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Discussion Questions

1. Why was E.P. described as “a man who would upend much of what we know about habits”? What did researchers learn from him?

2. What ability do patients with basal ganglia damage lose?

3. Thinking back to the example of McDonald’s restaurants presented on page 26 in the book, how does this company use cues and rewards to trigger habit loops in its customers?

4. What cues and rewards can you identify when you’ve been to fast food restaurants? What about other settings, like movie theaters, or clothing stores?

5. Using the graph on page 19 as a guide, diagram your own habit loop for entering a password on your email account or your pin number at the ATM. Identify the cue, routine, and reward for this habit.

6. Can you diagram the habit loop for when you go into the cafeteria, or have a meal at home?

7. Do you think it was ethical for psychologists to study E.P.? Was he able to consent to research conducted on his memory and habits? Explain why (or why not) the benefits of this research outweigh the negative effects it may have had on his life.

8. On page 21 the author writes, “Habits are often as much a curse as a benefit.” What are examples of habits that are beneficial or detrimental in your own life?

9. The author writes that it is possible to reawaken a habit, and that habits never disappear, but are changed by new cues, routines, or rewards. Describe a habit of yours that has been changed or replaced. Do you agree or disagree that this habit can be reawakened? Why? What would it take to reawaken your habit?

10. Psychologists have learned a great deal about habit and memory from studying individuals who have memory deficits. How are lessons from people like E.P. and H.M. relevant to your life?

11. Make a plan for a new habit you would like to develop. Identify what you can use as a cue, the steps involved in creating a routine and the reward this new habit will deliver.

(Questions issued by publisher.)
The 'Power' To Trade Naughty Habits For Nice Ones

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Heard on Talk of the Nation

How is it that some people are able to change their bad habits and reinvent themselves, while others try and fall short? As part of our annual series on the books we missed, New York Times investigative reporter Charles Duhigg discusses his book The Power Of Habit and about the science of habit formation.

JOHN DONVAN, HOST:

This is TALK OF THE NATION. I'm John Donvan in Washington; Neal Conan is away. How many times have you said to yourself this is the year I will quit smoking, or this time I'm going to keep the weight off? Habits are things that we know that we have, but for some reason we can't always control what they're doing.

How is it that some people are able to change their bad habits and reinvent themselves, but others try for so long and fall so short? How is it that some companies and societies can turn around their most ingrained practices after doing things the same way for years, decades?

In his book "The Power Of Habit," Charles Duhigg argues that in almost any scenario in life, habits can be changed, provided we know how they work. It's one of the books we missed talking about earlier this year, so we are glad that he's able to join us today. And we want to hear from you in our audience who have personal experience. Tell us your story.

If you have changed a bad habit or formed a good one on purpose, how did you do it? Our number is 800-989-8255. Our email address is talk@npr.org. And you can also join the conversation at our website. Go to npr.org, and click on TALK OF THE NATION.

Later on in the program, the weird ways we behave in elevators. But first Charles Duhigg is an investigative reporter for the New York Times and author of the book "The Power Of Habit," one of the books that we missed. He joins us today in Studio 3A. Thanks, Charles, for being on the program.

CHARLES DUHIGG: Thank you so much for having me.

DONVAN: So the book has a powerful premise, that we can figure out our habits and by doing so change them. But when did you first discover this principle?

DUHIGG: Well, I became really interested in this about a decade ago when I was a reporter in Iraq. And I met a major who had been given this assignment, to stop riots from happening in a town named Kufa. So what he did is he went down, and he removed all the food vendors from the plazas in Kufa and found that by doing so, he actually broke up the patterns that would cause riots to emerge.

DONVAN: Why, why did that work?

DUHIGG: Well, riots actually, you can't tell this from the television, but riots actually take six or seven hours to develop. What happens is a small group of troublemakers shows up and then
spectators and more spectators until the crowd gets so big that it kind of draws everyone into the violence.

But what this guy figured out is that by removing the kebob sellers from the plazas, when the crowd would get to a certain size, and it was 5:30 at night, and people were hungry, they'd look around for food, for dinner, and they'd get hungry, and there was no one there to sell it to them. So they'd go home.

DONVAN: Because rioters need to eat.

DUHIGG: Exactly, exactly, and so by changing this one small pattern, he was able to disrupt the riots that were happening in Kufa, Iraq. I thought this was so fascinating that when I came back to the United States, I started looking into the research that was available on the science of how habits work. And what I found was that in the last decade, we've kind of lived through this golden age of understanding the neurology of habit formation.

DONVAN: We didn't work on that kind of research before?

DUHIGG: Well, in large part it's because we finally have tools that allow us to see what's going on inside animals' heads when they have habits, right. In particular, there's a scientist named Dr. Ann Graybiel at MIT who was able to get a whole bunch of sensors into the craniums of rats to watch what was happening inside their head while they would run through these mazes.

And what she found was that as the maze became more and more automatic, as the rat would run from the beginning to the chocolate faster and faster and faster, its brain would start working less and less. And from that actually came this basic insight, that every habit has three components.

There's a cue, which is like a trigger for an automatic behavior to start, and then a routine and then a routine, which is the behavior itself, and then finally a reward. And the reward is how your brain learns to remember this pattern for the future. And for years when people talked about habits, they really focused on those routines, on the behaviors.

But what we know from experiments now is that it's really the cues and the rewards that shape how these patterns emerge and how to change them.

DONVAN: And so what happens between the cue and the reward is a sort of automatic pilot?

DUHIGG: A little bit, right. When you have enough cues and rewards that get into tandem with each other, what happens is that when your brain, and in particular part of your brain known as the basal ganglia, when your brain is exposed to a certain cue, it'll kind of go on autopilot because it craves the reward it expects to come at the end.

That's why, for instance, when people - people can wake up in the morning, and they get into their car, and then they're at their desk at work, and they don't really remember what happened in between, right, they just showed up there. Things become automatic.

DONVAN: Yeah, I mean, you write in the book that in a way, we need these habits to be automatic and unthinking because otherwise we would go mad with paralysis. We would be thinking through absolutely everything we do. And in fact we do lots of things without thinking about them.
DUHIGG: Absolutely. There was a researcher at Duke University a couple of years ago who tried to figure out how many of our daily actions were habits. And what she found is that about 40 to 45 percent of the decisions we make each day are actually habits, not really decisions. And without that, we would go nuts.

Right, if you had to concentrate on backing your car out of the driveway every single time you did it, if you had to concentrate on how to get to work every morning, if when you walked into the cafeteria it was a major decision to figure out what to have for lunch that day, you wouldn't have time to invent fire and video games and all the other things that your brain kind of does while you're doing your habit.

That's the magic of habits is that because our brain stops working around that behavior, it frees up mental activity for other things.

DONVAN: So how do habits get laid down in the first place?

DUHIGG: Well, what happens is that you get exposed to this cue, you do something, and it delivers a reward. And your brain starts to learn an association between that cue and that behavior and the reward. Take for instance one of the most experiments was one that was done with monkeys, where they would put monkeys in front of monitors, and they would have them touch these colors as they appeared. And the monkey would get a drop of blackberry juice.

Monkeys love blackberry juice. So the more and more you did this, the more and more the monkey would just touch the color automatically, without thinking about it. The habit would get laid down. And within that monkey's brain, what we know is that certain neural pathways are becoming thicker and thicker and thicker. It's easier for electrical currents to run down those pathways and trigger that behavior.

DONVAN: Did the monkey continue to need to get the juice in order for the habit to live on?

DUHIGG: Here's what's really fascinating about it. The answer is no. At some point, at some point the reward actually becomes less important than the activity itself. And we know this from time and time again. People will begin eating because they're hungry and because you want that satisfaction. And then you start eating automatically, even though you're not hungry, even though you don't even necessarily like what you're munching on at home.

What we know is that once your brain starts to associate a certain behavior with a reward, whether that reward exists or not, you experience the enjoyment of the reward.

DONVAN: Let's see what our listeners can tell us about what they've learned about how habits work. And let's bring in Matt(ph) from Des Moines, Iowa. Hi Matt, you're on TALK OF THE NATION.

MATT: Hi, thank you.

DONVAN: Sure.

MATT: I quit smoking November 13, 2005 was the last time I had a cigarette, and it was - it had to be cold turkey because I didn't have very much money at the time. I had enough to smoke but not to quit apparently. But the one thing that I made sure I did while I was going cold turkey was to avoid situations where I would instinctively light up a cigarette. Whenever I stepped off
the bus, I would always light up. So I started driving more, avoided bars, things like that for about two weeks.

But the reason I quit smoking was the reward, I was dating a woman in college at the time, and she had told me point blank I will never kiss a smoker. So that's why I quit, and then I haven't had a cigarette to this day.

DONVAN: She worked the reward angle for you.

(LAUGHTER)

DONVAN: What about that, Charles?

DUHIGG: It's pretty interesting, right. I mean, what's really interesting is that you intuitively understood the cues that were triggering that smoking habit. One study that was done found that most people who ended up quitting smoking did so when they were first on a vacation, right, because they're around unfamiliar cues. All the things that used to trigger reaching for a cigarette are gone.

But equally what's really interesting is what your point brings up, which is that we can oftentimes that rewards are rewarding and make them so. So there's nothing inherently rewarding, right, about knowing that this woman's going to kiss you because you stopped smoking. She hasn't kissed you yet. It's sort of a theoretical reward.

But by you deciding that there is a reward there, by you finding some type of self-pride or satisfaction for being able to do this, you made it into a reward that had an actual neurological power, and we know this from experiments that have watched how people's brains change as they decide that certain things are rewarding.

DONVAN: Matt, thanks very much for your call, and let's bring in Joseph(ph) from Reno, Nevada. Hi Joseph, you're on TALK OF THE NATION.

JOSEPH: Hi, how are you?

DONVAN: Good. Joseph, you're on the air. What's your story?

JOSEPH: So I had a problem with depression, and it stemmed from every time I would interact with someone who (unintelligible), I would reflexively assume that they were doubting me or that they were criticizing me at some point. So I would become depressed after talking with my - or become depressed after talking with my friends without realizing why I was becoming depressed.

I looked at all sorts of external things that were happening in my life and tried to find a reason there, and when I couldn't find a reason there, someone suggested writing down my thoughts and what happened day to day just to try and discover what was happening. So I began to write a lot, to the point where I'd write, you know, 2,000 or 3,000 words a day, as well as having a fulltime job and keeping up everything else.

And I started noticing that every time I talked to someone, or I interacted more than just saying hello, I would suddenly dwell a whole lot on whether they had thought something wrong or me or whether I had done something wrong.
DONVAN: Joseph, were you surprised to find out that that's what was triggering your depression, that that was the cue for your depression, talking to people?

JOSEPH: Oh yeah, I thought that talking to people was helping me because I didn't realize that I was flinching back from them emotionally. I thought that talking to them would help me open up more and because I had had great success with a therapist. But I hadn't thought that the therapist was judging me.

Originally when I started writing, I thought that my depression was stemming from either something food-related, you know, I was eating the wrong stuff, so my body was shutting down, or...

DONVAN: But did - let me ask you this because we might be coming up to a break. Were you able to break this habit of being depressed in a way that was cued by actually having conversations with your friends? Were you able to break that habit?

JOSEPH: Yes.

DONVAN: How?

JOSEPH: And it was mostly by disassociating the judgment from it. So I would point-blank ask my friends. I was saying, you know, what am I worried about right now. And I'd be worried about my roommate thinking that I was nothing. (Unintelligible)...

DUHIGG: I mean, that's a great example of sort of why these insights are so important is because one of the things that we know is that once people begin to understand how to identify their own habits, they get this toolset to begin changing them, right. For instance being able to identify the cue, such as you did, identifying this cue helps you break the myth that your friends are thinking poorly of you or that you're powerless against this.

In the last decade when we found out all these things about how the science of habits work, it hasn't really revolutionized our understanding of human behavior. It's revolutionized, though, the tools that we're able to use to analyze our own behavior. And we know from study after study that simply learning how your own habits work gives you the ability to change them.

DONVAN: You can decide.

DUHIGG: Exactly.

DONVAN: Joseph, thanks very much for your call. So if you have successfully changed a bad habit or formed a new good one, we want to know about it. How'd you do it? Joseph's story, fascinating. He just decided to. Call us. Our number is 800-989-8255, or send us a tweet @TOTN. We'll be back for more with Charles Duhigg in just a minute. Stay with us. I'm John Donvan. This is TALK OF THE NATION from NPR News.

(SOUNDBYTE OF MUSIC)

DONVAN: This is TALK OF THE NATION from NPR News. I'm John Donvan. We usually don't think much about the habits that mark the hours of our days: wake up; shower; brush your teeth; put on left sock then left shoe; right sock; right shoe; fasten seatbelt; start car. But reported Charles Duhigg has learned there is actually a lot more to habits than that.
They're not just thoughtless routines we perform by rote. Each one is a three-part process, and understanding that process can help us take advantage of that autopilot to our benefit. He wrote about it in "The Power of Habit," a popular book that we missed talking about earlier this year.

So we would like to hear from you if you have successfully broken a bad habit or formed a new good one. How'd you do it? Tell us your story. Our number is 800-989-8255. And our email address is talk@npr.org. And you can also join the conversation at our website. Go to npr.org, and click on TALK OF THE NATION.

Charles Duhigg is the author of "The Power Of Habit," and he's my guest here in Studio 3A. And Charles, you talk about - you talked about initially the Iraq episode, in which riots were diminished after an American commander chased away the food vendors, and the rioters had nothing to eat, that the process by which crowds would gather, and people would eat a little bit and then riot a little bit was dispelled.

How often do these things actually - does this theory that's developed of cue and routine and reward apply not just to individuals but to groups in the way that you talked about in that case?

DUHIGG: That's what's actually kind of the most fascinating about a lot of the research going on right now. One of the things that we have that we've becoming more and more certain of is that there are organizational habits that function in ways very similar to individual habits. And in particular what we've learned is that some habits tend to matter more than others.

In the book we tell the story of Paul O'Neill, who most people know as treasury secretary. But before that he was the CEO of Alcoa, the largest aluminum company in America and in the world. He came in and transformed that company by saying I want to focus on worker safety habits. That's all I'm going to focus on is just transforming our worker safety habits because he knew that if he could do that, it would set off a chain reaction that would change the culture throughout the company.

And very similarly to the cues, routines and rewards of individual habits, that's how organizational habits work, as well. There's all kinds of habits within any organization that when you think about them, no one ever writes down, nobody ever says oh, you know, this assistant is the one who can get something done, and if you go talk to this VP, you need to put your request first and not take more than four minutes of his time.

These are organizational habits that emerge that savvy people understand.

DONVAN: Why is that not just saying that a new routine was established or new regulation was put in place? Why do you put that in the framework of habit?

DUHIGG: Because I think what happens here is these patterns emerge without anyone ever necessarily thinking about them, right. I mean, take for instance there was a sort of famous study that looked at rivalries within companies. And the big question was for big companies, why don't big companies destroy themselves? Why don't rivalries for two vice presidents who are gunning for the same job, why don't they try and sabotage each other? Why don't people try to make money at their colleagues' expense?

And the reason why is because these habits, organizational habits, emerge that say you can be ambitious, but if you're too ambitious, the rest of the organization will rally against you because
we all understand that we're in this together. No one ever sits down and say, OK, here's the line in the sand, you go over that line, all of us are going to take you out.

But there's almost an (unintelligible) habit across and organization, across thousands of people that says this is how our culture works. And if you look closely, you can find cues and routines and rewards.

DONVAN: So once you did this research and discovered that this was real, this dynamic that you're talking about, and you learn that you can change habits, which ones did you go at, which one did you most go at in yourself?

DUHIGG: There were actually two. The first was exercise. You know, the other reason why I wrote this book is because I got really frustrated. This is about eight years ago. I feel like I'm a fairly intelligent, successful person. And there were all these things that I did really well in life. I'm an investigative reporter at the Times. You know, I feel like I'm successful at a lot of things.

And yet there were things in my life that I felt like I couldn't control, eating for instance. I would just snack all the time. When I wanted to make myself go exercise in the morning, I couldn't get myself out of bed to go running. I would come up with excuse after excuse. And it drove me crazy because if I'm so good at some things, why don't I have control over these small little patterns?

And so one of the big things that I focus on was creating - learning how habits work so I could create exercise habits for myself, which completely worked. I lost like 35 pounds just by essentially changing how I ate and how I exercised.

DONVAN: What was the exercise habit you created for yourself?

DUHIGG: I go running every morning. And what's really interesting...

DONVAN: Wait, wait, wait, wait. That sounds really easy, I just decided to go running every morning, then I had a habit.

DUHIGG: Well, let me tell you how I did it because it was actually based on the study that was done in Germany. In Germany what they did is they took a whole bunch of people, and they put them in a room, and one of group explained to all of them why exercise is good. And one group of them they took out, and they explained to them the habit loop.

And they said look, this is what we want you to do. We want you to choose a cue, like for instance put your running clothes next to your bed, or always go running with the same people, or exercise at the same time every day. And then when you come back from exercising, give yourself a small piece of chocolate.

Now this is counterintuitive because most people don't exercise in order to eat chocolate, and you...

DONVAN: I might.

(LAUGHTER)

DONVAN: Or I'd skip the exercise.
DUHIGG: And just have the chocolate? What the researchers hypothesized, though, was for most people, even though they think that they like exercise, their brain thinks that they're a liar, and they hate exercise. And so in order to make it - in order to make it automatic for them to exercise, they need to get a reward right away that they genuinely enjoy, like a piece of chocolate or a smoothie or a nice long shower.

DONVAN: How are things complicated by actually having a physical addiction as part of a habit, say nicotine?

DUHIGG: Well, it's a really interesting question because if you look at the technical definition of addiction right now, it draws in habit dysfunctions. It's very unclear exactly where addiction begins and ends and habit starts. So nicotine's a great example, cigarettes, right. We think of cigarettes as being very addictive. And they are, they're just not addictive for very long.

According to medical studies, 100 hours after you're having your last cigarette, once the nicotine's out of your blood system, you're no longer physically addicted to nicotine. But we all know people who two weeks or two months or two years after giving up cigarettes, they still have that urge to smoke every morning.

DONVAN: Which is a habit rather than a physical addiction.

DUHIGG: That's the habit.

DONVAN: Let's now go back to our callers and bring in Terry(ph), who is in Phoenix, New York. Hi Terry, you're on TALK OF THE NATION.

TERRY: Hi, good afternoon, and happy holidays.

DONVAN: Oh, to you, too.

TERRY: I have been a person who has been overweight my entire life, from dieting in my middle school years and after the last few years watching my parents' health decline and trying to take care of them and my own family, I decided that I was going to do something for real about it and not yo-yo anymore.

And I actually took up running, and I'm not a very tech-savvy person, but I have found a few free tech things that have helped me tremendously. I started running on the advice of a friend using the C25K, Couch to 5K, app on my phone. And I'm a camp nurse during the summer. And I got up every other morning, changing that kind of habit, and actually ran, as hard as it was most days.

And I set a goal for myself, and last summer I completed my first Iron Girl triathlon.

DUHIGG: Oh my gosh.

DONVAN: So Terry, in order - that is pretty big. In order for it to work, did you just need to go through a period when you didn't have the habit, but you were making yourself do it anyway in order for the habit to be laid down?

TERRY: Partly yes. Also I needed to really work - I've always been an emotional eater, and I really needed to work on what I was eating and when I was eating it. So I kind of bombarded myself with a few new goals. I'm very big on setting the short-term goals to get to the big goal at
the end and wanted my kids to see that also, that that's something you can do in life, and you can get the things that you want.

So I also used my fitness pal, and I'm not trying to be a big advertisement for free apps, but that was very rewarding to me, kind of like the chocolate you were just talking about, because I could plug into that what exercise I had just done, and I ended up getting myself a fitness monitor, a heart rate monitor, and I could really see that working.

DONVAN: You mentioned apps a couple of times, Terry, and I just want to - I'm cutting in so that - just before we pass that, to get to Charles, what about the use of apps and other aids? Are they helping things out?

DUHIGG: Absolutely. I mean, they're great. Anything that you do that helps you measure and helps you recognize what's going on is great, right. So for a lot of people, an app is essentially creating a reward system. I plug in the mileage that I've done, and it shows back at me that I ran today, or I ran, you know, half a mile more than I did yesterday.

Or people find each other online to go running together. What we know is that when you can find ways to tell yourself you are doing a good job, to give yourself a reward and then actually allow yourself to enjoy that reward, that is when you start creating habits.

DONVAN: Terry, without the apps, do you think you could have done it?

TERRY: In all honesty I don't know if I could have.

DONVAN: Interesting.

DUHIGG: The other part was the friend who recommended the C25K to me. She had to stop doing that. She had a sick child in the hospital, and she had to stop doing that, and I continued. Well, she has taken it back up this year, and she and I have decided we are doing one 5K every month at a minimum. So since September of 2012, we have done one 5K a month, and we will be getting up on New Year's Day for a Syracuse, New York, resolution run at 10:07 a.m., God willing.

DONVAN: Terry, that's - that may be more than a habit, but possibly an obsession.

(LAUGHTER)

DONVAN: Thanks for joining us on TALK OF THE NATION. Claire(ph), hi. Claire, you're on TALK OF THE NATION from San Mateo.

CLAIRE: Oh, hi. It's me, Claire. Yes. My...

DONVAN: Hey, Claire, I just need you to shut down the radio behind you. It sounds like you did. Hi. You're on TALK OF THE NATION.

CLAIRE: ...dating a man that didn't smoke and I was a smoker, and I realized that we were never going to make it together. But then I decided that I did want to marry this man. So I...

DONVAN: Claire?

CLAIRE: Oh, yes.
DONVAN: Yeah. Just nip over to the radio and turn down the dial, and we'll count to three. The - it's the magic of delay. All right. Claire, we'll come back to you. Let's go to Rich(ph) in San Jose, California. Hi, Rich. You're on TALK OF THE NATION.

RICH: Hi. I successfully battled my lifelong addiction to anger by following the advice of a wonderful counselor, Kevin Osborne(ph), who gave me a challenge, 30 day - for 30 days to not react. And I tried it, and I thought I was going to die because, for most of my life, when I felt angry, I would act out. I would yell. I would express it. And I thought that if I didn't, you know, that anger is like steam. It would just bottle up and blow up. You know, I would explode.

But, in fact, what happened was by not reacting, by breaking up the pattern and by receiving the reward of then not having to deal with the ramifications of yelling, I gained more and more mastery over anger. And so, today, I don't really have a problem with anger at all.

DUHIGG: Yeah, I - that's great. I mean, you know, and a huge part of what we know about how habits work is that there is - is part of it is just learning how much ability you have to change your own behaviors, right? All these things that look like they're completely impossible from the outside, that I couldn't possibly lose weight, or I couldn't possibly start running a 5k, or I couldn't possibly change my anger habits, that once you learn how much is within your own control, that that actually changes a lot of what's going on.

DONVAN: Does it get easier?

DUHIGG: It does absolutely get easier, and we know this from study after study. You know, during the break, we were talking a little bit about mindfulness. Mindfulness is actually this kind of insight that is becoming more and more popular in medicine and psychology about trying to understand what is going on right now, sort of living in the moment, to get a little woo-woo in it.

And what's important about that is that we have learned that when people become more mindful, when they start making changes in their life, it starts snowballing. So I mentioned before these keystone habits, that some habits seem to have more power than others because when they start to change, they set off a chain reaction that changes other habits in their wake.

Exercise is a great example, for instance. We know that people who start exercising habitually, they tend to start eating better, and that makes sense because, you know, you feel good. But people who start exercising habitually also start using their credit cards less. On average, they start doing their dishes earlier in the day.

And that's because when you - for a lot of people, exercise is a keystone habit. When you learn how to change your life through exercise, something that seems so hard and scary before, it starts causing, even on almost a subconscious level, you to start reanalyzing...

DONVAN: Everything else.

DUHIGG: ...how much control you have over everything.

DONVAN: You're listening to TALK OF THE NATION from NPR News. And we're talking with Charles Duhigg, author of "The Power of Habit." And, Claire, if you're still there in San Mateo and have turned down your radio, we'd love to bring you back into the conversation. Are you there?

CLAIRE: Yes, I am.
DONVAN: Hi.

CLAIRE: Well, my story is that I was a smoker and I had been for a long, long time, and I was unmarried and looking to be married. And I met a man who wasn't a smoker, and I thought, well, this is never going to work. And we became great friends, and then I decided that he'd be a great husband. So I decided to get - to quit smoking, which I did.

And we have just celebrated 30 years of happy marriage. And he was very hesitant to get married, and my smoking, ceasing of smoking, is what pushed him over the edge and made him commit because he kept getting cold feet. And so it started a new habit for him and an old habit for me.

DUHIGG: You know - excuse me - one of the things that makes me think, Claire, is one of the reasons why I think this is so important is because for the last 20 or 30 years - I went to business school, and I'm a business reporter. And for the last 20 or 30 years, there's been a lot of focus, particularly when it comes to psychology or companies, on big strategic decisions, right?

Which college are you going to go to? Which - who are you going to marry? What job are you going to have? What are you - where are you going to live? What city are you going to live in? And big strategic decisions matter, right? They have an impact on someone's life. But what equally matters is these small decisions that we make every single day, and, in fact, in some ways they matter more.

So what you had for lunch today does not matter, but what you have for lunch every day matters enormously for your health and for your energy, for how well you do your job. And I think that what's really important is that one of the reasons why the science is so exciting, why people are so enthusiastic about it, is because it's helping us remember that small iterative decisions we make every day - like whether we smoke or not and how that influences whether we end up marrying someone - those small decisions, they have huge impacts.

DONVAN: Claire, honestly, do you miss it? Do you miss smoking?

CLAIRE: Oh, not a day. I haven't had a puff in 30 years, and all I can say is he's my habit now. He's the best thing I ever had.

DONVAN: It's a good thing it didn't go the other way and he take up smoking.

(LAUGHTER)

CLAIRE: Oh, that never would have happened.

DONVAN: All right, Claire. Thanks very much for joining us on TALK OF THE NATION.

CLAIRE: Merry Christmas.

DONVAN: I'm curious in the minute that we have left to hear from you, Charles. Once we change a habit, is the old one still lurking there, ready to rear its head?

DUHIGG: Absolutely. This is one of the things that we know from all these neurological experiments: You can never actually really extinguish a habit. So the neural pathways that essentially get set up around a habitual behavior, they're always there. And they can diminish
and get smaller and smaller and smaller, but the pathway is still there. And so there's a thing that's known as the golden rule of habit change, which says if you want to change a habit, what you shouldn't do is just trying the willpower to throw it. You shouldn't just say, I used to smoke and now I'm not going to smoke. What you should do instead is you should identify those cues in rewards and find a new behavior that corresponds to the old cue, and deliver something similar to the old reward.

So that instead of just trying to squash a habit, you're changing it. And from a neurological perspective, what we know is that what's happening there is that you're actually changing the structure of your brain in regards to that behavior.

DONVAN: Sounds like Claire changed a man for cigarettes.

DUHIGG: That's right. That's exactly right.


DUHIGG: Thank you for having me.

DONVAN: Up next, elevators. Some of them creek and grind their ways through the floors, other zip with barely a sound, but there are couple of ways we're almost certain behave when we stepped through those doors. We'll have more on that after a short break. I'm John Donvan. It's TALK OF THE NATION from NPR News.
The Power of Habit

Charles Duhigg · January / February 2013

New York Times reporter Charles Duhigg explores the scientific research about habitual behaviors and what it reveals about how to change them.

This article was adapted from Duhigg’s New York Times bestseller, The Power of Habit: Why We Do What We Do in Life and Business (Random House, 2012).

In 2005, the late writer David Foster Wallace shared the following cautionary tale with a group of graduating college students:

“There are these two young fish swimming along and they happen to meet an older fish swimming the other way, who nods at the and says, ‘Morning boys, how’s the water?’ The two young fish swim on for a bit, and then eventually one of them looks over at the other and goes, ‘What the hell is water?’”

Foster Wallace was reminding the students that, just like those fish, our lives are largely determined by factors we never fully notice: our habits, those unthinking, automatic choices that surround us each day. They guide how we get dressed in the morning and fall asleep at night. They affect what we eat, how we do business, and whether we exercise or have a beer after work.

Each of our habits has a different catalyst and offers a unique payoff. Some are simple and others are complex, drawing upon emotional triggers and offering subtle neurochemical prizes. But every habit, no matter its complexity, is malleable. The most addicted alcoholic can become sober. The most dysfunctional families can transform themselves. A high school dropout can become a successful executive.

Changing habits is not just a matter of willpower, despite what you’ve probably learned. Sure, we all have habits we’ve tried to break and failed. And good habits we’ve tried to acquire and dropped. But the real obstacle to change for most people is not a lack of determination — it’s a lack of understanding how habit works.

As it happens, habits all get modified in somewhat the same way. When an individual successfully quits smoking or an organization changes collective behavior to improve its safety standards, there are certain universal patterns at work.

During their extensive studies of the underpinnings of habit in the 1990s, researchers at the Massachusetts Institute of Technology discovered a simple neurological loop at the core of
every habit. All habits, it turns out, consist of three parts: a routine, a reward and a cue. The researchers dubbed this the “habit loop.”

As they studied people and organizations who had successfully changed stubborn, pernicious behaviors, they learned that they all followed more or less the same steps: They had identified the routine around the habit, experimented with different rewards to satisfy the craving the behavior was trying to fulfill, and isolated the cue that triggered the behavior in the first place. Finally, those who successfully executed habit change had put a plan in place that would help them respond differently to the cue (whether it was fatigue driving them to caffeine or loneliness driving them to the bar) and nudge them in the direction of the new habit, thus preventing an unconscious return to the old behavior.

If you have a problem behavior with which you’re ready to part ways (and who doesn’t?), the following steps will show you how to deploy this framework so you can manifest the change you want to embrace.

**Step One: Identify the Routine**

Let’s say you have a bad habit. Maybe it’s a habit like my chocolate chip cookie routine. (I work at the *New York Times*, and for a long time every afternoon I’d head for the cafeteria for a cookie and a little socializing.)

Let’s say your habit has caused you to gain a few pounds. In fact, let’s say this habit has caused you to gain exactly 8 pounds, and that your wife has made a few pointed comments. You’ve tried to force yourself to stop — you even went so far as to put a Post-it on your computer that reads NO MORE COOKIES.

But every afternoon you manage to ignore that note, get up, wander toward the cafeteria, buy a cookie, and, while chatting with colleagues around the cash register, eat it. It feels good. Then it feels bad. Tomorrow, you promise yourself, you’ll muster the willpower to resist. Tomorrow will be different.

But tomorrow the habit takes hold again.

How do you ever hope to change this behavior, especially if the cookies are good?

The first step is to identify the routine. With most habits, the routine is the most obvious aspect: It’s the behavior you want to change. Let’s say your routine, like mine, is that you get up from your desk in the afternoon, walk to the cafeteria, buy a cookie, and eat it while chatting with friends.

Next, some less obvious questions: What’s the cue for this routine? Is it hunger? Boredom? Low blood sugar? That you need a break before plunging into another task?

And what’s the reward? The cookie itself? The change of scenery? The temporary distraction? Socializing with colleagues? Or the burst of energy that comes with that blast of sugar?

To figure this out, you’ll need to do a little experimentation.
Step Two: Experiment With Rewards

Rewards are powerful because they satisfy cravings. We’re often not conscious of the cravings that actually drive our behaviors, though. We might think we’re craving a little online shopping, but it’s really something else we’re after — distraction from an odious task, or the chance to daydream a little.

To figure out which cravings are driving particular habits, it’s useful to experiment with different rewards. This might take a few days, or a week or sometimes even longer. No matter how long it takes, you shouldn’t feel any pressure to make a real change yet. At this point, just think of yourself as a scientist collecting data.

On the first day of the experiment, when you feel the urge to submit to a habit you want to change, adjust your routine so it delivers a different reward. For instance, if it involves getting a cookie, you can still get up from your desk, but instead of walking to the cafeteria, walk around the block and go back to your desk without eating anything.

The next day, go to the cafeteria and buy a doughnut or a candy bar, and eat it at your desk. The day after that, go to the cafeteria, buy an apple, and eat it while chatting with your friends. Then, try a cup of coffee. Then, instead of going to the cafeteria, walk over to your not-too-busy friend’s office and gossip for a few minutes before going back to your desk.

You get the idea. What you choose to do instead of buying a cookie isn’t important. The point is to test different hypotheses to see which craving is driving your routine. Addicts in recovery learn early that they almost never drink for the intoxication, but because it helps them access certain rewards: relief from work stress, escape from worries, or freedom from social anxiety.

So are you really craving the cookie, or is it a break from work? If it’s the cookie, is it because you’re hungry? (In which case, the apple should work just as well.) Or is it because you want the burst of energy the cookie provides? (If so, the coffee or apple might suffice.) Or are you wandering up to the cafeteria as an excuse to socialize, and the cookie is just a convenient excuse? (If so, walking to someone’s desk and gossiping for a few minutes may satisfy the urge.)

As you test four or five different rewards, you can use an old trick to look for patterns: After each activity, jot down on a piece of paper the first three things that come to mind. They can be emotions, random thoughts, reflections on your feelings or just the first three words that pop into your head.

The reason why it’s important to write down three things (even if they are meaningless words) is twofold. It forces a momentary awareness of what you are thinking or feeling. And studies show that writing down a few words helps you recall later what you were thinking at that moment.
At the end of the experiment, when you review your notes, it will be much easier to remember what you were thinking and feeling after you got the reward. This will help you figure out what it is.

After you’ve scribbled down a few words, set an alarm on your watch or computer for 15 minutes. When it goes off, ask yourself: Do you still feel the urge for that cookie?

The purpose of this exercise is to determine the reward you’re craving. If, 15 minutes after eating a doughnut at your desk instead of a cookie by the cash register, you still feel an urge to get up and go to the cafeteria, then your habit isn’t motivated by a sugar craving. If, after gossiping at your colleague’s desk, you still want a cookie, then the need for human contact isn’t driving your behavior.

On the other hand, if 15 minutes after chatting with a friend you find it easy to get back to work, then you’ve identified the desired reward — temporary distraction and socializing — that your habit sought to satisfy.

By experimenting with different rewards, you can isolate what you are actually craving, which is essential in redesigning the habit.

Once you’ve figured out the routine and the reward, the next step involves identifying the cue — which is the last component of the habit loop. After that, you’ll be ready to make a plan.

**Step Three: Isolate the Cue**

Cues are the triggers for our habitual behaviors. They are often the most difficult part of habits to identify, because there is so much information bombarding us as our behaviors unfold. Do you eat at a certain time of day because you are hungry? Or because the clock says 7:30? Or because your kids have started eating?

To identify a cue amid the noise, we can use the same system as researchers in the field: Identify categories of behavior ahead of time to scrutinize them for patterns. Experiments have shown that almost all habitual cues fall into one of five categories: location, time, emotional state, other people, immediately preceding action.

Write down the information for these five things the moment an urge hits. (These are my actual notes from when I was trying to diagnose my cookie habit):

- Where are you? (Sitting at my desk)
- What time is it? (3:36 p.m.)
- What’s your emotional state? (Bored)
- Who else is around? (No one)
- What action preceded the urge? (Answered an email)

I did this for three days, and it became pretty clear which cue was triggering my cookie habit: time. I felt an urge to snack around 3:30 each day. I had already figured out, in step two, that it wasn’t hunger driving my behavior. The reward I was seeking was temporary distraction — the kind that comes from gossiping with a friend.
My habit loop was completed.

Once you’ve identified your own habit loop, you can begin to shift the behavior. You can develop a better routine by planning for the cue and choosing a behavior that more constructively delivers the real rewards you are craving.

**Step Four: Have a Plan**

A habit is a choice we make at some point, and then stop thinking about, but continue doing. Often we do it every day. Put another way, a habit is a formula our brain automatically follows: When I see this cue, I will do this routine in order to get that reward.

To reengineer that formula, we need to begin making conscious choices again. And the easiest way to do this, according to study after study, is to have a plan. Within psychology, these plans are known as “implementation intentions.”

I learned that my cue was time — roughly 3:30 in the afternoon. I knew my routine was to go to the cafeteria, buy a cookie and chat with friends. And, through experimentation, I had learned it wasn’t really the cookie I craved; rather, it was a moment of distraction and an opportunity to socialize.

So I wrote a plan: At 3:30, every day, I will walk to a friend’s desk and talk for 10 minutes.

It didn’t work immediately. There were some days I was too busy and ignored the alarm, and then fell off the wagon. Other times it seemed like too much work to find a friend willing to chat, so it was easier to get a cookie in the cafeteria, where someone to gossip with is also easier to come by.

But on those days I abided by my plan, I found I ended the workday feeling better. Eventually, it got to be automatic: When my alarm rang, I found a friend and ended the day feeling a small, but real, sense of accomplishment. After a few weeks, I hardly thought about the routine anymore.

I no longer have my watch — I lost it at some point. But at about 3:30 every day, I absent-mindedly stand up, look around the newsroom for someone to talk to, spend 10 minutes gossiping about the news and then go back to my desk. It occurs almost without me thinking about it. It has become a habit.

Obviously, changing certain habits can be more difficult. Quitting a habit of texting while driving asks less of you than renouncing an addiction to cigarettes or alcohol. Sometimes change takes a long time. Sometimes it requires repeated experiments and failures. And sometimes it is incredibly hard. But this framework is a place to start. Once you understand how a habit operates, you gain power over it. And then you’re on your way.

**Keystone Habits**
When Lisa Allen decided to quit smoking, she was borderline obese with $10,000 in debt and creditors hounding her. Four years later, she had lost 60 pounds, run a marathon, started a master’s degree and bought a home. The conviction that she had to quit smoking to accomplish her goals touched off a series of changes that would ultimately radiate out to other parts of her life.

There are certain habits that, once broken or adopted, tend to produce a landslide of other positive changes. These are known as “keystone habits.” They reveal that successful change doesn’t depend on getting every single thing right, but instead relies on identifying a few key priorities and fashioning them into powerful levers.

Studies from the past decade examining the impact of fitness on people’s daily routines have found that when people start exercising even as infrequently as once a week, they start changing other unrelated patterns in their lives, often unknowingly.

Typically, people who exercise start eating better and become more productive at work. They smoke less and show more patience with colleagues and family. They use their credit cards less frequently and feel less stressed. It’s not completely clear why. But for many people, taking time for fitness is a keystone habit that triggers widespread change.

“Exercise spills over,” says James Prochaska, a University of Rhode Island researcher. “There’s something about it that makes other good habits easier.”

Here are some other keystone habits:

**Eating family meals.** Studies have documented that families that habitually eat dinner together seem to raise children with better homework skills, higher grades, greater emotional control and more confidence.

**Making your bed each morning.** This behavior is correlated with better productivity, a greater sense of well-being and greater facility with following a budget.

**Keeping a food journal.** A 2009 study funded by the National Institutes of Health assembled a group of 1,600 obese people and asked them to write down everything they ate at least one day per week. This one habit — food journaling — created a structure that helped other good habits flourish by allowing subjects to identify their patterns and set up plans for healthy alternatives. Six months into the study, the people who kept daily food records had lost twice as much weight as everyone else.

By **Charles Duhigg**

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