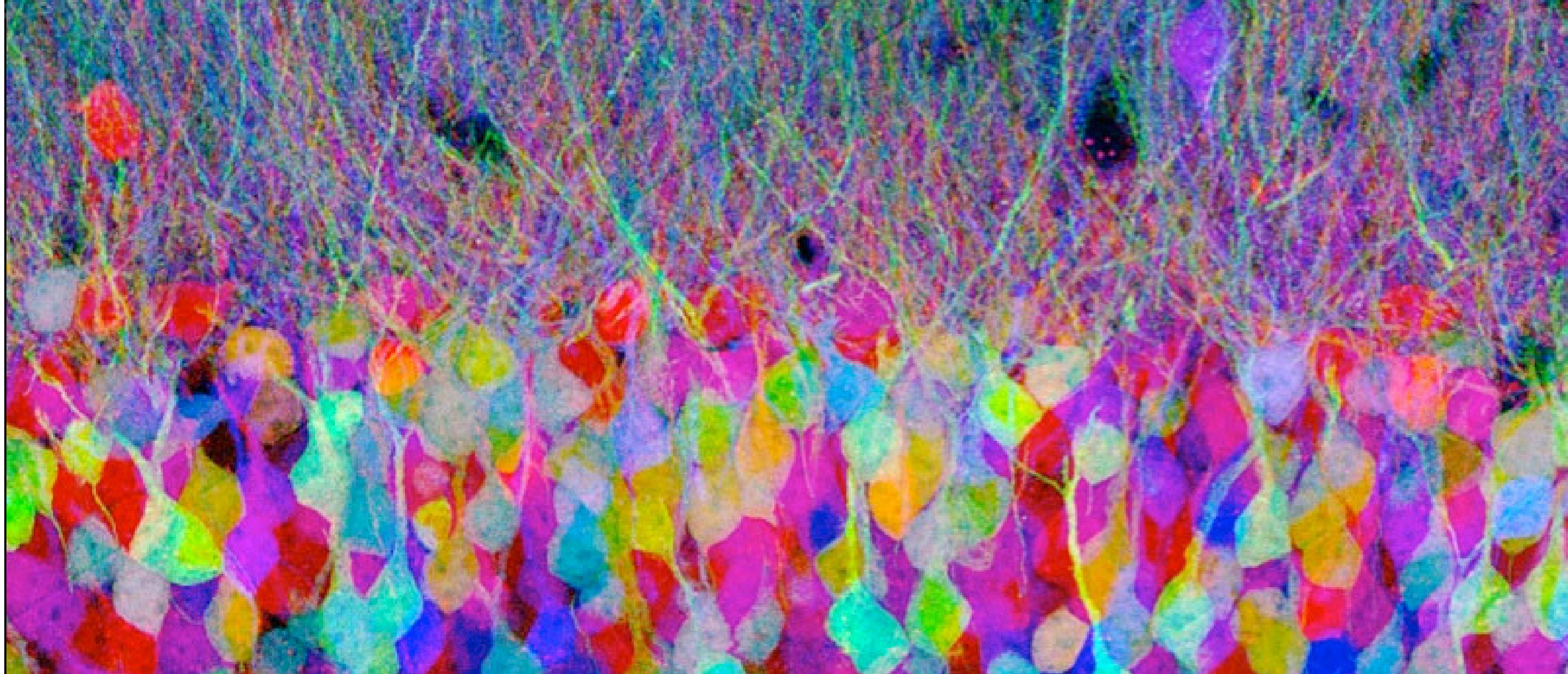


T E N
N E U R O S C I E N C E
S T R A T E G I E S
Y O U C A N U S E I N
Y O U R L I F E A N D
W O R K

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1. NEUROPLASTICITY

The brain is able to rewire itself based on experience. This means that all behaviour change is brain change. To encourage neuroplasticity:

1. You need to have a goal. But goal intention accounts for only 28% of the variance in behaviour change, meaning that you need to do more.
2. You must put effort into the learning. If it's easy, your brain has already been wired for that.
3. You need repetition over a period of time. Successful coaching outcomes require consistent action through practice over time. This could be through performance enhancing techniques, belief change, and other cognitive change strategies.
4. The brain changes may be reversed if you stop using your newly acquired skills.



2 . M U L T I - T A S K I N G

Multi-tasking is the attempt to do two or more tasks at the same time. Our brains can't keep two things in mind at the same time. That means the brain can't multi-task.

When we think we're multi-tasking, we're actually switching tasks quickly. When we try to multi-task, the cognitive resources available to both tasks is reduced, resulting in reduced productivity and increased errors. The cost in productivity may be as high as 40%.

For example, a study that looked at distracted driving found that, in addition to making more mistakes, brain recruitment shifted away from the crucial brain areas responsible for visual and spatial processing. The results are similar for other domains.

The solution: If you want to do more in less time, concentrate on one task at a time.



3 . M O T I V A T I O N

The Progress Loop: The single best way to increase motivation is to make progress in meaningful work, no matter how small. This motivation leads to greater creativity and productivity. And making progress (being productive and creative) leads to more motivation which leads to more work. This is the progress loop, where progress and motivation fuel each other in an upward spiral.

Create Success: Success on a task leads to a burst of dopamine and this dopamine spike increases the probability of success on the next task. But failure on a task leads to a drop in dopamine which increases the probability of failure on the next task.

The Solution: Create a string of successes by breaking down big goals into small, manageable tasks. The tasks should be small enough for you to succeed at them.



4 . W I L L P O W E R

Willpower has traditionally been seen as a depleting resource. But, this view of willpower has recently come under question when a number of studies failed to replicate. More recent work has found that people who are good at resisting temptation report experiencing fewer temptations. To put it more simply: The people who said they excel at self-control were hardly using it at all.

1. People who are better at self-control actually enjoy the activities some of us resist — like eating healthy, studying, or exercising.
2. Make activities more enjoyable by adding a fun component to them, such as going to the gym with a friend.
3. People who are good at self-control have learned better habits. The really good dieter, for example, wouldn't buy a cupcake or pass in front of a bakery.
4. Some people just experience fewer temptations and it may be due to genetics.



5 . S T R E S S

Stress seems to be the state that many of us occupy these days. It can take your prefrontal cortex offline, essentially cutting off access to thoughtful behaviour, and strengthen the amygdala so behaviour becomes reflexive, leading to knee jerk reactions. Chronic stress also has negative health consequences, contributing to high blood pressure, heart disease, obesity, and diabetes.

Change Your Beliefs about Stress: Some stress is inevitable but the negative health and psychological consequences of stress are not inevitable. Simply changing our perception of stress from “being bad” to “being helpful” can improve our psychological wellbeing and lower our mortality risk by 43%. And after experiencing a stressful life event, helping others can lower our mortality risk by 30%.



6 . D I E T A N D B R A I N H E A L T H

Our digestive system communicates with the brain primarily through the vagus nerve, which runs from the brainstem to the gut. This communication is bidirectional, although the vast majority of the communication is afferent, meaning from the gut to the brain. The gut produces about 95% of the body's serotonin. Given all of this, abnormalities in the digestive system can directly shape both cognitive and emotional state.

A healthy diet reduces anxiety, decreases risk of depression and can even resolve depression on its own with no other intervention, and preserves cognitive functioning and even brain volume into old age. In one study, the difference in cognitive age between older adults eating a healthy diet and those eating an unhealthy diet was 7.5 years.

Which diet? The most studied diet is the Mediterranean diet, rich in fruits and vegetables, olive oil, fish, and lean meats, and low in sugar and processed foods.



7 . EXERCISE AND BRAIN HEALTH

Just a modest amount of moderate intensity physical activity can take advantage of the brain's natural capacity for plasticity, improve cognitive performance and academic achievement, and reduce risk of dementia.

Aerobic exercise protects against cognitive decline and dementia as we age, and preserves brain volume with age . The brain remains plastic even in old age, and aerobic exercise increases BDNF (brain-derived neurotrophic factor) levels, a protein that supports the maintenance and growth of new neurons.

In younger people, including children, aerobic exercise can lead to improved memory performance and increased volume in the hippocampus in just a few weeks. When training is stopped, hippocampal volume can decrease back to pre-training levels.

Exercise is a level 1, Grade A treatment for depression and can be effective for relieving anxiety.



8 . S L E E P A N D B R A I N H E A L T H

Sleep plays a vital role in good health and well-being . Getting enough quality sleep at the right times can help protect our mental health, physical health, quality of life, and safety. Adults need 7 to 9 hours of sleep a night.

Sleeping right after learning enhances our ability to retain information and improves performance in procedural skills.

Restricting our sleep during the week to get more productive hours is counter-productive. Habitually not getting enough sleep - less than 7 hours - reduces our alertness, our ability to sustain attention to complete tasks, and our cognitive performance that cannot be made up in a weekend of normal sleep. It can lead to micro sleeps - short periods of no response - that can have particularly devastating effects.

Not Sleepy? Don't assume that, because you're not sleepy, your level of alertness hasn't suffered: We're extraordinarily poor at judging how sleep deprived we really are.



9 . I N S I G H T

When we're faced with a long-vexing problem or an impasse, what we know may actually get in the way of a new solution. Our brain's electrical activity may inhibit other circuits, and other ideas. When analytical solutions don't work, we can try using insight. Solutions reached through insight are more often correct.

Insight is the sudden emergence of a solution into awareness as a whole, an Aha! moment. Before people solve a problem using insight, their visual focus becomes more diffuse and their brain activity slows. In contrast, analytical solvers remain concentrated externally.

To encourage insight:

1. Cultivate a quiet mind. Insight happens in those quiet moments.
2. Let your mind wander. Sleep on it. Insight happens when we least expect it.
3. Evaluate your solution. Insight is not correct 100% of the time.



10. VISUALIZATION

One of the ways that we're told to motivate ourselves is to visualize having successfully achieved our goal. Visualization makes events seem real but, in fact, **visualizing success is only wishful thinking**. It substitutes the fantasy of success for progress toward the goal.

Studies shows that visualizing a successful outcome can actually be worse than not visualizing at all. That's because it's just fantasy and fantasy causes a drop in energy so that there's not enough energy to work toward realizing the fantasy.

Why do we continue to fantasize? Because it makes us feel good by celebrating our success before we achieve it.

How to visualize:

1. Create an expectation of success by mapping out your steps and obstacles.
2. Visualize the steps you need to take to achieve your goal.

You just learned 10 new science-based strategies that you can use in your life and work

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