



By Cynthia Macdonald  
Illustration by Magoz

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THE SCIENCE  
OF  
**mindfulness**

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Researchers are producing mountains of evidence that meditation can boost satisfaction, improve health and reduce burnout in fields ranging from business to social work to education

**FOR SUCH A PEACEFUL PRACTICE**, mindfulness is definitely all the rage. There are now books on mindful eating, parenting, investing and gardening – even an article you can download on mindful dishwashing. Mindfulness training is now *de rigueur* in many corporate environments, but it has also made its way into courts, classrooms, prisons and hospitals. You can now choose from hundreds of mindfulness apps for your smartphone, read a magazine (*Mindful*) or watch a film called, appropriately, *The Mindfulness Movie*.

Yet for all its trendiness, there is growing scientific evidence that mindfulness is a bandwagon well worth jumping on, for those in search of greater calm, focus and kindness. “There’s

more than an article a day on the subject in peer-reviewed journals,” says psychiatrist Steven Selchen, a mindfulness expert and lecturer in U of T’s Faculty of Medicine. “The research is vast now.”

Various studies – many of them completed or underway at U of T itself – have shown that a regular practice of mindfulness meditation can result in increased immune response and brain activity, as well as general stress reduction.

What, exactly, is mindfulness? It’s a meditation technique, but also a way of thinking. According to the American scientist Jon Kabat-Zinn, the practice’s best-known advocate, mindfulness is “awareness, cultivated by paying attention in

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a sustained and particular way – on purpose, in the present moment and non-judgmentally.” Rather than ruminating on the past and worrying about future events that may never come to pass, mindful people pay strict attention to what is happening to them right now, both physically and mentally. In this way, they are better able to resist being engulfed by strong negative feelings.

Mindfulness meditation centres on breath, thoughts and physical sensation, but encourages practitioners merely to notice such things instead of actively trying to change them. And while it is rooted in Buddhist traditions that are some 2,500 years old, the practice no longer necessarily holds religious connotations.

Michele Chaban is director of the Applied Mindfulness Meditation certificate program at U of T’s Factor-Inwentash Faculty of Social Work. She began meditating while suffering the effects of a spinal cord injury that left her unable to walk, sit or stand for any length of time for 10 years. For her, mindfulness “is a health and wellness model I’ve used in my practice for 30 years, and I’ve really seen people change with it. At its simplest level where I stand, it’s about stress reduction. But others in the field are looking at error reduction, resiliency, health and wellness, pain management and effects on the cardiac and immune systems.”

Chaban calls Toronto a “special hub” for mindfulness, for various reasons. The city is home to a large population of Buddhist immigrants (most notably, the Tibetan community centred in Parkdale). It is also a high-pressure corporate nerve centre, and home to numerous meditation advocates who – like her – studied with Kabat-Zinn in the 1980s and ’90s. Further, mindfulness is a core element of many entrenched forms of psychotherapy: one of the most prominent of these, mindfulness-based cognitive therapy, was co-developed about a decade ago by Zindel Segal, a U of T professor of psychiatry.

Chaban started the certificate program in social work nine years ago, after a long period spent successfully using mindfulness in her work with terminally ill patients. Open to anyone who wants to incorporate mindfulness in their work (as both practitioner and teacher), the program consists of a series of weekend modules that can now barely accommodate demand. “Our program is inter-professional in nature,”

says Chaban. “We are open to working with all disciplines in the health sciences, business, education and chaplaincy. We teach people how to be with each other in order to enhance resiliency, communication, wellness, learning and to make the most out of their interactions with others.”

Some companies have embraced mindfulness. Employees at the eBay headquarters in California can now duck into a pillow-strewn meditation room. Google has set up a labyrinth so its workers can engage in walking meditation. Even Rupert Murdoch has been tweeting about his dawning interest in meditation.

The scientific case for mindfulness training in the business world is twofold. First, there is solid evidence that it results in a happier workforce. A January study published in the *Journal of the American Medical Association Internal Medicine* found that mindfulness was as good as medication for alleviating some depression symptoms (it should be noted the depression was described as “not full-blown”). This follows research, now a decade old, that Segal’s mindfulness-based therapy could reduce recurrent episodes of depression by 50 per cent.

But it’s also been found that mindfulness makes one learn and work more efficiently. A 2011 study led by a team at the Massachusetts General Hospital found that an eight-week program of Mindfulness-Based Stress Reduction resulted in increased concentration of grey matter in brain regions associated with learning, memory and regulation of emotions. “Although the practice of meditation is associated with a sense of peacefulness and physical relaxation, practitioners have long claimed that meditation also provides cognitive and psychological benefits that persist throughout the day,” Dr. Sara Lazar, the study’s senior author, told the *Harvard Gazette*. “This study demonstrates that changes in brain structure may underlie some of these reported improvements.”

**W**ith all this evidence of the benefits of mindfulness, it’s no surprise that U of T’s Rotman School of Management is now giving students the chance to use mindfulness in a business context. In October, the school offered the two-day Search Inside Yourself seminar, a mindfulness training program developed at Google; it was so wildly successful, they’re offering it again this April. The program uses mindfulness techniques to amplify the “five key domains” of emotional intelligence: self-awareness, self-regulation, motivation, empathy and social skills. But mindfulness has actually been kicking around Rotman for a while – most particularly in the work of Mihnea Moldoveanu.

The associate dean of Rotman’s full-time MBA program, Moldoveanu is also poet, philosopher, entrepreneur, engineer and education innovator. Indeed, Rotman distinguishes itself among business schools for its emphasis on teaching new ways of thinking. And for Moldoveanu, mindfulness, as it is used in the West, is more of a cognitive than an emotional practice.

He describes his own work on the subject (with American psychologist Ellen Langer) as Western rather than Eastern. An "Eastern" mindfulness workshop, he says, "might focus on automated breathing patterns, altering emotional states to induce a different state of awareness." By contrast, "Western" mindfulness entails a "focus on different ways of conceptualizing or representing a situation or problem," without necessarily engaging in meditation.

Moldoveanu believes society is highly prone to "mindless engagement," in business and elsewhere. "It's simply a process of imprinting. I say something, you remember what it was and you repeat it. But over a period of time a lot of people stop listening, for example, to what their spouse or partner says. They develop these routines so they can demonstrate that they've somehow listened. They've listened but they haven't heard - they're just playing out a script. In work relationships, the same thing happens."

In his work on thought innovation with management consultants McKinsey & Company, he's trying to change that. "We produced a tool for getting people to break out of the template they're in - to give them training in a different set of lenses." The business world has long been known for its emphasis on innovative problem-solving, of course; it gave us the cliché "thinking outside the box." In Moldoveanu's view, the need for this has a lot to do with what he calls "the tachycardia of business. Things happen very quickly, so people are constantly in a state of shock or surprise. They're always looking for new ways to enhance their adaptive capability." Moldoveanu believes the mindful business executive is consistently able to regard familiar situations in new ways, even after long exposure to them.

In the field of education, opportunities for routine, mindless learning are many. In Canada, mindfulness has now entered elementary school classrooms. A program called MindUP has gained traction in B.C., while Ontario's ministry of education is currently assessing proposals to implement similar programs. Mindfulness advocates say that classroom meditation

may help not only with learner boredom, but with problems such as attention deficit disorder and bullying.

But before mindfulness gets to the students, OISE professor Jack Miller says it must start with the teacher: "if teachers haven't had any practice at all, I think it could be a mistake. You have to have some experiential understanding of it before you introduce it to children."

So it is that for more than 25 years, he's been instructing experienced teachers and his own student teachers to meditate over the course of a six-week training program. "The main thing they get out of it is that they're more present to the students. They're listening at a deeper level, and that's such a powerful way to build rapport in your classroom. If a student feels that you're not really there when they're talking, there's immediately a sense of disconnection, right?"

In 2006, a formal program to specifically address teacher burnout was developed and introduced at OISE. Called Mindfulness-Based Wellness Education, it has since been extensively studied, and shown to improve coping strategies, creativity and interpersonal skills.

Miller himself has been meditating since 1974. But how long do you have to meditate in order to derive benefit? "I ask for six weeks," he replies, "because usually people give up after the first week or two. Meditation is hard! In the first two weeks they struggle. But around the third or fourth, they settle in and begin to notice a difference in themselves." (Individual session lengths seem to vary, though within a regular practice 20 to 30 minutes seems to be about average.)

It could be said that the irritation that beginning meditators feel is a concentrated form of the irritation one feels in daily life anyway. The mind races, is bored and anxious. The body wants to flee. The to-do list seems to grow with each minute that passes as you sit on your pillow.

This is what Buddhists call the "monkey mind," the mind that skips unhappily from feeling to feeling, trying to outrun those that are least pleasant. In mindfulness meditation, however, you simply sit with those unpleasant feelings. You

## How Mindfulness Helps

In recent years, hundreds of academic studies - some conducted at the University of Toronto - have vouched for the value of mindfulness meditation in improving everything from stress to binge eating to depression. Here are a few examples of the U of T studies:

### Binge eating

A 2011 study led by U of T psychiatrist Christine Courbasson enrolled people with both binge eating disorder and substance abuse problems in a 16-week program of mindfulness-based

cognitive therapy. Over the course of the program, participants were found to engage less often in binge eating and to demonstrate both an improved attitude toward eating and a reduced reliance on drugs and alcohol.

### Depression

In 2013, a team of researchers, including U of T psychiatry professor Dr. Nora Cullen, found that a 10-week program of mindfulness-based cognitive therapy reduced symptoms of depression in people who had suffered a traumatic brain injury.

### Stress

Cheryl Regehr, a professor at the Factor-Inwentash Faculty of Social Work and U of T's

provost, led a review of the literature on stress to see what interventions work best for university students. The study, published in 2013, found that mindfulness-based interventions significantly reduce anxiety, depression and cortisol levels.

### Brain benefits

A 2013 study by psychiatry prof Zindel Segal and U of T colleagues compared MRI data for people who had undergone an eight-week mindfulness training program with a control group. The mindfulness group not only showed a different pattern of brain activity while practising, but showed an increased ability to connect various parts of the brain, similar to the "rewiring" the brain does after an injury.

## **“People take better care of themselves after training in mindfulness. It helps them manage chronic conditions such as diabetes”**

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notice them. You name them. You disconnect them from their sources. And then, at length, you gain mastery over them.

Psychologist and U of T professor Ana Bodnar underlines that once a meditation practice takes hold, it is an extremely efficient support for therapy. “These practices are very empowering, because they’re things that people can do themselves. It’s something you can take home, you’re not always dependent on somebody else.” She stresses, though, that it is important for teachers to take the time to teach mindfulness practices well.

Bodnar is a highly experienced practitioner herself; in addition to her clinical practice and other teaching, she is one of four faculty members of New College’s Buddhism, Psychology and Mental Health program.

Interaction with a qualified teacher is important, says psychiatrist Steven Selchen, who runs a U of T-sponsored mindfulness training program for health-care practitioners at Sunnybrook Health Sciences Centre.

“When people try to pick up meditation on their own – they get recordings on the Internet, or read a book – they may interpret mindfulness in ways that aren’t helpful to them. Their mind wanders and they feel like they’re failing, when really it’s a normal human experience for the mind to wander. So they need to spend time interacting with a reliable teacher. It’s very challenging to do on your own, and that’s why I’d like to see more good opportunities for people to access this.”

Selchen, who has a degree in mindfulness from the University of Oxford, says that mindfulness treatments have proven extremely effective in the reduction of psychological ailments such as stress, anxiety and depression. But meditation can also have a direct impact on physical illness. “A number of studies have shown improved immune function; when you think about the relationship between stress and immune function, it’s not that shocking. But there’s also evidence that people take better care of themselves after training in mindfulness. It helps them manage chronic conditions such as diabetes, which leads to better outcomes.”

It stands to reason that anything this popular will have detractors – or at least produce skeptical questions. If the world is so highly charged and competitive, don’t we need more aggression instead of less? Yet Selchen cites a recent

Canadian study showing that more than 45 per cent of physicians report at least one symptom of advanced burnout, defined elsewhere as “an experience of physical, emotional and mental exhaustion, caused by long-term involvement in situations that are emotionally demanding.”

Chaban says it needn’t be so. “Historically, we’ve learned that aggression and determination are gasoline for the way that we work. The primitive brain activates itself and says, ‘I’ve got to push, I’ve got to fight.’” But fight-or-flight reactions lead, over the course of long work hours, to reduced productivity, lawsuits and errors. “So we’re having to rethink all kinds of things, to go from a worker bee to a hive mentality. People are asking, how much emotion do I need to do what I set out to do? There’s no sabre-toothed tiger around, so maybe I can do it with less intensity and reactivity.”

Bodnar points out that meditation can soften anger and aggression – that practice can help you to deal better with such feelings. “You can develop the ability to make a decision about what you’re going to do with that emotion. You can say, ‘I’m not going to lose control,’ and then be aware of the rise and fall of angry feelings as they move through you.”

A recent study at UTSC bears this out. There, PhD psychology candidate Rimma Teper used electroencephalography to record the brain activity of participants as they completed a computer task that resulted in positive, negative or neutral feedback. Teper’s research showed that participants who had a high level of mindfulness were far less responsive to immediate reward than an addict, such as a problem gambler, might be.

Meditators are “responding to their emotions adaptively,” says Michael Inzlicht, Teper’s supervisor and a UTSC psychology professor. “Sometimes listening to what those emotions have to offer, and sometimes overcoming those emotions when they lead them astray.” Inzlicht thinks that acceptance of emotions is key. “We typically talk about two facets to mindfulness. One is awareness, attention: the ability to focus on present moments. The second one is acceptance: accepting your thoughts and not reacting to them. It turns out that this facet is doing most of the work.”

Is mindfulness meditation here to stay? Surely some will try it on for size, then abandon it as they did their Crocs, Oprah diets and lambada CDs. But, backed by an increasing body of scientific support for their actions, others are now inviting it into their lives for good. Echoing a widely held thought, Ana Bodnar is confident that this is mindfulness’s moment. “It’s found its way into so many settings and therapies that aren’t going to disappear. The practices are very successful, so they will live on.” Like an oversized emotion in an overheated brain, mindfulness is now most definitely being noticed, accepted and used. According to many, the world is much better for it.

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