mental wellbeing

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exercise and mental well being

"If you are in a bad mood, go for a walk; if then, you are still in a bad mood go for another walk"

HIPPOCRATES

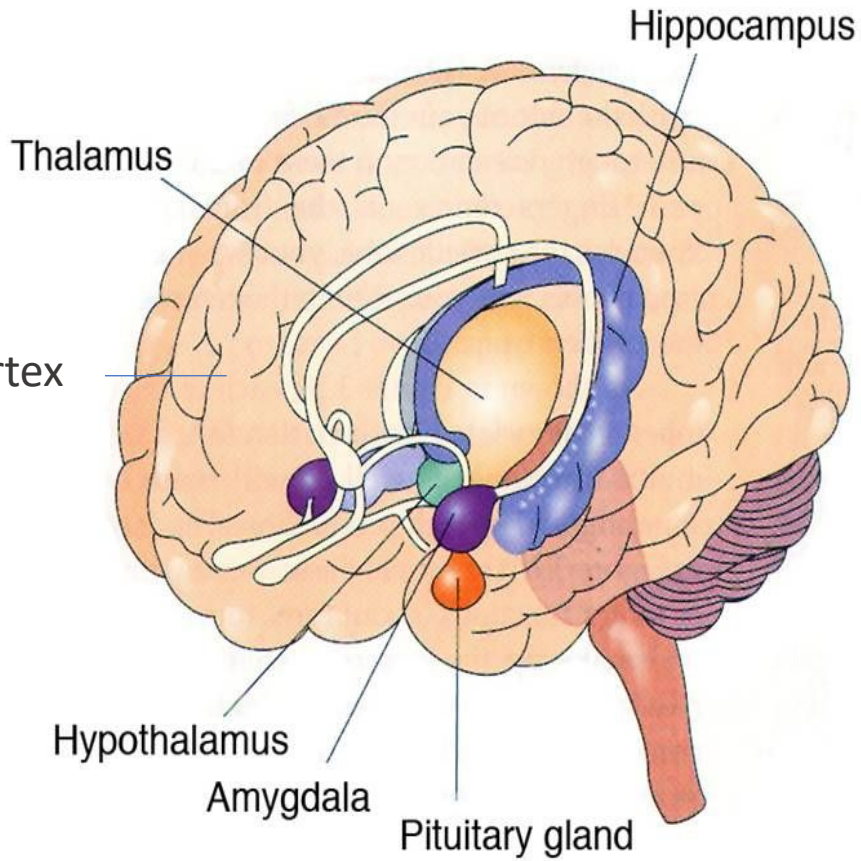
our brain thrives on exercise

increases blood flow delivering oxygen and nutrients

exercise is a stressor but
a stress which we can control
which improves stress resilience

neurotransmitters/
hormones suppress cortisol

epigenetic changes eg increase in length of telomeres



increases waste removal

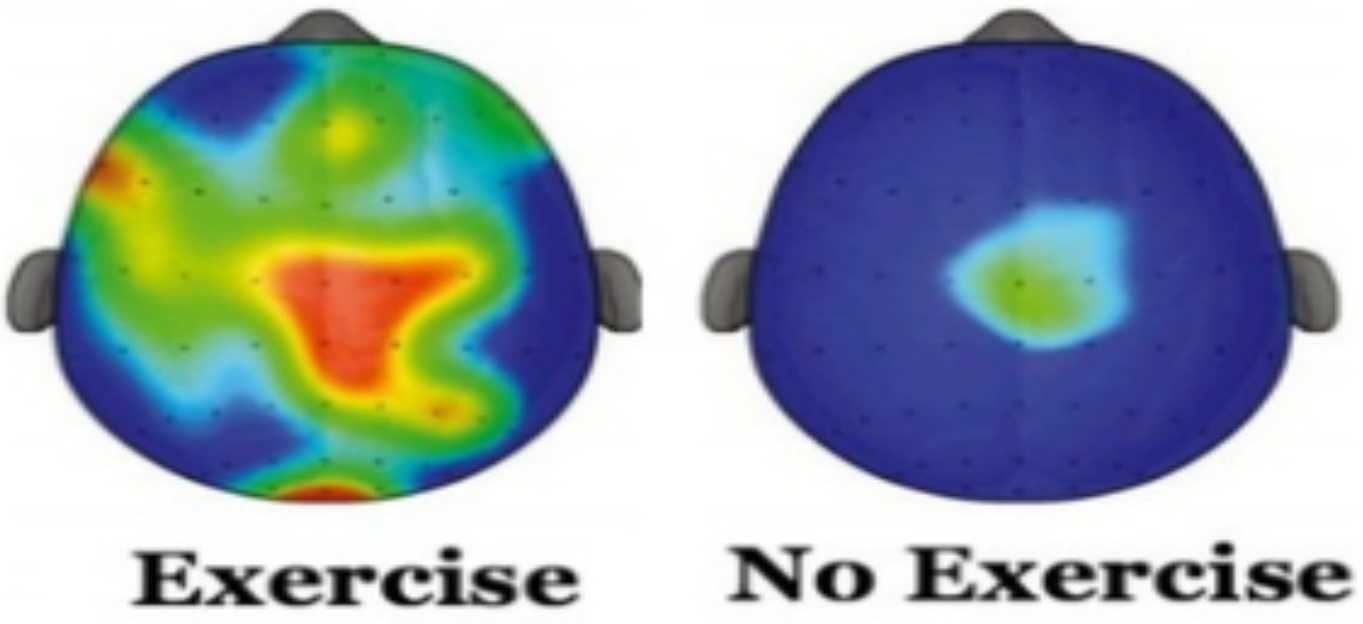
changes the balance of neurotransmitters

suppression of HPA axis activation

promotes neuro plasticity and neurogenesis

reduces cognitive decline

exercise lights up our brain



effects after 20 minutes moderate exercise

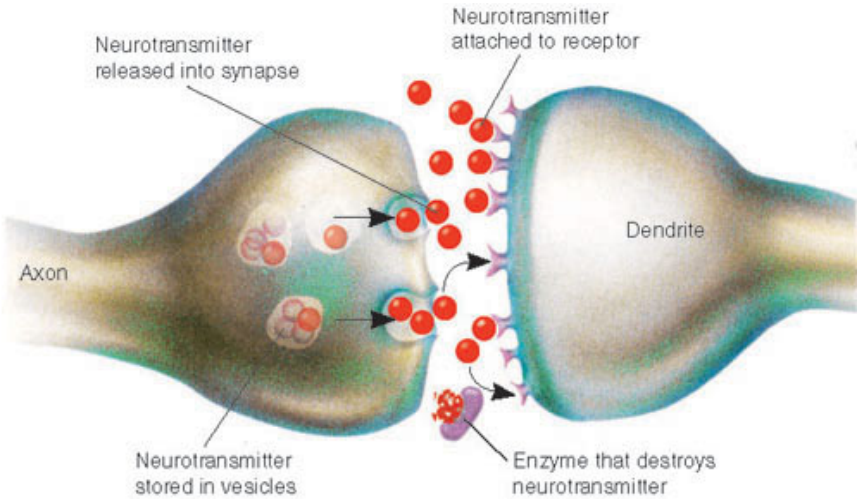
80% of benefit of exercise derived from this dose

British Society of Pharmacology called for exercise to be classed as a drug

huge benefit but as with all drugs potential to be misused

our electrochemical brain

- brain activity is one neuron releasing an electrochemical message (neurotransmitter) from its axon
- neurotransmitter crosses a synapse and finds receptors in dendrites of next neuron – a neural pathway is created
- our moods are entirely dependent on the neurotransmitters and hormones circulating in our brain and body
- while life events can impact these transmitters and thus our mood, we can exert more control than we realise



better than a cocktail

dopamine and norepinephrine counteract epinephrine – increase focus and motivation

endocannabinoids and endorphins natural painkillers euphoria and feelings of wellbeing – 60mins for endorphins

GABA and serotonin flood brain after exercise promoting relaxation and happiness

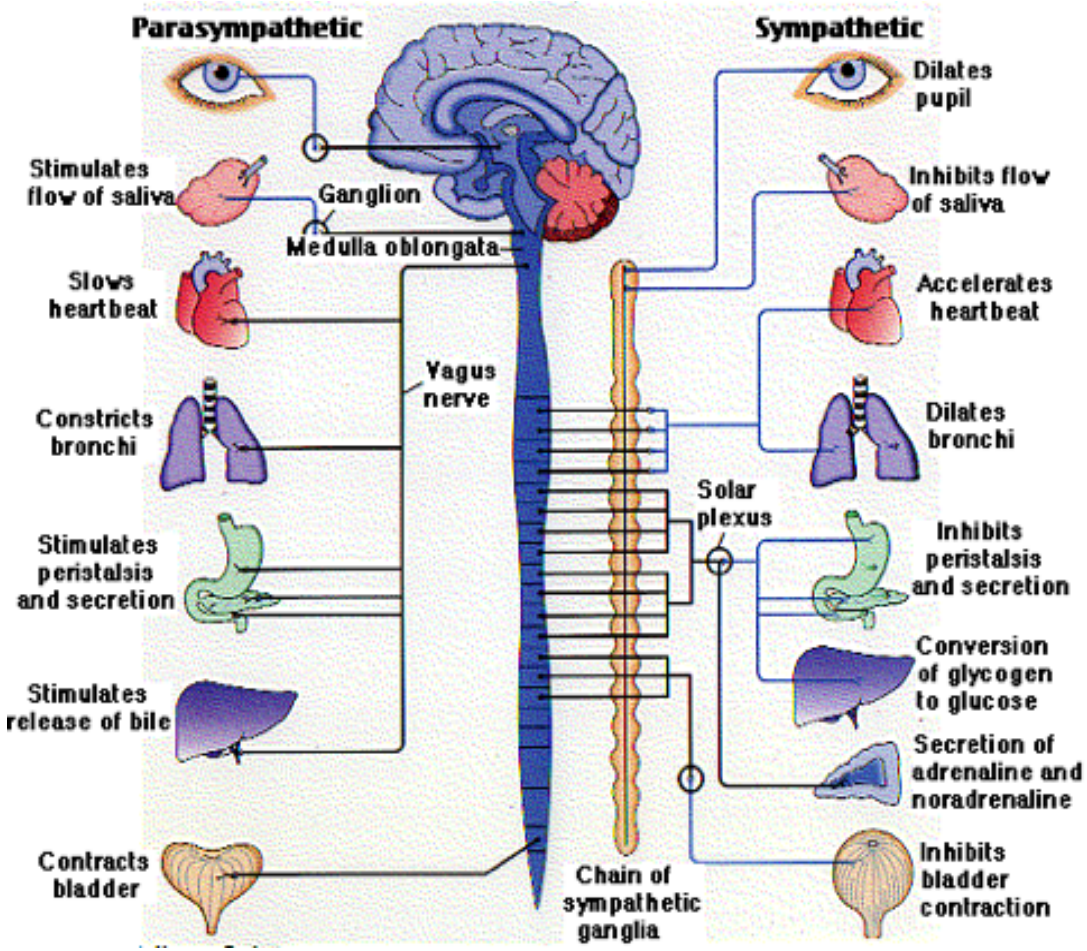
short bursts of exercise switches on the immune system

BDNF – and other growth factors are miracle -gro for our brain increases hippocampal mass

exercise: what type; how long and when

- moderate to vigorous aerobic exercise: most evidence, but also the most studied; strength training: also showing promise
- moderate exercise for 20-30 minutes 4- 5 times a week – 150 minutes per week of walking; swimming; gardening; dancing and moderate flow yoga
- vigorous 15- 20 minutes 2-3 times a week - 75 minutes per week of running; fast dancing; fast swimming and sports
- number **one** rule make if fun
- elevated cortisol in morning can be helpful
- avoid within 2 hours of bedtime
- exercise is also a stressor so be mindful of prolonged vigourous exercise

yoga



yoga in the broadest sense has 8 paths or patanjalis
- roadmap to wellbeing and meaningful life

asanas or physical bring multiple benefits through mind-body connection

switches from default mode network to task focused network – excellent for mastering anxiety and worry

taps into the vagus nerve - ie the parasympathetic or calming system

switches on GABA and serotnin

cold water swimming - your intrepid presenter undertaking physiological research

currently a lot of attention

very little research – most promoted study has an N of one

endocannabinoids and endorphins natural painkillers euphoria and feelings of wellbeing

stress resilience through cross adaptation?

stimulates vagus nerve

dancing

creates new neural pathways and improves cognitive function

cerebellum and proprioception

can promote a meditative state – theta brain waves

music movement and connection seem to release endorphins

connection is highly neuroprotective

transcendence

resources

Feel Better, Live More - episode 187, Dr Rangan Chatterjee

Found my Fitness: www.foundmyfitness.com Dr Rhonda Patrick

In Praise of Walking: Professor Sean O'Mara

Keep Sharp – Better Brain at Any Age: Dr Sanjay Gupta

bringing it all together

a stressful event is experienced through our peripheral nervous system;

a brain region called the thalamus receives the information and sends the information to our amygdala and hippocampus

risk is assessed by our hippocampus and pre-frontal cortex

HPA – hypothalamus, pituitary adrenal axis is activated and stress neurotransmitters/hormones flood body and brain

sympathetic arm of the peripheral nervous system is activated – high alert

chronic stress is cumulative and depletes our resilience – it can lead to anxiety and depression

chronic stress often arises because of circumstances in our environment but we can build and utilise our natural stress defences proactively