Smarter Tomorrow

What’s in it for me? Get up to date with neurohacking.

Maybe you think that you’re not going to get any smarter with age. Or perhaps you believe that because you’ve never been particularly creative, that’s how you’ll always be. Or you’re convinced that you’ll be cursed with a poor memory forever. Well, if you think any of those things, you’re mistaken! And if you’ve ever wanted to stretch a particular part of your brain, then the concept of neurohacking should fill you with hope. Neurohackers know that human brains aren’t fixed – they’re plastic. We can change, after all. Drawing on the insights of neuroscientists, these blinks lay out the theory behind neurohacking – along with actionable exercises to improve your memory, spark your creativity, and stretch your grey matter. In these blinks, you’ll learn

why ADHD can be a superpower; how creativity can be honed; and what archery tells us about neuronal connections.

Neurohacking involves self-knowledge and self-experimentation.

You’ve probably heard the term “life hack.” It’s something that allows you to jump ahead in life without too much effort – a shortcut, in other words. Neurohacking, then, means looking for shortcuts to improve mental capability. By understanding how the brain works, neurohackers can improve their cognitive skills and reflexes, or seek to relieve psychological disorders. This brings us to another context for the word “hack”: the computer hacker. Just as hackers have to be intimately familiar with the computer systems they’re trying to infiltrate, neurohackers must become experts on their own personal systems: their brains. Becoming a neurohacker means learning about your own, marvelous, one-of-a-kind supercomputer. This is where neurohacking differs from traditional self-help. Rather than relying on blanket prescriptions and advice, it requires truly getting to know – and experimenting on – yourself. The key message here is: Neurohacking involves self-knowledge and self-experimentation. Neurohackers take a DIY scientist’s approach – they measure the brain’s capabilities and test solutions to improve them. To learn about your brain, you’ll need to measure and track its progress in the areas you’re seeking to improve. For example, if you think your memory could use some work, then you’ll need to test your memory skills and record them over time. Happily, there’s no better moment than the present to do this! We live in the age of free, self-tracking apps that record everything from language learning to memory recall. Self-tracking can also be used to detect other things – environmental or physical – that might be impairing your mental performance. Take the case of Mark Drangsholt, a clinician and scientist. In 2014, he complained to his doctor that he was suffering from terrible brain fog – periods when he’d have lapses of concentration and memory. At first, his doctor was unable to help, so Drangsholt took matters into his own hands. After using direct-to-consumer companies to gather personal cognitive, genetic, and blood data, Drangsholt returned to his doctor. Together, with all of this info in hand, they discovered the cause: narrowed blood vessels in a key area of Drangsholt’s brain. Without this DIY approach and self-knowledge, his problem may have gone unsolved. It’s this self-knowledge that gives us the power to hack our mental abilities. In the

following blinks, we'll look at how to put it to work.

Your brain's wiring is unique – and malleable.

So, to become an effective neurohacker, you'll need to know your own mind. Just as no two snowflakes are the same, there is no other brain like yours. In fact, even if you're an identical twin, you'll differ, neurologically speaking, from your sibling. Some of the things that make your brain yours are things that you were born with. But, according to scientists, only 50 percent of your intelligence is determined by genetic factors. The other 50 percent comes from nongenetic factors, like your individual experiences and habits. This means that it's possible to alter your brain depending on how you use it. Your brain is editable. Here's the key message: Your brain's wiring is unique – and malleable. The wiring of your brain changes all the time, depending on what you do with it. This is what we call neuroplasticity. Over time, the neurons in your brain form connections as you learn new skills or develop new habits. Conversely, those neurons can also break off connections when you neglect a skill or fall out of a habit. It's really a case of use it or lose it. Or, as neuroscientists like to say, "Neurons that fire together, wire together," and "Neurons that fall out of sync lose their link." When you first learn a song on the guitar, for instance, you are making a new set of neuronal connections. The more you practice, the more efficient those connections become. When, in 2014, a Korean research team used brain-imaging technology on archers of differing skill levels, they saw this in action. They scanned the brains of students with no archery experience alongside those of Olympic medal–winning archers. The students' brains flared with widespread activity as they struggled with the new task. By contrast, only a few regions of the Olympians' brains engaged to fire an arrow; their brains had become ruthlessly efficient. So neuroplasticity means that we can locate an area of weakness and, through repetition, improve it. However, what counts as improvement is highly personal. For instance, certain traits that have traditionally been considered impediments can be superpowers of a kind. If you have one of these traits – like ADHD, for instance – it might be an advantage rather than a weakness. Rather than using neurohacking to become more "neurotypical," you might want to enhance some of your special talents instead. For instance, it's been discovered that ADHD is common among ER surgeons, whose jobs can require bursts of laser focus rather than sustained attention. The lesson here? Before you neurohack, know yourself!

Executive functioning is a crucial strength that can be neurohacked.

When she was in high school, the author knew a guy called Mark. At lunch one day, she watched him strike up a conversation with a group of friends. The conversation was about the potential of the internet. After getting the conversation going, Mark sat back. Occasionally, he'd interrupt to ask a question, or gently guide the conversation in new directions. This guy, the author noticed, was able to see the bigger picture very quickly, hold multiple things in his mind at once, and synthesize all the different arguments he heard. This guy was Mark Zuckerberg. It was obvious, even then, that he possessed an unusual ability – something called executive functioning. Whether at school or in the professional world, it's a key strength. The key message is this: Executive functioning is

a crucial strength that can be neurohacked. So what exactly is executive functioning? As the name suggests, it's the mental ability that's "in charge" of all your other key brain areas. Think of it as your brain's CEO. The executive function organizes your other abilities, like creativity and memory, to achieve specific goals. Executive functioning can be broken down into three sub-abilities: working memory, inhibition, and flexibility. First, working memory is the ability to hold information in your mind and manipulate it. You use it when you're following a conversation and considering all the different points. Then, inhibition is what stops you from blurting out your own opinion when it would be counterproductive to do so. Last, flexibility allows you to move from one idea to the next, and consider all of them as a whole. Through neurohacking, you can improve your executive functioning. To begin, you need to gauge where you're at by testing one of your executive sub-abilities. Let's take inhibition. One way to probe this is to take the classic Stroop Color and Word test, which you can easily find online. In the Stroop test, you look at various words in different-colored fonts. Your job is to identify either the meaning of the word or the color of the font it's in. After you've taken a few tests like this and recorded your scores, you should try regular neurohacking "interventions" to boost your performance. One such intervention is the placebo. It might sound silly, but before you test your executive function again, try wearing something that makes you feel "organized." That could be a lab coat or a smart suit. Then tell yourself, Scientific studies have proven that wearing this suit will increase my executive functioning. After that, take the test. You might be surprised by just how suggestible you are – and by the improvement in your performance!

Emotional self-regulation is vital for success – and it's something you can work on.

Imagine that you're at a funeral, and for some perverse reason, you feel laughter bubbling up inside you. You're thinking of something completely unrelated to the sad moment at hand. You glance around and see rows and rows of somber, tear-stained faces. If you laugh now, many of those people might never speak to you again. Luckily, you manage to stifle the laughter and keep a solemn expression. This is because you have something known as emotional self-regulation. Without it, you'd go through life reacting to things in the most inappropriate ways. Having emotional self-regulation means that you're able to express emotions at the right moment – and that you can influence your feelings, thoughts, and physiology in order to better control stress. High emotional self-regulation is key to succeeding in personal relationships, at school, and at work. The key message here is: Emotional self-regulation is vital for success – and it's something you can work on. Just as with executive functioning, there are ways you can improve your emotional self-regulation. But first, as is the neurohacker's way, you should test yourself to discover your baseline. To do this, ask yourself a set of questions that gauge core aspects of emotional self-regulation. Set a timeline – for instance, the last 24 hours, 30 days, or 3 months. Then think back over that time. Using a 5-point scale, rate how much you agree with statements like: I could control my impulses when I felt triggered by strong emotions; I could soothe myself when I was upset; and I could change how I was feeling if I wanted to. As these experiments are highly personalized, it's important that they be consistent on your terms. The crucial thing is that you record your development over time. After you've gauged your ability to regulate your emotions, it's time to try another neurohacking intervention. Try thinking of something that

causes you some degree of emotional distress. This could be an encroaching deadline, an unresolved argument with a family member, or a failure in some area of your professional life. Hold this in your mind for five minutes. Then, try ten minutes of mindfulness meditation. To do this, sit in a quiet space, close your eyes, and focus on your breathing. If you feel your attention wandering, draw it gently back to your breath. By learning to control distressing thoughts in this way, you'll strengthen the neuronal connections that regulate your emotions.

Use neurohacking to boost your memory and learning speed.

Occasionally, you'll meet someone who's a superhuman learner with a memory rivaling that of an elephant. They'll be able to repeat a complex task after only seeing it once, or speak a foreign language in no time at all. But the rest of us have to work with what we've got. Thankfully, there are ways to improve our memories – which is good news, as fast learning and the ability to memorize have become more important than ever. Here's the key message: Use neurohacking to boost your memory and learning speed. Being a fast learner with a good memory is key to personal and professional success. First off, a good memory saves time. If you speak a foreign language fluently, you don't need to stop midway through a conversation in that language to confer with Google Translate. Second, these qualities inspire confidence. How would you feel if your surgeon had to stop during your operation and consult YouTube videos? Third, being able to learn quickly will be increasingly important in the future. As artificial intelligence promises to make many low- and semi-skilled jobs redundant, it's expected that millions of people will have changed jobs by the year 2030. Those who are able to pick up new skills quickly will adapt best to this new world. If you don't have the best memory or learning capacity, this future can seem like a daunting prospect. Happily, neurohacking can help you improve. First, of course, you should test your baseline skill so you can measure improvement. To test your baseline memory ability, get someone you know to write down 20 random words. Then, using a timer, look at the 20 words for one minute. Try to lock in as many as you can. After the minute is up, cover the word list. Next, take a break for a minute – don't think about the words! When your break is done, set the timer for another minute and try to recall as many words as you can. To improve your memory and learning skills, there are some excellent spaced-repetition apps that will exercise your brain. The free flashcard app Anki is perfect for this, but you can use physical flashcards if you prefer. Then pick a topic that excites you – a new language or a scientific discipline, for instance. Study this way for 15 minutes each day . Then, when you feel ready, test your baseline knowledge again by seeing how many words you recall on your chosen topic. You might be surprised by your progress!

Creativity is something you can cultivate.

Creativity can seem like an enigmatic quality. We often think of creative inspiration as something that strikes us mysteriously. Poets speak of being visited by the Muse to explain flashes of inspiration that appear and then vanish before they know it. We often believe that creativity is something you inherently have – or don't. You're born an artist, or you're not. The truth, however, might be a little more mundane. Creativity is actually

something you can practice. The key message is this: Creativity is something you can cultivate. The more you engage in creativity, the better – that's the lesson that experimental schools in Shanghai have learned. Rather than grade children solely on the quality of their art, teachers in these institutions encourage them to produce as much work as they can. Creative quantity is one of the criteria on which they're marked. And there's a reason for that: the more creative activity you engage in, the easier it is to overcome the self-consciousness that can be an obstacle to making anything. This hyperproductivity can really pay off, too. Some of the greatest artists and creatives have been tireless in their output. Take Picasso, who created more than 20,000 paintings, sculptures, and drawings – or Bach, who composed more than 1,000 musical pieces. Doing something more gives you the confidence to do it better. Though creativity is the hardest ability to quantify, there are ways you can test and measure your own. One way to gauge it involves thinking of a common object – say, a rock. Next, write down as many uses for that object as you can think of. For instance, weapon, anchor, ornament, etc. Make a note of the number of things you came up with. Then, to enhance your creativity, perform a neurohacking intervention. Just as with the executive function exercise, try a placebo. But rather than wearing a lab coat or a suit, try scenting your room with a fragrance like cinnamon, citrus, or peppermint. Then say your "magic words" – something like, Clinical studies have shown that inhaling this scent will increase my creativity. Afterward, try some creative activity, like writing, painting, or decorating your house. You may feel your creative impulses flowing more freely than usual. To measure your progress, keep retaking the test that involves thinking of uses for a common object. Hopefully, over time, you'll be more consistently inventive – and more confident in your creativity.

Final summary

The key message in these blinks: Neurohacking is the ability to improve certain brain functions through self-testing and self-experimentation. Using the science of neuroplasticity as a springboard, neurohacking suggests that we can rewire our brains to be better at certain things – like executive functioning, creativity, emotional regulation, and memory. After gauging your baseline ability, you can then perform neurohacking interventions to boost your performance. Actionable advice: Try morning exercise for sharper mental performance. If you're looking for a quick boost to your brainpower, there's nothing better than exercising in the morning. So before you sit down to write that essay or manage your accounts, incorporate a quick walk, jog, or yoga session.