

Lisa was the scientists' favorite participant. Once an obese, cigarette smoker and drinker, she was now a lean, vibrant runner with no outstanding debts. "It's almost 4 years since my last cigarette. I lost 60 pounds and ran a marathon since then." All participants were former smokers, chronic overeaters, problem drinkers, obsessive shoppers, and people with other destructive habits who had one thing in common: They had remade their lives in relatively short periods of time. To understand why, researchers measured every aspect of their bodies and videoed every aspect of their lives to figure out how habits work on a neurological level—and what it took to make them change.

Lisa, after hitting bottom one day in Cairo, decided to trek across the desert of Egypt. That one small shift in her perception—the conviction that she *had* to give up smoking to accomplish her goal—touched off a series of changes that would radiate out to every part of her life. Over the next 6 months, she replaced smoking with jogging, which, in turn saved money, scheduled her workdays, planned for the future, and so on. She would start running half-marathons, and then a marathon, go back to school, buy a house, and get engaged.

She was recruited into the scientists' study and when they began examining images of her brain, they saw something remarkable: one set of neurological patterns—her old habits—had been overridden by new patterns. Everyone in the study had gone through a similar process. By focusing on one pattern—what is known as a "keystone habit"—Lisa had taught herself how to reprogram other routines in her life, as well. It's not just individuals who are capable of such shifts. When companies focus on changing habits, whole organizations can transform.

All our life, so far as it has form, is a mass of habits. One study found that more than 40% of actions people performed each day weren't actual decisions, but habits. But only in the past 2 decades have scientists begun understanding how habits *work*—and more important, how they *change*.

The US military is one of the biggest habit-formation experiments in history. Basic training teaches soldiers carefully designed habits for how to shoot, think, and communicate under fire. One major I spoke to had learned the importance of organizational habits in ensuring that subordinates could make decisions without constantly asking permission, and how the right routines made it easier to work alongside people he normally couldn't stand. And now, as an impromptu nation builder in Kufa (Iraq), he was seeing how crowds and cultures abided by many of the same rules. In some sense, he said, a community was a giant collection of habits occurring among thousands of people that, depending on how they're influenced, could result in violence or peace. In addition to removing the food vendors, he had launched dozens of experiments in Kufa to influence residents' habits. There hadn't been a riot since he arrived.

"Understanding habits is the most important thing I've learned in the army," he told me.

Habits, scientists and marketers say, **emerge because the brain is constantly looking for ways to save effort**. Left to its own devices, **the brain will try to make almost any routine into a habit** because habits allow our minds to ramp down more often. These process within our brains is a 3-step loop. First a *cue* trig-

gers your brain to go into automatic mode and select a habit. Then there is a *routine*, which can be physical or mental or emotional. Finally, there is a *reward*, which helps your brain decide whether this particular loop is worth remembering for the future. Over time this loop—cue, routine, reward—becomes more and more automatic. The cue and reward become intertwined until a powerful sense of anticipation, and craving emerges. Eventually, a habit is born. **When a habit emerges, the brain stops fully participating in decision making**. So, unless you deliberately *fight* a habit—unless you find new routines—the pattern will unfold automatically.

Habits never disappear. This is why it's so hard to create exercise habits, for instance, or change what we eat. By the same rule, though, if we learn to create new neurological routines that overpower those behaviors—if we take control of the habit loop—we can force those bad tendencies into the background, just as Lisa did after her Cairo trip. Without habit loops, our brains would shut down, overwhelmed by the minutia of daily life. People whose basal ganglia are damaged by injury or disease often become mentally paralyzed because they lose access to the hundreds of habits they rely on every day. We may not remember the experiences that created our habits, but once lodged in our brains, they influence how we act—often without our realization.

Psychology was grounded in 2 basic rules: Find a simple and obvious cue; then clearly define the rewards. Studies of people who have successfully started new exercise routines, for instance, show that they are more likely to stick with a workout plan if they choose a specific cue, such as running as soon as they get home from work—and a clear reward, such as a beer or an evening of guilt-free television.

Habits are powerful because they create neurological cravings. Febreze became a hit only once they created a sense of craving—the desire to make everything smell as nice as it looked. Pepsodent's inventor made a toothpaste with ingredients that were irritants that create a cool, tingling sensation on the tongue and gums. After Pepsodent started dominating the marketplace, researchers at competing companies scrambled to figure out why. They discovered that customers said if they forgot to use Pepsodent, they realized their mistake because they missed that cool, tingling sensation in their mouths. They expected—they *craved*—that slight irritation. Pepsodent wasn't selling beautiful teeth. They were selling a sensation. Today, almost all toothpastes contain additives with the sole job of making your mouth tingle after you brush. Consumers need some kind of signal that a product is working. **Craving drives the habit loop**. And figuring out how to spark a craving makes creating a new habit easier.

**To change a habit, you must keep the old cue and deliver the old reward but insert a new routine**. If you use the same cue and provide the same reward, you can shift the routine and change the habit. Almost any behavior can be transformed if the cue and reward stay the same. Alcoholics Anonymous, became the largest, most well-known and successful habit-changing organization in the world. It's foundational credo, the famous 12 steps, have become cultural lodestones incorporated into treat-

ment programs for overeating, gambling, debt, sex, drugs, hoarding, self-mutilation, smoking, video game addictions, emotional dependency, and dozens of other destructive behaviors. The group's techniques offer, in many respects, one of the most powerful formulas for change. It provides a method for attacking the *habits* that surround alcohol use. AA, in essence, is a giant machine for changing habit loops. It keeps the same cues and rewards as before and feeds the craving by inserting a new routine.

Relief cravings occur in different parts of the brain from that of physical pleasure. In order to offer alcoholics the same rewards they get at a bar, AA has built a system of meetings and companionship. But belief seems critical. You don't have to believe in God, but you do need the capacity to believe that things will get better. Even if you give people better habits, it doesn't repair why they started drinking in the first place. A community creates belief.

**We know that a habit cannot be eradicated—it must, instead, be replaced.** For a habit to stay changed, people must believe change is possible. While addiction is complicated and still poorly understood, many of the behaviors that we associate with it are often driven by habit. Many of the lingering urges that we think of as nicotine's addictive twinges are really behavioral habits asserting themselves—we crave a cigarette at breakfast a month later not because we physically need it, but because we remember so fondly the rush it once provided each morning.

Some habits have the power to start a chain reaction, changing other habits as they move through an organization. Some habits, in other words, matter more than others in remaking business and lives. These are “**keystone habits.**” These, when they start to **shift, dislodge and remake other patterns.**

Researchers have found institutional habits in almost every organization or company they've scrutinized. Individuals have habits; groups have routines. The best government agencies understood the importance of routine. The worst were headed by people who never thought about it, and then wondered why no one followed their orders.

It's unclear why, but for many people, **exercise is a keystone habit that triggers widespread change.** Studies have documented that **families who habitually eat dinner together seem to raise children with better homework skills,** higher grades, greater emotional control, and more confidence. Somehow those initial shifts start chain reactions that help other good habits take hold. Keystone habits offer “small wins.” They help other habits to flourish by creating new structures, and they establish cultures where change become contagious.

Michael Phelps, even at a young age, had a capacity of obsessiveness that made him an ideal athlete. Habits would make him the strongest mental swimmer in the pool. He targeted a few specific habits that had nothing to do with swimming and everything to do with creating the right mind-set. He had a mental visualization, a videotape, of the perfect race.

**Small wins have enormous power** and influence disproportionate to the accomplishments of the victories themselves. They fuel transformative changes by leveraging tiny advantages into patterns that convince people that bigger achievements are within reach.

Keystone habits also encourage change by creating structure that help other habits to flourish. Food journaling created a structure that helped other habits to flourish. 6 months into one study, people who kept daily food records had lost twice as much weight as others.

With 137,000 employees and more than 1m alumni, Starbucks is now, in a sense, one of the nation's largest educators. All of those employees, in their first year spent at least 50 years in Starbucks's classroom, and dozens more at home with Starbucks' workbooks and talking to the Starbucks mentors assigned to them.

**Self-discipline has a bigger effect on academic performance than does intellectual talent.** And the best way to strengthen willpower and give students a leg up is to make it into a habit. Sometimes it looks like people with great self-control aren't working hard—but that's because they've made it automatic. Starbucks spent millions of dollars developing curricula to train employees on self-discipline. “We're not in the coffee business serving people,” Hoard Behar, the former president of Starbucks, told me. “We're in the people business serving coffee.” They developed training materials that spelled out routines for employees to use when they hit rough patches.

**Willpower isn't just a skill. It's a muscle,** like the muscles in your arms or legs, **and it gets tired as it works harder,** so there's less power left over for other things. If you do something that requires willpower—like going for a run after work—you have to conserve your willpower muscle during the day.

Public and charter schools in Philadelphia, Seattle, New York, and elsewhere have started incorporating willpower-strengthening lessons into curriculums. That's why piano lessons or sports are so important. It has nothing to do with creating a good musician or soccer star. When you learn to force yourself to practice for an hour or run 15 laps, you start building self-regulatory strength. Willpower becomes a habit by choosing a certain behavior ahead of time, and then following that routine when an inflection point arrives.

There are no organizations without institutional habits. There are only places where they are deliberately designed, and those created without forethought, which often grow from rivalries or fear. Firms are guided by long-held organizational habit, patterns that may leverage from thousands of employees' independent decisions. Routines provide the hundreds of unwritten rules that companies need to operate. They allow workers to experiment with new ideas without having to ask for permission at every step. They provide a kind of “organizational memory.” Among the most important benefits of routines is that they create truces between potentially warring groups of individuals within an organization. Most workplaces are made up of fiefdoms where executives compete for power and credit. Despite this capacity for internecine warfare, most companies roll along relatively peacefully, year after year, because they have routines--habits—that create truces that allow everyone to set aside their rivalries enough to get a day's work done. Leaders should cultivate habits that both create a real and balanced peace and, paradoxically, make it absolutely clear who's in charge.

Leaders may seize the possibilities created by a crisis. During turmoil, organizational habits become malleable enough

to both assign responsibility and create a more equitable balance of power. Crises are so valuable, in fact, that sometimes it's worth stirring up a sense of looming catastrophe rather than letting one die down.

Our brains crave familiarity in music because that's how we manage to hear without becoming distracted by all the sound. Just as scientists discovered that behavioral habits prevent us from becoming overwhelmed by the endless decisions, we would otherwise have to make each day, listening habits help determine if we should concentrate on our child's voice, the coach's whistle, or the noise from a busy street during a Saturday soccer game. Listening habits allow us to unconsciously separate important noises from those that can be ignored. That's why songs that sound "familiar"—even if you've never heard them before—are sticky.

YMCA found that while a facility's attractiveness and the availability of workout machines might cause people to join, what got them to stay was driven by emotional factors. Getting people to exercise in groups makes it more likely they'll stick with a workout.

A movement starts because of the social habits of friendship and the strong ties between close acquaintances. It grows because of the habits of a community, and the weak ties that hold neighborhoods and clans together. And it endures because a movement's leaders give participants new habits that create a fresh sense of identity and a feeling of ownership.

In 1955, Rosa Parks's many friendships and affiliations cut across Montgomery, Alabama's racial and economic lines. Her friends spanned Montgomery's social and economic hierarchies. She had what sociologists call "strong ties"—firsthand relationships—with dozens of groups throughout Montgomery that didn't usually come into contact with one another. When Parks's friends learned about her arrest and the boycott, the social habits of friendship—the natural inclination to help someone we respect—kicked in.

In landing a job, weak-tie acquaintances are often *more* important than strong-tie friends because weak ties give us access to social networks where we don't otherwise belong. Habits of peer pressure often spread through weak ties and gain authority through communal expectations. On a playground, peer pressure is dangerous. In adult life, it's how business gets done and communities self-organize.

The only way to get people to take responsibility for their spiritual maturity is to teach them *habits* of faith. The boycott started among people who knew Rosa Parks and became a mass protest when the weak ties of the community compelled participation. At mega-churches it works the other way around. People are attracted by a sense of community and the weak ties that a congregation offers.

Embedded within Martin Luther King's philosophy was a set of new behaviors that converted participants from followers into self-directing leaders. King recast Montgomery's struggle by giving protesters a new sense of self-identity. The protest became a movement because people took ownership of a historic event. And that social pattern, over time, became automatic and expanded to other places and groups of students and protesters whom King had never met, but who could take on

leadership of the movement by watching how its participants habitually behaved.

Movements don't emerge because everyone suddenly decides to face the same direction at once. They rely on social patterns that begin as the habits of friendship, grow through the habits of communities, and are sustained by new habits that change participants' sense of self.

Just as a piece of land must be prepared beforehand if it is to nourish the seed, so **the mind of the pupil must be prepared in its habits if it is to enjoy and dislike the right things.** Habits allow us to do a thing with difficulty the first time, but soon do it more and more easily, and finally, with sufficient practice, do it semi-mechanically, or with hardly any consciousness at all. **Your habits are what you choose them to be.** Once that choice occurs—and becomes automatic—it's not only real, but it also starts to seem inevitable, the thing, that bears us irresistibly toward our destiny, whatever that may be. Water is an apt analogy for how a habit works. Water hollows out for itself a channel, which grows broader and deeper; and, after having ceased to flow, it resumes, when it flows again, the path traced by itself before.

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