TWOP Discussion

NEUROPLASTICITY AND BINOCULAR SINGLE VISION

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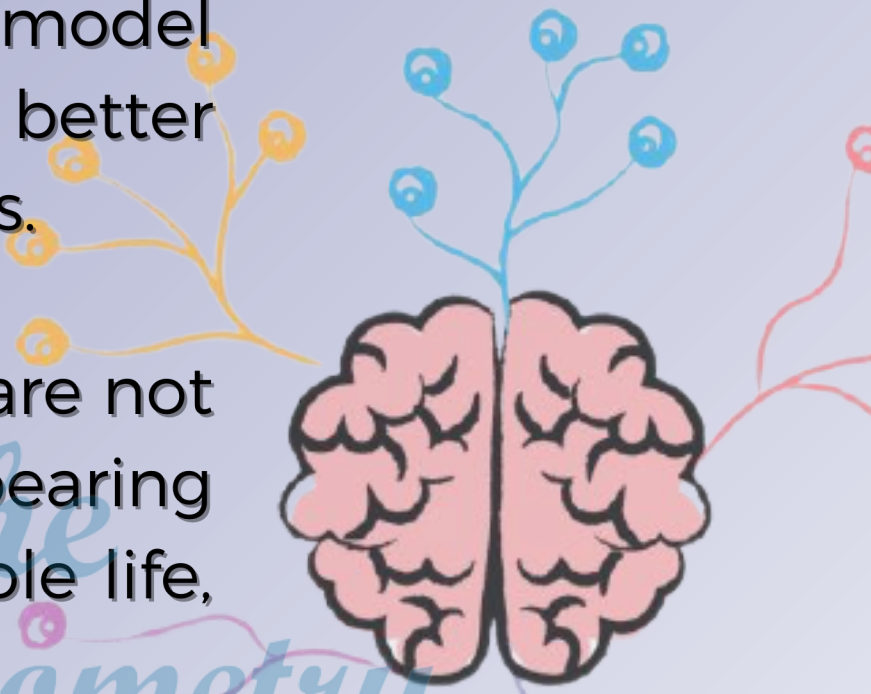
INTRODUCTION

- **Neuroplasticity** can be defined as ability of the brain to change, remodel and reorganize for purpose of better ability to adapt to new conditions.

- The fact is that neural networks are not fixed, but occurring and disappearing dynamically throughout our whole life, depending on our experiences.

- Neuroplasticity leads to many different occurrences such as habituation, sensitization to a certain position, medication tolerance, even recovery following brain injury.



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INTRODUCTION

- During early/young age, the brain's ability to mold and change itself in response to different stimuli and experiences is incredibly high. As a person ages, this ability begins to slow.

- Neuroplasticity is why a stroke victim that loses function on one side of the body is capable of recovering function after the event, or why an amblyopic adult patient is capable of recovering vision.

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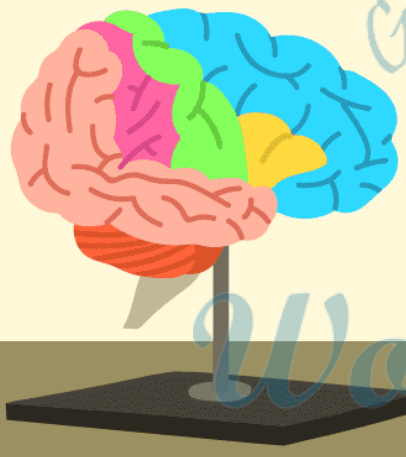
TYPES OF NEUROPLASTICITY

The 2 Types of Brain Plasticity

What is Neuroplasticity (aka Brain Plasticity)?



Brain's ability to change and adapt

verywell

Type 1: Structural Plasticity

Experiences or memories change a brain's physical structure

Type 2: Functional Plasticity

Brain functions move from damaged area to undamaged area

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TYPES OF NEUROPLASTICITY

- At Birth, the visual system is not fully developed.
- Over the first two years of a child's life, visual experiences shape the neural architecture of the visual system.
- During the first four months, eye teaming begins to develop, and with this eye-hand coordination.
- By 8 months depth perception is developing, and by 12 months these skills are quite robust and continue to improve.
- During early visual development, an abnormal visual experience will likely inhibit the normal development of the visual system like: Amblyopia, strabismus (eye turn), or pathology significantly affecting the child's visual skills.

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TYPES OF NEUROPLASTICITY

- Fortunately, Children have a highly plastic visual system i.e. amblyopia, strabismus, and other disorders of binocular vision can often be corrected with good success if detected and treated early.

- However, Adults have a less plastic visual system and will require more time and effort to overcome an abnormal visual experience in childhood.

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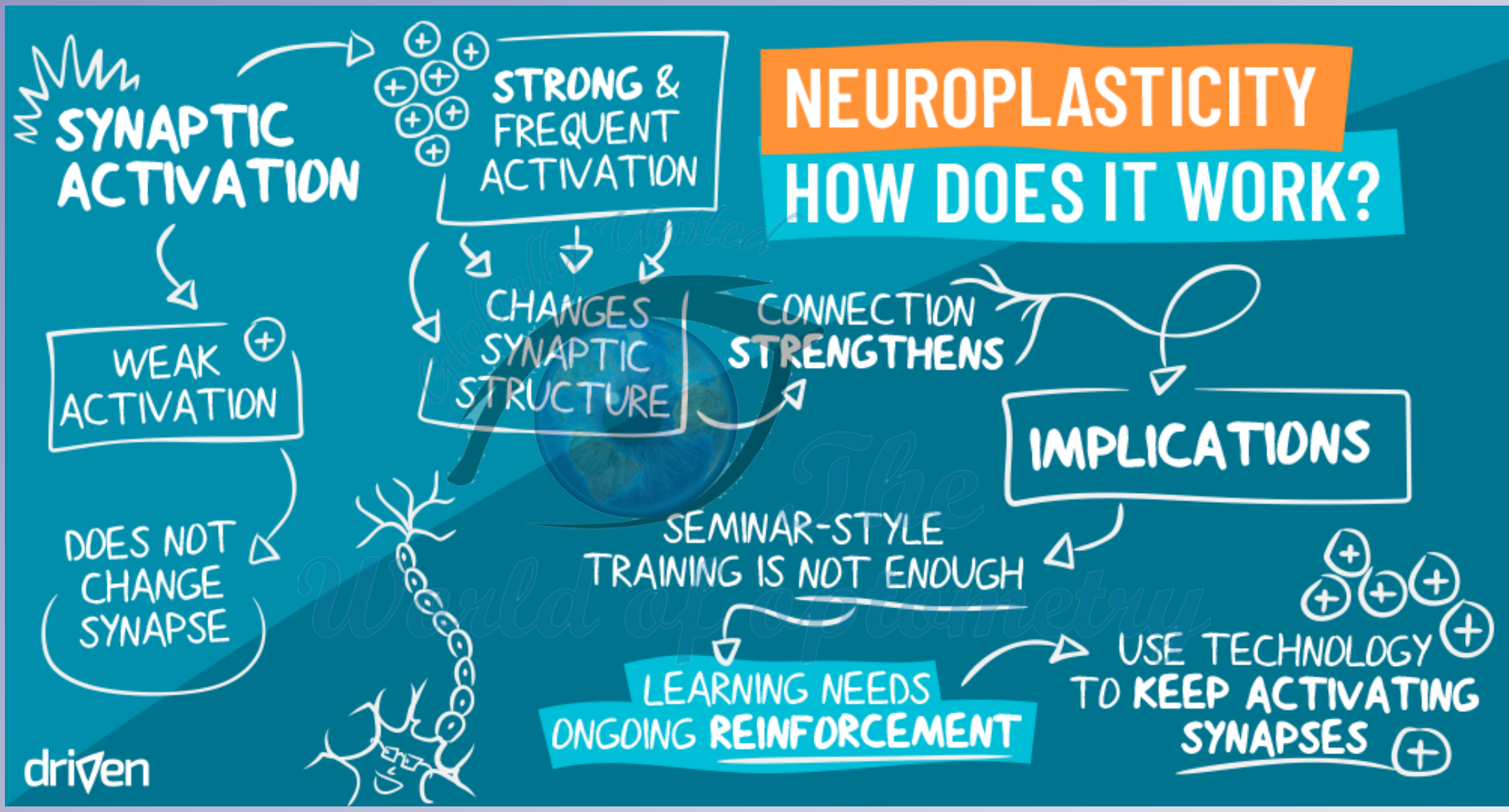
NEUROPLASTICITY



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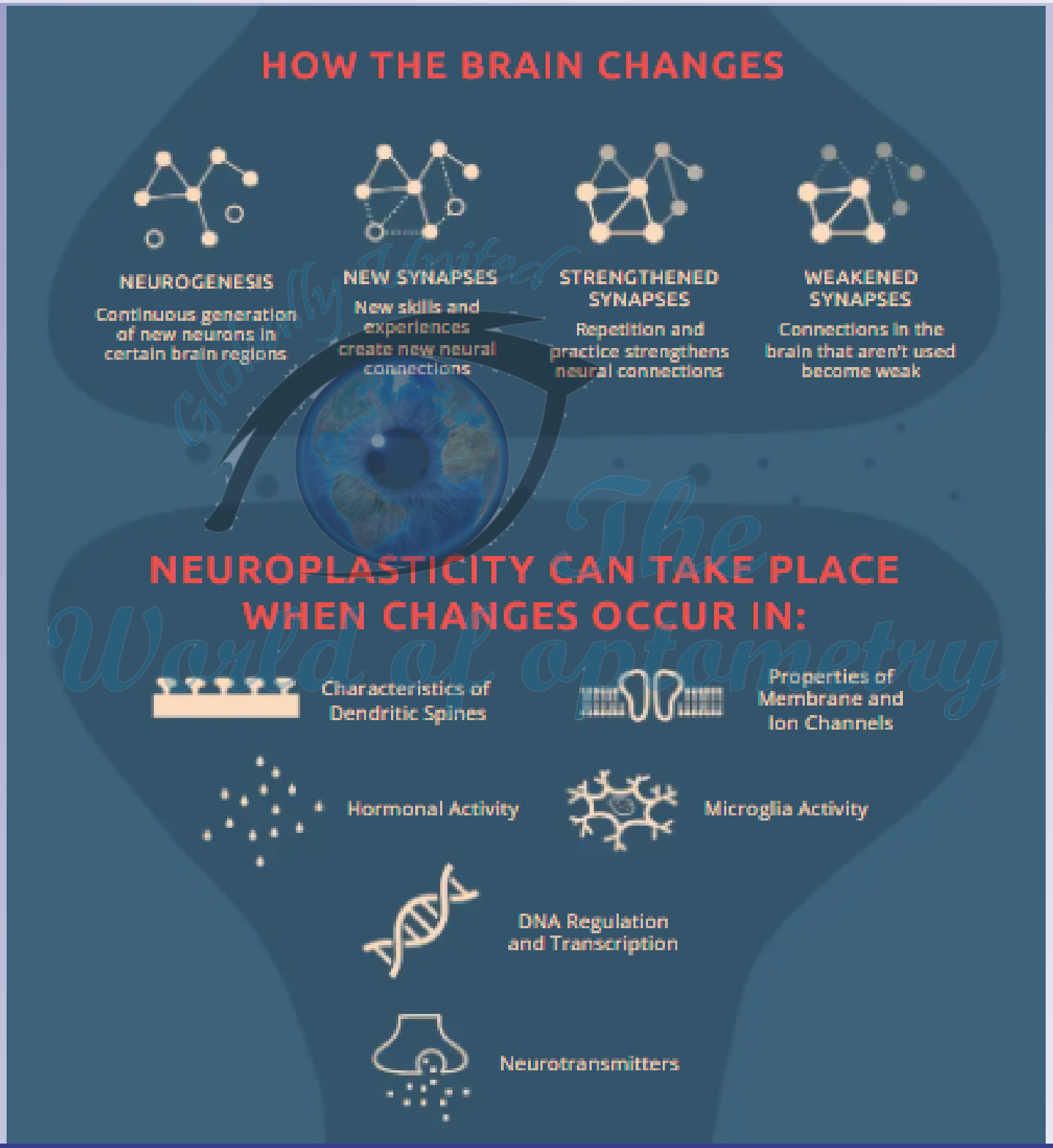
NEUROPLASTICITY



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NEUROPLASTICITY THROUGHOUT LIFE

- Learning a new skill forces the brain to adapt by creating and enhancing neural pathways. Music and second language learning are excellent examples of how learning challenges the brain.

- Exercise aids the cardiovascular system, decreases the risk of obesity, and helps keep the body and immune system strong--this is true at any age!

- Quality, balanced food and fluid intake throughout life may even have a preventive effect against late-in-life cognitive disorders, such as dementia.

- Both short- and long-term meditation to reduce stress has been shown to impact functional neuroplasticity.

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Wow, what cool content

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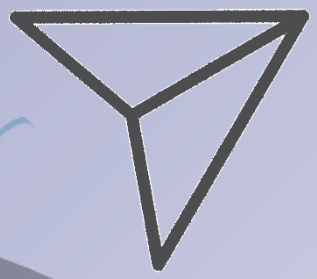

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