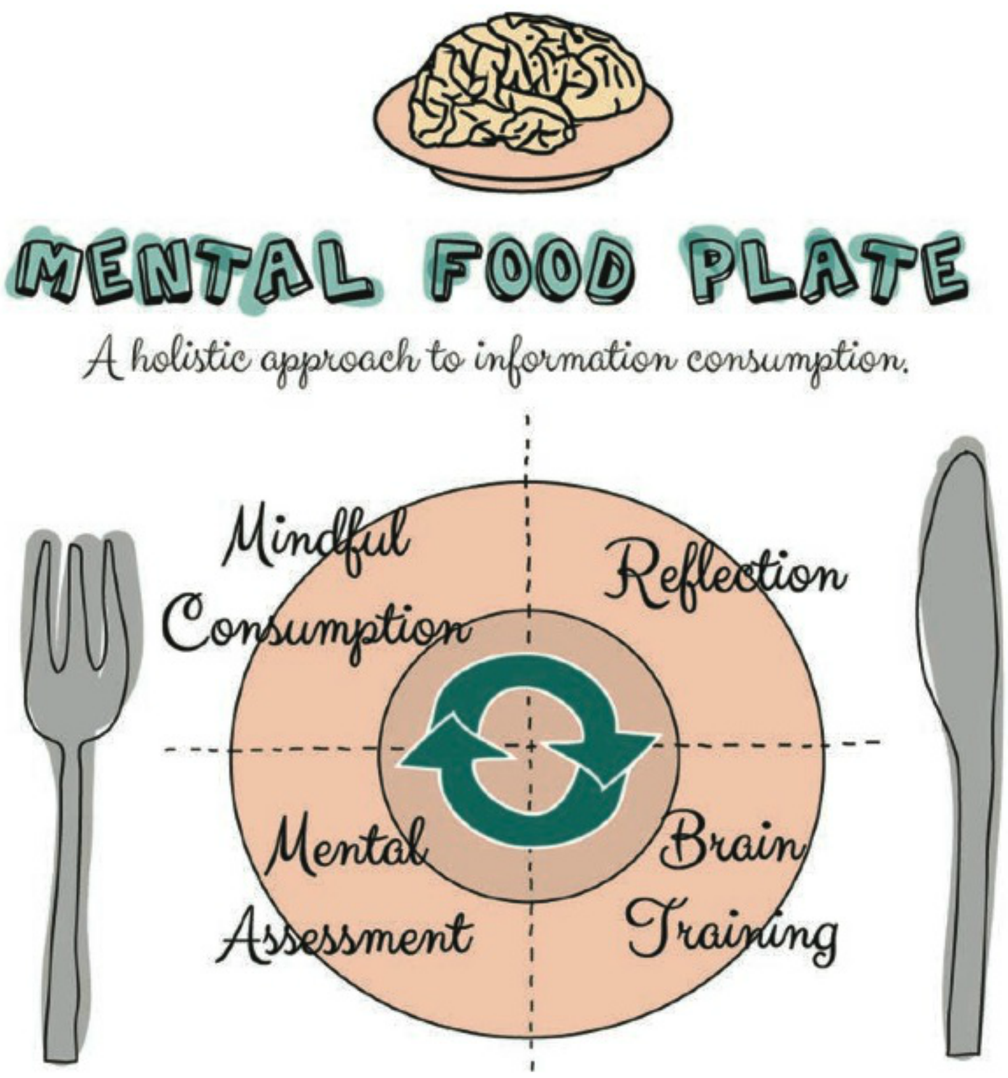

David Polgar has developed a "Mental Food Plate" to help people use technology more mindfully.

Your smartphone is changing your brain

Why you might want to ask yourself if technology is making your life better

by Mara Dresner
Staff Writer

If you're like most people, you're plugged in before you even get out of bed. Checking the weather online and updating your Facebook status are as much a part of your morning routine as taking a shower and brushing your teeth.

Then it's dashing off emails to confirm a morning staff meeting and lunch plans, a quick look at Pinterest for ideas for that party you're throwing this weekend, checking out that funny cat video on YouTube (LOL!) and texting a link with movie times so you can meet up with friends after work. All before you finish your coffee.

It's hard to remember a time when we weren't so plugged in. And while smartphones are ubiquitous (grocery stores, church, hiking trails, funerals), beyond an occasional sore thumb or dry eyes, we sort of shrug and accept the 24/7 lifestyle as a matter of fact.

If you've ever said half-joking "I'm addicted to this thing," you may find it sobering to know that it is indeed possible to have an Internet addiction, according to Dr. David Greenfield of The Healing Center, LLC & The Center for Internet and Technology Addiction in West Hartford.

It's estimated that up to 10 percent of users fall into the addicted range.

"In general, I would not say it's a life-threatening illness. It's a life-decreasing illness. It makes people unhealthier. It reduces

File photo

people's ability to react in real time," said Greenfield, who is also an assistant clinical professor of psychiatry at the University of Connecticut School of Medicine.

Greenfield is a world-renowned expert on the Internet and computer behavior and digital media technology, and the author of "Virtual Addiction."

Greenfield said there are times when "Technology does kill. ... There are cases, limited cases, where people do die from overuse of technology."

In those extreme cases, death came from such causes as malnutrition, fecal impaction and deep vein thrombosis.

Before you take a "no worries" approach to technology, this might give you pause: Greenfield said that chemical changes occur in our brains each time we go online.

"All of the Internet operates on the concept of dynamic novelty. It's ever changing and stimulating. It elevates the levels of dopamine in the brain. That's why people keep checking and checking and checking and checking and checking," he said. "It's similar to a slot machine."

One area of the brain in particular "seems to undergo functional changes in white matter, so the brain tissue literally looks different," said Greenfield.

This is true particularly in the case of heavy gaming use.

"The human nervous system has a delicate way of maintaining checks and balances," said Greenfield. "When you take the game or digital media away, [people] feel worse than they felt before. They have less dopamine available than they did before until the brain re-regulates."

How this will play out for future generations is unclear.

"We don't have the data whether this will reverse," said Greenfield. "The social changes are much quicker than genome [changes]."

Rapid social impact

He said that digital media has been "the most rapidly adopted technology in the history of humankind. We went from it literally not existing to being adopted by everyone on the planet in a matter of 20 years — really 15 years."

With so much possibility, Greenfield said, "the issue is balanced use, controlled use, so it doesn't control you."

Now that SmartPhones are ubiquitous, he believes there is even more danger of addiction and overuse.

Smartphones are "a handheld version of the Internet in our pocket 24/7 ... with no blocks, no threshold to cross. The smartphone doesn't wink at you and say, 'Do you really want to do that?' When people have private, unfettered ease of access to high-stimulating content, it's a recipe for overuse and possible addiction."

While most people will not become addicted, the symptoms of addiction to technology are the same as to other addictions, such as drugs or alcohol.

Greenfield said that people should be on the lookout for whether technology is "interfering with the balance of your life, if there's some deleterious or negative effect associated with your use, meaning some impact on your academic or work performance, your physical [or] financial health, your relationships, your legal status."

As smartphones become, well, smarter, and connection speeds become faster, it becomes easier than ever to access information, be in touch with friends, play games or watch videos.

"The more readily accessible it is, the more potentially addictive it becomes. The quicker you get a reaction from a click – whether it's an image, a piece of information, a text, a Twitter update – the quicker the information comes to you, the more potentially addictive the information is, just like

with drugs," Greenfield said.

Teens may be especially vulnerable.

"The teen brain is very different than the adult brain," said Greenfield. "They're much more vulnerable to substance abuse, to gambling, to Internet [abuse]."

Because the brain is not fully developed until the early 20s, "what we have is a brain that is naturally prone to omniscience, omnipotence, the potential for poor judgment and feelings of immortality – that's natural," said Greenfield.

Therefore with teens, parents need to be on the lookout for signs of technology abuse, such as a decrease in "real time" social interaction, a change in mood and behavior, spending all their time online and avoidance of previously pleasurable activities.

Even for those who aren't addicted, there can be a number of negative consequences of using too much technology, according to Dr. Jessica Myer, a UConn Health psychologist and assistant professor. "The literature suggests heightened distraction and diminished attention span," she said. "Over-connection to devices can lead to disconnection to other people."

We've all seen that family at a restaurant intently staring at their phones rather than interacting with one another, for example.

Too much time online can also bring up feelings of inadequacy.

"The heavy focus on social media helps us to reconnect with people from our past and connect with current friends, but it fosters social comparison and exacerbates negative emotions and craving for things," Myer said.

It can also lead to jealousy and a lack of privacy. Keeping your device by your bed can impede your quality of sleep.

"The blue light actually impedes the release of melatonin so we're not sleeping as restfully as we could," she said.

Kafka vs. Kardashian

Still, potential negatives aside, technology as a whole is neither intrinsically good nor evil.

"Technology isn't going away and it really can be quite helpful. The trick is really finding a way to use technology nourishingly and productively and usually that's when we find a balance," Myer said.

"The Internet is a doubled-edged sword. ... Whether you're in New York City or Kenosha, Wis., you have access to the greatest information; that's a positive. Since the information never ends, you never step away from a firehose of information and reflect on it," said attorney, educator and digital lifestyle expert David Ryan Polgar, JD, of West Hartford. "True wisdom happens when you step away from the information and reflect on it and consider it."

Polgar could see how the access to so much information was "impacting my own thinking and [I] saw how it was impacting the students I was teaching and the people I was talking to."

One of the biggest challenges is that we go online and we have say, 40 emails. While you're reading those emails, more come in. Within those emails are hyperlinks, which entice us to go even further astray from our original goal of clearing out our inbox.

Overplugged?

Take this simple 10-item quiz to see if your connection to technology is creating disconnection in your life.

- Do you sleep with your SmartPhone ON under your pillow or next to your bed regularly?
- Do you find yourself mindlessly losing track of time on a regular basis by staring at your SmartPhone, tablet, or computer while forgoing more productive activities?
- Do you find yourself spending more time with 'virtual friends' as opposed to real people nearby?
- Do you find yourself viewing and answering texts, tweets, and emails at all hours of the day and night—even when it means interrupting other things you are doing?
- Do you secretly wish you could be a little less wired or connected to your Internet-enabled devices?
- Do you find yourself feeling somewhat ill-at-ease or uncomfortable when you your SmartPhone or other Internet enabled device is inaccessible or without service?
- Do you text, email, tweet or surf while driving or doing other similar activities that require your focused attention and concentration?
- Do you ALWAYS have your smartphone or other digital device with you when you leave the house and feel reluctant to be without it even for a short time?

If you answer YES to more than four of these questions, you might benefit from going on a digital diet and making some small, but powerful, changes in your relationship to technology.

"The Internet works on hyperlinking. It deteriorates the very concept of willpower," said Polgar, who writes an online column called "Overplugged." "We have to be cognizant of the fact we have limited willpower."

We may not be aware that each time we click on a link, we're being manipulated.

"Everybody is struggling with what is called 'click bait,'" he said, where catchy – and sometimes misleading titles entice viewers to keep reading and clicking –and it doesn't necessarily appeal to our more intellectual sides.

"What are we more apt to click on, Kafka or Kardashian?" asked Polgar, who sees three major pitfalls to excessive technology use.

"I like to say the three Cs: critical thinking, conversational skills and creativity. That's where it really impacts. If somebody is constantly plugged in, they're not really present in the moment," said Polgar, who coined the phrase "mental obesity."

"It is so ingrained into us as Americans about willpower. We believe so deeply in free will. We believe you think it, you do it. … How can there be Internet addiction? Just go offline. By that same logic, we shouldn't have an obesity issue," he said. "We need to take ownership over the fact our willpower is limited and works like a muscle and muscles gets fatigued."

Polgar, who advocates for a "healthy digital lifestyle," had a wake-up call about his own technology use four years ago.

"I started getting phantom rings; I started hearing rings that didn't exist," he said. "It turns out two-thirds of Americans have phantoms vibrations. It's the same as when amputees feel legs they don't have. It seems comical. I found it remarkable and scary. We're changing our brains so much that we're hearing things that don't exist. That's when I knew I had to change."

While he found apps that would restrict one's usage, Polgar wanted a more holistic solution. Working with Jumpstart: Design, Development & Brand in Simsbury, he developed a chart, similar to the food pyramid, to guide people toward healthy technology use. The chart, called a "Mental Food Plate" features four quadrants: mindful consumption, reflection, mental assessment and brain training.

It's designed to be a tool and Polgar envisions it being used in schools and other settings.

He thinks a "major part of a solution is actually thinking about your thinking," and that's where the "Mental Food Plate" comes in.

He thinks that the next wave of innovation will be products to help people manage their online usage, much as what happened in the food industry.

"That's why unplugging digital diets become popular. We almost need that structure. We hunger for that right now. Over the past five, 10 years what has been exciting was the novelty of online connection. Now we've reached the point of oversaturation," he said. "When the food industry went from limited to unlimited for most individuals, it spawned a counter- industry," the diet industry.

Polgar said seeking options will become the norm for a certain segment of the population.

"For people who care about their cognitive functions; people who care about productivity will seek out different solutions," he said. "The common refrain I always get is when someone unplugs for a weekend is, 'My God, I feel like there's some kind of brain difference. I feel the dust going off my brain.' This is always the struggle with this. Someone is not going to realize they

need to change unless they hit a wall."

Polgar hopes that his "Mental Food Plate" will help people start thinking about ways to manage their own technology usage.

It's a difficult, ongoing battle.

"Because it's very addictive, because it happens so surreptitiously," said Greenfield. "Every time you find a piece of information that's rewarding or salient or what you want, a Facebook update or a tweet or a porn photo, it doesn't matter what it is, you get a hit of dopamine."

Good for the soul

If you've ever accidentally forgotten your phone, you know that feeling of panic. "People feel nervous when they lose their WiFi. When people forget their phone, they have anxiety," said Polgar.

Still, some people not only mindfully use their technology, they manage to unplug regularly.

Rabbi Seth Riemer of Newington is typically online "from sunrise well into the dark of the night."

He's a part-time congregational rabbi for Temple Beth Torah in Wethersfield, a full-time teacher at the Jewish High School of Connecticut in Stamford. Married with three children, the youngest a senior in high school, he also, in what he calls his "very limited spare time," writes and produces plays, and composes songs.

"I unplug on Jewish holidays: Shabbat [the Sabbath] and all other major religious festivals outlined in the Torah, the reason being that I respect this aspect of Jewish tradition and see this practice as a way to connect with nature. I thus have a feeling that this kind of cessation is good for my soul. It certainly gives me healthy perspective on the mad pace and endless rush of contemporary life," said Riemer.

This means that at least once each week he is unplugged. "There's a liberating potential, I guess, in knowing one is not 100-percent dependent on human-made technology but can approach life in a more raw, unfiltered way," Riemer said.

Dr. Brandon Nappi, founder and executive director, Copper Beech Institute, a retreat center for mindfulness and contemplative practice in West Hartford, also unplugs each week, sometimes for an entire weekend, sometimes just on Sunday.

"It's really important for my soul," he said.

Simply being aware of how technology is affecting you is important.

"I think it's easy to get wrapped up in the virtual world of technology. … I think you kind of lose your center," said Shane Waldron, a tai chi instructor out of Glastonbury.

Waldron said that if he's online more than an hour or so, he feels as though he needs to "find balance again."

"If I'm on it too much, I'm in a different reality almost," he said. "I kind of discipline myself to do something else besides that whether it's going for a walk on a nice day or reading a book or doing tai chi or doing household chores, doing something different, or even having a conversation with someone in person, rather than online."

He added that being online is no substitute for personal encounters.

Even those who should know better sometimes still get sucked into using technology.

Greenfield confessed to being at a concert recently and being "so intent on capturing it digitally, I missed the concert," he said.

Technology also promises to make our lives easier – for example, being able to connect to our work email from home. Instead, it's become more difficult to detach.

"We really are coming into a place where there's less of a distinction between work and family life and recreational activities because we're all expected to be plugged in at all times. We're more chronically stressed; there are many more demands of us as individuals. We're pulled away from the things that are nourishing to us," said Myer. This, she said, leads to "not only more stress and more [negative] physical health outcomes," but also research suggests that with multitasking we're "actually less productive."

Communication or connection?

To break a cycle of technology overuse, Myer said it's all about "finding a mindful balance."

Think about how you feel when you check your email or if your heart

rate increases when you hear the alert for your work email. Do you check your phone before you get out of bed in the morning? Does your child ask you to play and you're too busy on the computer?

"What comes up when you use work email. Do you check your phone before you get out of bed in the morning? Does your child ask you to play and you're too busy on the computer?

"What comes up when you use these devices? The second step is using what you've learned in step one, and take what is nourishing and productive for you and leave the rest of it," she said.

That might mean scheduling "sacred time" when you unplug, whether that's during dinner, exercise time or first thing in the morning.

"The third point would be to practice mindfulness when you use technology. If you've carved out dedicated time for email or social media, give that technology time your full attention," she said.

She also said there are apps you can use to be more mindful, for example mindfulness bells that can be set to remind you to check in with yourself.

As for her own technology use?

"With the demands of work and family and life, it is quite a struggle," she said. "For me, I set the intention to practice. I don't have my work email inked to my personal cell phone. … I work to be very aware of doing one thing at a time."

She also has family time where she doesn't have her phone on and keeps her phone in the backseat while she's driving.

Greenfield laughed when asked about his own technology use.

"There are times I absolutely find myself overusing it," he said. "When it comes to technology, convenience is the mother of invention and not necessity. We act as if it's necessity and I'm not sure it is. It's really about being realistic with yourself."

For Nappi, it's about consciously making decisions. When you hear the chime of your phone, "for many of us, we heed it instantaneously. Technology is really driving the rhythm of life rather than us making decisions about what we value and whether it's how we want to spend our time," he said, adding that it comes back to a "deeper question that I hope we ask ourselves: What do we value? It's [within] a context of values that we make sense of our question of how technology should be integrated in our lives."

Nappi said that research shows that we are distracted 60-percent of the time.

"We're not focusing on what we say we want to focus on. If we're not careful, we can train [ourselves] to be distracted. I think that's the biggest concern," he said. "If love is one of our values, we must be attentive. … If love is the river, attention is the riverbed that allows that love to flow."

In addition to unplugging on weekends, Nappi takes a number of other steps to focus, such as making the commute from Middlebury to West Hartford in silence.

He encourages people to take just one step toward being more mindful of one's technology use, for example trying not to fill every empty moment with technology.

"We've lost the art of waiting, of smiling, of talking to the people around us. Those are beautiful moments of community," Nappi said.

Greenfield also sees a downside to filling those small moments with technology.

"There's less need to socially interact with those around you. There's less opportunity for boredom to take place," he said.

With boredom "comes creativity, comes motivation, comes insight, comes desire to change your situation, to change your thinking or your action. We have no capacity for boredom anymore," Greenfield said. "We pull [our phones] out of our pocket and start clicking."

If even 10 minutes is too long, Nappi suggests taking three breaths before checking your device.

It's important to remember, said Greenfield, that "technology is psychoactive, it alters mood and consciousness just as a drug does."

While people are spending large amounts of their time online, "they're missing some of the finer nuances of life. They're not attending to some of the analog real time-aspects of life that make life worth living. Does that mean they have an illness or addiction? No.

"That becomes not a medical question but question of personal values," Greenfield said. "How do you want to send the limited number of minutes you have on this planet? Do you want to spend them on Candy Crush? "Those are minutes you can't get back." **WHL**