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NEUROPLASTICITY EXERCISE: TRY BRUSHING YOUR TEETH WITH YOUR NON-DOMINANT HAND

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ABSTRACT:

The human brain is an organ that improves through mental stimulation. The brain continuously adapts, grows and rewires itself through the growth of new neurons. When people age, it's common that they experience memory loss and sometimes their fine motor skills – but unless the mental decline is caused by disease, most age-related memory and motor skill ability loss is from lack of brain exercise. If you don't use your brain, it loses its knowledge. Neuroplasticity is the phenomenon in brain where different stimuli lead to increase or decrease in the number of brain cells and remodelling of synapses. Neuroplasticity research has now established beyond doubt that instead being a static cell mass, our brain is actually a dynamic system of neural network that has the capability of significant growth under favourable circumstances.

KEYWORDS: *Brain, Neuroplasticity, Neural Pathway, Brushing, Exercise and Non Dominant Hand*

I. MORNINGS!

Waking up in the morning and doing regular routine thingsgives your brain more clarity and capacity by getting them done first thing. If we use the same part/do the same habit/repeat the same story or belief to ourselves, that part of the brain will continue to light up again and again. The neural pathway will become more utilised naturally. 90% of our day to day life is habitual. The way we talk, act, the habits we do, the hand in which we clean our teeth… even the direction that we clean our teeth. All of these become an unconscious competence once we

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have learned them. This makes your regular things boring but what about if you start using your non-dominant hand and building up new neural pathways making your brain for more change just by changing the regular simple thing of brushing.

II. WHAT IS NEUROPLASTICITY ?

Neuro is for "neuron," the nerve cells in our brains and nervous systems. Plastic is for "changeable, malleable, modifiable." The current science of neuroplasticity shows us "a phenomenon where different stimuli lead to an increase or decrease in the number of brain cells and remodeling of synapses," says RudraprosadChakraborty, M.D., D.P.M., senior resident at the Ranchi Institute of Neuropsychiatry and Allied Sciences. "Neuroplasticity research has established, beyond doubt, that instead of being a static cell mass, our brain is actually a dynamic system of neural networks that has the capability of significant growth under favorable circumstances."[1]Indeed, the brain is not simply a static, soft mass bathed in fluid and surrounded by a hard case. It is not finished in its development once we reach a certain age. The brain can grow. The brain can change—and with that change, end organs, such as the eye and its functional status, can be cortically altered, show improvement after insult and injury and be remediated and enhanced.Therefore enduring this neuroplasticexcercises in our daily routine can change our lifestyles by inducing new neural pathways, improving brain functions and encouraging people to start with a new road. (Figure 1)

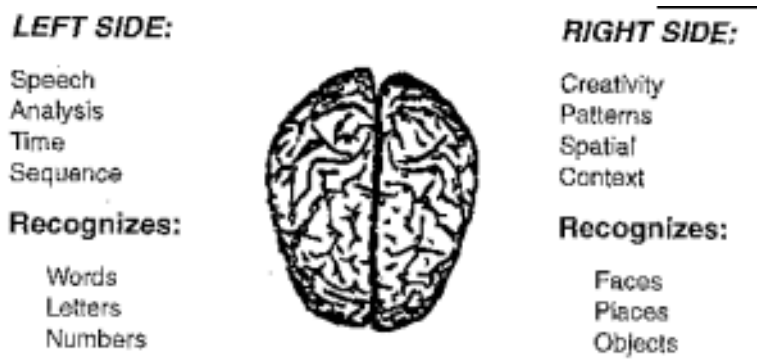

Figure 1: Diagrammatic representation showing Brain Hemisphere with Specialization of Right and Left side of Brain

III. TEACHING AN OLD BRAIN NEW TRICKS!

The human brain changes with response to various types of activities and experience through the reorganization of its neural connections. This phenomenon is called as neural plasticity. Studies over the past decade have indicated that the adult brain is structurally dynamic. Indeed, dendritic spines dynamically turn over in the adult brain and learning of novel tasks is associated with further increases in spine turnover. The exercise training is

an effective therapy for CNS dysfunctions like stroke, traumatic brain injuries etc. which has been applied to clinic. Traditionally, the exercise training has been considered to improve brain function only through enhancement, compensation, and replacement of the remaining function of nerve and muscle. Training an old brain with new tricks has an impact on learning and memory and more evident with functions like running.[2]

IV. AWKWARD, INEXPERIENCE AND FUNNY-FEELING IN FIRST ATTEMPT

How awkward it is to brush with non-dominant hand because we haven't trained those pathways for our left hand. This is a simple trick to make life a little more interesting and challenge your body and brain in a new way. It feels awkward and you are likely to have much less control over what your non-dominant hand can do but when you use your opposite hand you are "growing" your brain! It opens up aspects of the brain we are not in touch with.When we try to brush with left hand, everything in our body feels wrong. We get ghost sensations in our right arm as if it wants to be doing that work.....in fact we will usually start to unconsciously raise our hand up as if to hold the brush. That's how strong these neural pathways are ingrained. Obviously, we all know how easy it is to brush our teeth. It's not a difficult task. But when you try it with a hand you've never used, it's extremely difficult and your brain desperately wants to go back to its old automatic neural pathway. Hence doing neuroplasticity excercise like brushing teeth with non dominant hand will fire up new pathways. As well as stimulating the brain's cognitive and creative functions,"

V. BENEFITS OF USING YOUR OPPOSITE HAND

Hand dominance represents an evident example of hemispheric specialization. The vast majority of the population (with a figure hovering around 88%) are right-handed with their left hemisphere being the dominant hemisphere.[3,4] It turns out that there are a number of benefits to working your non-dominant side that make this a worthwhile experiment. According to Holtzen,[5] left-handers may have neuroanatomical advantages in performing visuospatial and gross visuomotor tasks.

It forces us to think

It balance out our bodies

It can help us be more open-minded

It can improve creativity

VI. EFFECTS OF HANDEDNESS ON ORAL HYGIENE

In dentistry, some precautions taken by individuals are thought to improve oral hygiene. The most important of these are activities requiring manual dexterity, such as brushing and flossing.[6]It was stated that both

manual dexterity and motivation are very important in providing oral hygiene.[7,8] It was found that left-handers have better oral condition in several studies, but this finding was not statistically significant.[9,10,11] As it was confirmed that hand-skills is genetic. But it can be improved with some exercises and motor learning.[12] We can adapt this exercises and improve motor learning skills by doing neuroplastic exercises and can be accomplished by doing small change in brushing instead of using dominant hand which activates one hemisphere but brushing with non dominant hand activates both the hemisphere, which may result in thinking different and become more creative.

VII. CONCLUSION

There is tremendous experience deep change in the understanding of neuroplasticity. It is evident that we can take advantage of neuroplasticity to help correct many disorders of the visual system. We as clinicians, simply have to begin utilizing these treatment options for the benefit of our patients. But this can also be adapted in our daily routine activity for formation of new neural pathway as well as to improve and stimulate brains cognitive and creative function. Therefore doing activities with non dominant hand can break the chain and start adapting more challenges which will improve our brain to remodel and grow.

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