How Often Do You “Wonder,” and How Does That Impact Your Work?

Dr. Amish Jha shares insights on how stress impacts our attention span.

By Josh Jacobs, for Walking on Earth
Amishi Jha studies the nature of our attention. Through imaging work and psychology studies, she looks to understand how we concentrate and how our concentration and mood can be improved. At the University of Miami, professor Jha looks at the neural mechanisms of attention. She also does mindfulness training for soldiers and first responders. We discuss how we can better concentrate and the impact of inattention on our happiness levels and performance abilities. (*Our conversation has been condensed and edited for clarity.*)

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1. **You’ve spoken about how many of our waking hours are spent not concentrating and wondering. What proportion of our time are we talking and what impact does this have?**

Many studies are done on this now. It happens to be roughly 50% where our mind is not on the task at hand. (Some people say between 25% and 60%.) It doesn’t seem to matter what the content of that wandering is, whether positive or negative ruminations, if your mind is not on the task at hand, your performance suffers and your mood suffers.

There are consequences for that. Most of the things that I look at have to do with how attentional performance suffers. If you've got people that are in these high stress, high demand contexts where – think about medical professionals now, for example – they can't screw up, they have to pay attention. Yet we know that we're exhausting them, and we know that they're stressed. It's that kind of group that we would want to work with to provide training. We would see if we could protect against that rate of mind wandering going up even further when you’re actually under high stress.

2. **What kind of evidence do you have about the impact of stress on performance?**

Over high stress intervals, we looked at people from students over academic semester, to firefighters and first responders, as well as military service members and military spouses. If you look at them over a four-week high demand period of time – whether it's readiness training, field training, pre-deployment, training,
whatever it is, their attentional performance gets worse and their mind wandering increases with stress.

We often use something called a sustained attention response task. And it’s designed to be very boring. Participants are just seeing a number on the screen once every half second and then their job is to press the button every time they see the number, except when the number is three. What invariably happens is people will press when they shouldn’t, because they’re just mind wandering. We look at how often that happens. That’s their task performance. Then we stop the experiment and ask them how much their mind wanders how where they are, if they’re on task or off task performance. That self-reported mind wandering increases over the four-week interval if we do nothing at all to reduce their stress. And for the mindfulness training group, we’re finding that that number is stable over time, they don’t actually get worse. And for some groups, like special forces, for example, they actually get better over time – their performance improves and they mind wander less, even if they’re in a high stress context.

3. In what ways has our ability to concentrate been impacted by technology, more distraction opportunities and the barrage of information today?

The brain has been designed over the course of evolution, to have these properties of capacity to focus. I don’t actually think technology is causing a lot more fluctuations in that – it’s just occupying it in different ways when we do get distracted. There was a really interesting article I was reading recently about how two thousand years ago, right after Christ, monks were saying how their minds were so distracted because they were so preoccupied with making beer – that it just took up so much of their time in space that they couldn’t really focus on their prayers all day. The nature of what occupies us and the driving forces over which we feel less control are probably a bit different, but our attention capacities have not really changed. We’re nowhere near shifting any of our attention capacities – it’s been too short of a time.

So yes, absolutely the mind, the brain has been built over the course of evolution for a variety of reasons driven by survival capacity as well as general mechanisms for learning and memory that require some downtime where you’re not constantly focused. And of using different circuits that are occupying the mind
allows those that have started getting activated in your memory to solidify, a process called memory consolidation. There are reasons that the mind does this. I’m particularly concerned about the driving factors that reduce our ability to allow the mind to do that – you want to have productive wandering. But you also want to be aware when stress is causing more mind wandering when there is a task at hand.

4. What happens in our brains while we’re wandering and not concentrating on the task at hand? What are the neural correlates of attention?

We look at what happens in the brain when people’s minds wander. What we’re finding is that perception is degraded. During mind wandering, we see over and over again, in functional MRI studies, increases in regions of the brain that have to do with internal reflective processes. Sometimes people talk about this as the default mode network, which is actually not a single network. It’s a bunch of networks. Some have to do with self-healing, some with autobiographical memory, some with planning.

We tell people to go into the scanner and just rest. But typically what happens is they’re not restful at all. During those periods there, we’re seeing increased activity in the brain networks that have to do with self related thinking – the networks that are active during mind wandering. They’re anti correlated with networks that support attention, networks that are about orienting to the external environment.

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"People look for retreats for themselves, in the country, by the coast, or in the hills . . . There is nowhere that a person can find a more peaceful and trouble-free retreat than in his own mind.
... So constantly give yourself this retreat, and renew yourself.”

- MARCUS AURELIUS