Mindfulness for Medical School, Residency and Beyond

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Dedication

To the medical students and residents at the University of Ottawa who inspire and teach us every day, and to the members of the Mindfulness Curriculum Working Group who imagined a mindfulness curriculum in Medical School and made it a reality.

A special thank you to student Azin Ahrari for her tireless work finalizing the launch of the curriculum and for her cover-page photography. Also thank you to student Erik Zannier who provided us with the beautiful photography seen within the pages of this book.
Unlike other resource persons you might turn to for teaching in mindfulness, I am not a spiritual leader, a trained psychologist or social worker. I am a neurologist -- something that only peripherally prepared me to understand the concepts of mindfulness. What I mean by this is that I knew the brain quite well and up until I began to explore the concepts and practice of mindfulness, was really quite attached to my own.

I recall vividly the first time I read the words, “You are not your mind”. As a neurologist I had a tendency to distinguish “mind” from “brain” generally thinking of the mind -- our mental conditioning, thoughts and processes -- as the playground of psychiatrists and psychologists. The brain however -- the biologic computer that thinks those thoughts and performs those processes -- was my domain. Probably out of a sense of familiarity, when I was reading books for lay people I would habitually replace the words “mind” with “brain”. So when I was essentially told by the author of the book I was reading that I was “not my brain”, my brain quickly responded: “Of course I am! In fact, that’s all I am!”
At this point my brain then went on to have a detailed mental argument with the author of that statement which went something like, “My brain is what makes me me. Without it, I wouldn’t have my memories that define my identity. I wouldn’t have my intellect which generates my thoughts and solves problems. I wouldn’t have my personality traits that shape my behaviors and aspirations. If I transplanted my brain into someone else’s body, the I that is me would wake up in that new body, having followed my brain to it’s new recipient, would it not? The I that is me wouldn’t be left back in the brainless transplant donor.” Of course my brain had no proof of any of this but nevertheless it argued its viewpoint away, espousing the importance of my brain in defining and determining the essence of who I was as a being. I was clearly quite identified with my brain.

And then my brain did something that brains do. It thought. It designed another little thought experiment -- a scenario that, once fully thought through, was meant to conclusively determine whether or not my brain was inseparable and interchangeable with me. The thought experiment was based on patients that I see in my medical practice -- those with neurological disorders like head injury, stroke and degenerative conditions. The thought experiment went something like, “If you woke up one day with complete retrograde amnesia -- you couldn’t remember your name, or your address, where you were born -- would you still be you? (By the way, despite the box office success of Jason Bourne this type of amnesia really doesn’t happen outside of Hollywood but I won’t get into the neuroanatomy of why not. I went with it for the sake of the thought experiment.)

My response was, “Yes. I would still be me. Just because I don’t remember my identity doesn’t mean I don’t have one. Also I would still be present, amnesia notwithstanding, witnessing, recording and processing all of the events that were occurring at that moment.”

The thought experiment continued. “What If you had a stroke affecting lobes of the brain responsible for certain aspects of your personality -- say your motivation -- would you still be you?”
The answer was clear again. “Yes. Although I wouldn’t have the same ambition as I did in the past lacking the old drives and aspirations characteristic of my old personality, I would still be in there. I would still be in that body witnessing the world through the same eyes. I would just be interacting with it differently.”

“And what if you had a degenerative dementia that slowly eroded your mental processing, flexibility and capacity for problem-solving, necessitating you to be cared for in a nursing home? Would that still be you in that nursing home?”

“Of course! I wouldn’t have the same intellectual capacity but it would still be me in that nursing home.”

“So if the you that is you is not dependent on your memories and personal identifying data, and its not dependent on your personality traits, and its not dependent on your intellectual capacity as you previously had thought, maybe the you that is you is not dependent on your brain at all.”

If I was not my brain, who was I?

Then it occurred to me. If I could know what was left of me, the one thing that remained constant in all those hypothetical scenarios even after all those changes to and losses of brain structure and function, I would know who I really was.

The answer that came was an inner realization more than a thought. It came from somewhere beyond my brain, beyond my mind.

I was the one watching. I was the being, the entity, the essence that was left as the witness of my life. I was the watcher.

-- Heather MacLean
Introduction

Why medical students, residents and medical practitioners need this book.
It’s an interesting phenomenon: when the world is ready for an idea, the idea seems to occur to several people simultaneously. Did you know that calculus was invented virtually simultaneously by Isaac Newton and Gottfried Leibniz? Clearly it was an idea whose time had come. Such is the case with the idea of a mindfulness curriculum for medical students. From my personal interactions with students I was struck by the level of anxiety that they are dealing with and blown away by the dizzying pace they keep with constant sensory overload, flooded with information from the internet, email, texts, Facebook, Twitter etc. On top of that we challenge them with the task of learning all of medicine along with core competencies of professionalism and leadership in a few short years before entering independent practice. No wonder they are stressed! It’s like asking them to drink from a fire-hose.

In class I would notice the tension in their faces. In small groups, in the hallways and in my office I would hear directly from them about their anxieties. And I wondered: could mindfulness help? Evidently I was not the only one this occurred to. When I started suggesting the idea of teaching mindfulness in medical school, gently at first, testing the waters, the response was surprisingly and overwhelmingly positive. “Yes, what a great idea! I’ve wondered that myself!” In fact, several individuals had already been trying to implement such teaching on their own but it hadn’t quite taken hold. So several interested individuals decided to join forces. We called ourselves the Mindfulness Curriculum Working Group.

**Key Concepts**

1. How this book came to be
2. How to use this book
The group was small at first but as word spread, interest grew, and now there is barely room for all of us at our meetings.

In creating the curriculum, I felt a strong need for a course book of sorts to guide the students as well as those teaching the curriculum through the pertinent mindfulness concepts and practices. Between our members we probably had read a hundred books on the topic but no single book seemed to suit the structure and flow of the curriculum we wanted to create. So our working group decided to write our own.

I’d like to mention the chief influences on our book, namely the work and teachings of Eckhart Tolle (the fundamental concepts described in Chapter 2 are largely from him) and also Jon Kabat-Zinn, who developed mindfulness based stress reduction and brought meditation into mainstream medicine (he heavily influenced our writings on mindfulness practice and techniques in Chapter 3). As a neurologist I am also partial to the writings of Rick Hanson, the author of Buddha’s Brain, who seamlessly marries the principles of mindfulness with the innate workings of our brain.

We hope the style in which the material is presented will feel less like a textbook and more like a book you might pick up for pleasure, complete with personal observations, experiences, opinions and anecdotes from the authors to illustrate how mindfulness might enhance your life as a student and as a physician.

As you move through this course book, Chapter 1 is meant to tell you why this teaching is so important if you didn’t appreciate that already. Chapter 2 focuses on didactic teaching of mindfulness concepts. Just knowing this stuff helps. Chapter 3 is meant to be practical and experiential. It’s about the doing of mindfulness, because doing this stuff helps even more than just knowing it. In our undergraduate curriculum we discuss Chapter 1 (the Introduction chapter) within the first 2 weeks of medical school (the Introduction unit) so the students know what they are getting themselves into and why. Starting early in the students’ first year and over the subsequent 2 years, we move through the core teaching of the mindfulness curriculum (Chapters 2, 3 and 4).

For several teaching sessions, we have chosen to use Chapters 2 and 3 jointly, combining one section from each chapter to make up a lesson (Chapter 2 section 1 is paired with Chapter 3 section 1 and so on). That way, you learn about a mindfulness concept then apply what you’ve learned in a practical skill-based fashion. Chapter 4 is then taught later in their second year as the students are preparing to move on to their clerkship years within the hospital. If you happen not to be a University of Ottawa medical student, feel free to read the chapters in numerical order, or in whatever order you wish.

To medical students, residents and medical practitioners who are left-brained and scientific by nature, this type of curriculum can be a little out of their comfort zone. They might feel it is too soft, too unstructured, too “touchy-feely”,...
too unproven. For them while I will point out that there is clear scientific evidence of the benefits of mindfulness, and we will present some data in Chapter 4, this course is less about science and more about spirit. Less left brain, more right brain. It is supposed to expose you to something out of your comfort zone, which you might not have been drawn to otherwise. If it resonates with you, you will no doubt continue to use these principles and techniques to enhance your learning, your medical practice and your life. If mindfulness doesn’t resonate with you, that’s fine too. At least you are aware of it so if you feel a need and a readiness for it some day, you’ll know where to look.
SECTION 2

Life is stressful

Probably one of the best first lines in any book is the one from The Road Less Travelled by M. Scott Peck: “Life is difficult.” Life, including the situations that happen and the people you encounter within it, are not meant to make you happy. What they can do is help you awaken.

Life provides you ample opportunity to learn and grow, whether you want to or not: financial hardships, relationship breakups, illness, death, political conflict, terrorism, global warming. To add insult to injury, you are embarking on a career that is renowned for being wildly stressful: Medicine. Doctors suffer from depression, anxiety and stress-related illnesses at frequencies far greater than the general population. Because in addition to the usual life challenges above, you also have volunteered to endure an enormous workload, long hours, urgent time pressures, frequent exams, deadlines, peer competition, constant evaluation and criticism, sleep-deprivation on call, the responsibility of the health and welfare of your patients and the fear of litigation.

Sounds stressful, doesn’t it?

Essentially stress is wanting a situation (your life) to be different than it is. Stress takes place in the gap between what is and how you want things to be. You would like a lighter workload, fewer and easier exams (or none at all!), glowing evaluations every single rotation, a full night’s sleep and not to have to worry about someone dying because you made a mistake.

KEY CONCEPTS

1. Life is stressful
2. Medicine is even more stressful
3. **Burnout** happens, but doesn’t need to
But the pressure of the reality of medicine is undeniable – the heavy workload, exams, sleep deprivation, responsibility. And your body’s response to this pressure is clear: increased heart rate, increased blood pressure, muscular tension, unease, worry, anxiety, “distress”. Some deal with stress by overeating, or under eating, alcohol or drugs. Some even develop thoughts of suicide. Others let stress silently take a physical toll manifesting in fatigue, headaches, GI upset, muscle tension etc.

What you should know however is that stressors (the challenges life gives you) are inevitable, but stress (suffering) is not (or at least can be kept to a minimum).

Stress happens when you choose not to accept the present moment as it is – feeling as if the challenge that life has placed in front of you should not be there (“This is not right. This shouldn’t be happening”). Once you accept the present moment as it is (note this is different than liking it or giving up), you can then decide if you are willing and able to change your situation. If so, you act.

Stress, if dealt with efficiently and consciously therefore, can be very motivating. Truly positive acts of change can take place out of the state of acceptance. Stress, rather than being the enemy, then becomes an opportunity for personal growth.

But when one continues to resist internally what is happening without taking appropriate action and when stressors are perceived to be unrelenting and overwhelming however, it leads to burnout: a physical, mental and emotional exhaustion. In physicians, burnout has been linked to many adverse outcomes including poorer quality of patient care, increased errors, decreased ability to express empathy and poor medical team performance. Burnout is a level of suffering that, once achieved, is difficult to recover from.

Stressors happen, but burnout doesn’t have to. Mindfulness is one method of reducing stress and preventing burnout. Dealing with stressful situations consciously and wisely can prevent burnout. Signs of stress need to be identified early and
positive action taken before the situation becomes overwhelming.

Because burnout can occur very early in medical school training it’s important to be aware of this and as part of your training, learn to manage the stress that will be part of your schooling as well as your career.
If you were to ask 100 people what they wanted in life, the vast majority would say something like, “I just want to be happy”. Now I don’t want to be a downer but let’s face it: it’s impossible to be happy all of the time. If your hope is to be happy 100% of the time this is not a realistic life goal. Yes, life does supply us with many pleasurable experiences, but it also supplies us with painful ones on a semi-regular basis. The natural pleasure-pain cycle of life cannot be altered. As Eckhart Tolle describes, pleasure and pain are two sides of the same coin. You can’t have one without it eventually turning over to the other. But despite the inherent nature of the life experiences we have (happy vs. sad, pleasurable vs. painful) it is possible for us to have at all times inner peace.

Inner peace is probably the most important thing in life. Without it, nothing else means that much. You might be a billionaire with mansions and yachts but without inner peace what is it all worth? Conversely, you could be a monetarily poor but with a deep sense of inner peace; you are whole and complete -- all you could ever want. Even in the face of great loss and sadness there can be an undercurrent of inner peace which provides steadiness and comfort.

So if we surveyed those 100 people again, and rephrased the question clarifying that perpetual happiness is not possible, so what else do you want in life? I think they’d probably change their answer to inner peace.

Let’s agree that we all want inner peace. How can mindfulness help?

**Keys Concepts**

1. We all want inner peace
2. The definition of **mindfulness**
3. You can (only) be at peace in the present moment.
4. “Know thyself” -- the path to spiritual growth
Mindfulness is a practice that originated more than 2000 years ago in the East arising from Buddhist traditions. Many other religions and cultures contain mindfulness teachings and the elements of mindfulness are themselves not religious but rather philosophical -- a philosophy of bringing awareness to the present moment such that each moment can be appreciated to its fullest.

In order to understand mindfulness, you need to understand two main elements: awareness and attention. Awareness is being conscious of what is going on in and around you. Attention is the ability to focus or concentrate that consciousness on particular aspects in and around you.

If you imagine yourself in a large warehouse full of stuff but it is pitch black you would not be aware of what is around you and you could not focus your attention on anything visible. Awareness could be likened to turning on the overhead lights and illuminating the room (Ahhh! So that’s what is in this warehouse!) Attention could be likened to shining a high intensity spotlight on certain objects one at a time (Let me take a closer look at that thing over there).

Let’s look at some ordinary situations and see how mindful you tend to be on a day to day basis.

Have you ever been so involved in the unfolding drama and intensity of a movie that you forgot you were sitting in a seat in a theatre? At some point you suddenly “wake up” and it’s like “Wow! I was really somewhere else just then!”

Or have you ever been driving somewhere and suddenly you arrive at your destination and realize you can’t recall anything about the car ride there? You were so lost in thought you missed the whole trip!

Even more commonly, you are in the shower. You have 45 minutes to get ready and off to the hospital. While in the shower, you are already thinking about what you have to do as soon as you get into work. “Did I remember to check the results of that MRI that was done yesterday afternoon? Oh yes, I did. I’ll have to let the patient know the results as soon as I get in. And I have to meet with Dr. Smith about my rotation feedback. I hope she thinks I did ok. What if she gives me a bad evaluation? Remember when we were at the bedside the other day and she asked me that question and I froze? I didn’t know the answer. I felt so embarrassed. I should have known the answer. In retrospect what I should have said was, “I’m not certain of the answer but I will look that up.” That would have at least shown that I was interested and willing to work. What if she thinks I’m not smart? Or worse, what if she thinks I’m lazy? Maybe I should bring that up right away at the feedback session before she can say anything negative. What I should say to her is…” Before you know it, your shower is over and you didn’t feel a drop of it.

All of this is considered “normal”. So what’s really going on in these instances? Are you aware during the movie? Are you aware along the car ride or in the shower? Somewhat. I mean, you are not comatose. You are peripherally aware of enough around you not to spill your popcorn or crash your
car, but it’s a very low-level awareness. Using the warehouse lighting analogy, the ambient lights are only very dimly lit. Much of the time we move through life like this -- on automatic pilot -- with the ambient level of our awareness turned way down low. With respect to awareness I should point out that provided we are not asleep or in a coma we are aware at all times. It’s the intensity of the awareness that varies as does our ability to consciously focus that awareness as attention. When we operate with only a low level of awareness we are considered in spiritual terms (not neurological terms) to be unconscious. It’s when we suddenly turn up our awareness that we awaken.

Are you being attentive in the movie, in the car and in the shower? Well, yes. In the first case your attention is engrossed in the movie, and in the second and third, engrossed in your own thoughts. The spotlight of attention is turned on but unfortunately it’s not under your voluntary control in any way. It’s just illuminating and following whatever happens to wander in front of it. It is attention without purpose. Paying attention on purpose is extremely important for mindfulness.

Furthermore, when you are swept up with the object of your attention, like a leaf being swept away by a swift current, you have completely forgotten about the present moment. Forgetting that you are here, now, is the opposite of mindfulness. In Buddhist tradition the importance of the present moment is this: it is the only thing that exists. And this is the art of living. The past exists only in our memory. The future exists only in our imagination. Nothing exists outside the present moment. As long as you maintain awareness to the Now, you are said to be present, or you are described as having presence.

So what mindfulness brings is a high level of awareness and purpose to your attention, all the while being conscious of the present moment.

But wait. There’s more. While seeing to be mindful, it is hoped you will do so in the spirit of openness, curiosity, compassion, acceptance and non-judgement. In other words, with a positive attitude.

The 4 P’s of Mindfulness:
1. paying attention
2. on purpose
3. in the present moment
4. in a particular way: with curiosity, compassion and acceptance

Sounds complicated? It’s not really. Let’s redo one of those activities again, but mindfully this time, to see what I mean.

You are back in the shower. You’ve got the temperature just perfect. Just then your mind drifts to the list of things you need to do today. As soon as you realize this, you gently
refocus your attention back to the here and now; The zinging sensation of the water jets hitting your skin. The warmth of the humid shower air filling your lungs with each deep breath. The surprising coldness of the tiles when you accidentally bump the shower walls. The gurgling sound of the water going down the drain sounding vaguely like music. Then a thought intrudes. - I’m worried about getting my rotation feedback today. - Like a loving parent redirecting a playful child, you gently reorient your thoughts back to your shower, the water, the steam. You hold the bar of soap up to your nose inhaling the fruity scent. The smell makes you happy and you notice you feel grateful for it -- it was a gift. You feel the soap slip and slide between your hands, noticing the slipperiness of the suds between your fingers.

Notice how with mindfulness you really experienced the shower. You were paying attention to everything about it -- the sensations, the sounds, the smells -- on purpose. Your attention was on just what was happening in the moment. As mundane as you might think a shower may be you went about it in the spirit of curiosity like it was the first shower you ever had. When your mind wandered off, you didn’t beat yourself up about it. You accepted the natural tendency of the mind to wander with a spirit of acceptance and non-judgment.

Compare that shower with the shower when your mind was stressing about work and Dr. Smith. Which one was more peaceful?

Although you can reap many benefits from the practice of mindfulness (and these will be discussed in later chapters) ultimately mindfulness is not a goal-oriented undertaking. Just like you don’t dance in order to get from one side of the room to the other but rather to enjoy each step, when you practice mindfulness it is to feel the awareness, the fullness and peace it brings in the moment.

If you want inner peace you can only find it in this moment. It’s funny how our mind will try to argue with this. It will say, “That’s not true. Something great could happen in the future and I could be at peace then.” We all tend to have an unconscious belief that says, “I cannot be at peace until __________.” You fill in the blank with whatever seems applicable (I’ve passed my unit exam, summer vacation arrives, I’ve matched in CaRMS, I’ve passed my Royal College exam, I find a man/woman to share my life, I get married, I have a baby...) The irony is that whatever you fill in the blank with, when it does arrive, your “peace” is only short-lived and then you come up with another fill-in-the blank as to why you can’t be at peace now.

If you can’t be at peace now with what you have at this moment, you can never be at peace. This moment is all we have. You can never find peace in the past because the past is gone. It doesn’t exist. When it did exist, it wasn’t the past, it was the present moment. You can never find peace in the future because the future never arrives. When it does, it is no longer the future, it is the present moment.
The key to inner peace is living fully in the present moment and that also is the essence of mindfulness.

Continuous inner peace, while completely attainable theoretically, has been achieved by few individuals alive today (I will point out, however, that at least it is attainable as opposed to continuous happiness which really is not) and it almost never happens as an instantaneous transformational event. As you start out in your mindfulness practice you will likely notice that the moments of peace are only brief and separated by rather long expanses of the routine noise and stress of normal life. As your practice continues, the peaceful moments become longer and more frequent. Gradually with time and practice you may find peace becomes your predominant inner state punctuated by only brief periods of noise and stress.

Additionally with the attention and observation inherent in the practice of mindfulness, what might start out as a quest for inner peace soon turns into an amazing adventure of self-discovery. I like to think of Earth itself as a school of sorts with lessons to be learned from nature and, most notably, from our relationships with others. The lessons from those relationships usually are lessons not about them but about ourselves. Relationships are great mirrors. It is hoped that from the start to the end of our lifetime curriculum we have learned at least something along the way. This, I feel, should be our other main goal in life: To learn and to grow. I feel it’s our spiritual responsibility to leave this life at least marginally more advanced, more enlightened, than when we got here -- the direction of progress being more important than the amount.

MOVIE 1.2 What is Mindfulness? by Jon Kabat-Zinn

http://youtu.be/HmEo6RI4Wvs
The practice of mindfulness must include which of the following elements?

- **A.** Paying attention in the present moment
- **B.** Analytical thinking
- **C.** Suppressing negative thoughts
- **D.** Visualization

**A.** Paying attention in the present moment is correct.
Fundamental concepts in mindfulness

Just knowing this stuff helps.
Who are you? That question seems easy enough. Most people when asked who they are immediately list a few identifying characteristics, factual data about themselves including age, sex, occupation, race, religion and social function. They will answer, “I am a man. I am 27 years old. I am a fourth year medical student. I am a husband and a father to a newborn son. I was born in ...” etc, etc. Some might add in points about their appearance (hair, eye color) and possessions. These indeed may be facts about you, about your story to date and current status, many of them you are undoubtedly proud of and attached to, but they actually have nothing to do with who you are at the depth I am asking you to look. They are not truly who you are at the depth of your being.

What these facts describe is the “false self”. They are memories of where you have been, what you have done, semantic facts that you have come to believe about yourself that are stored in your brain as memories, recalled when needed and then refiled for later reference. They are a mental image of yourself within your own mind that has been filed under the label “My Identity”. In other words, they are just thoughts. As thoughts they are impermanent. Memories are corruptible and thoughts change over time.

Another word used commonly in mindfulness teaching for the false self is the Ego. The funny thing is, most of us believe that the Ego is us. We mistake the Ego for who we really are. But the existence of Ego is dependent on thinking. What is left of you when all thinking has stopped? What is so con-
stant about you that it is incorruptible and could never ever be changed?

For instance, a man can, with a bit of effort, change to a woman. Your age is ever changing on its own. Your job and possibly marital status can change over time. And when these changes do occur either voluntarily or involuntarily, many people suffer an identity crisis. Who am I if I’m not a doctor? A wife? A mother? etc. In fact, imagine that each identifying factor about yourself is being stripped away, one by one. What is left? You are definitely still something and that something is your “true self”.

Yet it’s hard to express in words what is left when your thoughts subside because whatever words the mind comes up with are just more thoughts! You have to feel it rather than speak it. And you can feel it briefly when you still the mind and let yourself feel who you are inside without using labels, without words. The closest words might be “I am the essence. I am the watcher.” But even that’s not quite it but it’s about as close as words can get.

Why am I going on about the Ego? It’s because the Ego, if you don’t monitor what it’s doing, runs your life thinking it’s you – and often makes quite a mess of it in the process. I’ll illustrate this with a few examples in a moment. Before I do, let’s look at how the Ego develops.

When you were a newborn baby, you didn’t really do much thinking about anything. You were conscious, aware, but your brain wasn’t yet sufficiently developed to start generating thoughts (like mental opinions and plans for the future) or laying down memories. While you were still “you” at that stage, you didn’t have an identity in the form of a mental image of yourself. You were your true self at a level below thought – not unlike how a cat or a dog operates. (And if you suddenly feel a bit insulted by that statement – “I’m not and never was anything like the level of a cat or dog!” – that’s your Ego being threatened. More on that in a minute.)

But before long your brain is growing. Through frequent exposure and consolidation of neural circuitry you develop an attachment to a particular entity that’s soft and cuddly and caring – Mom. Within that attachment, the boundary between you and Mom is hazy. Through your attachment, you and she are kind of the same person. You identify with her. When Mom is close, you feel happy and whole. When Mom leaves the room, you feel frightened and threatened (What will happen to me without that Mom-person I’m attached to?)

As you get older, through experience, you learn that Mom and you are separate individuals (your attachment diminishes slightly) and you become confident that when Mom leaves for a short while, you will still be ok.

But the weakening of one attachment in strength is replaced by other attachments in number. You start to identify with lots of other things, as if each is a part of you; toys, family, friends. Later, perhaps as a teenager, physical looks, athletic ability, scholastic marks. As an adult: job, money, possessions, spouse etc. You feel that somehow these things add to
yourself. They make you whole, more, better. In attempts to enhance our egos, we search for more things, better things, higher statuses etc. to ‘add to ourselves’. You know they are not you on the conscious level, but on an unconscious level you derive your sense of identity from them. That’s one of the reasons it’s so painful when you lose one of them. When one of the things you are identified with is threatened, your Ego feels threatened. A threatened Ego is a terrifying thing.

If an Ego is threatened, it fights back as if fighting for its virtual survival. Remember this key teaching point: anger and aggression ultimately arise out of fear and fear is what happens when one is threatened.

If I were to tell you that a car on the street had just been broken into, you would probably think “That’s too bad, what a shame” then carry on with what you were doing. But if I told you that your car was just broken into, your Ego would likely fly into a rage akin to a threatened animal. That is because you are not attached to someone else’s car but you are quite attached to your own. From a higher perspective the facts are the same: someone got their car broken into. But from the point of view of the Ego which is in constant fear of losing its stuff, taking something of vital importance to it is a capital of offense. Egoistic reactions to perceived threats can be legendary.

Threats to the Ego don’t just come in the forms of loss of possessions. Here is a personal example: I have been the anglophone Neurology content expert at the University of Ottawa Medical School for several years and was integrally involved in the development of our current Neurology curriculum. After it was created, I was quite proud of “my” accomplishment (I had lots of help designing the curriculum but Egos often forget this). And when the first couple of years of the curriculum received glowing reviews from the students, my Ego was strengthened. All of a sudden my identity had expanded to absorb an entire 5 weeks of curriculum in the second year of medical school. On some primitive level, my Ego saw those 5 weeks as “mine” and the overall success of the curriculum meant I was a success.

Fast forward a couple of years later when I’m chairing a unit evaluation meeting, recapping how that year’s rendition of Neurology went. At this point my Ego is expecting to bask in the glory of yet another successful unit. Then someone says, “You know I took a closer look at the Neuroanatomy teaching and I really think the objectives for several of the sessions were poorly written and need to be completely revised.”

From a higher perspective what was being pointed out to me was that a minor part of the curriculum could be improved upon. Sounds reasonable enough. But what my Ego heard was: “This part of the curriculum, the curriculum you created and are responsible for, is not good enough. You are not good enough.”

Ouch! Something I was identified with was being threatened.
A mindful person at that moment would have interpreted the statement from the higher perspective and a mindful response would have arisen: I’d love to hear your suggestions. Anything to further improve the curriculum would be terrific.

I don’t quite remember what my immediate response was but it wasn’t that. I remember I felt a little flushed. I think a vessel in my temple started to throb a bit. I don’t think I said much out loud (fortunately) for a minute or so before I became aware of what was happening: that my Ego had been threatened and I was in full-on defense mode. Once I realized this I was then able observe the Ego in myself for a moment or two, to detach my identity from the curriculum, and respond from a higher perspective saying sincerely, “Thank you. I’d love to hear your suggestions. Anything to further improve the curriculum would be terrific.”

Second, the Ego is in a constant state of wanting. It is never satisfied for long with what it has. It often knows it wants something but might not be able to identify what. This results in varying degrees of dissatisfaction, boredom, restlessness, emptiness, craving. This is the state in which most humans live their lives but in varying intensities. Sometimes it’s just a background static noise of unlocalized discontentment. Sometimes it’s more specific: “I can’t be at peace until ______.”

I know this sounds like a lot of Ego bashing so I want to stress at this point that there is nothing wrong with the Ego. Egos are not bad. They are just unconscious. They are doing what Egos are designed to do. They don’t know any better. It is our role, as higher selves, as our True Selves, as the watcher, simply to recognize the Ego when it arises and to try not let it run our lives. That would be like letting our kid drive our car.

Armed with this insider information on the Ego and its tendencies you are more prepared for mindful communication with others (Chapter 3 section 1). Imagine, if you will, trying to resolve a conflict situation with your partner and being able to recognize and observe both your own Ego as well as that of your partner in realtime. If you can recognize the Ego in yourself and stay present and aware you are more likely to remain in that higher vantage point, offering measured high quality responses rather than knee-jerk Ego-based reactions. Recognizing the Ego in your partner you are naturally empathic (Hey, we are similar! I have an Ego too! I know what that’s
like.). Furthermore, knowing that Ego is the unconscious “false self” you tend to be more forgiving of the occasional lapse in awareness with resulting egoistic reactions that might erupt -- it’s not truly who either of you are. Now imagine a conflict situation between two opposing, threatened, unconscious Egos. You would see that conversation going off the rails pretty quickly.

**MOVIE 2.1** Eckhart Tolle on the Ego

(07:38)  [http://youtu.be/nSmZkDzS1GI](http://youtu.be/nSmZkDzS1GI)
Section 2

The voice in the head

Carrying over from the previous chapter on the Ego (which is our mind-identified false sense of self) there is one other fun habit of the Ego to mention: It talks. And talks. And talks. Technically it is your brain that is doing the talking but if you are not being mindful you will identify with all the things your brain is saying, thereby being Ego. For simplicity sake, you may think of the Ego talking as equivalent to the brain thinking and I will use those two terminologies interchangeably.

Have you ever been trying to go to sleep at night and thoughts are playing around and around in your head that you can’t stop? You wish your mind would settle down for the night and let you get some sleep but it won’t shut up? (One of my favorite commercials is for a sleep aid depicting a woman tossing and turning ruminating on random thoughts like “Maybe the hokey pokey is what it’s all about...”). Your mind does this all day as well, it’s just you usually don’t notice it because you are active and busy and you think that what your mind is talking about has some relevance to what you are doing at the time. Often it’s not relevant at all but rather useless and repetitive banter. The dysfunctional nature of this incessant thinking only become apparent when you want to stop thinking but realize you don’t know how.

As an aside I’d like to take this opportunity to highlight some interesting related neuroanatomy: Some like to call this constant intracranial chatter our Monkey Brain. This term is fitting as it not only gives us a nice visual of a monkey noisily chattering away but it also relates to the higher neo-

**Key concepts**

1. Our “monkey brain”
2. Thinking: That’s what brains do
3. Don’t take your thoughts too seriously
4. Quieting the chatter
mammalian brain of primates which, specifically in humans, has advanced language centers. This higher level cortex contrasts with our lower level, reptilian-like brainstem (or Lizard Brain) which is evolutionarily more primitive and controls basal functions of breathing and heart-rate. In between these two evolutionary extremes we have intermediate-level, paleomammalian subcortical structures including the limbic system (Squirrel Brain) mediating survival responses and their associated emotions (approach behavior toward survival opportunities, fear and aggression toward threats to survival).

Back to the chatter. Just like we shouldn’t think of the Egos as bad for doing things like being attached to stuff and wanting more stuff, we should not blame our brains for thinking. After all, that’s what brains are supposed to do. Eckhart Tolle uses the analogy (I’m paraphrasing): just like the stomach digests food, the brain thinks. But just like the digestion of food, much of our thinking is done in an automatic, unconscious fashion, beyond our control.

What’s more is that a lot of what our brains say isn’t true at all. A lot of what is said is actually quite distorted, unduly negative and occasionally downright self-destructive. “You are really not as smart as people think you are. When others find this out, your reputation will be blown. You are an imposter. You are just impersonating a competent person. I don’t know how you have fooled everyone for so long. It’s just a matter of time before everyone realizes it.” I’m not sure why brains can be so nasty sometimes but I guess if your brain is talking non-stop, randomly generating thoughts, a proportion of them statistically will be negative. The key is not to take your thoughts too seriously. Just because you think it, doesn’t mean it’s real. Thank your brain for its opinion and then move on.

Most of the time, however, our brain just chats away benignly commenting on what it sees, ruminating about the past, playing mental movies of imagined futures and participating in useless even if emotionally neutral conversations in our own head.

What do we do if we would like the chatter to stop? How do we take control? How do we get our kid out of the driver’s seat?

The stopping of the chatter (momentarily at least) is actually quite easy and we will teach you some techniques to do this in Chapter 3 section 2. You will no doubt find them instantaneously rewarding. It’s keeping the chatter stopped that takes a lot of practice -- a mindfulness practice.

In fact, the term “mindfulness” in this case seems paradoxical. It might be more appropriately called “mind-emptiness” or “mindlessness”. But a name is just a label and we shouldn’t dwell on labels but rather look to where the label points.
Emotional pain

Key Concepts

1. Emotions are the body’s response to our thoughts
2. Negative thoughts trigger emotional pain
3. Emotional pain can trigger more negative thoughts -- a vicious cycle
4. Don’t get “lost” in this cycle -- observe it and sever it

One of the courses we have in our undergraduate curriculum is on complementary and alternative medicine. One session in that course discusses the mind-body connection. It must be understood that the mind and the body are intricately connected. Like the gears in a clock you cannot have movement in one without seeing movement in the other. Such is the case when thoughts generated in the mind trigger a response in our bodies.

Mind chatter of a benign neutral nature is commonplace and not emotionally distressing (unless you are trying to relax and get to sleep). But as previously mentioned, sometimes the mind thinks a thought that is not so benign -- one that has some force to it, some energy. It is this type of thought that triggers a response in the body. This response is an emotion.

We have all experienced these bodily sensations: butterflies in our stomach when we are excited, the ache in our chest of a broken heart. Emotions aren’t just experienced in our heads, they are felt in our bodies. In fact there are many instances when individuals are not in touch with their emotions in which the emotion is only felt in the body. These individuals end up seeing their doctor trying to explain the tension in their muscles, their abdominal pain, their headaches etc.

The emotions elicited by positive thoughts are pleasant. We don’t mind those at all. But what about negative thoughts? They elicit painful emotions like fear, anger and resentment that are distinctly unpleasant. Negative thoughts about the future (things that might happen) trigger fear, anxi-
ety and worry. Negative thoughts about the past (things that happened that we feel shouldn’t have, or that should have happened that didn’t) trigger anger, resentment and hostility. Notice how it is thoughts of the future and past that produce emotional pain much more than what is happening at this very moment. We worry about a future that often doesn’t come and we resent a past we cannot change. The futility of it is unfortunate.

Common sources of emotional pain in medicine include worry about the future (about passing an exam, about giving an oral presentation, about knowing the right answer on rounds, about not making a clinical mistake that might harm a patient, about an upcoming interpersonal interaction) and anger or regret of something that has happened (a failed exam, a poor performance, a clinical mistake, an interpersonal conflict).

How can we manage these unpleasant emotions when they arise?

One of my favorite lessons in mindfulness as it pertains to negative emotions is based on Eckhart Tolle’s observations of ducks in a pond. It goes something like this: After a confrontation with another duck (maybe one accidentally drifted into the other’s territory), and once the scuffle is over Tolle noticed that a duck tends to vigorously flap its wings for a few seconds. His interpretation is that in doing so the duck is releasing all the residual pent up emotional energy in its body enabling it to return to floating along peacefully. Once released, that negative emotion in the duck, that energy, is gone. Done. Dealt with.

I had the opportunity to hear Eckhart Tolle teach in person. I was allowed to ask him one question, the answer to which I was convinced held the key to what would be instantaneous everlasting enlightenment — the solution to overcoming emotional pain once and for all.

I will paraphrase: “When painful emotions arise like worry or anger, I often remain helpless and at their mercy, often for hours, usually in the middle of the night when my true self would rather be sleeping. Recalling your observations about when ducks fight, how can I do what they do? How can I, metaphorically speaking, ‘flap my wings’?”

I was excited if not a little impatient to hear the answer. After a long, mindful pause Eckhart asked for more information. “What is it that usually triggers the painful emotions in you?”

“It could be anything really. Something that happened that day. At work. Something someone said. Or something I am concerned might happen. I’ll go over and over it in my head and I can’t seem to let it go.”

“In essence what triggers it is certain thoughts in your head.”

“Yes,” I replied. I get that part, now tell me how to flap my wings, I thought impatiently.
Eckhart said patiently and kindly, “Well, you can’t do what the duck does. Because you think and the duck doesn’t.”

Crushing disappointment.

At least until I could wrap my head around the rest of what he said as he proceeded to explain which was essentially this: In humans, emotional pain is usually triggered by a negative thought (rarely is it the events or circumstances themselves but our thoughts about those events or circumstances that cause us pain). Once the pain is triggered it starts a feedback loop wherein the pain triggers more negative thoughts which in turn triggers more pain. This vicious cycle goes on for hours or longer until the system, like the cyclonic action of a hurricane, eventually loses energy and dies out.

Duck emotions are caused by real events, not thoughts (e.g. duck threatens another duck’s territory). Because they don’t think per se, there is no cycle. (We could argue about whether or not animals “think” – I think they do but because they lack our huge prefrontal cortex they are unlikely to worry or play mental movies about possible futures over and over in their heads, nor are they likely to ruminate about past events replaying old mental movies over and over.) Once the emotion in the duck is liberated with the flapping of the wings, it’s over for them. Lucky them.

Humans have it harder. We have to put a lot of conscious awareness, observing our emotions, being with our pain and observing our negative thoughts to sever that cycle. It’s that intense presence that siphons the system’s energy off faster so the vicious cycle runs out of steam sooner. Notice I said sooner, not instantaneously as I had hoped he would say.

If you try to run from the pain instead of facing it, if you repress it, it stays inside you unresolved and is bound to resurface at inopportune times or in physical ways as bodily symptoms. If you try to face your pain but cannot manage to sustain that presence or maintain that awareness before you know it you are unconscious -- lost -- swept up in a negative mass of ruminating thoughts and anger running amok.

There is no quick fix for dealing with intense emotions. It takes sustained presence over extended periods until the thought-emotion-thought cycle winds down. Techniques to practice longer periods of presence (more than a few moments) which are helpful during times of intense emotion are discussed in Chapter 3 section 3. You are encouraged also to practice them at times when things are going well. That way you are skilled when the time comes you need to be.
The emotion of fear:

A. Is usually a biological response to an actual threat

B. Is the body’s response to a perceived threat/threatening thought

C. Reflexively triggers positive thoughts

D. Is prolonged by observing the emotion and feeling it fully
Key Concepts

1. The goal of mindfulness is not to “try to rid” oneself of the Ego, the voice in the head or of emotional pain
2. These lessen on their own as a natural consequence of mindfulness
3. Detachment
4. Just observe

As much as it seems counterintuitive, the goal of mindfulness is not to rid oneself of the Ego, the voice in the head or emotional pain. These are fundamental aspects of being human and arguably they can be the greatest teachers of our Earthly curriculum. The goal is to be aware of them. By recognizing and observing these aspects of yourself you are coming to understand yourself and you are bringing a higher level of consciousness into your life and your relationships.

The bonus is that through observing alone, the Ego, the voice in the head and emotional pain diminish as a natural consequence of being present and being aware.

Through awareness, while you can often still hear your brain think its thoughts and still feel the emotions in your body, you also become aware that those things are not you. The creates a “space” around those thoughts and feeling, a space that distances your true self from them slightly. This is called detachment. Detachment sounds like a cold word, but try not to get caught up in the label. What it means in this case is that while you are still thinking and feeling, i.e.: your Ego is still operating, you are not taking it quite so seriously. This little bit of space between you and your Ego can provide tremendous relief when your thoughts are energetically charged and your emotions are intense. In that little bit of space is the undercurrent of inner peace we seek.

Be the watcher. Be the space for thoughts and emotions to arise and unfold.
This being human is a guest house.  
Every morning a new arrival.

A joy, a depression, a meanness,  
some momentary awareness comes  
as an unexpected visitor.

Welcome and entertain them all!  
Even if they are a crowd of sorrows,  
who violently sweep your house  
empty of its furniture,  
still, treat each guest honorably.  
He may be clearing you out  
for some new delight.

The dark thought, the shame, the malice.  
meet them at the door laughing and invite them in.

Be grateful for whatever comes.  
because each has been sent  
as a guide from beyond.

- Jelaluddin Rumi, translation by Coleman Barks
CHAPTER 3

Practicing mindfulness

Doing this stuff helps even more.
Section 1

Mindful communication

“Speak your truth quietly and clearly; and listen to all even the dull and the ignorant; they too have their story.”

- Max Ehrmann, Desiderata

MOVIE 3.1 The Magic of Mindful Listening

http://youtu.be/JbLbHaBzNUY

There is a reason why this is the first section in the chapter on mindful practice. Communicating with others (your friends and family, your colleagues and your patients) is one of the most challenging and rewarding aspects of a mindfulness practice, and may be arguably the most important. It is also one of the first skills taught in medical school. Known as

Key concepts

1. Mindful listening
2. Mindful speaking
3. Their emotions
4. Your emotions
5. Respond, don’t just react
“interview skills” it highlights the development of an empathic therapeutic relationship with the patient.

Mindful communication embodies the chief tenants of mindfulness itself. Remember our definition of mindfulness? Paying attention in the present moment on purpose with particular qualities such as curiosity, compassion and acceptance. Mindful communication therefore implies listening and speaking with those same qualities.

As a physician we often forget how healing the act of listening alone can be. Instead we are preoccupied with “fixing things”. Instead of listening to our patients with our whole self, while they are speaking part of our mind is processing what symptoms they are describing, cross-referencing it with our medical knowledge to try to diagnose the issue, thinking ahead to what question we will ask next or what advice we will give. Of course, that is our job and we need to do that part of the time, but we need to remember that the other part of the time we should just be with our patients, listening to them, understanding them, letting their symptoms be as they are right now for at least a few moments so we can understand what their experience is, before we swoop in trying to change things.

Because in reality, we often can’t fix things entirely. There are a lot of issues that are incurable, only partially treatable, or at least just need time and patience until the body heals itself – like patients dealing with chronic pain, chronic fatigue, muddling through with nagging symptoms of a cold or flu, suffering through attacks of renal colic waiting for a kidney stone to pass, or labour pains until the baby is born, waiting for a bone to mend itself while in a cast etc. In the meantime, patients can derive a healing effect from having shared their experience with someone who understands, empathizes and treats them with compassion.

Deep Thought: When you are communicating with a patient in medical school, residency or in practice, bringing mindful awareness to your listening gives a whole new meaning to being the patient’s attending physician.

In order to listen mindfully, first you need to root yourself in the present moment. Clear your head. What I mean by this is not only clear your head of any random mental chatter, but forget about things that just happened, or things you need to do very soon, and be fully present. Also, if you know this person from before (maybe they are your spouse, or your mother-in-law or your patient), we usually have a preconceived mental image of this person with various associated labels and assumptions (e.g.: this person is lazy, judgmental, needy etc). Clear your head of all of these labels and assumptions so you can communicate with this person as they are now in this moment. After all, your opinions are just thoughts. They are very similar to the labels and assumptions you make about your own self that we referred to as the “false self”. In this case, they are the “false other”. They are proba-
bly not a very accurate reflection of the reality of this person and at most they are only a very limited perception of this person.

The more challenging the person is that you are communicating with, the more present you need to be!

As you listen, observe if you are judging what is being said. Also observe if you have a habit of thinking ahead, formulating a response before the speaker has finished speaking.

Try to understand what the speaker is feeling, beyond what words have been said. Observe the speaker’s body language. Are they turned toward you or away? Is their posture open and accepting or closed and defensive? Are their facial expressions showing happiness/sadness/fear/anger/surprise/contempt/disgust? Wonder what it would feel like to feel what they are feeling? This is empathy.

Recognize though that empathy should not be confused with agreement or approval. You can empathize with how someone is feeling, but not agree with their opinions or approve of their behavior.

Notice any automatic thoughts that may arise in your head as the person speaks. Often these are judgments, opinions and beliefs. Let them pass and continue listening.

Observe your own body’s responses and emotions as you are communicating with this person. Are you feeling even the slightest bit of anger or irritation? Impatience? Shame? Defensiveness? Jealousy? Do you feel a slight sense of superiority or inferiority when you are with this person? It’s ok if you do. Don’t judge your own emotions or make an enemy out of your own ego. Just let them be and wonder why you might be feeling this way. Be at least as curious about your own self during the interaction as you are about the other person.

When it’s your turn to speak, pause before you do so. Make sure you have digested what was just said to you. You may test your understanding of what was said by checking with the person. “It sounds like you feel ______”, “I imagine that must have been horrible/agonizing/exciting/a proud moment for you”. Choose your words compassionately. Speak the truth. Say what you mean and mean what you say. In this manner, you are responding, rather than merely reacting reflexively to what has been said.

Many attempts at communication get hijacked by the Ego. Suddenly an easy discourse accelerates as the two players react to each other reflexively without awareness of what they or the other truly feels. Reflex reactions are instantaneous and automatic and often arise out of anger, impatience and defensiveness. When you are able to maintain awareness of your own emotions and are sensitive to the feelings of the other, and you pause a moment to reflect after each statement before speaking again, you are much more likely make measured considerate responses that contribute to a meaningful and positive interaction.
“We can make our minds so like still water that beings gather about us that they may see, it may be, their own images, and so live for a moment with a clearer, perhaps even with a fiercer life because of our quiet.”

- W.B. Yeats
Section 2

Instantaneous mindfulness: mindful moments throughout your day

**Key Concepts**

1. Feel your hands
2. One conscious breath
3. My next thought
4. Mindful doing
5. Smile
6. A moment of gratitude
7. Only the present moment exists

“Go placidly amid the noise and haste, and remember what peace there may be in silence.”

- Max Ehrmann, Desiderata

Much of our day we spend ‘inside our own heads’ rather than interacting with the real world in the present moment. We become lost in our own thoughts and worries about the past and the future and move through our daily routines on autopilot. This is not necessarily a bad thing all the time. The ‘thinking’ we do inside our heads helps us prepare for upcoming tasks, sort out different solutions to problems we are fac-

**Movie 3.2 “Normal” Doing by Eckhart Tolle**

(02:12) [http://youtu.be/zIzbVUyujwc](http://youtu.be/zIzbVUyujwc)
ing, and help us mentally organize our day. In fact, if we were
to pay close and particular attention to every activity we do
during our days and not use that autopilot now and then, it
would probably be exhausting. However, when we engage in
autopilot action all the time without dropping into the present
moment, at the very least we lose out on some of the more
pleasurable little moments that are a part of each day and that
are readily available to us in the present moment, and at worst
end up causing harm due to inattention and lack of awareness
of our surroundings, ourselves or others.

One part of the practice of mindfulness is to insert brief
moments of presence throughout your day. Some call this ‘in-
formal practice’ and it is in my opinion the most interesting
and immediately gratifying part of mindfulness practice. It is
also the easiest and least time consuming part of the practice.
Knowing that we can fall into mindfulness in a single instant
-- when we are having a conversation, when we find ourselves
hurrying, stressed, irritable or impatient, even when we are at
a traffic light -- is empowering!

These moments of mindfulness are particularly helpful
to interrupt the constant background chatter of the mind and
to relieve early symptoms of unproductive stress. The hardest
part of inserting these moments of mindfulness through your
day is to recognize when you are not being present. In other
words, first you have to be aware of the absence of awareness.

The typical daily situation for me when this happens is
when I’m in clinic. The amount of time as physicians that we
have to see our patients often seems to run short compared to
what is comfortable. Consequently we tend to often be run-
ning at a slightly uncomfortable fast pace which generates a
distracting running internal dialogue: Am I forgetting/
missing something? Was I able to get all the necessary history
from the patient? Am I going to be late for the next patient?
When I become aware of the mild sense of tension this evokes
in me, the easiest way for me to snap out of it is to direct my
attention to my hands.

Try this out right now. Draw your attention into your
hands. How does the inside of your hands feel? Do they feel
thick? Heavy? Do you feel a subtle tingling or inner vibra-
tion? No you are not suffering from a neurological disorder.
That is what normal hands feel like all the time, we just are
never paying enough attention to notice. Rest your attention
in your hands for 3-5 seconds.

Now come back out of your hands. Can you see that
while your attention was on your hands, your mind chatter
briefly subsided? Perhaps you feel a little bit less pressured
and a little more detached from what had been previously
making you tense.

Alternatively instead of attending to your hands, you
might choose instead to attend to one single breath. Focus
your attention on the air you are breathing in. Breathing from
the abdomen, fill your lungs completely as your abdomen and
chest expand. Feel the momentary pause you take before ex-
pel the air out of your lungs. And feel the relatively longer
pause you take when your lungs are empty, before your next breath. One conscious breath like this, every now and then whenever you think to do it, can breathe extra awareness, peace, joy and positivity into your daily activities.

Just by returning to our breath, body and mind come together and we became available to the wonders of life that are there for us to enjoy in the present moment (ie; the blue ski, the birds, a loved one’s smile, and so forth).

You can insert these brief moments throughout your day and will find they are oases of relief that you will relish despite their brevity. The quickest way out of your own head is to get into your body.

Another typical scenario for me when I become aware of my lack of presence – specifically aware of the incessant chatter of my mind -- is when I’m lying trying to sleep. If I do the above 2 things and still am having a hard time quieting the chatter, I give into it. Instead of trying to stop it and becoming more frustratingly aware of my lack of sleep, I accept that my mind is chattering and instead focus my attention fully on what it is saying. Now, as an observer of the chatter, I ask myself, “I wonder what my next thought will be?” Ironically, usually that next thought is a long time coming. It’s like my mind, knowing its being watched, gets a bit of stage fright – again a welcome moment of relief from my monkey brain chatter! And if it starts up again, I continue to listen to it, be aware of it, not get lost in it, and then it’s almost like the monkey gets weirded out that its being watched and after a minute or so it stops on its own.

A third common time in my day that I become aware of my lack of presence, is when I’m walking over from the hospital to the medical school through the catwalk hallway. I’m not sure why this catwalk always is a trigger for me that points out when I’m lost in my own thoughts but I’m thankful of it. Usually I’m walking, thinking about the clinic patients I’ve just left, or mentally preparing for the meeting I am about to attend, when I realize I’m “sleepwalking”. As soon as this becomes apparent to me, I focus on my walking. I let go of the past, forget about the future, and just observe the movement of my legs as I place one in front of the other for the few minutes I take to span the distance between the hospital and medi-
cal school. This is called “mindful doing”. When you inhabit your body during an activity and experience the activity fully, you are doing mindfully. You can practice mindful doing at multiple times during your day: while brushing your teeth, washing your hands, taking a shower, drinking your morning coffee etc. It might only take less than a minute. In fact, it doesn’t have to take any extra time – just that during which you are in the activity, being fully present and attentive to your actions and sensations of your body.

If you catch yourself lost in a thought, perhaps in a repetitive and negative thought pattern, another way to break that pattern instantaneously is to smile! Even if your emotions say otherwise, lightly pull the corners of your mouth up in a peaceful Mona Lisa like expression. It is a scientifically observed phenomenon that not only do emotions trigger facial expression but facial expressions can actually trigger the expression-specific emotion (the so-called “Facial Feedback Hypothesis” perhaps best illustrated in a study by Strack, Martin and Stepper titled “Inhibiting and facilitating conditions of the human smile: A non-obtrusive test of the facial feedback hypothesis. Journal of Personality and Social Psychology” 1988;54(5):768–777 (1988)). A smile, through reflex brainstem pathways, can actually make you feel happy by being incongruous with negative thoughts and emotions.

While you are smiling, think of something in your life that you are thankful for. Rest in gratitude for a moment.

Be grateful for the present moment: whether good, bad, or ugly it is the culmination of all your prior thoughts of the future. Remind yourself that only the present moment exists. Through a grateful appreciation of whatever is happening in the present moment, whatever action is required of you in the next moments can come from a place of true awareness, clarity and compassion towards yourself and others.
What is meditation? Meditation essentially means training the mind to do what you want. Most people erroneously equate meditation with being deep in thought when in fact the purpose of meditation is to clear your mind so you have relatively few thoughts at all while resting in full, alert awareness – voluntary purposeful awareness.

Meditation, in contrast to the brief moments of awareness discussed in the last section, takes some time and dedication. We therefore sometimes refer to it as “formal practice”. I look upon this like daily exercise that you do for 10, 15, 20 or more minutes each day to hone your mindfulness skills. You might also liken it to tuning the instrument of your mind before going out with it into the world.

The first thing you want to do when undertaking a formal meditation practice is to decide on the duration and frequency of your meditation sessions. I suggest 10 minutes each day to start. You can increase the duration as you become adept at it. If you can only do 2 minutes a day, that’s fine too. Anything is better than nothing.

Next you should decide what time of the day you will do it. First thing in the morning after waking up? Before bed each night? On your lunch hour? I don’t think there is a “best” time of day per se. It just has to be a time that you can be without interruption. I.e.: no interruptions from others, from cell phones, emails, computers etc. Some advocate that a regular meditation practice first thing in the morning has
the advantage of you using that time to become very alert, as opposed to before bed when you might be more apt to fall asleep while meditating. I think either is fine. Whatever feels right for you.

Next you need to describe what position you want to meditate in. The most common is sitting (on a chair or on the floor), but meditation can be done lying down as well (floor or bed) again provided you can keep from drifting off to sleep while doing it.

If you prefer sitting in a chair, consider choosing one that you can sit forward on the seat somewhat in such a way that your back is away from the chairback. It’s important not to slouch. Keeping your back straight allow each vertebra rest its weight on the one below in a balanced upright position. The posture for a sitting meditation is often best described as a “dignified” posture. Allow the soles of both feet to rest flat on the floor, in a balanced and symmetrical fashion. You may want to rest your hands on your lap, either palms up or down.

If you choose to sit on the floor you may do so either kneeling on a soft wide pillow for comfort, or sitting in the cross-legged positions with a thick hard pillow to raise you up a bit.

During meditation your eyes can be open, directed forward but unfocused, with lids slightly lowered, or eyes closed altogether.

Body scan

The first type of meditation technique I will describe is one of my favorites and is best done lying down in a comfortable place. It is called the “body scan”.

Lie down on a mat or in bed. Loosen any tight or restrictive clothing. Let your body sink down and feel the contact points it makes with the floor/bed. Release all thoughts of the past or the future and just be present this moment.
Turn your attention to your breath. Take a few mindful breaths in and out. Then move your attention systematically to the different parts of your body, letting it rest on each part for at least 3-5 seconds. Move your attention first to your left hand. Feel the inside of that hand. Then any skin sensations you may have over it. Is it hot? Cold? Big? Little? Are there any aches or pains? When you breathe, try to send your breath into your hand, oxygenating it. After you have explored what it feels like in your left hand, move your focus up to your forearm and repeat the same process. Next move to your elbow, upper arm and shoulder. Once you have fully explored your left arm, jump your attention over to your right hand and repeat the process for the right arm. Once completed, move your attention up the back of your neck, over your scalp, into your face. Do feel any muscular tension here? Is your jaw clenched? If so, release it. Move down the front of your neck, down into your chest. Breathe deeply. See if you can feel your own heartbeat. Realize it beats away every day, all day long whether you notice it or not. Send some gratitude to your heart for all its hard work! Draw your attention into your abdomen. What do you feel? Fullness? Emptiness? An emotion? (Remember your gut has it’s own neural circuitry hence our “gut feelings”). Then move down your left leg progressing to the toes. Repeat the process starting with your right hip and all the way through your right leg down to your toes. When you notice your mind drifting away from the focus on your body, each time gently bring your attention back. After you are done, bring your attention back out of your body.

How do you feel?

A whole body scan could take 5 minutes, 10 minutes or 30 minutes depending on how fast or slow and how detailed you want to go.

Observe your breath

While sitting or lying, eyes open or closed, bring your awareness to your breathing. Don’t try to control it. Your brainstem does that just fine without your direction. Just observe it. Be curious about it. Can you feel the air enter your nostrils? What temperature is it? Can you feel its cooler entering than the air leaving your nostrils? Can you feel the air in your throat? In your lungs? Are you breathing deeply or shallowly? Does your belly rise and fall? Let go of any thoughts or judgments about your breathing. Just notice it and accept it. After awhile, gently bring your attention back out of your breath.

How do you feel?

Observe your thoughts

Sometimes it’s difficult to quiet your mind. If you find this, don't make that into a problem. Instead, accept that your mind is active and just listen to what it’s saying! It is in the nature of the mind to have thoughts and anyone would be hard
pressed to stop all thinking. It is however in our control whether we get caught up in the ‘story’ of our thinking or whether we can be an aware observer. By being the observer, it creates a distance between you and your thoughts that keeps you from getting wrapped up in your own mind’s drama. We can often mistake our thoughts and thinking for reality. When we instead approach our thoughts and emotions, especially afflictive ones, as an observer, we don’t become paralyzed by them and can act if needed in the future from a place of awareness and compassion.

Observe your feelings

Likewise sometimes you may experience difficult emotions (fear, anger, regret, jealousy etc). Rather than try to suppress or repress these emotions, which generally just makes them get experienced in other ways like physical illness or as a painful trigger), and rather than merely reacting reflexively to these emotions (for example by yelling or slamming a door), observe the emotion without judgment. Be aware of the emotion and experience it fully. Thich Nhat Hanh teaches the practice of embracing your anger with tenderness like you would if it were a small child crying or in pain. When you feel anger he suggests reciting the following to yourself during a breath-awareness meditation: “Breathing in, I know I am angry. Breathing out, I am taking good care of my anger”. Repeat this over and over while you feel anger in you and observe what happens.

Observe sounds

While in a sitting or lying meditation, listen to the sounds around you without judgment. The fan of the air conditioner. Birds outside the window. The sound of traffic nearby. Let them be. Also realize that behind the noise is a background space of silence that allows the noise to exist within it. Now focus your attention on that background silence.

Observe an object

You might choose to meditate on a specific object: a candle, a flower, a body of water, a piece of furniture even! Your eyes obviously will be open for this meditation. Concentrate on the object. Imagine what its density would be. It’s temperature. It’s texture. And here is a very important part: while you are doing this, do not name the object in your head. When you label something you immediately are focusing on the mental construct of the object in your head, rather than the object itself.

How does the object now appear to you? Do you sense an “aliveness” about the object that wasn’t there before? Does it seem brighter/more colourful? More real?
Walking meditation

Pretend that you are an alien species a la body snatchers type that was capable of inhabiting a human body. How would it feel for this alien to walk on our human 2 legs for the first time?

Stand with your hands at your sides. Lift your left heel slowly. Feel the movement of all the dozens of joints in your foot. Step forward and place the sole of your left foot on the ground. Do this very slowly. Feel the ground under your sole. Feel how your balance shifts from one foot to 2 feet as you set that foot down. Walk around like this for a while, becoming familiar with every sensation that walking evokes.

You might attempt one or more of these meditations and find your mind suddenly interrupting, saying something with an air of impatience like, “Ok so I’m breathing, I’m walking. What’s the point?”

Remember it is the mind’s job to question and criticize, to weigh and pass judgement. But also remember that to the mind the present moment is meaningless. To the mind the present moment is only a barrier to get through to get to some better moment in the future. To the mind everything you do is only a means to an end. The mind is incapable of understanding mindfulness as it involves being in the present moment for the present moment’s sake. When you are meditating, you are going beyond the mind. So when you notice your mind rolling it’s mental eyeballs at your mindfulness practice, smile to yourself. You understand the real meaning behind your practice.

MOVIE 3.3 Mindfulness with Jon Kabat-Zinn

http://youtu.be/3nwwKbM_vJc
Expanding your practice

Once you have embarked upon a mindfulness practice inserting moments of mindfulness throughout your daily activities and meditating, even if briefly, on a regular basis and you have become comfortable with your routine, you may feel the need to expand the breadth and depth of your practice.

One easy portal to a more meaningful mindfulness practice is your front door. Open it up and step outside. Mindfulness doesn’t have to be just about being present with and connecting with yourself and other humans, it can be about connecting with nature: the plants, animals, rocks and sky. Go for a hike or sit for a couple of hours in your yard on a comfortable chair just being. Spend the day at the beach. Look at the sky. Breathe in the air. How is it different than the air inside? Experience the sights, sounds and smells. Be with an object in nature – a tree or a flower – without naming or labeling it. Yes you are being curious, but this is not about scientific investigation. It is about experiencing nature.

Another easy way to enhance your practice is to, every so often (every few months or so if you can swing it) book an entire day that you can dedicate to yourself as a full day of mindfulness. Pick a day in which you do not have any other social or work related responsibilities – one in which you can spend alone or at least if others are around, you are in relative anonymity so you aren’t pressured to chit chat or get pulled away from your practice. Plan to do just whatever you feel like in the moment. I have done this when I have been out of town at conferences. Alone in my hotel room, I wake up, take a long luxurious bath and get dressed, moving and doing mindfully.
I attend a few conference sessions that I find inspiring but try to stay anonymous in the crowd so I am listening and experiencing rather than speaking. I watch the people around me and I watch my own responses to the people around me. I move back and forth between thinking and not thinking, doing and being. Back in my hotel room I order room service (yum! This is about nurturing yourself after all) and eat each bite mindfully. Then I pick an activity – reading an inspirational book, journaling, or working on a project of personal value (that is actually how most of this book got written!). I end the day with a formal meditation. Usually I try to keep the “day of mindfulness” going even on the train or plane back home. It is amazing how one day like this can recharge your batteries and remind you to savor the beauty in every day life.

Those of you who enjoy experiencing the movement of your body may look to enroll in a yoga class. Yoga is mindfulness in motion. It focuses on many of the meditation principles we have already discussed: focusing on the breath and the body, being in the present moment and stilling the mind. Yoga classes are usually an hour to an hour and a half long but it is so popular lately so long as you live in the city you can literally attend yoga classes any and every day of the week if you wish.

Just like yoga classes have flourished in number over that past decades, such is happening with mindfulness retreats. There are increasing opportunities to spend a day or more in mindfulness retreats or workshops (including time for silent meditation, invited speakers on mindfulness, and varying degrees of interactivity and experiential activities.) Look around in your area for what opportunities might be available to you.

Last, the Mindfulness Based Stress Reduction (MBSR) Program that was created by Jon Kabat-Zinn has become widespread and adopted by many mindfulness practitioners who now are teaching it to others. The 8-week program or an adaptation of it may be available to you. In Ottawa, the cost of such a program often runs around $500 depending on where it is given. Currently an online version of the MSBR program is being created by one of the University of Ottawa’s own medical students in association with his staff supervisor specifically for medical students and residents and hopefully will be available to you by the time you are reading this book!
When is mindfulness best used?

- A. At times of great stress
- B. At times of low stress
- C. Immediately following a crisis
- D. As part of a regular practice

Correct answer: D. As part of a regular practice
Benefits of mindfulness

Like a drug, it can only work if you use it.
Reducing stress

What is worry and why do we do it? Worry is a repetitive negative and fearful thought process. From an evolutionary standpoint we biologically have been programmed to seek out and respond to threats in our environment. This makes sense. Our ancestors didn’t want to be eaten by a lion or bitten by a poisonous snake so they were on high alert for signs of such threats around them and spent a lot of mental planning time figuring out the best ways to avoid those threats. But what might be surprising is that our neural programming is such that we are tuned in to possible threats (negative stimuli) at an intensity many times higher than what we use to seek out opportunities or pleasurable experiences (positive stimuli). In a manner of speaking, we are neurologically programmed to worry. The problem has arisen in our generation however is that we have become Olympic champions at worrying in a world of relatively few real physical threats whatsoever. Even our ancestors likely “turned down” their level of arousal when they were in areas of relative safety (like in the cave by the campfire) so that the heightened arousal system was only used episodically. For us, however, our default arousal tone tends to be pathologically high nearly continuously.

Why do some people seem to worry more than others? Well some individuals are naturally “better worriers” than others genetically. Others have honed their worrying skills learning through personal history, cultural and political circumstances. But generally, we are all pretty awesome at it.
Furthermore, sometimes we can delude ourselves into thinking that we have to worry in order to be successful. I recall vividly the distress I would feel before my medical school exams. But I also remember it becoming a bit of a habit or ritual based on prior exam successes. My ritual was: Exam coming up I would get anxious/severely distressed I would study super hard I would do well on the exam. It worked before so I better not mess with success. I think I believed if I didn’t worry, I wouldn’t do well. Clearly this was somewhat magical thinking and looking back I am appalled at the degree of suffering I caused myself.

There is probably no time that is more psychologically stressful in a medical student’s life, more anxiety-provoking and more greatly pulls you away from the present moment in medical school than exam time. “What if I don’t pass?” (Future thoughts.) “I wish I would have studied harder and read that article.” (Past regrets.) Even while you are writing the exam itself often you are barely reading the question at hand because you are already worrying what the next question will be. Imagine how much more efficient and how much better you would perform if your attention rested completely in the present moment?

Imagine you have just been handed your blank Neurology exam. Your breath is rapid and shallow. Your skin is flushed and a bit sweaty. You start to flip through the pages quickly with tremulous hands. A fearful thought arises: “I might fail this.” What in that moment is going on in your body? What is going on in your autonomic nervous system?

Remember that emotions are the body’s response to a thought. If you have encountered a large grizzly bear in your path during your walk in the woods, the resultant thought, “I could get mauled to death” is instantaneous, quite rational and results in a motivationally intense and very appropriate bodily response: the emotion of fear and all its associated autonomic responses to activate fight or flight. But the body can’t tell the difference between a threatening thought due to a real physical threat to life and limb (such as the bear) and that from a psychological threat (such as the possibility of failing an exam). It activates the same cascade of emotions and autonomic responses just the same. Ie: it doesn’t matter whether the danger is real or imagined.

So if the thought arises, “I might fail this exam,” which your ego would find very threatening, electrical signals are immediately sent to the threat center of your brain: the amygdala. The amygdala is essentially an air-raid siren that, once activated, has intense far-reaching connections to virtually every muscle and organ system to immediately prime your body for fight or flight. It does this via the sympathetic nervous system (SNS -- they call it sympathetic because it acts in sympathy with your primal emotions – fear and anger mainly) and uses the neurotransmitter norepinephrine. The amygdala also sends impulse to the hypothalamus, which connects through the pituitary to the adrenal glands, pumping out the stress hormone, cortisol, into our blood stream. Through the effects of norepinephrine and cortisol, our hearts pump faster and harder, our bronchioles in our lungs dilate to
allow more oxygen into our body, our pupils dilate to take in more light, blood is pumped into the big muscles of our legs, trunk and arms and away from our skin and digestive tract. Stress acutely can lead to headaches, muscle tension, tremulousness, insomnia, dry mouth, chest pain, hyperventilation and panic attacks. When stress becomes chronic there can be even broader and sometimes long term effects on the mind and body. In particular chronic stress is associated with higher risk of anxiety disorders and depression. It can cause either unexplained weight loss or weight gain. It leads to elevated high blood pressure, elevated heart rate, damage to blood vessels and elevated cholesterol -- all contributing to the risk of cardiovascular disease. Stress affects the gastrointestinal system as well leading to indigestion, reflux and gastritis. Patients experiencing chronically high levels of stress have a higher risk of sexual dysfunction and infertility. High cortisol levels seen in chronic stress negatively affect the functioning of immune function leading to increased risk of infection and possibly (although unproven) even cancer secondary to poor immune cancer surveillance.

The first way mindfulness can lead to a reduction in one’s stress responses is by allowing us to identify stress when it is present. By bringing awareness to your own body and your own breath you can sense the signs of anxiety and stress: shallow breathing, tightness in the belly, tension in the neck/shoulders/facial muscles, the tremulousness etc. Then by asking ourselves what thoughts and what emotions we are having, we can put the big picture together of what’s stressing us out.

Then mindfulness provides tools for us to effectively manage stress in productive ways, such as relaxation (activating the parasympathetic nervous system (PNS) and deactivating the sympathetic nervous system) and promoting a higher perspective from which we perceive stressors differently.

By being able to activate the parasympathetic nervous system at will, we can reintroduce balance into a pathologically imbalanced autonomic nervous system. Unlike the “fight and flight” effects of the sympathetic system, the parasympathetic system helps us to “rest and digest”, relaxing us into a state of calm, tranquility and contentment.

Activating our parasympathetic nervous system can be done as simply as by taking a single voluntary deep breath. We often do this unconsciously as a sigh. When you catch yourself sighing, know that this is your body’s way of unconsciously soothing itself when it is experiencing mild stress.

Ways to activate your PNS:

- Inhale, filling your lungs completely, hold for a moment, and then exhale in a relaxed way (with or without the sound of a sigh). Repeat.
- Voluntarily relax your muscles (your eye muscles, your face muscles, your tongue, your neck and shoulders, your
belly). Feel yourself sinking into your chair/your bed/the floor – wherever you are.

- Yawn. You might notice dogs doing this spontaneously when they get stressed or too excited, usually panting interspersed by several yawns. They will yawn spontaneously, again as a self-soothing method and a natural way of bringing their system back in balance.

- Pull your attention away from your stressful situation and let it rest on something more neutral – like your bodily sensations, sounds or smells.

- Recall someone you love or feel tenderness for, or recall a happy memory, and let those thoughts linger for some time. Feelings of love, contentment, gratitude and compassion lower heart rate and blood pressure by activating parasympathetic pathways.

When you feel calmer, you might choose to revisit the source of your previous stress. What thought did you have that caused the fear and anxiety? Was the thought rational or irrational? For example, what really are the chances you might fail? Even if you did fail, what’s the worst that could happen as a result? Is the result really all that bad when viewed with a rational perspective? Was your fear out of proportion to the actual threat? In 10 years from now, will this matter? In 100 years? In 1000 years?

Does mindfulness actually work for stress in medical school? Dr. Craig Hassed, a family physician and senior lecturer of medicine at Monash University in Australia, created a mindfulness based wellness program. He calls it the ESSENCE program, an acronym standing for education, stress management, spirituality, exercise, nutrition, connectedness and environment.

A study of a 2006 cohort of medical students found that 90.5% of students personally applied strategies of the ESSENCE program which was associated with improved student
wellbeing (even in the pre-exam period), reduced anxiety, depression, hostility and improved psychological and physical quality of life. (Hassed C, de Lisle S, Sullivan G, Pier C. Adv Health Sci Educ Theory Pract. 2008 May 31. [Epub ahead of print]).

But don’t take anyone’s word for it; see for yourself. Try these techniques. What is your experience?
Training the brain

You may be wondering how focusing one’s attention on something as mundane as the breath can possibly train the brain to do anything except perhaps breath slightly better. But not unlike the “wax-on, wax-off” and “paint-the-fence” scenes from Karate Kid (I’m talking about the 80’s version -- the “hang up your coat” scene for those of you more familiar with the recent Karate Kid remake), by learning to do the simplest things mindfully you are unknowingly acquiring all sorts of other valuable skills and actually changing your brain’s structure and improving it’s abilities!

MOVIE 4.1 Best Movie Scene: Wax on, wax off.

Karate Kid 1984 (04:48) http://youtu.be/1K24jL-06H0

KEY CONCEPTS
1. Brain rhythm
2. Neuroplasticity
3. Improving focus and concentration
4. Enhancing performance
5. Nurturing creativity ("Beginner’s mind")
In terms of brain function it has been noted that experienced meditators, depending on the depth of their focus and relaxation and on the subject of their meditation, they can show definite changes in brain wave rhythm. Many are able to generate a gentle rhythmic alpha wave classic of a relaxed wakeful state, a rhythm that promotes free-association of ideas and creative thoughts. Deeper meditation can generate slower rhythms similar to drowsiness or sleep yet the meditator remains fully lucid and conscious. A unique rhythm of 40 Hz or "gamma" frequency has been noted in expert meditators (Buddhist monks who have spent tens of thousands of hours meditating in their life time) that synchronizes vast areas of brain landscape. In this rhythm the entire brain is working efficiently in a single-minded focus on the task at hand. This frequency has been implicated in the brains ability to make plastic changes in its own neural connections.

A well-known saying among neurologists is that “neurons that fire together wire together”. What this means is that when certain neural pathways are used frequently, those pathways become hardwired biologically through the development of new synapses, the strengthening of old synapses, the regulation of gene expression and even the growth of new neural connections. The ability of the brain to alter its own structure is called “neuroplasticity”.

Because of this learning function of the brain, if you habitually dwell on anxious and negative thoughts, those thoughts become easier and easier to have over time. Conversely if you cultivate calm and positive thoughts and attitudes, those pathways can become hardwired in place to make this your predominate state of mind. Conversely as meditators improve, the activity in their amygdala (that air raid siren part of your brain that seems to be chronically overactive triggering fight and flight responses) dampens.

In regular meditators, certain areas of the brain have been found to be physically thicker as measured by MRI (ie: larger numbers of neurons and neural connections). These brain locations include the insula (the part of the brain responsible for attending to internal bodily sensations along with generating empathy for others), the sensory cortex (that receives information about somatic bodily sensations), and the prefrontal cortex (used for executive mental functions and regulating attention). Additionally, regular meditation may have neuroprotective effects, reducing the cognitive decline associated with normal aging.

Great! So what does all this mean for you as a medical student?

The first benefit is intuitive: mindfulness is the practice of focused concentration. Pretty much anything you practice regularly, you improve at, and evidence suggests that mindfulness improves your mental focus and concentration. You might notice this translate into more efficient study time and better recall of learned material. Studies show that brief mindfulness training significantly improves visuospatial processing, working memory, and executive functioning. (Zeidan F, Johnson SK, Diamond BJ, David Z, Goolkasian P. Mindfulness meditation improves cognition: evidence of brief mental training. Conscious Cogn. 2010 Jun;19(2):597-605. Epub 2010 Apr 3.)

The second benefit is likely a byproduct of the above benefit. With enhanced focus, your ability to perform, even in demanding situations, improves. This would be very helpful when deadlines are looming, taking exams, giving oral presentations or managing patients on the ward. Studies conducted to evaluate mindfulness’ effects on student performance show that meditation improves students’ retention of information conveyed during a lecture as evaluated by a post-lecture quiz. (Jared T. Ramsburg, Robert J. Youmans. Meditation in the Higher-Education Classroom: Meditation Training Improves Student Knowledge Retention during Lectures. Mindfulness, 2013; DOI: 10.1007/s12671-013-0199-5). In medicine with the inherent volume and flow of information one must process, you probably are concerned with your ability to multitask ie.: do several things at once. Neurophysiological research suggests, however, that multitasking is actually not possible. It is a misnomer; The brain cannot due multiple things simultaneously well but rather does multiple things poorly and taking more time to do it. Instead, what medical students, residents and practitioners can learn to do well is efficiently shift focus from one task to another when needed -- a skill of voluntarily directing one’s attention in controlled and flexible way that mindfulness is well suited to foster.

Last, the spirit in which mindfulness is done – a non-judgmental state – fosters one’s ability to look at situations with unprejudiced eyes and allows us to consider novel possibilities as if we were looking at things for the first time (the so-called “beginner’s mind” in Buddhist tradition). In essence, our understanding is improved and our creativity is boosted. It is at this point that I like to remind people of one of the most ingenious minds of the last century: Albert Einstein. He was not only clearly intelligent from an IQ point of view but he had a unique ability to question the universe in almost a child-like way. For instance, when creating his theory of relativity he did so by asking himself what things would look like if he were traveling atop a beam of light. A true beginner’s mind which illuminated some of the most mind-boggling truths about our physical universe discovered to date! As a medical student and young physician you might be able to look at disease processes in unique ways that sheds new light on traditional thinking! Or you might come up with
a novel approach to treatment that offers significant advantage over older methods!

**MOVIE 4.2** Rick Hanson: The Self-Transforming Brain

[Image]

**MOVIE 4.3** TEDx Sara Lazar on Meditation and Neuroplasticity

[Image]
**MOVIE 4.4** TEDx Catherine Kerr on the Neuroscience of Breath and Body Awareness

(15:27) [http://youtu.be/AGnGRgyLwMs](http://youtu.be/AGnGRgyLwMs)

**MOVIE 4.5** Dan Siegel on Mindfulness and Neural Integration

(18:26) [http://youtu.be/LiyaSr5aeho](http://youtu.be/LiyaSr5aeho)
Increasing resilience

Dr. Elizabeth Kubler-Ross in the 1960’s worked with patients who were terminally ill. She noted that people who were faced with tragedy (imminent death in the cases she witnessed) predictably moved through a series of 5 emotional stages: Denial, anger, bargaining, depression and acceptance. But what we find when we observe ourselves and others is that it’s not only our own imminent death that can trigger these emotions. We go through them every time we experience a hardship or loss in which the pain is difficult to face. This could be the loss of loved one, a breakup or the loss of a job. I see students go through these stages of grief in my office after they have failed an exam, starting with “There must be some mistake.”

Going through these stages is natural and healthy. What is important is that we don’t become stuck in any of the first 4 stages for very long, which is unhealthy. We must ultimately reach a place of acceptance.

Do not confuse acceptance with resignation or helplessness. Just because you are in an unwanted situation doesn’t mean that you shouldn’t try to problem solve your way out if you can. But it does mean that you first have to recognize that indeed something you didn’t want has happened.

Also don’t confuse acceptance with pretending to be happy about what is. Not at all. It is merely acknowledging that the nature of what is right now is currently reality and therefore cannot be otherwise. It’s actually just a matter of logic. In fact, when adversity strikes, your job of acceptance is
two-fold: first you have to accept the situation and second you have to accept the emotional pain/unhappiness in you that it is causing.

Back to the situation itself. Once you have accepted your situation, the next step is to determine, using your newfound skills of healthy detachment, how bad this thing that happened really is in the grand scheme of things. I call this adjusting your lens. Often we look at hardships in our own lives as tragedies while the same thing that happens to another doesn’t seem quite that devastating. This is because our own problems tend to be distorted by the lens of our own Ego. Adjust your lens a bit. Zoom out and look at things from a higher perspective. How do things look now?

Another technique you can use is based on a Zen koan—a parable used to teach students mindfulness concepts. The particular koan I am referring to is called “Maybe”.

A farmer’s horse ran away. His neighbors gathered upon hearing the news and said sympathetically, “That’s such bad luck.”

“Maybe,” the farmer replied.

The horse returned on his own the next morning, and brought seven wild horses with it. “Look how many more horses you have now,” the neighbors exclaimed. “How lucky!”

“Maybe,” the farmer replied.

The next day, the farmer’s son attempted to ride one of the wild horses, was thrown, and broke his leg. “How awful,” the neighbors said. “It looks like your luck has turned for the worse again.”

The farmer simply replied, “Maybe.”

The following day, military officers came to town to conscript young men into the service. Seeing the son’s broken leg, they rejected him. The neighbors gathered round the farmer to tell him how fortunate he was.

“Maybe,” said the farmer.

The morale of the story of course is that, beyond the surface level, events in life could be viewed as being neither good nor bad as we do not have the perspective in the fullness of time and of all the far-reaching unseen consequences. You then accept the experiences of life with equanimity. Perhaps you don’t get the residency spot you wanted in Ottawa (bad?) which means you have to move to Toronto where you meet the person of your dreams and get married (good?). I will leave in those question marks. Beyond the immediate surface reality, in the grand tapestry of life it is difficult to know whether something is ultimately good or bad -- to a large extent it is the thoughts we have about that something that cre-
ate that distinction. Perhaps we should refrain from using those labels as much as possible.

That being said, when ‘bad’ things do happen that realistically are quite devastating in your life (I am grieving the loss of a significant relationship, a patient of mine has died, a loved one has died) there isn’t always a way to fix things. We cannot turn back time and change past events. Even in Medicine there is not always a cure. But healing is almost always possible. As Eckhart Tolle says, “When there is no way out, there is still always a way through.”

**Resilience** is the ability to come through and bounce back from a period of adversity. When you are able to accept life changes as they occur, keep things in perspective, maintain a positive outlook, and nurture yourself you are fostering your own resilience. Resilience is empowering and ultimately is very healing.
Often when we experience conflict with another, maybe we are angry and arguing with someone, each of us defending our mental position feeling very strongly that we are right and the other is wrong, after some time passes – maybe a few days or a few months – we look back on the conflict and for some reason don’t feel the same anger. It has lessened. In fact given enough time to cool down, we often start to see the merit in the other’s mental position and our own mental position becomes somewhat more relaxed.

If we can do that several days or months later, why can’t we do it immediately after the conflict? And if we can do it immediately after the conflict, why can we not adopt the same flexibility and empathy during the conflict, or even just as the conflict begins to arise?

The answer is that we can, we just usually don’t. Instead, we become firmly entrenched in our Ego and any threats to our Ego and its mental position is reacted to with fear, anger and hostility. In conflict situations, Our Ego is usually running the show.

But if we can remain present and observe our own Ego as well as that of the other from a comfortable distance, we can break that cycle of knee-jerk emotional reactivity that often fuels the momentum of interpersonal conflict. Even if your partner, the one with whom you are arguing, is still reacting from a place of Ego, if you do not, you are no longer feeding into their emotional fears and defensiveness and they usually cannot keep the conflict going unilaterally. The conflict dissolves.
Example: You are on call for Neurology and it has been a very busy night. It is 11pm and you have been seeing patients non-stop in the emergency room since 5pm. You are hungry and tired and there are still 4 patients needing to be seen. Your pager goes off. It is the nurse coordinator in the ER. She angrily says to you, “We have a problem. There are 4 patients that have been waiting hours to be seen by your service, one of whom was transferred from another community hospital at 4pm this afternoon with a headache. She has been waiting 7 hours in the waiting room. This is completely unacceptable! She might as well have stayed where she was!”

You cannot believe your ears. Does this nurse not know how hard you have been working? Does she take pleasure in throwing her weight around and telling you off? You only have 2 hands! Here you are going as fast as you can, trying to triage the patients appropriately, dealing with the sickest first. Isn’t that what a good doctor is supposed to do? It’s not your fault this patient chose the busiest night on call to come to the ER!

You would like to say all this to the nurse but fortunately you identify the rising feelings of anger and defensiveness in you. You are able to watch this, knowing your Ego has been threatened, from a slightly detached vantage point. You pause before speaking and consider your moral position once more. Does this nurse not know how hard you have been working? Answer: Probably not. And without knowing this, her agitation and judgment of you is slightly more understandable. After all, she is advocating on the patient’s behalf and you both have that as a common interest. You are starting to empathize with the nurse’s feelings even though you have legitimate reasons why you have kept some patients waiting.

Does she take pleasure in throwing her weight around and telling you off? Answer: Probably. This unfortunately is human nature to some extent. Our Egos all love to be right and feel superior on some level, it’s just that some Egos seek it out and enjoy it more than others.

You ask yourself, should I defend my position to prove I am not in the wrong? Can I let this character flaw in the nurse – the tendency to instigate conflict and approach me with a position of moral superiority – go without addressing it? Essentially, do I want to feed into the drama or dissolve it?

“I apologize sincerely for the wait these patients have had to endure. Rest assured, I will do everything I can to see the remaining patients in a timely manner. I appreciate everyone’s patience. It has been a very hectic evening and we are short-staffed to deal with the heavy patient load tonight.” All of this is true. You spoke from a place beyond Ego, a place not tainted by the hurt and defensiveness you just experienced.

There is a pause on the line. The nurse was likely expecting an argument – a retaliatory attempt to grapple for your own moral superiority -- rather than an apology. “Thank you. I’ll let the patients know,” she says. Conflict dissolved.
In that moment you were able to remain the witness, the watcher, of the Egos and the emotions and did not get taken over by them.

Even more challenging than relationships with work colleagues are relationships with people with whom you share a lot of past – your family for instance or your romantic partner/spouse. The past is often riddled with periods of pain – times in which you have felt wronged or let down by this person. By rooting yourself in the present moment, mindfulness helps you let go of the old pain and “meet this person anew”. And when you learn not to take your own thoughts and opinions too seriously, you eventually learn not to take others negative and judgmental attitudes too seriously either. Challenging people and situations start to slide off you like a fried egg off Teflon.

The arising of conflict therefore, despite feeling rather threatening, can be viewed as an opportunity for real personal growth and improved relationships.

Empathy is being able to put yourself in someone else’s position and to imagine what it would be like to be them. It involves 2 things. 1) understanding what others may be feeling and 2) caring for the other. Psychopaths lack empathy in that they can use their knowledge about human emotion to manipulate others to get what they want but do not care about others. Conversely, an autistic individual will lack the ability to imagine what others are feeling even though they care about others a great deal. Compassion is the outflow that results from empathy: the desire to alleviate the suffering of others.

How do we know what others are feeling? Well, we can look at their behaviours (smiling, frowning) and deduce that if one smiles then one is happy and vice versa. Also, we can use our imagination to imagine what we would be feeling if we were in someone else’s situation. Last, our brains have been armed with special brain cells called “mirror neurons”. These brain cells innately are able to detect emotional reactions in others then reflexively reproduce those emotional expressions (on the face or in the body) in yourself. And by adopting those emotional facial expressions and body postures, you begin to feel that emotion yourself.

Mindfulness fosters empathy in that it wakes up our awareness of others. It also trains you to identify emotions in yourself, even very painful ones, and teaches you to be curious about them, remain with them and feel them fully, without resisting them (ie: acceptance). Then if you imagine what another might be feeling, be curious, feel their emotion and remain with it, and share the other’s feelings.

As a neurologist I am continually reminded of how we interact with the world is a function of how balanced or out of balance our left and right hemispheres are. Too much left brain: we see ourselves as separate and independent from our world, are slaves to time and orderly sequential occurrences of things and get bogged down with scientific detail and lists. Too much right brain and we lose ourselves in our connected-
ness with others and the beauty of the universe, we are all one, time is irrelevant, the universe is perceived as timeless like everything is happening at once. Which hemisphere has it right? I don’t know. But mindfulness seems to shift some of us that are predominantly left brained toward a more balanced interpretation of reality. We start to see the big picture. We focus less on ourselves and more on humanity as a whole.

Fortunately for the medical field and the patients that depend on it, science, compassion and connectedness can coexist. After all, science tells us that on the atomic level our bodies consist of the same elements that were forged in stars millions and billions of years ago. We may appear as individuals but we all arise from the same source. We literally are all “[children] of the universe no less than the trees and the stars.” The very air we breathe has been breathed in by others in the past and will be again by those in the future. We are all connected across the planet and across time. It just that we usually don’t focus on this connection. But we can be reminded.
Section 5

Personal Discovery

Another worthwhile, and scary, consequence of a mindfulness practice is acquainting yourself with who you really are.

When we learn to observe ourselves – our thoughts and emotions -- we deepen our own understanding of our own minds and our own emotions. By learning what makes our own mind tick, and becoming aware of our own negative self talk and our own Egoic reactions, we give ourselves the freedom to choose what beliefs and behaviours we would like to keep and which ones we would like to change to create the life you want.

Also, by being the silent witness of our own minds, we realize again and again, that we are not our minds. We are something more, something beyond the mind, beyond our thoughts. We are the immutable silent witness of our own lives. We are the watcher.

There is a term used in describing a certain type of sleep state called “lucid dreaming” which means that the dreamer is aware that he/she is dreaming. Through mindfulness, we awaken in our own lives. Rather than functioning on autopilot, being lost in our thoughts and reacting to situations from the level of the Ego alone, fully believing that what we think and feel and real, we acknowledge that just because we think something, doesn’t make it real. We are able to observe every moment of our lives at once with the detachment of an audience member watching a movie while simultaneously experi-
encing every moment to its fullest in all its dimensions. We become aware of awareness itself. We are living lucidly!

We realize that the main purpose of our life is to be here fully in the present moment, because the present moment is all there ever is.

**Desiderata**

Go placidly amid the noise and haste,
and remember what peace there may be in silence.

As far as possible without surrender
be on good terms with all persons.

Speak your truth quietly and clearly;
and listen to others,
even the dull and the ignorant;
they too have their story.

Avoid loud and aggressive persons,
they are vexations to the spirit.

If you compare yourself with others,
you may become vain and bitter;
for always there will be greater and lesser persons
than yourself.

Enjoy your achievements as well as your plans.

Keep interested in your own career, however hum-
ble;
it is a real possession in the changing fortunes of
time.

Exercise caution in your business affairs;
for the world is full of trickery.
But let this not blind you to what virtue there is;
many persons strive for high ideals;
and everywhere life is full of heroism.

Be yourself.
Especially, do not feign affection.
Neither be cynical about love;
for in the face of all aridity and disenchantment
it is as perennial as the grass.
Take kindly the counsel of the years,
gracefully surrendering the things of youth.

Nurture strength of spirit to shield you in sudden misfortune.

But do not distress yourself with dark imaginings.
Many fears are born of fatigue and loneliness.

Beyond a wholesome discipline,
be gentle with yourself.
You are a child of the universe,
no less than the trees and the stars;

And whether or not it is clear to you,
The primary purpose of a mindfulness practice is

- **A.** To reduce stress
- **B.** To improve mental performance
- **C.** Personal discovery
- **D.** To be aware of the present moment

D. To be aware of the present moment is correct.
Attachment

The state of not wanting to be separated from something because one feels that that something, in some way, enhances themselves.

Related Glossary Terms

Drag related terms here
Attention

The cognitive process of selectively concentrating on one aspect of the environment while ignoring other things.

Related Glossary Terms
Drag related terms here
Autonomic nervous system

The part of the nervous system responsible for control of the bodily functions not consciously directed, such as breathing, the heartbeat, and digestive processes.
Awaken

To be roused from a lower state of consciousness.

Related Glossary Terms
Drag related terms here
Awareness

Perceiving and knowing.

Related Glossary Terms
Drag related terms here

Index
Beginner’s mind

A concept in Zen Buddhism meaning "beginner's mind". It refers to having an attitude of openness, eagerness, and lack of preconceptions when studying a subject, even when studying at an advanced level, just as a beginner in that subject would.
Buddhist

Describing those who follow the teachings of Buddha.
Burnout

Physical or mental collapse caused by overwork or stress.

Related Glossary Terms
Drag related terms here

Index
Find Term

Chapter 1 - Life is stressful
Connectedness

The spiritual belief that everything is interrelated and interdependent with everything else.

Related Glossary Terms

Drag related terms here

Index

Chapter 4 - Improving relationships
Consciousness

The state of being both awake and aware.

Related Glossary Terms
Drag related terms here

Index
Find Term
Chapter 1 - What we all want
Cortisol

A steroid hormone produced by the adrenal cortex released in response to stress. Its primary functions are to increase blood sugar, suppress the immune system, and aid in fat, protein and carbohydrate metabolism.

Related Glossary Terms
Drag related terms here

Index
Find Term

Chapter 4 - Reducing stress
Desiderata

Something that is needed or wanted.

Related Glossary Terms
Drag related terms here

Index
Find Term

Chapter 4 - Personal Discovery
Detachment

The state in which a person overcomes his or her attachments and thus attains a heightened perspective.

Related Glossary Terms
Drag related terms here
Dr. Elizabeth Kubler-Ross

A Swiss American psychiatrist who worked closely with terminally ill patients and published her groundbreaking book On Death and Dying in 1969 where she first discussed her theory of the five stages of grief.
Eckhart Tolle

A German born Canadian author (“The Power of Now” and “A New Earth”) and spiritual teacher.

Related Glossary Terms
Drag related terms here

Index
Find Term
Ego

Ego or “false self” is a sense of identity that is developed by our thoughts, memories, experiences and is fundamentally dependent on our circumstances. It is the picture we have developed of ourselves. Therefore, the ego is contained within our thoughts. Thus, it is constantly changing with new experiences, beliefs and thoughts.

Related Glossary Terms
Drag related terms here

Index
Emotion

A feeling state; the physiological response to thought.
Empathy

The ability to understand and share the feelings of another.

Related Glossary Terms

Drag related terms here

Index

Chapter 4 - Improving relationships
Equanimity

The quality of being calm and even-tempered.

Related Glossary Terms

Drag related terms here

Index

Chapter 4 - Increasing resilience
False self

The Ego. A mind-created (illusory) sense of self that derives its strength entirely from its life story, superficial identifying characteristics and external life situation.
Formal practice

Dedicated time set aside each day for meditation.

Related Glossary Terms
Drag related terms here
Informal practice

Practicing mindfulness in everyday activities.

Related Glossary Terms
Drag related terms here

Index
Find Term

Chapter 3 - Instantaneous mindfulness: mindful moments throughout your day
Jon Kabat Zinn

Emeritus Professor of Medicine and founding director of the Stress Reduction Clinic and the Center for Mindfulness in Medicine, Health Care, and Society at the University of Massachusetts Medical School.

Related Glossary Terms
Drag related terms here

Index  Find Term
Koan

A story, dialogue, question, or statement, which is used in Zen practice to further and test a student's progress in Zen practice.

Related Glossary Terms
Drag related terms here

Index
Find Term
Chapter 4 - Increasing resilience
Left brain

In most individuals, the speaking hemisphere of the brain which focuses on details, analysis, logic, sequences, semantics.
Meditation

A practice in which an individual trains the mind to focus attention and bring awareness to the present moment.

Related Glossary Terms

Drag related terms here

Index

Find Term

Chapter 3 - Meditation: mindfulness in minutes
Mind-body connection

The philosophy that one’s thoughts, attitudes and beliefs influence the body’s biological function.
Mindfulness

Paying attention in the present moment on purpose with curiosity, compassion and acceptance.

Related Glossary Terms

Drag related terms here

Index

Find Term

Chapter 1 - What we all want
Neuroplasticity

The brain's ability to reorganize itself by forming new neural pathways and connections.
Norepinephrine

A hormone that is released by the adrenal medulla and by the sympathetic nerves and functions as a neurotransmitter which can cause vasoconstriction, increases in heart rate, blood pressure, and increases in blood sugar level.

Related Glossary Terms

Drag related terms here

Index

Chapter 4 - Reducing stress
**Parasympathetic nervous system**

One of main divisions of the autonomic nervous system (ANS) responsible for regulation of internal organs and glands, which occurs unconsciously, the parasympathetic system being responsible for controlling "rest-and-digest" functions.

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**Related Glossary Terms**

Drag related terms here

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**Index**

Find Term

Chapter 4 - Reducing stress
Presence

The state of being aware of the present moment.
Resilience

The capacity to recover quickly from difficulties.

Related Glossary Terms
Drag related terms here

Index
Find Term

Chapter 4 - Increasing resilience
Right brain

In most individuals the non-speaking hemisphere of the brain concerned with creativity, emotion, intuition, wholeness, “the big picture”.

Related Glossary Terms

Drag related terms here
Stress

A state of mental or emotional strain or tension resulting from challenging or demanding circumstances.
Stressors

Conditions or agents that stimulate a stress response.

Related Glossary Terms
Drag related terms here

Index

Chapter 1 - Life is stressful
Sympathetic nervous system

One of main divisions of the autonomic nervous system (ANS) responsible for regulation of internal organs and glands, which occurs unconsciously, the sympathetic system being responsible for controlling "fight and flight" functions.
Thich Nhat Hanh

A Vietnamese Zen master, teacher, peace activist, author and poet.
True self

When each identifying factor is stripped away one by one, what is left is your true inner self. It is stable and doesn’t change with thoughts, circumstances, and time. It is not affected by what we have been taught, how we have been raised, and what we have experienced. It is the true reality of us. “The [true] self is the raw awareness that our thoughts” (Tolle, 1999)

Related Glossary Terms
Drag related terms here

Index  Find Term
Unconscious

Lacking wakefulness and/or awareness.

Related Glossary Terms
Drag related terms here
Worry

A state of anxiety and uncertainty over actual or potential problems.

Related Glossary Terms
Drag related terms here

Index
Chapter 4 - Reducing stress