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SCIENTIFIC- BASED STUDY STRATEGIES

HOW TO ACHIEVE THE BEST
POSSIBLE GRADES

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INTRODUCTION

When I say the word “studying”, you probably associate it with long hours, stress and not having time on your hands for pleasurable activities - well I can tell you that studying doesn't have to be any of these things! In fact, by the time you reach the end of this eBook, you will find that studying doesn't have to be as tedious as most people associate it to be, and you may find that it is relatively simple assuming you follow the advice I give you.

Firstly, a little bit about myself: my name is Jishan Choudhury and I am a medical student undertaking my studies at Barts and The London. I also proudly achieved straight A*s in my A-levels and have been soaring through medical school. This eBook is to teach you the secrets I have used to get the top grades. However, they aren't really secrets... these methods have been in the scientific literature for over 100 years but surprisingly are never talked about in schools or by other private tuition companies – hence I have decided to make this resource FREE as I strongly believe everyone should have these tools to achieve the best possible grades of which they are capable.

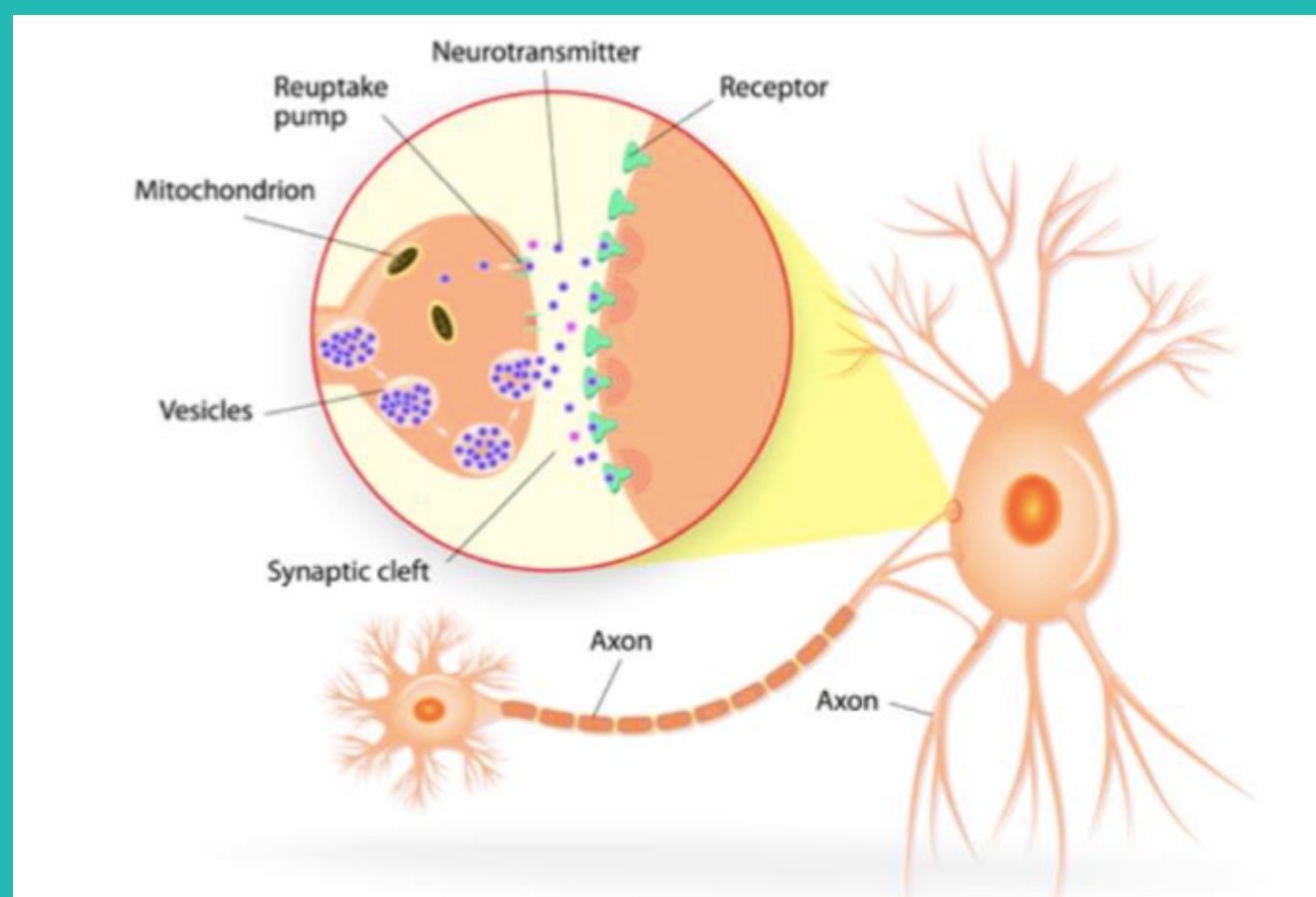
The adoption of these studying techniques has allowed me to be efficient in my studies – this means studying for a minimal amount of time and still getting top grades. It means I have been able to have a job, run a business, exercise frequently and spend time with my friends and family despite having the heavy workload that A- levels and medical school can put upon you. I frequently get asked how I find the time to do all these things and my answer is always EFFICIENCY, which is what I will be teaching you today. The caveat is that this does not mean you can skip on the hard work. To get top grades you must work HARD as well as SMART.

THE SCIENCE

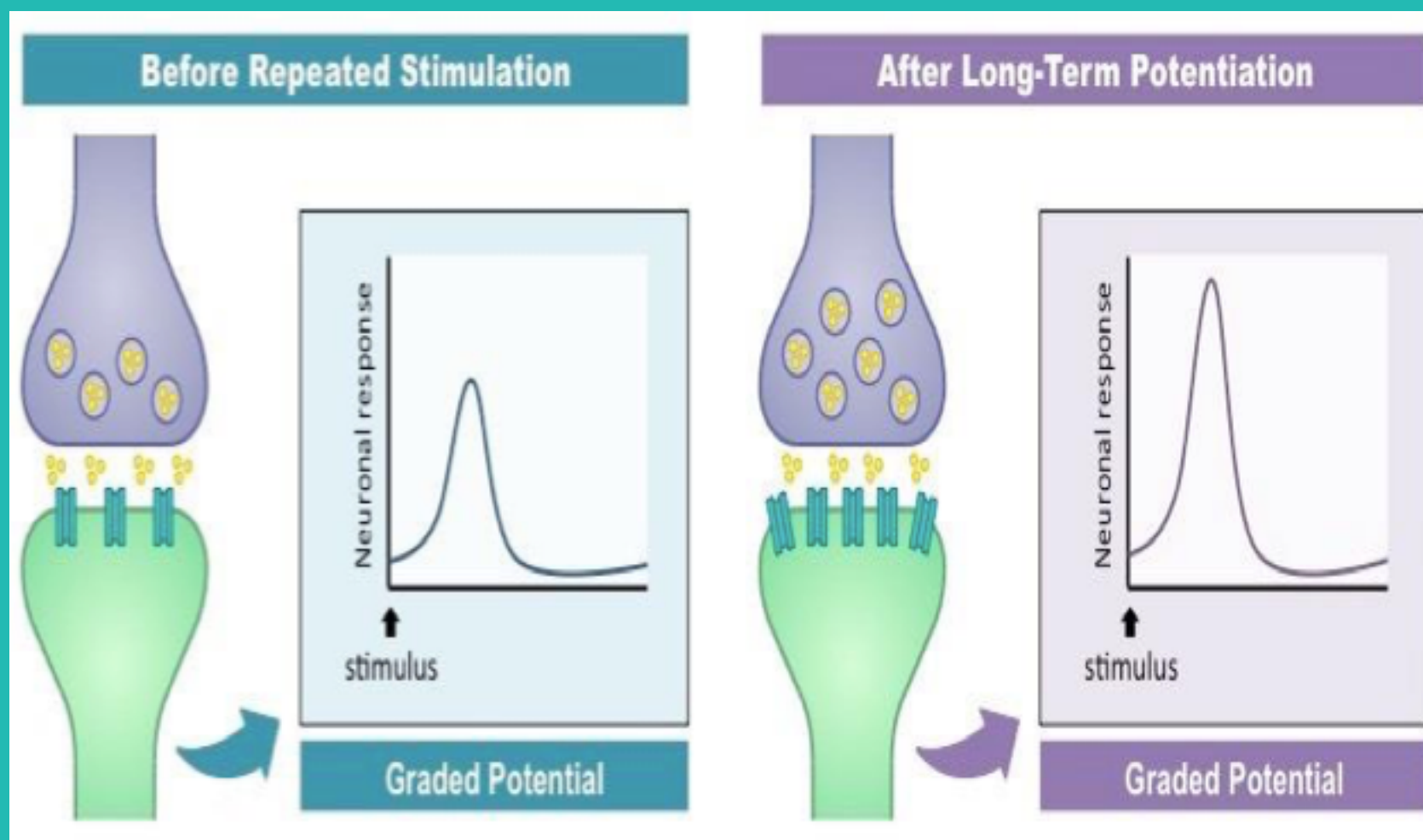
It would be terrible of me not to prove that what I am talking about in this book is legitimate and that it works! In this section of the book, I will briefly explain how long-term memory works, and I have collaborated data from various studies proving that these methods work.

How does memory work?

Memory is a very tricky concept, so I have tried to keep it as simple as possible for you. Our brain is made up of many cells known as neurons, and these neurons communicate to each other via waves of electrical and chemical activity. Synapses is the name given to the junction as to where these neurons come into contact and communicate with each other (1). The diagram below shows a schematic of what a synapse typically looks like (2).



Synaptic plasticity describes how the strength of these synapses can be modified to increase or decrease the strength of the communication between these neurons. Memory and how well we remember information as humans are largely dependent on the strength of these synapses (3). Long term potentiation (LTP) is a term used in neuroscience to describe how these synapses can be strengthened the more you stimulate these neurons by actively using them. In contrast, if we don't revisit a piece of information the strength of these synapses can weaken, and we can forget information – this is known as long term depression (LTD) (4). So simply put, the more often and efficiently we revise information we can stimulate LTP and therefore improve long-term memory.

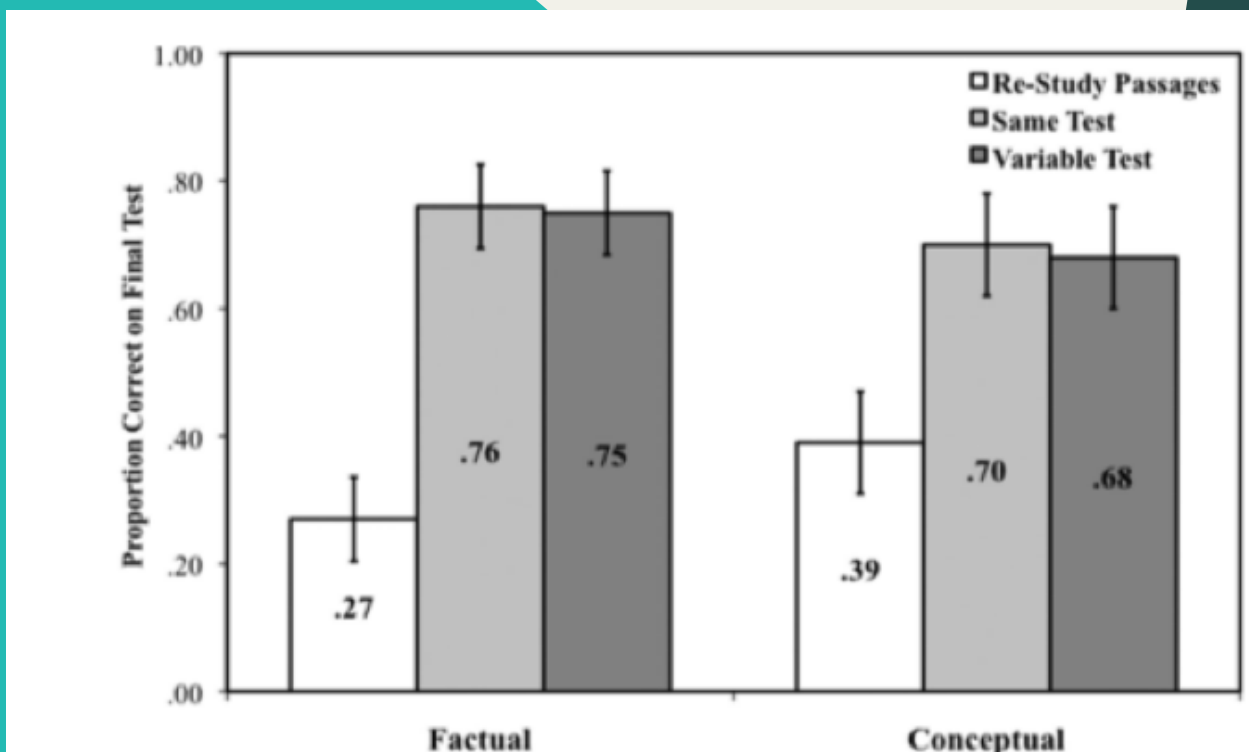


The image above (5) shows that revisiting information stimulates the synapses to produce more receptors (the blue structures, which are essentially signal receivers). This change in the synapse (synaptic plasticity) increases the strength between these neurons and is essentially the mechanism underlying LTP.

Active Recall and Spaced Repetition

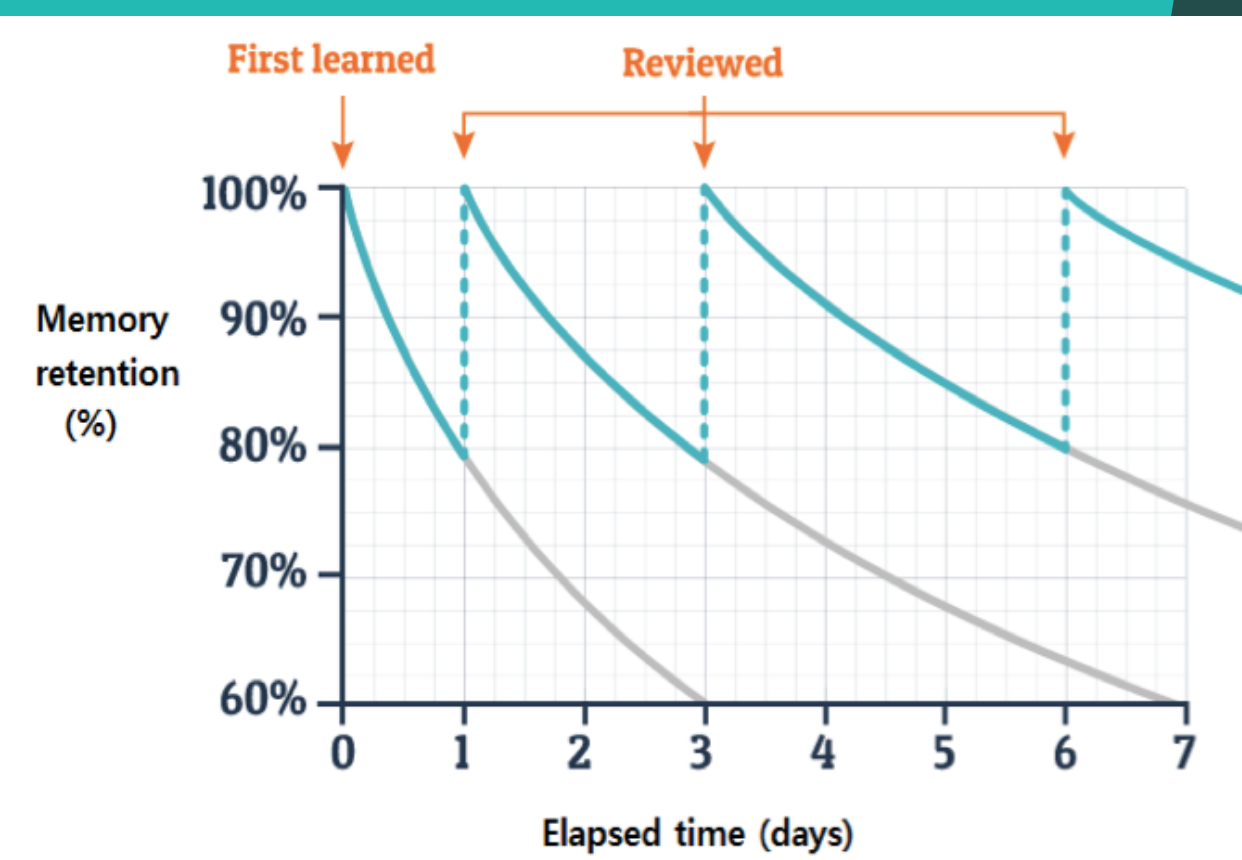
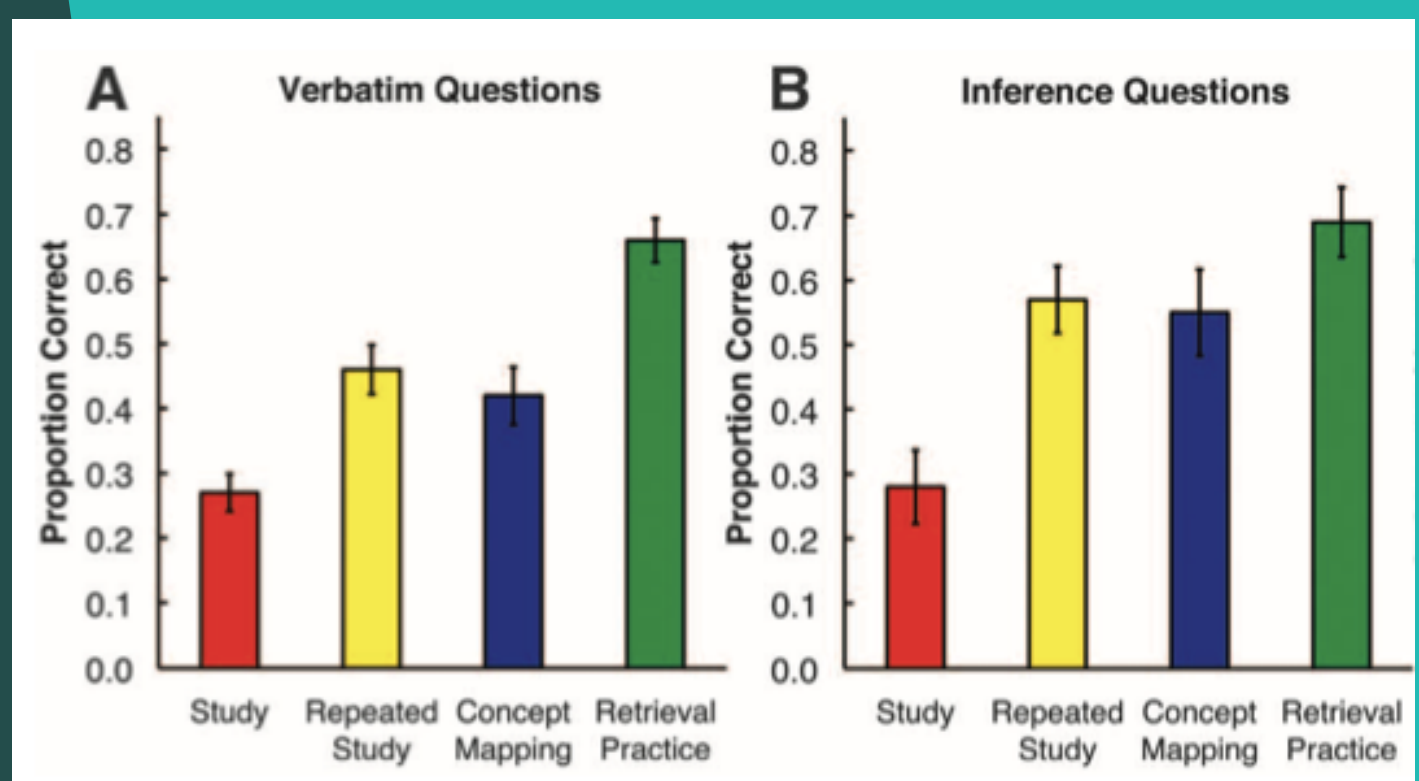
So, you are probably wondering, what is the best way to induce LTP? The answer is two components: active recall and spaced repetition – something my students are probably sick of me talking about by now.

Active recall is essentially just the process of remembering information (i.e. testing yourself) (6). This has been proven time and time again to be the single, most effective way to study. Despite this, studies show that highlighting, re-reading information and summarising notes are the most common methods students use to study when paradoxically, these have been proven to be the least effective ways to study (7).



This study by Butler (2010) (8) proved exactly this! The graph shows that students who tested themselves and practised active recall got 50% greater score on the final test compared to those who simply re-read the passages. In the context of exams, 50% is typically the difference between a C and an A*...

For those of you still convinced that reading your textbooks over and over again is still the most effective method of studying, this study by Karpicke and Blunt (2011) (9) once again proves that retrieval practice (active recall) is far more superior than concept mapping (mind-maps, spider diagrams etc.) and those who simply study/repeated study.



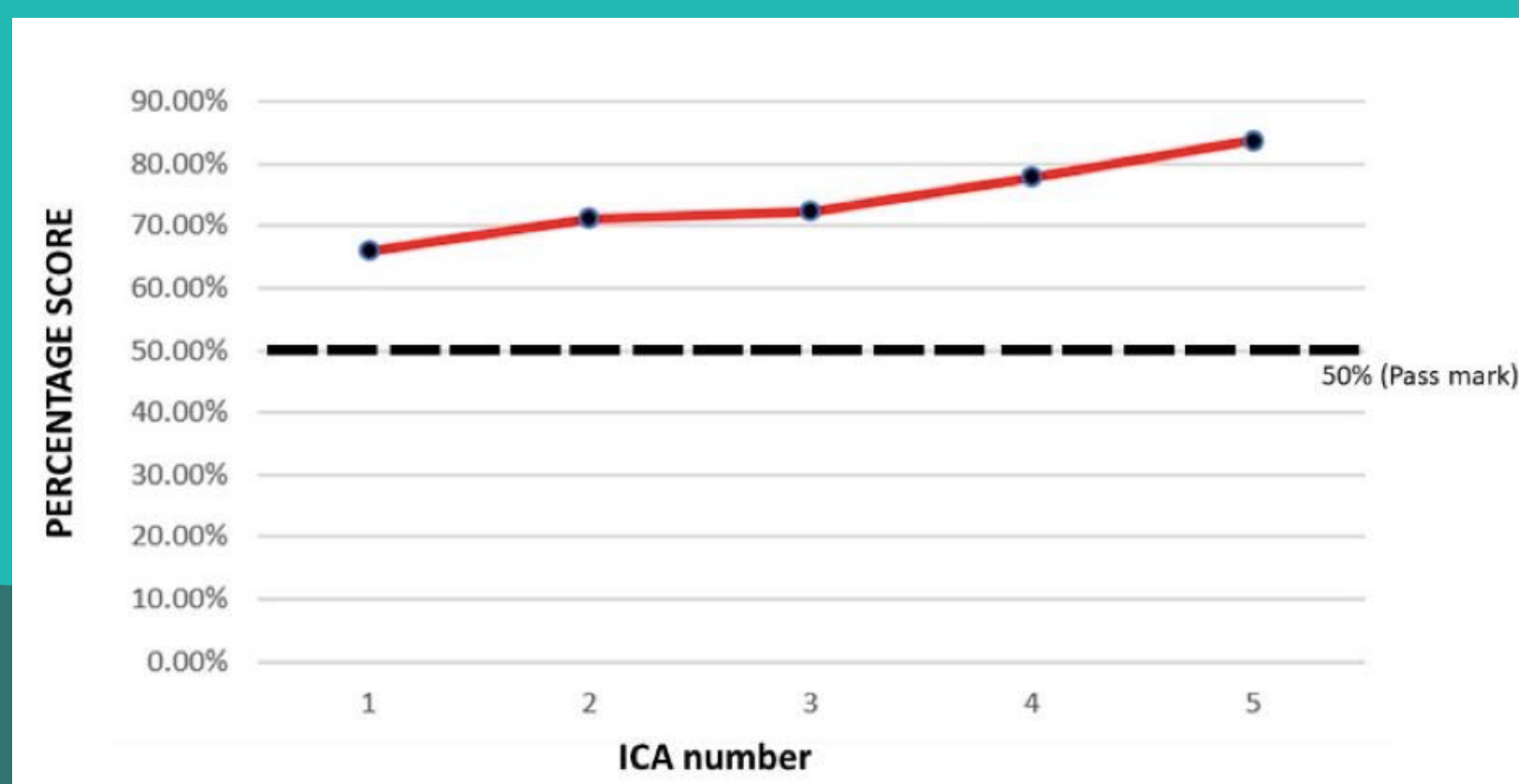
Spaced repetition is your second weapon to efficient studying. The curve shown is known as the "Forgetting curve" (10) which was hypothesised by Ebbinghaus back in 1885, and still stands today! The forgetting curve shows that information learned on a particular day seems to exponentially diminish when left unreviewed. However, this forgetfulness can be countered by regularly reviewing this information which in the long term means we can retain a larger proportion of this information (note how this is consistent with the LTP model of memory).

HOW TO IMPROVE YOUR GRADES

So now we have the science out of the way, how can we apply all this information to improve YOUR grades? In the previous section, I emphasised the importance of active recall – I strongly recommend utilising past paper questions as these are a great way to engage your brain and incorporate retrieval practice in your studies. Moreover, past paper questions are not significantly different year-to-year, so it is a great way to learn the patterns used by examiners and learn the mark scheme. This is the rationale we use at JC Tuition, and we make sure our students get plenty of exam question practice!

The most optimal way to study is to incorporate both active recall AND spaced repetition. Now back in the day, it would have been suggested to make flashcards, and then make a timetable as to which interval to review these cards depending on the perceived difficulty... but this is too complicated and time-consuming!

Fortunately, these days there are very clever FREE software that have algorithms that can do all of this for you! An example of such an app would be ANKI. ANKI is an app I have been using at medical school and it has improved my grades in medical school significantly! Check out the JC Tuition YouTube channel for my ANKI masterclass, where I take you through everything you need to know to optimise your revision.



This line graph shows how optimising the efficiency of my study strategies (with the help of ANKI) has improved my grades in medical school in-course assessments (ICAs) by nearly 20% - further emphasising that these strategies do work!

I recommend ANKI to all my students undergoing their GCSEs and A-levels! I strongly believe studying just 30 minutes a day on ANKI is far more productive than hours and hours of just re-reading, highlighting and summarising your notes!

I hope this book is the foundation to your educational success to come!

Best Wishes,

Jishan Choudhury, Founder of JC Tuition.

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