



The following is an extract from 'Making Habits, Breaking Habits: Why We Do Things, Why We Don't, and How to Make Any Changes Stick', by Jeremy Dean, creator of PsyBlog.

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## Birth of a Habit

**T**his book started with an apparently simple question that seemed to have a simple answer: How long does it take to form a new habit? Say you want to go to the gym regularly, eat more fruit, learn a new language, make new friends, practice a musical instrument, or achieve anything that requires regular application of effort over time. How long should it take before it becomes a part of your routine rather than something you have to force yourself to do?

I looked for an answer the same way most people do nowadays: I asked Google. This search suggested the answer was clear-cut. Most top results made reference to a magic figure of 21 days. These websites maintained that “research” (and the scare-quotes are fully justified) had found that if you repeated a behavior every day for 21 days, then you would have established a brand-new habit. There wasn't much discussion of what type of behavior it was or the circumstances you had to repeat it in, just this figure of 21 days. Exercise,





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smoking, writing a diary, or turning cartwheels; you name it, 21 days is the answer. In addition, many authors recommend that it's crucial to maintain a chain of 21 days without breaking it. But where does this number come from? Since I'm a psychologist with research training, I'm used to seeing references that would support a bold statement like this. There were none.

My search turned to the library. There, I discovered a variety of stories going around about the source of the number. Easily, my favorite concerns a plastic surgeon, Maxwell Maltz, M.D. Dr Maltz published a book in 1960 called *Psycho-Cybernetics* in which he noted that amputees took, on average, 21 days to adjust to the loss of a limb and he argued that people take 21 days to adjust to any major life changes.<sup>1</sup> He also wrote that he saw the same pattern in those whose faces he had operated on. He found that it took about 21 days for their self-esteem either to rise to meet their newly created beauty or stay at its old level.

The figure of 21 days has exercised an enormous power over self-help authors ever since. Bookshops are filled with titles like *Millionaire Habits in 21 Days*, *21 Days to a Thrifty Lifestyle*, *21 Days to Eating Better*, and finally, the most optimistic of all: *21-Day Challenge: Change Almost Anything in 21 Days* (at least it acknowledges that it might be a challenge!). Occasionally, the 21-day period is deemed a little too optimistic and we are given an extra week to transform ourselves. These more generous titles include *The 28-Day Vitality Plan* and *Diet Rehab: 28 Days to Finally Stop Craving the Foods that Make You Fat*.

Whether 21 or 28 days, it's clear that what we eat, how we spend money, or indeed, anything else we do, has little in com-





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mon with losing a leg or having plastic surgery. To take Dr Maltz's observations of his patients and generalize them to almost all human behavior is optimistic at best. It's even more optimistic when you consider the variety amongst habits. Driving to work, avoiding the cracks in the pavement, thinking about sports, walking the dog, eating a salad, booking a flight to China; they could all be habits and yet they involve such different areas of our lives. But, to be fair, Maltz didn't invent the 21-day time frame; there are all sorts of origin stories explaining its whereabouts, most of them standing on science-free ground.

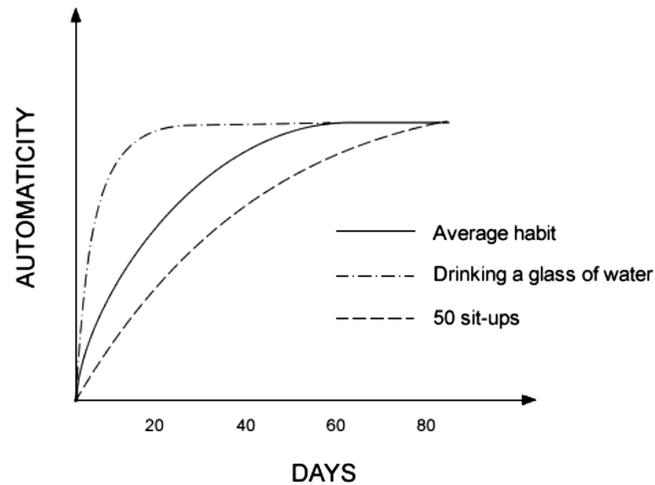
Thanks to recent research, though, we now have some idea of how long common habits really take to form. In a study carried out at University College London, 96 participants were asked to choose an everyday behavior that they wanted to turn into a habit.<sup>2</sup> They all chose something they didn't already do that could be repeated every day; many were health-related: people chose things like "eating a piece of fruit with lunch" and "running for 15 minutes after dinner." Each of the 84 days of the study, they logged into a website and reported whether or not they'd carried out the behavior, as well as how automatic the behavior had felt. As we'll soon see, acting without thinking, or "automaticity," is a central component of a habit.

So, here's the big question: How long did it take to form a habit? The simple answer is that, on average, across the participants who provided enough data, it took 66 days until a habit was formed. And, contrary to what's commonly believed, missing a day or two didn't much affect habit formation. The complicated answer is more interesting, though (otherwise, this would be a short book).





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On average, habit formation took 66 days. Drinking a glass of water reached maximum automaticity after 20 days; for 50 sit-ups, it took longer than the 84 days of the study.

As you might imagine, there was considerable variation in how long habits took to form depending on what people tried to do. People who resolved to drink a glass of water after breakfast were up to maximum automaticity after about 20 days, while those trying to eat a piece of fruit with lunch took at least twice as long to turn it into a habit. The exercise habit proved most tricky with “50 sit-ups after morning coffee,” still not a habit after 84 days for one participant. “Walking for 10 minutes after breakfast,” though, was turned into a habit after 50 days for another participant.

The graph shows that this study found a curved relationship between repeating a habit and automaticity. This means that the earlier repetitions produced the greatest gains towards establish-





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ing a habit. As time went on these gains were smaller. It's like trying to run up a hill that starts out steep and gradually levels off. At the start you're making great progress upwards, but the closer you get to the peak, the smaller the gains in altitude with each step. For a minority of participants, though, the new habits did not come naturally. Indeed, overall, the researchers were surprised by how slowly habits seemed to form. Although the study only covered 84 days, by extrapolating the curves, it turned out that some of the habits could have taken around 254 days to form—the better part of a year!

What this research suggests is that 21 days to form a habit is probably right, as long as all you want to do is drink a glass of water after breakfast. Anything harder is likely to take longer to become a really strong habit, and, in the case of some activities, much longer. Dr Maltz and his cheerleaders weren't even close, and all those books promising habit change in only a few weeks are grossly optimistic. Of course, this study opens up a whole new set of questions. The participants were only trying to adopt new habits; what about our existing habits? How much better might they have done using tried and tested psychological techniques? And this study doesn't really tell us what a habit feels like, how we experience it, or where it tends to happen.

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What do we actually do all day long? Some busy days slip by in a flash and we remember little. Whether at work or idling around at home, it would be fascinating to know exactly how our time is

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spent and which parts are habitual. Unfortunately, there's a very good reason why we tend to be awful at recalling habitual behavior, which is to do with its automaticity. So psychologists use diary studies, which give a much more accurate picture of what people are up to than we can get from memory. In one study led by habit researcher Wendy Wood, 70 undergraduates at Texas A&M University were given a watch alarm.<sup>3</sup> Every hour while they were awake, it reminded them to write down what they were doing, thinking, and feeling, right at that very moment. The idea was not just to build up a list of activities, but to see the context in which they occurred. Across two separate studies, the researchers found that somewhere between one-third and half the time, people were engaged in behaviors which were rated as habitual. This suggests that as much as half the time we're awake, we're performing a habit of one kind or another. Even this high figure may well be an underestimate, since it's based only on young people whose habits haven't had much of a chance to set hard.<sup>4</sup>

So, what were participants in Wood's research up to? Since they were students, the largest category was studying. This included attending classes, reading, and going to the library, which made up 32% of the diary entries. Amongst these activities, about one-third were classified as habitual. The next category was entertainment, which participants were engaged in 14% of the time. This included things like watching TV, using the Internet, and listening to music. And this time, the percentage of habitual activities went up to 54%. Next on the list were social interactions, which made up 10% of the entries and 47% of which were classified as habitual behaviors. The category in which the behaviors





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were least habitual was cleaning, down at only 21%, while the category which was most habitual was going to sleep and waking up at 81% (at least they weren't hiding their lazy, slovenly ways!).

More important than precisely what they were doing (especially for those of us who aren't students), are the characteristics of habits. What does it feel like? What's going on in our minds? What emerged from this study, as it has from others, are three main characteristics of a habit. The first is that we're only vaguely aware of performing them. Like when you drive to work and don't notice the traffic lights. You know some part of your mind was attending to them, along with other road-users and the speed limit, but you often can't specifically remember doing so. In Wood's study, participants reported exactly this vagueness about their habitual behavior. While they were hanging out, watching TV, or brushing their teeth, they reported thinking about what they were doing only 40% of the time. It's one of the major benefits of a habit: it allows us to zone out and think about something else, like planning a trip on the weekend. Habits allow the conscious part of our minds to go a-wandering while our unconscious gets on with those tedious repetitious behaviors. Habits help protect us from "decision fatigue": the fact that the mere act of making decisions depletes our mental energy. Whatever can be done automatically frees up our processing power for other thoughts.

A habit doesn't just fly under the radar cognitively; it also does so emotionally. And this is the second characteristic that emerged: the act of performing a habit is curiously emotionless. The reason is that habits, through their repetition, lose their emotional flavor. Like anything in life, as we become habituated, our





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emotional response lessens. The emotion researcher Nico Frijda classifies this as one of the laws of emotion and it applies to both pleasure and pain.<sup>5</sup> Activities we once considered painful, like getting up early to go to work, become less so with repetition. On the other hand, activities which excite or give us pleasure initially, like sex, beer, or listening to Beethoven's 7th, soon become mundane. Of course, we fight against the leaking away of pleasure, sometimes with success, by seeking variety. This is why some people feel they have to keep pushing the boundaries of experience just to get the same high.

None of this means we don't feel emotion while performing a habit, it's just that the feelings we experience usually have less to do with the habit and more to do with where our minds have wandered off. Wood's research found this exact pattern in participants' reports of their emotional experience. Compared with non-habitual behaviors, when people were performing habits their emotions tended not to change. In addition, the emotions that people did experience were less likely to be related to what they were doing than when their activities were non-habitual. The fact that habitual behavior doesn't stir up strong emotions is one of its advantages. Participants in this study felt more in control and less stressed while performing habits than they did enacting non-habitual behaviors. The moment that participants switched to non-habitual behaviors, their stress level increased.

The third important characteristic of a habit is so obvious that we often don't notice it. Perhaps this is partly a result of the automatic nature of habits. Take some typical daily routines: You get up in the morning, go to the bathroom, and take a shower...





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Later you're in the car when you turn on your favorite radio station... Then, at the coffee shop, you order a blueberry muffin... The connection is context. We tend to do the same things in the same circumstances. Indeed, it's partly this correspondence between the situation and behavior that causes habits to form in the first place.

The idea that we create associations between our environment and certain behaviors was memorably demonstrated by the Russian physiologist, Ivan Pavlov. In Pavlov's most famous research, carried out on dogs, he created an association between being fed and a ringing bell. Then, after a while, he tried ringing the bell without feeding the dog. He noticed that the dog began to salivate anyway. The bathroom, car, and coffee shop are like Pavlov's bell, unconsciously reminding us of long-standing patterns of behavior, which we then enact again, in exactly the same way as before. This is backed up by research on humans that shows that people tend to perform the same actions in the same contexts. In the diary study described above, most of the behaviors, like socializing, washing, and reading were carried out in the same place.

It becomes clear just how much context is important for habit whenever you move house or get a new job. Once in a new home, it's suddenly difficult to do the simplest of jobs. Making a sandwich becomes an ordeal as you have to consciously think about where the knives and plates are. It's not just simple tasks that become more difficult; it's all your usual routines. From getting up in the morning to going to bed at night, so many tasks feel like they're being done for the first time. You may even find yourself





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trying to carry out your old habits in your new home, to no avail: because everything has moved, suddenly those ingrained ways of behaving fail you. The same goes for new jobs. Where once you glided around the workplace on autopilot from one task to the next, in the new job you feel like a fish out of water.

Psychologists have seen how important context is in research on how people cope with changes to their environment. In one study, students' habits were tracked as they transferred to a new university.<sup>6</sup> They were asked how often they watched TV, read the paper, and exercised both before the move and afterwards. They were also asked about the context in which these habitual behaviors were performed. How did they perceive the context, where were they physically, and who was with them at the time? The answers to these questions built a picture of whether the context had really changed with the move from one location to another. For example, it's possible that although a physical location changes, the overall context doesn't. Like hotel rooms, one dorm room can look much like another; so it might not *feel* that things have changed much.

What the participants reported as they moved from one university to another was that context was important in habit change. They found that if they wanted to cut down their TV and increase their exercise, it was easier to do so after the move. This is because new surroundings don't have all the familiar cues to our old habits. Without these cues, our autopilot doesn't run so smoothly and our conscious mind keeps asking us what to do. That's why moving house is like going on holiday: without your established routines, you have to keep consciously thinking about what you're going to do now. The same thing happened to these





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students. Instead of automatically watching TV or reading the newspaper, they were more likely to think, “What did I *plan* to do today?” and “What do I actually *want* to do now?” As a consequence, a world of possibility opens up.

The rather bland word “context” can also include other people. Whether we notice it or not, we are heavily influenced by those around us. The researchers in this study found that participants’ behavior was disrupted by any changes in the behavior of those around them. For example, students reported they changed their newspaper reading habits if those around them changed theirs. It isn’t necessarily the case that we copy other people, just that they tend to cause some change in us. This ties in with the finding that people who live alone report more of their daily behaviors as being habitual than those who live with others.<sup>7</sup> Other people, then, disrupt our routines, sometimes for better, sometimes for worse.

Now we’ve seen how habits are born, what they feel like, and how much of our daily lives they take up. Three characteristics have emerged: firstly, we perform habits automatically without much conscious deliberation. Secondly, habitual behaviors provoke little emotional response by themselves. Thirdly, habits are strongly rooted in the situations in which they occur. We also know that they can vary considerably in how long they take to form. But how much control do we have over our habits? If we want to make a change, how easy will it be?

**'Making Habits, Breaking Habits', by Jeremy Dean is now available on Amazon.com and Amazon.co.uk, and at all good retailers.**

