PART ONE

The Essence of Willpower

Abby became a volunteer at Canal College, which is part of the Scottish Waterways Trust and helps young people like Abby acquire job experience to go on to further education or employment. Canal College also helps the environment by improving British canals and the surrounding areas. I'll let her tell you her story.

> *"I'd left school in my second year to be home schooled. A mixture of health problems and anxiety had led me to be unable to cope in school anymore. I still finished all my exams and stuff, completed my education, just not in school. So because of that I wasn't socialising. I had almost three years of no socialising with people my own age. And that led to my anxiety getting worse. I never went out, never had any friends, so I became the ultimate recluse. I just could not talk to people. The only person I spoke to was my mum, that was it, I didn't have anyone else.*
>
> *Well once I'd finished with the home schooling, Canal College was suggested to me because I like nature and it was outdoors. At first I refused. I'm not doing that, no chance, no! I will admit just the thought of it gave me a few panic attacks, but I eventually I said, yeah ok, I'll sign up for that, but I won't get the placement. And then it turned out I did get the placement and then oh no, I don't want to do this. I went to the interview and although I was very quiet, they were willing to give me a chance, so I took it and I went and it was terrifying.*

I felt a mixture of fear and excitement. I was happy that I'd got something and I was determined to get over my anxiety. I was working through it, but I was also really nervous about how I'd cope because I hadn't ever been in a group of people my age. So it was a huge step.

Just having to look someone in the eye was a big thing for me. I couldn't talk to people. I remember when I first got to college. It was the first day; I just sat in the corner and didn't talk to anyone. The only people who tried to talk to me were the mentors, the adults who are there to try and help the young people.

Some nights I just couldn't sleep. Even though I was literally trembling, I forced myself to go, no matter how uncomfortable I felt. I never missed a day. There was one day where I was genuinely sick, but no matter how nervous I felt, I always made myself go. This was my chance, I kept telling myself.

During those first two or three weeks, people talked to me and I found that helpful because I definitely wasn't going to talk to them. But about three weeks in, I started talking back to the people who were trying to talk to me. I really didn't know how to interact with people, so sometimes I would sit and watch to see what they did, how people interacted with each other, to work out what was normal. Kind of looking for tips.

When I was working at Canal College, I also started attending group meetings for young people. So I ended up having two new things at the same time and I went from having nothing in my life to having no time to myself. That happened in the span of a couple of weeks. So it was a really big change and although it was really uncomfortable, I don't know, it's weird, I kind of got this pleasure out of it; like I don't really like it, but I'm doing it, if that makes sense? One thing I could never ever do was talk in front of people, and now I do it in college all the time, so that's something I never thought I'd be good at.

Before Canal College, I think I was getting to the point where I was going to give up, depression was getting hold of me and I just wasn't coping. I really do not ever want to relive those couple of years. Don't get me wrong, when I first started Canal College, I did have relapses of panic attacks, but I did eventually overcome them. I actually went on a skiing holiday with some of the people from my meeting group and I never would have done that before.

In three or four years I will be at university, I'm not sure which one yet. And probably at that time I'll be living in a flat with flatmates, probably have a good few pals and hopefully have a job at the same time.

My take on willpower is an image of someone about to bungee jump and you have to be the one to step off. Not so much ignoring the fear, but acknowledging it's there and accepting you've got to overcome it."

An insightful example of willpower from Abby, who has turned her life around using incredible self-control when she could have easily given up. There were many examples of willpower ingredients in her story. All of which we will explore further to help your own Willpower Challenges.

WILLPOWER INGREDIENTS IN ABBY'S STORY

- Abby's Challenge had huge *meaning* for her. It was a chance for a new start, a life.
- She said throughout, "I don't like it but I'm doing it!" With a Willpower Challenge you may have to accept that if you are entering an entirely new arena, you might be *uncomfortable* initially but that this will fade.
- She talked about her *goals* and they were very specific. Having clear goals is essential to willpower.
- She had a *clear vision* of how her future would look. Visualising success is a willpower skill.
- And she also provided a great example of *generalisation*: when she faced one hurdle she then felt she could take on others in the same way at the same time.
- She had a strong *belief* that all would work out.
- She provided a great example of the *three-week rule* to establish a new behaviour. After three weeks she was talking to others, not waiting for them to talk to her.

All these willpower ingredients will be at your disposal throughout the book.

Before we go any further, I would like you to assess your own willpower. I always like to begin an exploration of a topic with self-discovery. Let's not define willpower yet until you answer the questions and score the results; then we can build up a sense of what willpower entails.

DIRECTIONS FOR COMPLETING THE WILLPOWER SCALE

Table 1.1 lists a number of statements that may or may not apply to you. For the most accurate score, when responding, think of how you compare to most people – not just the people you know well, but most people in general. There are no right or wrong answers, so be brutally honest with yourself.

TABLE 1.1 The Willpower Scale

	Not like me at all	Not much like me	Somewhat like me	Mostly like me	Very much like me
1. I am good at resisting temptation					
2. I have a hard time breaking bad habits					
3. I have a tendency to be lazy					
4. I am flexible and open to change					
5. I tend to blurt things out					
6. I never overdo it when eating and drinking					
7. I do things that are bad for me if they are fun					
8. I wish I had more self-discipline					
9. I work really hard					
10. Sometimes I can't stop myself doing something even if I know it's wrong					

	Not like me at all	Not much like me	Somewhat like me	Mostly like me	Very much like me
11. I never act without thinking through alternatives					
12. I am able to work towards long-term goals					
13. Pleasure and fun sometimes get in the way of work being done					
14. People would say I have iron self-discipline					
15. I really learn from my mistakes					
16. I don't care if I'm different from other people					
17. I give up on things quickly					
18. I like things to remain the same					
19. I tend to fit in with the people around me					
20. I have a lot of willpower					

THE WILLPOWER SCALE

Scoring

To score the questionnaire, add up all the points that you have given to each of the questions. Write the totals in the boxes given here.

Results

1. For questions 1, 4, 6, 9, 11, 12, 14, 15, 16, 17 and 20 assign the following points:
   5 = Very much like me
   4 = Mostly like me
   3 = Somewhat like me
   2 = Not much like me
   1 = Not like me at all

	1	4	6	9	11	12	14	15	16	20	
Total											

2. For questions 2, 3, 5, 7, 8, 10, 13, 17, 18 and 19 assign the following points:
   1 = Very much like me
   2 = Mostly like me
   3 = Somewhat like me
   4 = Not much like me
   5 = Not like me at all

	2	3	5	7	8	10	13	17	18	19	
Total											

Add up all your points. The maximum score on this scale is 100 (high willpower), and the lowest scale on this scale is 20 (low willpower).

Willpower is About

- Resisting temptation in order to reach a desired goal.
- Establishing a useful habit or routine.
- Hard work to achieve good outcomes.
- A desire to change.
- Self-control over what you say and do.
- An ability to think through alternative ways of behaving.
- Not worrying what others think or do.

Results

If you achieved between *20* and *45* then this result constitutes a *low willpower score* and you will have considerable work to do on your willpower. You may consistently have trouble resisting temptation and will give in especially if those around you are doing so. You will tend to go for immediate rewards instead of delaying gratification to reach a goal.

A score of between *45* and *75* is a *medium willpower score* and you will have some successes but also some challenges. Review the scale and list all questions where you achieved a score of a 1, 2 or 3. These will be the areas which have undermined your willpower in the past and should be addressed for future success.

If you scored between *75* and *100* then this signifies a *high willpower score*. Well done. You tend to have good self-control, can generally resist temptation and have an ability to delay gratification. Unless you achieved a score of 100 then you may still have some work to do on certain aspects of willpower. Review the results and work out what aspects may require some improvement. You may also like to embrace a new Willpower Challenge in the future or help someone else with theirs, and this book provides the skills for both.

I'm not sure you would ever want to score 100, as self-control max may be an uncomfortable place to be!

Willpower covers a multitude of concepts and vocabulary and, as you will discover, it contains all of the ingredients you can see in Figure 1.1. We will explore them all throughout the book.

I have been a psychologist for more years than I care to mention and have spent my professional life helping clients develop successful strategies

FIGURE 1.1 The Ingredients of Willpower

and useful habits to achieve their goals, whatever they might be. Willpower is an intrinsic part of this change process and is a current focus of study, with much research surrounding the results of having it and the effects of not.

Let's take a look at some of this research before you embark on your own Willpower Challenge. You need to know what works and the research will guide you through the practicalities. It also helps you understand the importance of willpower when you want to change anything, a bad to a good habit, healthy eating, an exercise regime or indeed how you work.

WILLPOWER RESEARCH

"If only I had more willpower" is a cry heard often in the face of a diet jettisoned, smoking restarted or any short-term pleasure pursued to the detriment of future gain. Is willpower an innate capability – something we just have or haven't – or is it something we can learn? I strongly believe the latter and yet those with great self-control often believe it is innate. They seem to feel as if they have always had it. Innate or learned, whichever you believe, willpower is certainly important.

The results of the American Psychological Association's annual *Stress in America* survey in 2011 revealed that 27% of participants cited a lack of willpower as the major reason they couldn't make healthy lifestyle changes.

In 2005, University of Pennsylvania psychologists Angela Duckworth and Martin Seligman explored self-control in school children over the course of a school year. The researchers first gauged the students' self-discipline (willpower) by having teachers, parents and the students themselves rate their behaviour.

They also gave students a task in which they had the option of receiving $1 immediately or waiting a week to receive $2. They found students who ranked high on self-discipline had better grades, better school attendance and were more likely to be admitted to a good high school. The clincher of the study was that willpower was more important than intelligence in predicting academic success. Wow.

Other studies have produced similar results. In 2004, June Tangney of George Mason University asked undergraduate students to complete

self-control measures. They found that high self-control scores correlated with higher grade point averages, higher self-esteem, less binge-eating and alcohol abuse, and . . . would you believe it . . . better relationship skills. So a bit of self-control when providing feedback to your "other half" is fervently desired!

The benefits of willpower seem to extend well beyond school, college or university years. Terrie Moffitt of Duke University published results in 2011 about self-control in a group of 1000 individuals who were tracked from birth to 32 as part of a long-term health study in New Zealand. She and her colleagues found those with high self-control in childhood (as reported by teachers, parents and the children themselves) grew into adults with greater physical and mental health, fewer substance abuse problems and criminal convictions, better savings behaviour and greater financial security. Those patterns were nothing to do with family socio-economic status or, indeed, intelligence.

So willpower has huge general importance in nearly all areas of life.

Definition I Willpower is the ability to resist short-term temptations in order to meet long-term goals.

Before bringing things up to date, we first have to return to 1989 when Walter Mischel's research began. Mischel, a psychologist from Columbia University, explored self-control in children using the now famous "marshmallow test" and laid the groundwork for our understanding of self-control.

Young children were presented with a plate of marshmallows and invited to eat one. They were then told that the researcher would leave the room for a few minutes and if they waited until the researcher returned, they could eat two marshmallows. If the child couldn't wait for the returning researcher, they could ring a bell and the researcher would return but with no second marshmallow on offer.

The children with good self-control gave up the immediate pleasure of one in order to eat two at some later stage. Dieters resist chocolate cake so they can become more streamlined. Shoppers resist splurging at the mall so they can save for a comfortable retirement. All examples of resistance.

Actions for Willpower

- Remind yourself of the advantages of resistance. Write them down somewhere noticeable.
- Imagine the positive outcome. More money in the bank, a thinner you, two marshmallows not one.
- Distraction works. Look away from temptation. Do something else, anything else, just not what you want to avoid.

Mischel then proposed what he calls a "hot/cool" system to explain why willpower succeeds or fails. The cool system is cognitive and rational. It's a thinking system with knowledge about the impact of your choice with thoughts, feelings and actions all designed to remind you why you should leave the marshmallow where it belongs. While the cool system is relaxed, the hot system is impulsive and emotional. It is responsible for quick, knee-jerk responses to certain triggers, such as eating the marshmallow (and possibly the rest of the plate) immediately without thinking of the long-term implications.

When willpower fails, exposure to a "hot" stimulus essentially overrides the cool system, leading to impulsive actions. Some people, it seems, may be more or less susceptible to hot triggers. And that susceptibility to emotional responses may influence their behaviour throughout life, as Mischel discovered when he revisited his marshmallow-test subjects as adolescents. He found that teenagers who had waited longer for the marshmallows as young children were more likely to score higher on exams, and their parents were more likely to rate them as having a greater planning ability, handling stress well, showing self-control in frustrating situations and concentrating without becoming distracted.

As it turns out, the marshmallow study didn't end there. Bringing things up to date, B.J. Casey, of Weill Cornell Medical College, along with Mischel and Shoda of the University of Washington and other colleagues, tracked down 59 subjects, now in their 40s, who had participated in the marshmallow experiments as children. The researchers tested the subjects' willpower strength again with different measures (not marshmallows!).

Amazingly, the subjects' willpower differences had mostly been maintained over four decades. In general, children who were less successful at resisting the marshmallow all those years ago did less well on the

self-control task as adults. An individual's sensitivity to so-called "hot stimuli", it seems, may continue throughout their life.

Additionally, Casey and her colleagues examined brain activity in some subjects using functional magnetic resonance imaging. When presented with tempting stimuli, individuals with low self-control showed brain patterns that differed from those with high self-control. The researchers found that the prefrontal cortex (a region in the brain that controls functions, such as making decisions) was more active in subjects with higher self-control. And the ventral striatum (a region thought to be involved in desires and rewards) showed boosted activity in those with lower self-control.

So what is happening in our brains when faced with willpower? And can "hot" choice people "un-happen" this response and become "cool"? I started to pursue these thoughts by looking at the brain, as it seems to me that this is the nub of our understanding about willpower.

Definition 2 Willpower is cool and rational.

WILLPOWER IS A GAME OF TWO BRAINS

Contrary to the thoughts of Plato and Freud, plus other advocates of the rationality of man, it was discovered that if we didn't have emotion, reason would go out the window. This resulted from assessment of patients with frontal lobe brain damage. The outcome was that despite retaining all intellectual faculties these patients couldn't make a decision. They had become unemotional and were simply overwhelmed with detail as all options in their lives had the same weight. We make choices with feelings. So contrary to Plato, who thought that pure reason was devoid of emotion, in fact nothing could be further from the truth . . . and this was in the frontal cortex, traditionally thought to be the home of higher-order rational thought.

It was once thought that the complexity of function rose as you went up the levels. Figure 1.2 categorises these functions from animalistic brainstem to the abstract thinking of the frontal cortex. The reality is even more complex, with many links from the lower three levels to the frontal cortex.

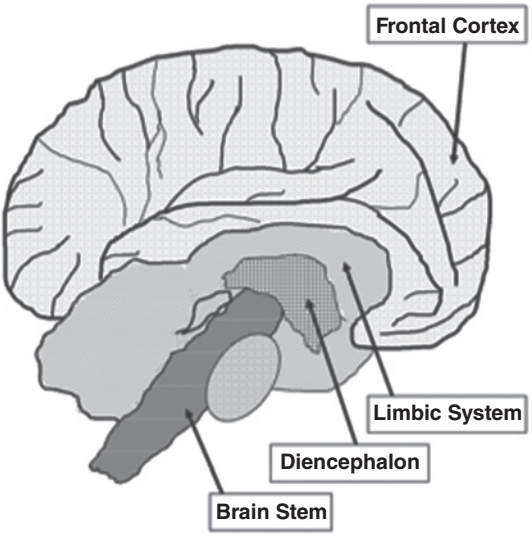

FIGURE 1.2 The Four Levels in the Brain

There are four levels in the brain starting with the *brain stem,* which regulates our bodily functions of temperature, breathing and heart-beat, then the *diencephalon* which is involved in hunger and sleep. The *limbic system* is the third level and the centre for emotions of violence, lust and impulsive, animalistic behaviour. And then the fourth upper level of the brain the *frontal cortex,* traditionally viewed as the source of intelligence and rationality (see Figure 1.2).

It was believed that as the functions rose from brainstem to frontal cortex – like an elevator in a store passing through a variety of departments – they became increasingly higher order: from the sub-basement of animalistic instinct to the top floor of conceptual thought (Figure 1.3).

Simply put, the idea was that the top floor development of the frontal cortex placed us humans above any other animal as it emphasised our rationality and was our differentiator, our evolutionary USP. This was wrong!

The frontal cortex **is** involved with emotion, connecting the lower three levels with the upper-level thought processes. In particular it is the orbitofrontal cortex which integrates emotion into our decision-making process. And it is this link to our lower, older animal brain which allows us to make speedy decisions based on previous encounters and learning.

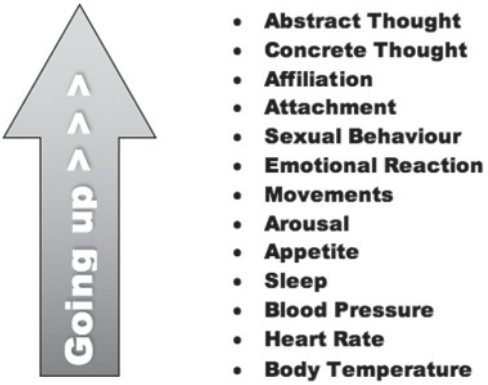

FIGURE 1.3 Elevator Brain

In fact, we need both the upper and lower brains to make decisions. So the sub-basement has all sorts of back stairs to the top floors of our brains!

This system worked particularly well when we were emerging from the jungle, walking erect and on the lookout for predators. The advantage of our evolutionary brains was that we kept the animal brain as well as our higher-order brain and, when threatened by something hairier and larger than we were, this lower brain kicked in – overriding the higher-order thinking brain. Dopamine, the "surprise" neurotransmitter, is launched from our mid brains putting us on high alert.

This fight or flight stress response – with beating heart, rapid breathing and all senses alert – ensures that we mobilise quickly. Stress hormones are released from the adrenal glands along with fats and sugar from our liver, lungs pump to fuel the body with extra oxygen and our cardiovascular system is in high gear to provide energy to fight this thing or run as fast as we can. And all of this happens quicker than a click of the fingers. Left up to the frontal lobes of the upper brain we would still be contemplating what to do and become a beast's lunch. End of species!

For our purposes here, willpower is often a struggle, sometimes daily, between our higher-order first-level brain – the prefrontal cortex – and the impulsivity of our second-level brain which houses the limbic system with links to the ventral striatum, as mentioned by Casey and others in their post-marshmallow research. Let me give another example.

We have now eschewed the jungle for a more modern lifestyle and we socialise after work. We have a goal to drink less alcohol as our weekly

intake has been going over healthy limits. We are in a bar after work with our friends who have ordered a bottle of wine and poured a glass for us. We reach out a hand to pick up the glass as if powered by an alien source. "But wait a minute, I am not drinking alcohol, I've made that promise to myself and my liver." What is going on the brain in anticipation of that first sip? Well that neurotransmitter dopamine pings again with surprise but this time also with the promise of reward. Heart rate increases, blood pressure goes up. You want that drink and the others are having a great time and you don't want to be the odd one out drinking water! But at the same time you also know that you had a goal to drink less. You are under threat – not from a large hairy beast but from the internal conflict you are experiencing. The game of two brains for a modern threat! Fight or flight is not appropriate here: who do you fight, except yourself, and where do you run to?

Psychologist Suzanne Segerstrom from the University of Kentucky has studied the effects of self-control on mind and body and how we can learn to resist temptation. She calls this *pause and plan*, the absolute reverse of fight or flight.

Pause and plan starts with the realisation that you have a two-brain conflict. You know you shouldn't have that glass of wine as you promised yourself, but you really, really want it. You need help at this point to ward off a potentially bad decision.

Enter willpower. The prefrontal cortex jumps in wearing a Superman outfit and helps you to make the good, beneficial choice. Pause then plan. Relax, take a deep breath, perhaps move away and think what to do. Slow things down. Order an alcohol free beer and offer your glass of wine to a friend. Pause and plan offers freedom from the terrorism of your lower brain.

Just to reiterate, the *prefrontal cortex* is the cerebral cortex which covers the front part of the frontal lobe. There is an integral link between a person's personality and the functions of the prefrontal cortex. This brain region has been implicated in planning complex cognitive behaviour, personality expressiveness, decision making and moderating social behaviour. This relates to our ability to differentiate conflicting thoughts, future consequences of our behaviour, working towards a defined goal, prediction of outcomes, expectation based on actions and social control (the ability to suppress urges that might be embarrassing). This is sounding like the home of willpower.

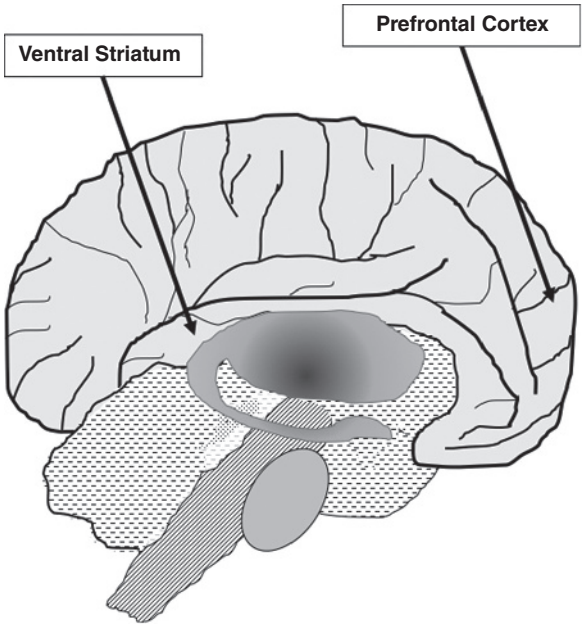

FIGURE 1.4 Upper and Lower Brain

But then we have the *ventral striatum* which is interconnected with the limbic system lower brain (see Figure 1.4). It's believed to have involvement in motor movement as well as emotional responses, particularly those related to pleasure and behavioural motivation.

So this is why the marshmallow leavers had activity in the prefrontal cortex and the marshmallow eaters had activity in the ventral striatum. The former – designated the "cool" people – paused and decided; whereas the latter – "hot" responders – impulsively ate. A long explanation to come to this understanding; however, it has huge significance for willpower. Can this response be undone? Absolutely.

Actions for Willpower

When confronted by temptation:

- Be cool.
- Pause and take a deep breath.
- Put some distance between you and the desired "thing".
- Plan an alternative strategy.
- Remember why you want to resist temptation.

Let's hear from a willpower star describing his view of this upper and lower brain conflict.

Todd Whiteford was diagnosed with testicular cancer. Between surgery and chemotherapy, he decided to run the Marathon des Sables, the most difficult land race in the world. Here he describes the meaning of willpower for him.

> *"My example of lack of willpower is knowing you're not meant to eat bad stuff because you're training for a race and then just eating bad stuff anyway. Always a challenge. I think it is a lot to do with determination and harnessing your brain's capability to make your physical body just do what you want. And I think if you look at the endurance types in sport, it's about the power of the mind over what you perceive your muscles can do. So in the Tour De France, for example, these guys are in pain, but they know that they can tell themselves that the pain is only temporary and they need to endure it to get to where they want to be. And I think that's willpower. It's the ability to override what your physical body is telling you, that you're in pain or you should stop or you're tired. Willpower is the mind's ability to override those feelings for something bigger or better.*

Definition 3 Willpower is the override switch of the upper brain over the lower.

The glorious outcome recent research has provided is that the brain is not fixed but learns from experience and practice. London taxi drivers, for instance, develop density of grey matter in the spatial awareness part of the brain as they take their "knowledge" exams. Do something every day and your brain is enhanced. I remember playing table tennis every day in my sixth year at school and my reaction times in general speeded up exponentially. There were probably other, better things I could have practised, but hey ho. So we can also train ourselves for higher self-control.

The best way to do this is by learning to meditate, as pause and plan works so much better when we are calm. With even short spells of

meditation there is increased blood flow to the prefrontal cortex – the home of decision making. Eight to twelve hours of meditation increases neural connections, which help us stay focused on controlling impulses and increasing concentration. Grey matter actually increases in the prefrontal cortex.

We will explore the skills of meditation and relaxation later in the book.

Can we overdo willpower and exhaust ourselves? Let's take a look at some of the research that has been the foundation of previous thinking about willpower.

WILLPOWER IS A LIMITED RESOURCE . . . OR IS IT?

Although Mischel's hot–cool concept may explain our ability to delay our marshmallow eating, another theory known as willpower depletion emerged to explain what happens after we've resisted multiple temptations.

Every day we make decisions and exert willpower. We resist the urge to search the internet for the best holiday deals instead of finishing a work report. We reach for a salad when we're craving a fish supper, shut up when we'd like to make a snide remark. Yet some research shows that resisting repeated temptations takes a mental toll. Some experts liken willpower to a muscle that can get fatigued from overuse.

Some of the earliest evidence of this effect came from the lab of Roy Baumeister in 1998. He brought subjects into a room filled with the aroma of freshly baked cookies. The table before them held a plate of the cookies and a bowl of radishes. Some subjects were asked to sample the cookies, while others were asked to eat the radishes. Afterwards, they were given 30 minutes to complete a difficult geometric puzzle.

Baumeister and his colleagues found that people who ate radishes as asked and resisted the cookies gave up on the puzzle after about 8 minutes, while the cookie-eaters persevered for nearly 19 minutes on average. Drawing on willpower to resist the cookies, it seemed, drained the subjects' self-control for subsequent situations.

I have to say I was always a bit suspicious of these results. If I were in the radish group, I would have been profoundly annoyed and irritated with the subsequent task!

Since that work was published in 1998, numerous studies have built a case for willpower depletion, or "ego" depletion as some experts call it. In one example, volunteers who were asked to suppress their feelings as they viewed an emotional movie gave up sooner on a test of physical stamina than did volunteers who watched the film reacting normally. In another, people who actively suppressed certain thoughts were less able to stifle their laughter in a follow-up test designed to make them giggle.

Dealing with a hostile audience (or your in-laws) may feel exhausting, but depletion is not simply a matter of being tired, as Vohs demonstrated. She subjected half of her study subjects to 24 hours of sleep deprivation before asking them to suppress their emotional reactions to a film clip. Then she tested the subjects' self-control strength. To her surprise, she found that the subjects who'd been up all night were no more likely to become willpower-depleted than those who'd spent the night snug in their beds.

So if depletion isn't physical fatigue, what is it? Recent investigations have found a number of possible mechanisms for willpower depletion, including some at a biological level. Scientists at the University of Toronto found that people whose willpower was depleted by self-control tasks showed decreased activity in the anterior cingulate cortex, a brain region involved with cognition. When your willpower has been tested, your brain may actually function differently.

Other evidence suggests that willpower-depleted individuals might be low on fuel. The brain is a high-energy organ, powered by a steady supply of glucose (blood sugar). Some researchers have proposed that brain cells working hard to maintain self-control consume glucose faster than it can be replenished. In a study lending support to this idea, obedient dogs made to resist temptation had lower blood-glucose levels than dogs that did not exert self-control.

Studies in humans have found similar patterns. Human subjects who exerted willpower in lab tasks had lower glucose levels than control subjects who weren't asked to draw on their self-control. Furthermore, restoring glucose appears to help reboot run-down willpower. One study, for example, found that drinking sugar-sweetened lemonade restored willpower strength in depleted individuals, while drinking sugar-free lemonade did not.

NEW RESEARCH TO CHALLENGE WILLPOWER AS A LIMITED RESOURCE

Now, a team led by Evan Carter at the University of Miami has argued that these studies were seriously flawed and has published their own series of meta-analyses, the findings of which undermine the limited resource theory.

The new meta-analysis considers the combined results from many studies following this format, but the new analyses are far stricter in that they only consider studies that used tasks well-established in the literature as ways to challenge willpower, including suppressing emotional reactions to videos and resisting tempting food, and that also used established tasks as outcome measures, including persistence on impossible anagrams, food consumption and standardised academic tests.

Carter and his team trawled conference reports to find unpublished studies on willpower. This is important because in this scientific field, as in most others, it's likely that there has been a bias in the literature towards publishing positive results (in this case, those consistent with the popular idea that willpower becomes depleted with repeated use).

When Carter's team analysed the evidence from the 68 relevant published and 48 relevant unpublished studies that they identified, they found very little overall support for the idea that willpower is a limited resource. It's worth noting too that there are recent doubts raised about a related idea in willpower research – the notion that depleted self-control is caused by a lack of sugar in the body. So no excuse for those sweets on your desk while you are completing that deadline report.

The new analyses even found some support for the idea that self-control improves through successive challenges, a result that's consistent with the concept of generalisation that Abby – our Canal volunteer – evidenced when she threw herself into a number of new areas requiring willpower at the same time and was hugely successful.

Finally, I discovered an article by Melissa Dahl in March 2016 which declared that if you believe that your willpower is limitless, then it is. I investigated further. What if you happened to be someone who believed that engaging in difficult tasks was *energising*, like Abby at Canal College, rather than depleting? What if you held a belief that using your willpower activates your reserves, like Todd, rather than drains them? What would happen?

A new set of studies by Veronika Job, Carol Dweck and Gregory Walton – entitled "Ego Depletion – Is It All in Your Head?" in the *Journal for the Association of Psychological Science*, in 2010 – revealed that people's beliefs about the nature of self-control determine whether or not willpower is depleted by use.

The researchers distinguished between people who believed willpower is a limited resource or an unlimited resource, and found that only those who believed in the limited-resource theory had less self-control and made mistakes after working on something very difficult.

How can this be? Both groups were equally exhausted by the difficult task, so you might think they would be equally mistake-prone. But it turns out that our personal theories about self-control determine how exhaustion affects us.

When people who hold the limited-resource view experience something as exhausting, they have less self-control and are more prone to errors because they see exhaustion as a sign to reduce effort, so they can rest and eventually replenish their self-control reserves. In contrast, folk with the unlimited-resource view keep going despite their exhaustion, and make fewer errors because of it.

These beliefs, not surprisingly, predict how people handle the more stressful and demanding periods in their lives. For instance, the researchers found that during the more stressful, exam-filled weeks in the academic semester, belief in the limited-resource theory of self-control predicted greater consumption of unhealthy junk foods, procrastination and less-effective study habits among college students. Those who believed in limitless willpower, on the other hand, held up under stress just fine.

So, is self-control limited or isn't it? The answer has become a lot less clear and, frankly, I'm no longer sure it matters. What **does** matter is whether or not you believe that it's limited. And since you have some choice when it comes to your beliefs, I recommend going with the limitless willpower view. Maybe, in the end, all it takes to put down that packet of biscuits is believing that you actually can. And if you know you can with the biscuits, then what else could you do? You are then on a willpower trajectory.

So the concept of willpower being like a muscle with all the limitations of a muscle – like overuse or depletion – is questionable. A much better working concept is that willpower is a *mindset* and limitless.

Definition 4 Willpower is a mindset and therefore limitless!

To finish this first part of *Willpower*, let me introduce *Mark Masson*. He discusses his fight with cancer, what his mindset was like during this time and what he felt helped him.

MARK MASSON ON WILLPOWER AND HEALTH

"I was diagnosed with advanced Hodgkin's lymphoma and had countless cocktails of therapies, medications, radiotherapy sessions, and they weren't really working, I had relapses and a bone marrow transplant and more relapses and then I was told nothing more could be done and I was given an estimated survival time of a year.

I then looked around worldwide for other treatments and ended up with what at the time was a pretty experimental donor bone marrow transplant. And, well, since I'm alive and speaking to you, it worked. So after that kind of transplant, it's a long recovery time. Your whole body has to regain strength, so for between eight to ten years I was just out of the world.

In terms of willpower – I think I definitely have it because I know the steps I took every day, the small goals I set mentally to force myself to be able to say if I don't make it, I've done my best. The last thing I ever want to do is preach, because if the medicine hadn't worked, regardless of how hard I'd tried with willpower, without the medicine I wouldn't have survived. After recovering I moved back to London with my family, I set up a business and I've now got my life back.

I can't overestimate the amount of mental force that you actually need to fight and recover. There's a very interesting equation that I learned empirically: you need an absolute desire and drive to come through it with utter focus, while at the same time finding a way to be at peace. When you're told you're not going to live, you need to get to an area of peace or else you just torture your mind while it's also hell on earth physically. I just hate failing; that is a driver for me. I like the feeling of success so for me willpower is just a very basic, man-with-a-spear kind of a driver."

REMINDERS

- To exercise willpower, you require a meaningful goal, one that is meaningful to you; for example, going to university, a physically or mentally stretching challenge, staying alive.
- Self-control is the upper "cool" rational brain fighting the pleasure-principled, instant gratification "hot" lower brain and winning.
- Use pause and plan at every opportunity. Distract yourself and give yourself time to think of alternative strategies.
- Be prepared to put up with a lack of comfort in new or unusual circumstances, knowing that this will pass.
- Learn to relax as relaxation improves everything . . . well almost everything. Be at peace. Instructions to follow in Part Four.
- Start to believe that willpower works. Start to believe that your willpower works.
- Begin to feel a drive for success.