoughts.” The mind's nature is to think. We meditate to see those thoughts more clearly.
- Meditation is not about becoming a different person, a new person, or a better person.
- Meditation is not the same as concentration. It is not the active engagement of the mind on a specific topic.
- Meditation does not guarantee relaxation, serenity, or bliss. Relaxation can certainly be a side effect of it, but meditation involves a range of feelings, not simply the nicer ones.
- Meditation is not “checking out” or escaping our problems or duties.
- Meditation is not necessarily spiritual or religious. It shares a very long history with religion and offers an important spiritual component for many practitioners. But anyone can meditate, regardless of creed.

The studies we reviewed used a variety of methodologies and interventions. For example, one used an eight-week meditation intervention called ‘mindfulness-based stress-reduction’. Individuals learned how to conduct mindful breathing and to practise ‘being in the moment’, letting go of their thoughts and feelings. Meanwhile the control group, with which the meditators were compared, engaged in a weekly group discussion about the benefits of compassion. Another study compared guided relaxation (participants listening to an audio recording about deep breathing and unwinding) with a control group that simply did nothing in a waiting room. Most studies required participants to fill in questionnaires about their experience of the meditation intervention, and their levels of compassion towards themselves and others. Some studies also included behavioural measures of compassion, in one case assessed by how willing a person was to give up a chair in a (staged) full waiting room.

Initially, the results were promising. Our meta-analysis indicated that meditation did indeed have a positive, though moderate, impact on prosociality. But digging deeper, the picture became more complicated. While meditation made people feel somewhat more compassionate or empathetic, it did not reduce aggression or prejudice, nor did it improve how socially connected one felt. So the prosocial benefits are not straightforward, but they are apparently measurable. The issue is the way in which those benefits were measured.

To fully dissect the studies, we conducted a secondary comparison to see how methodological considerations would change our initial findings effects on mind. This analysis looked at the use of control groups and whether the teacher of the intervention was also an author of the study, which might be an indication of bias. The results were astounding.

Meditation effects on mind

Let's start with the control groups. The purpose of the control group is to isolate the effects of the intervention (in our case, meditation) and to eliminate unintentional bias. The importance of adequate control conditions was first brought to light by the discovery of the placebo effect in drug trials, which is when a treatment is effective even though no active agent (or drug) is used. To avoid this effect, each group in a drug trial receives identical treatments, except one group receives a placebo (or sugar pill) and the other gets the real drug. Neither the experimenter nor the participants know who is in which trial (this is called a double-blind design), which helps to eliminate unintentional bias. This way they can tell if it's the active agent that is effective and not something else.

But the use of adequate controls is tricky in studies that look at behavioural change, because it is harder to create a control group (or placebo) when the treatment is not just a pill but an action. The control has to be similar to the intervention but lack some important components that differentiate it from the experimental counterpart. This is known as an active control. A passive control group simply does nothing, compared with the group that has the intervention.

Meditation did indeed improve compassion when the intervention was compared with a passive control group, that is, a group that completed only the questionnaires and surveys but did not engage in any real activity. So participants who undertook eight weeks of loving-kindness meditation were found to have improved compassion following the intervention – compared with a passive waiting-room control group.

But have we isolated the effects of meditation or are we simply demonstrating that doing something is better than doing nothing? It might be that compassion improved simply because individuals spent eight weeks thinking about being more compassionate, and felt good about having engaged in a new activity. An active control group (eg, participants taking part in a discussion about compassion) is a more effective tool to isolate the effects of the meditation intervention because both groups have now engaged in a new activity that involves cultivating compassion. And here the results of our analysis suggest that meditation per se does not, alas, make the world a more compassionate place.

A well-designed control condition allows studies with a double-blind design. Developing an effective placebo for a meditation intervention is often said to be impossible, but it has in fact been done – and with considerable success. In the heydays of transcendental meditation research in the 1970s, Jonathan C Smith developed a 71-page manual describing the rationale and benefits of a meditation technique. He gave the manual to a research assistant, who was unaware that the technique was completely made-up – therefore, a placebo – and who then proceeded to give a lecture to participants in the control group about the merits of the technique. (When it came to the actual placebo technique, participants were instructed to sit quietly for

20 minutes twice per day in a dark room, and to think of anything they wanted.) The point is, the placebo can work in studying meditation, it's just not often used.

Double-blind designs can help to eliminate the accidental bias of the participants through the researcher. These biases have a longstanding history in psychology, and are called experimenter biases (when the experimenter inadvertently influences the participant's behaviour) and demand characteristics (when participants behave in a way that they think will please the experimenter). The importance of avoiding experimenter bias and demand characteristics was discussed as early as the 1960s. Recent work indicates that experimenter biases remain – particularly in the study of meditation.

In light of the discussion around experimenter bias and demand characteristics, it is surprising to find that, in 48 per cent of the studies we looked at, the meditation intervention was taught by one of the study's authors, often its lead author. More importantly, little attempt was made to control for any potential bias that an enthusiastic teacher and researcher might have had on the participants. Such a bias is often not intentional but stems from subconsciously giving preferential treatment or being particularly enthusiastic to participants in the experimental group. The prevalence of authors as teachers was so great that we decided to look at it statistically in our meta-analysis. We compared studies that had used an author with studies that had used an external teacher or other form of instruction (eg, an audio recording). We found that compassion increased only in those studies where the author was also the teacher of the intervention.

Experimental evidence

Experimenter bias often goes hand-in-hand with demand characteristics, where participants behave or respond in a way that they think is in line with the expectations of the researcher. For example, participants might respond – regardless of their true feelings – more enthusiastically on a questionnaire about compassion because the researcher herself was enthusiastic about compassion. The media buzz around meditation – which portrays it as a cure for a range of mental-health problems, the key to improved wellbeing and to changing one's brain for the better – is also very likely to feed back to participants, who will expect to see benefits from a meditation intervention. Yet, almost none of the studies we examined controlled for expectation effects, and this methodological concern is generally absent in the meditation literature.

The prevalence of experimenter bias is only one side of the coin. Another troubling but rarely discussed bias concerns data-analysis and reporting. Interpreting statistical results and choosing what to highlight is challenging. As Ted Kaptchuk of Harvard Medical School put it: 'Facts do not accumulate on the blank slates of researchers' minds and data simply do not speak for themselves.' Academics often tread a thin line between the duty of impartial data-analysis and their own beliefs, desires and expectations. In 2003, Kaptchuk summarised a number of interpretative biases that have become widespread in science reporting: confirmation bias, rescue bias (finding selective fault with an experiment to justify an expectation), and 'time will tell' bias (holding on to an expectation discounted by data because additional data might in fact support it), among others. All were overwhelmingly present in the meditation literature we reviewed.

Biased preconceptions and psychology

The most common bias we encountered was a ‘confirmation bias’, in which evidence that supports one’s preconceptions is favoured over evidence that challenges these convictions. Confirmation bias was particularly prevalent in the form of an over-reporting of marginally significant results. When using statistical testing, a p-value of 0.05 and below typically indicates that the results are statistically significant in psychological research. But it has become common practice to report results as ‘trends’ or as ‘marginally significant’ if they are close to, but don’t quite reach the desired 0.05 cut-off. The problem is that there is little consensus in psychology as to what might constitute ‘marginal significance’, which in our review ranged from p-values of 0.06 to 0.14 – hardly even marginal. (It is debatable whether p-values are not the most accurate way to conduct science anyway, but we should stick to the rules if we are using this type of testing.)

Being liberal with statistical methods that were designed to have clear cut-offs increases the chance of finding an effect when there is none. A further problem with the use of ‘marginal significance’ is reporting it free from bias. For instance, in one study the authors reported a marginally significant difference ($p = 0.069$) in favour of the meditation intervention relative to the control group. However, on the following page, when the authors reported a different set of results that did not favour the meditation group, they claimed the exact same p-level as non-significant. When the results confirmed their hypothesis, it was ‘significant’ – but only in that case. In fact, the majority of studies in our review discussed the marginally significant as equal to statistically significant.

Confirmation bias is difficult to overcome. Journals rely on reviewers to spot them, but because some of these biases have become standard practice (through the reporting of marginally significant effects, say) they often slip through. Reviewers and authors also face academic pressures that make these biases more likely since journals favour the reporting of positive results. But in the study of meditation there is another complication: many of the researchers, and therefore the reviewers of journal articles, are personally invested in meditation not only as practitioners and enthusiasts but also as providers of meditation programmes from which their institutions or themselves financially profit. The overly positive view of meditation and the fierce fight to protect its untarnished reputation make it harder to publish negative results.

There’s an arsenal of treatments at hand, including talk therapy and antidepressant medications, but what’s depressing in itself is that they don’t work for every patient.

Meditation science, cognition

“Many people don’t respond to the frontline interventions,” said Benjamin Shapero, an instructor in psychiatry at Harvard Medical School (HMS) and a psychologist at Massachusetts General Hospital’s (MGH) Depression Clinical and Research Program. “Individual cognitive behavioral therapy is helpful for many people; antidepressant medications help many people. But it’s also the case that many people don’t benefit from them as well. There’s a great need for alternative approaches.”

Shapero is working with Gaëlle Desbordes, an instructor in radiology at HMS and a neuroscientist at MGH’s Martinos Center for Biomedical Imaging, to explore one alternative approach: mindfulness-based meditation.

In recent decades, public interest in mindfulness meditation has soared. Paralleling, and perhaps feeding, the growing popular acceptance has been rising scientific attention. The number of randomized controlled trials — the gold standard for clinical study — involving mindfulness has jumped from one in the period from 1995–1997 to 11 from 2004–2006, to a whopping 216 from 2013–2015, according to a recent article summarizing scientific findings on the subject.

Studies have shown benefits against an array of conditions both physical and mental, including irritable bowel syndrome, fibromyalgia, psoriasis, anxiety, depression, and post-traumatic stress disorder. But some of those findings have been called into question because studies had small sample sizes or problematic experimental designs. Still, there are a handful of key areas — including depression, chronic pain, and anxiety — in which well-designed, well-run studies have shown benefits for patients engaging in a mindfulness meditation program, with effects similar to other existing treatments.

“There are a few applications where the evidence is believable. But the effects are by no means earth-shattering,” Desbordes said. “We’re talking about moderate effect size, on par with other treatments, not better. And then there’s a bunch of other things under study with preliminary evidence that is encouraging but by no means conclusive. I think that’s where it’s at. I’m not sure that is exactly how the public understands it at this point.”

Conclusion

Meditation is a mind and body practice that has a long history of use for increasing calmness and physical relaxation, concentration, improving psychological balance, coping with illness, and enhancing overall health and well-being. Mind and body practices focus on the interactions among the brain, mind, body, and behavior. A new report based on data from the 2017 National Health Interview Survey (NHIS) found that U.S. adults’ use of meditation in the past 12 months tripled between 2012 and 2017 (from 4.1 percent to 14.2 percent). The use of meditation by U.S. children (aged 4 to 17 years) also increased significantly (from 0.6 percent in 2012 to 5.4 percent in 2017).

There are many types of meditation, but most have four elements in common: a quiet location with as few distractions as possible; a specific, comfortable posture (sitting, lying down, walking, or in other positions); a focus of attention (a specially chosen word or set of words, an object, or the sensations of the breath); and an open attitude (letting distractions come and go naturally without judging them).

References

1. Roger Walsh & Shauna L. Shapiro (2006). "The meeting of meditative disciplines and western psychology: A mutually enriching dialogue". *American Psychologist* (Submitted manuscript). 61 (3): 227–39. doi:10.1037/0003-066X.61.3.227. ISSN 0003-066X. PMID 16594839.
2. B. Rael Cahn; John Polich (2006). "Meditation states and traits: EEG, ERP, and neuroimaging studies". *Psychological Bulletin*. 132 (2): 180–211. doi:10.1037/0033-2909.132.2.180. ISSN 0033-2909. PMID 16536641.
3. R. Jevning; R.K. Wallace; M. Beidebach (1992). "The physiology of meditation: A review: A wakeful hypometabolic integrated response". *Neuroscience & Biobehavioral Reviews*. 16 (3): 415–24. doi:10.1016/S0149-7634(05)80210-6. PMID 1528528.
4. Goleman, Daniel (1988). *The meditative mind: The varieties of meditative experience*. New York: Tarcher. ISBN 978-0-87477-833-5.
5. "Definition of meditate". *Merriam-Webster Dictionary*. 18 December 2017. Retrieved 25 December 2017.