rape & sexual violence project

Charity Number 1134387

THE WELLNESS HUB

VISUALISATION AND BRAIN WAVES

MENTAL WELLNESS EVERY DAY

VISUALISATION AND BRAIN WAVES

Visualisation, mental rehearsal or motor imagery are commonly used terms to describe using imagination before action. Visualisation is a core function of our mind - when you ask a colleague 'Do you want a cuppa?' your mind has already accessed long-term memory and imagined the process. You may not acknowledge it or recognise it at a conscious level, but it has happened.

MRI and other brain scans show the firing of motor neurons and pathways in the associated areas when visualising an activity. There are numerous studies that demonstrate that the mind is powerful and that it cannot distinguish between real and imagined. Whilst the activation might be at a lower level, it is has been shown to strengthen the neural pathway supporting performance (1). Therefore

"If you can imagine it, you can achieve it" Arthur Ward

The mind does not distinguish between positive and negative emotions. Let's imagine you are giving a presentation to your peers. It fills you with fear and dread. You imagine the slides not working, forgetting important facts, being asked questions that you don't have the answers to. The visualisation is also experienced chemically as the body triggers the stress response. This repeat visualisation activates the pathways and the associated negative emotions. This can lead to further negative thoughts and unhelpful visualisations such as 'I am not confident to speak in group settings or meetings'. Thoughts become intrusive and add to the existing network. Thus we can create a negative mindset that can support the development of conditions such as anxiety, depression and phobias (2).

The activation of the neurons and how they communicate relies on brainwaves. They are just as important in determining our mindset and how we interpret the world (3).

VISUALISATION AND BRAIN WAVES

There are five types of brain waves.

- *Beta:*

Associated with being alert, daily function and interacting with the world. Responsible for critical reasoning and often described as the inner critic, Thus it is associated with stress, feelings of anxiety and restlessness.

- *Alpha:*

Active when we are in a state of deep relaxation or transitioning back to being alert following daydreaming or light meditation. Memory, imagination and visualisation are heightened. It is the gateway between the conscious and subconscious mind.

- *Theta:*

Transitioning from alpha, theta is a state of deep relaxation when REM sleep occurs. The transition from alpha to theta is understood to be the most powerful in terms of visualisation, programming the mind and creating reality,

- *Delta:*

This is the slowest brain wave and forms part of deep sleep. Deep sleep is important for the mind and body as it aids regeneration and healing.

- *Gamma:*

The least known-about brain wave, it is the fastest and is associated with processing information, learning and memory.

Each of these brain waves is important in terms of how we respond to external stimuli. All five brainwaves are present, but one will be more dominant, fluidly changing every second. Essentially, visualisation helps to switch brain waves. It is the state between alpha and theta, helping to create the neural pathways, and theta begins to identify the action.

During mindfulness, self-hypnosis and meditation we are changing the brain waves to the preferred Alpha- Theta. If you are experiencing feelings of overwhelm or of an anxious nature it is linked to increased beta. There is material in this series and short videos to help reduce these feelings.

VISUALISATION AND BRAIN WAVES

Throughout the series there has been an emphasis on recognising negative thoughts, reframing them and acknowledging existing skills and developing capabilities. Let's take a look at some of the research demonstrating what we can achieve when we visualise positive actions.

- *Placebo effect:*

A popularly cited study was conducted by Fabrizio Benedetti at the University of Turin School of Medicine. During a five-day experiment, he administered Parkinson disease medication and reduced the ratio until the participants were solely receiving saltwater. Neuroscience shows there can be a shift in biochemistry leading to the brain creating what it needs to deliver what the person believes to be occurring. The belief alone enabled the placebo to be as effective as the medication.

- *Strokes:*

The motor consequence of strokes can be debilitating, and a study found mental rehearsal could support the recreation and strengthening of neural pathways, leading to the regained movement (4).

- *Golfing:*

A study found that novice golfers performed better at the game when combining visualisation with physical practice compared to those physically practising (5).

- *Sports/ Music performance*

There are numerous studies showing the value of mental rehearsal. Other than golf, it has been successfully used in football, boxing and basketball (6).

VISUALISATION

Visualisation to benefit mental wellness.

As noted above, when we imagine the 'worse case scenario', a neural pathway is created and strengthens as we continue to dwell on it. Beta brain waves become dominant. This switches on the stress response leading to excessive exposure to cortisol and fatigue of the body and mind.

The same amount of energy is required to visualise the 'worse case' as is needed to create the 'best' scenario. Brain waves require the same energy irrespective of which is dominant. Therefore it is important to recognise self-limiting beliefs and negative thoughts and reframe them (there are worksheets throughout this series to assist). This is also known as neuroplasticity.

This is when we change the structure of the brain by developing new neural pathways and the disintegration of unwanted ones. Using visualisation for a positive gain such as mentally rehearsing a presentation, a difficult discussion helps to reduce anxious feelings, boosting confidence and self-efficacy allowing you to be present and 'flow' (7). In order to benefit from visualisation, there must be an interaction between an external stimulus and the internal rehearsal (8).

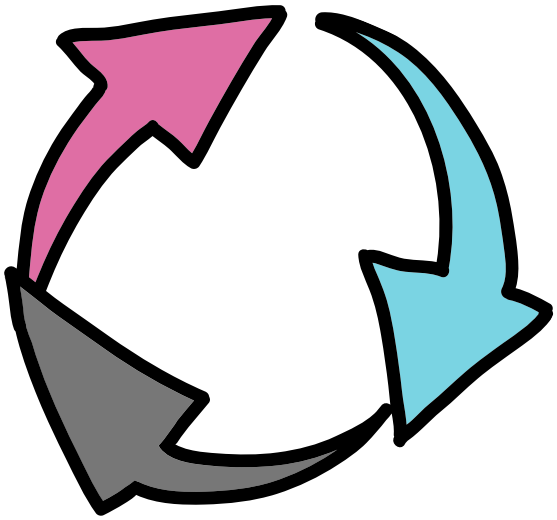
To fully gain the benefits of visualisation, it is important to focus on what you want to achieve (by focusing on what you don't want, you are mentally rehearsing the thing you are avoiding, therefore making it more probable that it will happen!).

Wondering how to use mental rehearsal for your benefit? See the following worksheet.

VISUALISATION

Take a moment to consider a specific goal. Focus on how you WANT to be when physically performing it. Use all your senses and make the visualisation as vivid as possible. Imagine the scenario commencing before the activity and end the visualisation of your actions/emotions post-performance (9). The following diagram can help create a visualisation. Practising strengthens the pathway, spend a few minutes before getting out of bed and a few minutes before sleep. For example, you are giving a presentation to some students. Imagine feeling calm and confident prior to the meeting, having a coffee with some colleagues and feeling happy as you sit by the window observing the world. You imagine standing in front of the students, feeling relaxed- you see their faces, you hear them sitting down and chattering before starting. Your confidence grows as you stand tall, speaking loud and clear. After the presentation, you are filled with pride as students ask questions while you pack up. When they are all gone you do a little happy dance, filling you with joy.

Doing specific goal



Visualise victory

Use all your senses

Language used

Preferred feelings

VISUALISATION

References

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