Mental exercise and stimulation of muscle growth psychology essay

When we talk about exercise, many of us just focused on the physically body exercise and overlooked the mentally brain exercise. Our brain work like a director to control actions and thinking. A brain cell, called neurons, connected to each other in the quantity of billions to form the nervous system. The nervous system directs the motion of human to respond to different environment and stimulation. Through life, we learned and gain different experience, the neural network reinforces themselves to respond to all these stimulations. For example, when we are at the age of 5, neural network responds to learning of language, and coordinate movement, when we are at the age of ten we learn to solve tougher problems like math, sport and dance. Professor of neuroscience, John Donoghue (2000) said: “ This latest study provides strong evidence that learning itself engages LTP in the cerebral cortex as a way to strengthen synaptic connections. Long-term potentiation -LTP, is a long lasting enhancement among the neuron-to-neutron synapses result from stimulation. Strengthening of LTP improve the connection among neuron to form memories. Therefore, a consistent of stimulation of brain exercise can improve the brain function as well as the memories. Motor neurons synthesized neurotransmitter acetylcholine at the neuromuscular junction and stored in the synaptic vesicles at the distal end of axon. Calcium ion is then diffused to the axonal terminal when an impulse reached, which allowed the neurotransmitter acetylcholine in the synapyic vesicles to diffuse across the myoneural junction. The neurotransmitter acetylcholine is then adsorbed by the receptors on the muscle fiber surface then biodegraded by enzyme acetylcholinesterase. In the result, the muscle fiber contracts and expand in respond. Our body consists of thousand neuromuscular junction control the movement of the muscle through gaining

message from the brain. Therefore, neurotransmitter acetylcholine play an important role among mind, body, muscle as well as memory. It’s just like when you leave a balloon there for sometimes, it will contracts. But when you blow air inside, it will expand. Same things happen between the muscle and the receptor. “ So muscle activity is a cue to keep a synapse stable, and synaptic inactivity is a cue to disassemble a synapse,” says Jeff W. Lichtman, M. D., Ph. D.(1999), at Washington University School of Medicine. Inactivity will lead to loss of acetylcholine receptors which are held by scaffold-a special protein, in the muscle fibre. To strengthen the connection among neuron, both mental and physical exercise is needed to stimulate the brain.

Besides of the growth of brain, mental exercise also proved that can stimulates the growth of muscle. Research from Cleveland Clinic Foundation found out that muscle can be strengthened without doing exercise, but just thinking of it. An experiment leads by Dr. Vinoth Ranganathan(2001) has been done by imaging their finger or elbow for 12 weeks. Results show that, the group with imaginary exercise increased their muscle strength by 35% in the finger group and 13. 4% in the elbow group. Whereas the group without imaginary exercise has no strength gain. The research stated that the improvement of the brain’s ability to control the muscle causes the strength gain of muscle. This has clearly show that a focus mind thinking make a big different to signal the muscle and to strengthen the muscle. Think more with the brain can actually increase the interconnection of the brain cells. Our brain will be keep developing when there is new stimulation and even older brain have better learning result because the highly developed neurons respond better to the new knowledge.

Many people complaining that they have less time to exercise. They are busying with work, children, studies, and housework. However, we can create any of the brain exercise by our own without limited time and resources. For example, write with another hand that you usually use, you will found out that it is hard to control and feel uncomfortable. Now your brain is learning, and developing the new skill. Even though is a small movement, but it may stimulate the brain to learn and think. Try others like brush teeth using another hand, walk up the stairs with another leg first, comb your hair with another hand. Lawrence C. Katz, Ph. D.(1999), a professor of neurobiology from Duke University Medical Center and Manning Rubin(1999) created Neurobic exercises. Neurobicsâ„¢ is an unique new system of brain exercises program which is first designed to produce neurotrophins-a natural growth factor and secreted proteins, based on the ability of the brain. Neurotrophins helps to induce the growth of neuron and to prevent them from cell death. Thus, neurobics exercise can help to fight mental aging. This system emphasizes using five physical senses and emotional sense in an unusual ways to make a different in our daily life. Neurobisc is a fun and easy exercise that can be done anywhere and anytime. When you start doing things that are normally different from usual for example writing with another hand, you are actually activating the new circuit and network connection of the brain. According to Katz L. C., Ph. D, (1999) we should involve one of the following theory in the exercise, which is involve one or more of your senses in a novel context, engage our attention, and break a routine activity in unexpected. First, involve one or more senses in a novel context means doing something with adding another senses of mental or physical which you usually do. For example, searching the purse in

bag with your eye close. Usually we find the purse using eye and hand, but when we close our eyes, we are imagining the image of purse in our brain and through the touch sense, we are guessing things inside the bag others then the purse, like key, glasses, and tissue. Next, engage your attention means do something unusual to stand out from daily activities which are existing, fun and surprising. For example, go for travel in week days, and wear casual to work. Nevertheless, break a routine activity means change a new route for daily activity, for example, rearrange your table and document, use a different road to work. The result in exercising your mind is to relaxing your mind and get ready for future challenges.

Furthermore, solving mathematical question is also another type of mental exercise. We started solving math problem since we are in the primary school, as we get older, we try to solve more complicated math questions involve with more than one unknown. I am sure that everyone has been stuck in those questions and start asking why are we learning this and where do we apply all these complicated factor in our daily life? Yes, we are not going to measure the distance, calculate the temperature, estimate the time and even counting the money with all the ‘ formula’, so why are we learning this? Solving mathematical question actually involve thinking, reasoning, figuring and logicality. We started to figure out the problem and try to use logical reasoning to apply the formula that we learn. Sometime, it may also increase the creativity of thinking when we are trying to combine more than one formula in it. When we are doing these, we are actually improving our brain ability to learn and growth. It can help to sharpen our mind. Same

theory apply to other mental training games and activities like Soduku, bingo, crossword, Srabble, magic cube, puzzle, chess and IQ question.

Everybody know that physical exercise is good for health, however, not much of them understand how physical exercise contributes to form a better brain. Compared to 20 years ago, nowadays people spend more time sitting in front of the computer with documents, games, and movies instead of spending time doing exercise. The style of exercising has changed, people use to go to gym and rely to fitness equipment, we do not even breath in the fresh oxygen and sunlight. However, this is the one of the trend and changes due to the development of technology. Historically, walking is just a form of transportation which was originally built in the way of daily life, but now walking is consider a type of exercise. When we are walking, blood circulation with oxygen and glucose will increase when breathing and heart rate increase to remove waste product and enhance energy production. As the result, an effectively oxygenate brain can help us think better and make a better decision. Studies of senior citizens showed people who walked at least 20 minute a day can reduce stroke risk by 57% and improve learning, concentration, abstract reasoning and memory. Research from University of California at San Francisco found out that elder women who walk regularly has less brain function decline compared to those do not walk regularly. This experiment was carry out on 6000 women in eight years. Less cognitive decline they saw in high energy group said neurologist Kristine Yaffe, MD (2001), Chief of Geriatric Psychiatry. Most active women which walk 17 miles per week had significant declines 7% lesser than those walked less. Furthermore, those who walk extra miles can reduce the significant decline

to 13%. “ This is an important intervention that all of us can do and it could have huge implications in preventing cognitive decline” said Yaffe K, at the San Francisco Veterans Administration Medical Center. All these research has showed that beside maintain health of body, a simple exercise of walking also can help to ensure a clear mind, increase learning and focusing ability, improve memory, and prevent mental decline.

Stimulation of brain in the early stage of life can reserve more cognitive to prevent the brain-damaging disease. Reading and learning new language skill before the age of 18 to have a better learning for the future use. Some other games like Soduku, Scrabble and crossword puzzle can also help to develop new learning skill. Lack of physical and mental exercise may lead to disease like Alzheimer’s due loss connection among brain cells. Usually an older people will have poor memory to current issue and their respond towards stimulation are more likely to be slower. Certain area of the brain will undergoes damage and deterioration when we get older. For example like hippocampus faced trouble to delivery new memory for storage purpose, and also the inactive of the basal ganglia cause the muscle to respond slower. Anyway, there are many researches showed that regular mental exercise can positively affect the decline and aging damage. Both Dr. Robert P. Friedland(2001) at University Hospitals of Cleveland and another 5 year study at the Laval University suggest that individual which is less exercise may twice more likely than those active individuals to develop Alzheimer’s.

However, there are always pros and cons. Latest studies from Robert Wilson(2010) of Rush University Medical Center in Chicago on 1157 older adult’s cognitive decline in a six years period suggest that mind exercise

might increase the rate of mental decline once Alzheimer’s is diagnosed . From the starting of the experiment, they are all dementia-free and how often they engage to mental stimulating exercise were recorded. At the end, 614 of the them remain cognitively healthy, 395 were mild cognitive decline and 148 were reported Alzheimer’s disease. According to the studies, participant that remains healthy are those who are cognitively active and they are 52% slower than those inactive to develop mental decline. They usually involved in activities like reading, watching TV, listening radio, playing games and others. In contrast, those who develop Alzheimer’s disease usually involve in mental challenging activity which is 42% faster than the normal people develop mental decline. “ The results do suggest that mental exercises help stave off dementia but then increase mental decline after dementia onset” said Charles Hall (2010), professor of neurology at Albert Einstein College of Medicine, New York City. Thus, Wilson’s team suggested that mental exercise may increase the rate of older people to develop mental decline once they are diagnosed Alzheimer’s.