



This month we explore many different topics from exercise to meditation. The Defence Thinking Skills Programme continues to provide support and consultancy across Defence. Watch this space for news of a forthcoming new series of courses.

THE EFFECT OF EXERCISE ON THE BRAIN

Over the years you will have heard, especially from doctors and in the media, of the many reasons to stay active and exercise regularly. From reducing the risk of heart disease, strokes and diabetes to lowering blood pressure, exercise has many benefits.



But how does exercise affect our brains and cognition? Exercise causes many different small changes in our brain that can protect our memory and thinking skills as we age. Regular physical activity has a positive effect on a wide range of functions, including verbal learning, memory and especially executive control processes. Executive control includes scheduling, planning, working memory and multitasking. Regular aerobic exercise (the kind of exercise that gets your heart pumping) promotes healthy functioning as well as preventing and sometimes reversing cognitive and neural decline. Recent research shows that, across the human life span, aerobic exercise increases brain volume (especially in areas like the hippocampus which supports memory) and this can improve functioning. Other research has shown that aerobic exercise could be used as part of a treatment programme for Alzheimer’s disease, Parkinson’s disease and depression.

So what are the recommendations for regular aerobic exercise to promote brain fitness? It is suggested that we undertake at least half an hour of physical activity most days of the week (150 minutes a week), that gets your ‘blood pumping’ (like swimming, tennis, running,

squash and dancing). So for military personnel, physical fitness training should usually take care of the brain too.

EXTERNAL CATEGORISING

Although living in a world of technology with smartphones, tablets, laptops and computers to make notes and lists on, some people still prefer the act of taking pen to paper and writing. You may keep a stack of index cards or Post-it notes at hand to write down ideas that pop into your head or tasks that you remembered needed doing. This is good practice because the act of writing down your ‘to do list’ during a busy day and categorising this list is a time for reflection and healthy mind-wandering; this can lead to creativity and solutions to problems that seem unsolvable. When categorising, the names of categories are unimportant: it is the act of externalising thoughts and trying to figure out different organisational structures which can be beneficial. It should be noted that for promoting creative thinking, systematic and consistent categorisation and labelling can be constraining. By contrast, consistent categories help predictability and systematic thinking. Here are 4 categories to try out when sorting your ‘to do list’:

Do it	Delegate it	Defer it	Drop it
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Attend to any items on your list that can be undertaken in 2 minutes or less, straight away (‘do it’). If a task can be done by someone else, delegate as appropriate. Any task on your list that takes more than 2 minutes defer it (this can just be until later on in the day). Anything that isn’t worth your time anymore (priorities change) drop it.

MEDITATION

Do you ever struggle concentrating? Are you sometimes restless, indecisive and lacking in motivation? New research shows that meditation changes our brains in ways that help prevent these ineffective states of mind occurring. Meditating for at least 20 minutes a day can increase the volume of brain regions involved in learning, memory, emotion regulation and

sense of self. So what is mediation? Modern meditation is a state of mind involving awareness and acceptance. There are many different forms of mediation but they generally fall into 4 categories:

Concentrative Meditation- single-pointed focussed attention on some object or idea, consistently training yourself to return focus on to that object. This is to develop the capacity to remain calm, stabilised and grounded. It helps resilience to stress and depression.

Open Awareness- to open the mind into an awareness of whatever is happening without a specific focus, to develop the capacity to spread attention over a wide field and feel present in a whole situation. This is conducive to more creative thinking.

Mindfulness- a currently popular form of modern meditation, it is a form of concentration and focussed awareness.

Guided Meditation- all forms of meditation can be guided; many start with explicit verbal guidance then later step down to high level suggestion.



B. Why not try some Mindfulness Meditation now? If you don't know where to start, try out Mark Williams' Chocolate Meditation below to try and improve your learning and memory in the future:

"Choose some chocolate that you haven't eaten before or not recently... Here goes: (1) Open the packet. Inhale the aroma. Let it sweep over you. (2) Break off a piece and look at it. Really let your eyes drink in what it looks like, examining every nook and cranny. (3) Pop it in your mouth. See if it's possible to hold it on your tongue and let it melt, noticing any tendency to suck at it. Chocolate has over three hundred different flavours. See if you can sense some of them. (4) If you notice your mind wandering while you do this, simply notice where it went, then gently escort it back to the present moment. (5) After the chocolate has completely melted, swallow it very slowly and deliberately. Let it trickle down your throat. (7) Repeat this with the next piece. (8) How do you feel? Is it different from normal? Did the chocolate taste better than if you'd just eaten it at a normal breakneck pace?"

If you are interested in Mindfulness Meditation take a

look at: **Mindfulness: a practical guide to finding peace in a Frantic world. By Mark Williams and Danny Penman.** Mindfulness helps to break the cycle of anxiety and stress as well as showing a way towards more resilient thinking.

REFERENCES

Hillman, C.H., Erickson, K.I., Kramer, A.F. (2008) Be smart, exercise your heart: exercise effects on brain and cognition. *Nature Reviews Neuroscience*. 9:58

Godman, H. (2014) Regular exercise changes the brain to improve memory, thinking skills. *Harvard Health Publications*.

A: Picture available at: <https://pixabay.com/en/runners-silhouettes-athletes-635906/>

The Organised Mind By Daniel. J. Levitin

Donovan, S., Murphy, M. and Taylor, E. Meditation Types. *Institute of Noetic Sciences*

Mckay, S. (2014) How meditation changes your brain: a neuroscientist explains.

Mindfulness: a practical guide to finding peace in a Frantic world. By Mark Williams and Danny Penman.

B: Picture available at: <https://pixabay.com/en/chocolate-sweet-candy-551424/>

TEASER SECTION:

ANSWER TO JANUARY'S TEASER

Phil asked his friend Stan when his birthday is. Stan replies that he was 32 the day before yesterday and next year he'll be 35. When is his birthday and how is this possible?

Answer: Today is Jan 1 and his birthday is on Dec 31. He was 32, and then turned 33 on Dec 31, and this year on Dec 31 he'll turn 34, so next year he'll be 35.

THIS MONTH'S TEASER

What number should replace the question mark in the grid?

Find the solution in next month's edition.

6	4	2	5	1
8	3	5	4	4
3	0	3	2	1
9	1	8	2	7
?	2	3	1	4

GOOD LINKS TO LOOK AT:

To be able to access information about the programme as well as previous newsletters visit: <https://vle.cds.cranfield.ac.uk/> click on 'Getting started for students', and log in as a guest. There is a link on the side menu to Thinking Skills.

CONTACT US:

If you've enjoyed reading this and wish to be added to the mailing list or have any general feedback, please feel free to contact us (defac-tsp-admin@defenceacademy.mod.uk)