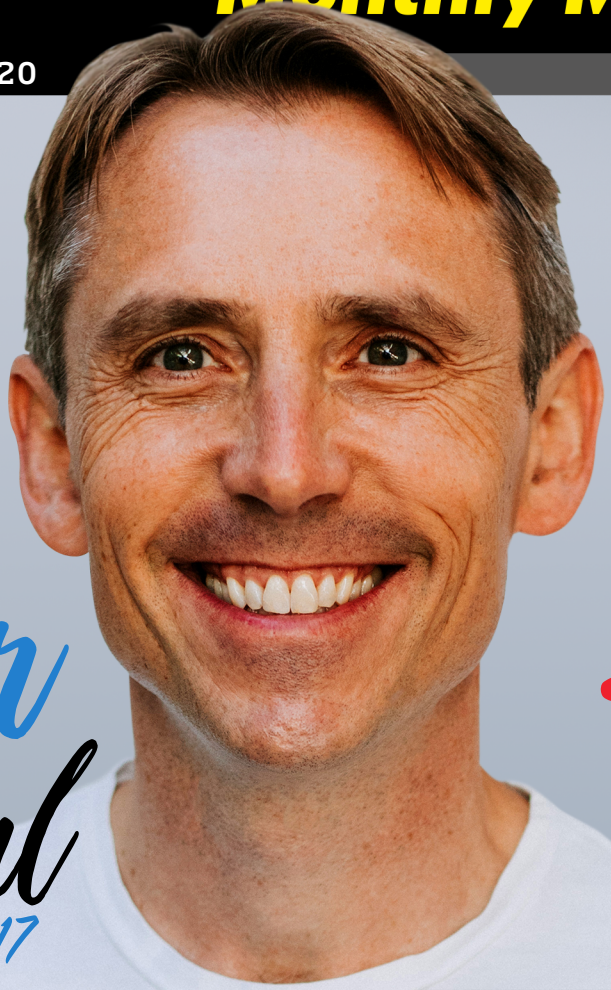
THE UK'S NO 1 DIGITAL MAGAZINE FOR GYM OWNERS & FITNESS PROFESSIONALS

GYM OWNER

Monthly Magazine

ISSUE 45 // JANUARY 2020



THE BIG INTERVIEW with Rob Lander From fisikal

Page 17

Rotators Shield

SHIELD YOUR WORKOUT

PAGE 45

SIX PACK GUIDE FOR WOMEN

PAGE 27

FIT KIT A QUICK LOOK AT GYM WEAR

PAGE 34

ONLINE GLOBAL FITNESS COMPETITION

PAGE 31

ARCHON BRACKET 2020

Gym Owner of the Month!

WITH STE BARLOW

PAGE 12

PT of the Month!

FEATURING ADAM TINNION

PAGE 22

NEWS // REVIEWS // TECHNOLOGY // TRENDS // EQUIPMENT // INSIGHT

THE POWER OF HABIT – PART 1

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You don't need a crystal ball to tell your future, just look at your habits.

Many significant things in your body come in two's, including arms, legs, lungs and kidneys; in addition your brain is one organ made up of two parts, a left and a right hemisphere, even your heart is effectively 2 double pumps that are joined together. In the same way although they are not physically visible, we have two minds. your mind isn't something tangible that you can see on a scanner, it can best be described as what flows through your brain in the form of your thoughts. Much more than this, it's what sculpts your brain. Your thoughts literally create the delicate infrastructure formed when you repeat the same neurological activity.

Its estimated your brain is made up of over 100 billion neurons and there are potentially over 100 trillion different ways they connect with each other. Imagine walking through a meadow where the grass is knee high, it would take some effort to create a pathway, but once you have done it, the second time its slightly easier, and the more often you do it the easier it gets. Eventually the path becomes so trodden that it actually becomes part of the meadow and grass no longer grows there. Your footsteps change the landscape. In the same way when you repeat thoughts they have the same effect and you create a brain "map". These maps are like the most intricate patterns imaginable and each thought and behaviour has its own totally unique configuration. This is important as it stops your brain having to create a new neurological pattern every time you repeat the same behaviour. Imagine getting into a car to drive, or even to walk, without the advantage of embedded neurological maps, life would be very difficult. Our brain maps make learning and remembering possible.

When you are faced with a choice, your unconscious mind immediately searches its neurological database to see if it has a map for that same situation and if you do (or even if you have a similar one) then it will use that rather than create a new one. It's not that your brain is lazy, it's just very efficient.

As in the example of driving, behavioural competencies are made possible by this process and these happen with

repetition. However we can also create maps that are better described as habits, meaning we can literally do something automatically, without conscious thinking. In other words a habit is something you do "on autopilot", for example you might not consciously think "I will have a biscuit with my cup of Tea" yet you automatically reach for the biscuit tin as soon as the kettle goes on.

In all areas of your life, if you look at your habits you can explain your current state (physical or emotional) and also predict your future. If you walk down the street and look at peoples different shapes and sizes, you can make a pretty educated guess as to who has good lifestyle habits and who doesn't. If you look at students who constantly get high grades, this is likely to mean they have good habits when it comes to studying. If you speak to someone who suffers from anxiety they are very likely to be in the habit of running negative dialogue and thought patterns. Your habits literally define you.

The problem is many of us have habits that don't serve us and that were created without us even realising it; that's great if they are good habits, but not so helpful if they are bad.

A habit is great when you are conditioned to make the optimal response in any given situation. For example in the military people are trained repeatedly to respond automatically in high stress and even life threatening situations, to be able to do the right thing automatically without having to stop and think. Airline pilots spend a few days every six months in a simulator dealing with crisis, so that if that ever happens in real life they already have the neurology in place to act in the best possible way.

The story of Michael Phelps 2008 Olympic butterfly final is well recorded and illustrates the power of habits as part of an elite training regime. His rigorous training put him in the right physical and mental place to perform brilliantly on numerous occasions. But his training was not all physical, much of it was based on using self-directed neuroplasticity to shape his brain. A regular training habit was to black his goggles out and practice swimming blind. He also regularly swam outside in the dark, all with the purpose of establishing physical habits that he could call upon even when distracted or in an unexpected situation. This approach certainly paid off.

In his early career as a teenager he found it difficult to stay relaxed and focused whilst standing on the starting blocks. His coach understood the power of visualisation and taught him how to create an internal movie where he swam the perfect race. He told him to watch this movie in his minds-eye every morning as soon as he awoke, and again as he was going to sleep. These two times are when the brain is the most plastic and when this process is at its most effective.

When you visualise something in your minds eye you create and use exactly the same neurological maps as if you are "really" doing it. That means you can mentally rehearse something and get the same benefits as if you were actually in the situation. As repetition is a key factor when installing a habit this is important to understand.

Phelps would imagine how each stroke felt and how he felt on completing the perfect race. This mental practice proved to be as important as the physical elements of his regime. When he stood on the starting blocks in Beijing he ran his normal pre- race routine of swinging his arms 3 times as he always did. The gun went off but the moment he hit the water he knew something was wrong. His goggles leaked, slowly at first but soon everything became misty and unclear. Now unable to use the lines at the bottom of the pool to know when to adjust his stroke for the turn or to touch the wall to finish, he could also not see his competitors in the adjacent lanes; by the last turn he was completely blind in the water. Most swimmers would have panicked, but Phelps had got into the habit of visualising each stroke so many times he went with what he knew rather than what he could see. He had already installed the neurological map of exactly how many strokes it would need to hit the last wall, so he began counting down. He could hear the crowd going wild but had no idea who for as he could not see if his competitors were nearby, so he focused on pulling each stroke as hard as he could. He knew he needed twenty one strokes, so at eighteen he started preparing for the wall, on the twenty first he made a giant pull and stretched out anticipating the point of touch perfectly. He stood up and removed his water filled goggles unsure if he had won or

lost, and found that not only had he won gold, but he had set a new world record. After the race when it became known what had happened he was asked by a reporter "What was it like to swim blind?" and he replied "It felt like I imagined it would". That is a perfect example of deliberately installing a habit. Phelps not only won the race but broke the world record. "If I didn't prepare for everything that happens, when my goggles started filling up I'd have probably flipped out. That's why I swim in the dark."

Eugene Pauly taught scientists much of what is now known about habits and how they become installed. As an adult Eugene suffered from viral encephalitis which had a dramatic effect on his brain. Against all the odds he astonished doctors by recovering physically and learned to swallow, talk and walk again. People who hadn't known him and met him after his brain trauma might not have noticed anything at all was wrong.

Once Eugene was physically well enough he and his wife moved to a new house to be nearer family. Doctors would visit Eugene in his home to see how he was doing. On one visit he was asked to sketch a layout of the house, but he could not remember where the rooms were. Then he got up, went to the bathroom, and returned to the lounge. He had no cognitive memory of which room was where, yet he had a neurological map for going to different rooms and getting back.

Although he had recovered his physicality his short term memory was severely impaired. He could remember in detail things that happened before the illness, but nothing afterwards. Doctors and nurses had to reintroduce themselves to him as if for the first time even if they had only left him for a few minutes. He would get up in the morning and make himself breakfast. Then he would go back to bed. He would forget he had gotten up and get up again and make breakfast. Unsurprisingly this had an impact on his weight and health.

On Doctors advice his wife took him for a walk twice per day around the area close to their home, but they emphasised she must go with him to avoid him getting lost. One day when she had turned her back she found he had left the house by himself. She was frantic and ran up and down neighbouring streets looking for him, when she went back to call the police he was sitting on the sofa, against all predictions he had somehow found his way home. He couldn't communicate where he had been as he didn't remember leaving, but he had brought back some pine cones from the route, as they had done numerous times before. Despite her best efforts to stop him, he began frequently going out by himself, but he always came home; eventually she just let him go for a walk whenever he wanted. He often brought back souvenirs, plants etc. and once brought back a puppy! It was clear that he had been unconsciously absorbing new information about the route and using this information to form habits. His new learned cues were visual, when he saw a certain building or a post box he was prompted to make the correct turn, even though he had no conscious idea he was choosing the right way to go.

His consultant Larry Squires had spent decades studying the "neuroanatomy of memory" and worked with Eugene for many years. Through observing how Eugene functioned, Squires would finally understand how and where in the brain habits are formed.

Think about putting your key in your front door, if you have lived in the same place for a while, chances are you can do it just as well in the dark. You see the door (the cue) you get out your key and put it in the slot and the door opens (reward). There will be almost no brain activity in you performing this task after you have done it many times, it has become a habit; yet when you first did it there would have been a lot more neurological activity.

David Eagleman in his excellent television series shows a video of a young boy Austin Neber who holds the record for cup stacking. When he first tried it took him two minutes and thirty seconds. After training for two years and ten months three to four hours per day, he can stack the cups in the required order in just five seconds. When you watch the video it looks like it has been speeded up. But it has not.

https://www.youtube.com/watch?v=2df-f20Ni2c

But that's not the real revelation. You would think that doing it this quickly requires an immense amount of brain activity. However, the more the maps are imbedded, the less effort they require to activate. Austin actually uses less effort in terms of brain activity now he has the habit fully installed. When interviewed he says he doesn't have to think he can just do it. When David Eagleman tries it for the first time his brain activity is immense by comparison. This perfectly demonstrates how habits make our brains more effective.

Something as simple as putting your key in your front door in the dark or without looking is an example of a habit making your life easier. You simply could not function in everyday life without them.

There is a structure to all habits that has three components, and in part two of this article we will look at these in more detail and learn more about how to change old habits and install new ones.

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