



# Activities for Brain Health

## Guide

*Dr. Heather Sandison*

# Overview

The goal of these brain health activities is to enhance your cognitive function! These activities increase blood flow to the brain, create new neurons, and build mental and physical resilience. The ideas of incorporating nature, social connectedness, and movement into daily activities can improve your cognitive score, increase hippocampal volume, and generally enhance memory.



## Caution

Brain activities and movement should be personalized to each individual to prevent injury and maximize results. Always work with your trusted provider to assess which activities are right for you. Personal trainers can be great assets and guides for physical activity.





## Nature

### Get outside

Engaging in nature enhances memory, relieves stress, improves attention, and lowers heart rate, blood pressure, and cortisol levels. It's time to step outside! We want to take our activities outdoors, whether it's walking, gardening, bird watching, having a picnic, or even being by a window to view the scenery. These types of activities soothe the regions in the brain negatively affected by stress.



## Social

### Get together

There is no better way to keep the mind active than participating in social activities. From the day you were born, you are in relationship with parents, family and then friends. These relationships are critical to our wellbeing. Social isolation is known to increase risk for Alzheimer's. To improve cognitive function, get together with other people. Fun ways to socialize may be joining a club for reading, quilting, playing cards, knitting, golfing or attending events. Host a game night or even just call a friend.

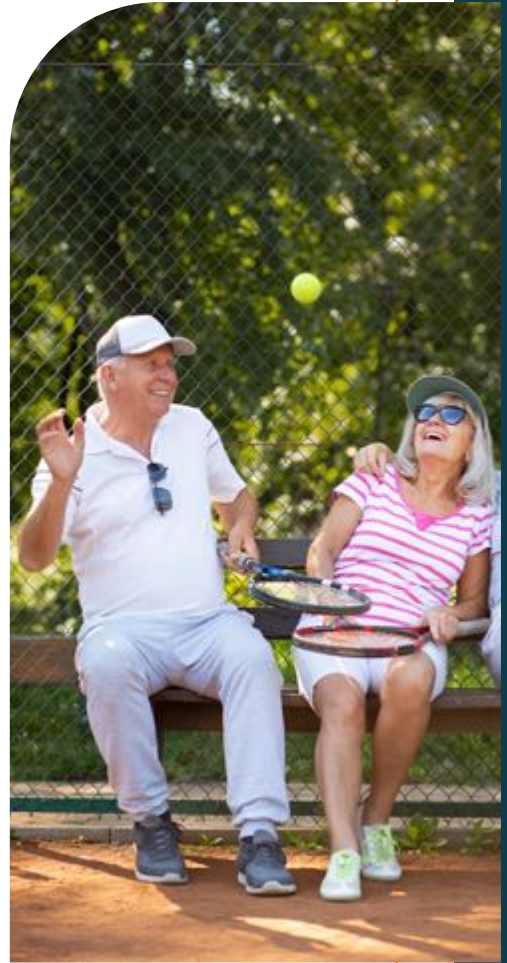
(Citation Sudimac, S., Sale, V. & Kühn, S. How nature nurtures: Amygdala activity decreases as the result of a one-hour walk in nature. *Mol Psychiatry* 27, 4446–4452 (2022). <https://doi.org/10.1038/s41380-022-01720-6>)



## Movement

### Get moving

Get ready to move! Participating in physical activity can be as simple as adding in a few squats while you're cooking dinner, taking your pet for a walk, or folding laundry. Movement promotes blood flow to your brain supporting functions of brain cells. Exercise promotes the release of the brain-derived neurotrophic factor (BDNF), that increases a neuron's ability to connect with other neurons.



## Connection over correction

This approach is about guiding yourself or the one you're caring for positively. Connection creates a sense of openness and safety while scolding and blaming create a stressful and confusing environment. Focus on feelings and provide reassurance.



# Routine

## MOVEMENT

You want to get some combination of these types of movement regularly.

**ALWAYS** have a partner, coach, or physical therapist around when exercising to reduce the risk of injury!



## Aerobic



Aerobic exercise gets your heart rate up and blood pumping. Aerobic activities include biking, dancing, rowing, jogging, and others. What is your favorite way to get your heart rate up?

To reduce cardiovascular risk, aim for 150 – 200 minutes per week of aerobic exercise. This can look like 4 (four) one-hour classes per week with a bit of warm up and cool down.

### How to calculate your max heart rate

Take 220 minus your age. Example:

$$220 - 67 = 153$$

Your MAX heart rate is 153 beats per minute (bpm)

**75–85%**  
of MHR

**150 – 200min**  
a week

Finding your 75% and 85% level

$$153 \text{ bpm} \times 0.75 = 115 \text{ bpm}$$

$$153 \text{ bpm} \times 0.85 = 130 \text{ bpm}$$

The physical activity for a person aged 67 should be to keep a heart rate between **115 bpm and 130 bpm**.

**Devices for tracking movement:** Garmin watch, Apple watch, Whoop wristband, Oura ring, Fitbit.



# Strength



Strength training is muscle-building and should always be done safely with a partner or trainer. This exercise can be with the use of weights, resistance bands, or body weight.

Examples of this movement are **weight lifting, yoga, pilates, push-ups, squats, hill climbing, and even heavy gardening such as using a shovel and digging.**

One goal of strength training is to reduce fall risk. If you increase your strength then you can better support yourself. Another goal is the improvement of bone health, making you strong and healthy.



**reduce  
fall risk**



# Contrast O2



## Contrast Oxygen Therapy or Exercise with Oxygen Therapy (EWOT)

is a method used to increase the amount of oxygen in blood plasma. It increases energy and longevity, improves immune function, organ health, tissue function, reduces inflammation, and greatest of all, enhances cognitive function. The goal here is to adapt over time to breathing positive (80%) and negative (8%) oxygen while exercising. This is where you see max benefits. Stress on the system creates resilience, boosts functionality and builds tolerance. If you aren't ready for Contrast Oxygen Therapy yet, try EWOT or exercising with oxygen therapy and skip the stress of going into negative (8%) O<sub>2</sub>.

## How to begin

Week 1-2 EWOT only

Week 2-4 Introduce negative oxygen

Week 4 and on Push yourself with more negative oxygen

A great resource for oxygen therapy is

[LiveO2.com](https://www.LiveO2.com)



# Dual Task Exercises



An example of dual-task exercise is having someone quiz you on important dates or people while you are on a brisk walk. For some people just following the cues of a yoga or dance class instructor is enough to engage both the brain and body simultaneously.



**brain  
and body**



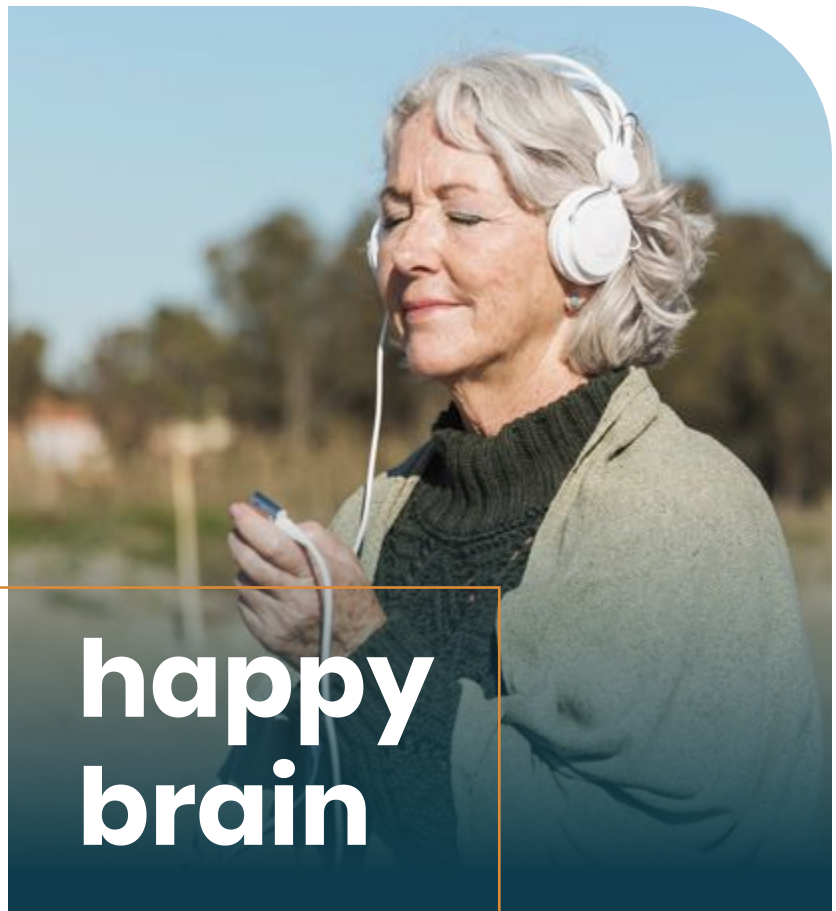
# Brain Stimulation



## Music



Dopamine is a neurotransmitter associated with reward and positive mood. Who wouldn't want more of that, right? When we listen to music, dopamine is released creating a pleasurable feeling. It also increases blood flow to regions in the brain that generate and control emotions. Think about if a light bulb started to glow when music is played. This is what our limbic system is, which is responsible for processing and controlling memory. Does it matter what type of music you're listening to? Music that is familiar to you or the person you're caring for can be relaxing and stress relieving. You may notice yourself springing to life when a familiar song is played and start singing or humming along. Memory can be triggered by certain melodies and lyrics.



happy  
brain

## Games



Games keep the mind engaged and entertained. Incorporating daily games that involve memory, attention, language, and reasoning is stimulating for the brain. Great stimulating brain games are Bananagrams, word puzzles, playing cards, dice games, bingo, and board games.



## Creating



**create  
a result**

### Art, writing, journaling, etc

The frontal cortex is the center of creativity and is responsible for many functions that add to working or short-term memory. Knitting, drawing, art, or writing are all tasks that create a result. When we succeed in finishing a task, dopamine floods the brain!

Writing to or journaling about a friend, loved one, or deceased may be stimulating for memory recall. Making a scrapbook is another great way for memory recall.





# Animals



Having a companion or interacting with an animal boosts neurochemicals in the brain like oxytocin, which creates a feeling of calm and comfort. Bonding with a pet can take away a sense of loneliness and reduce anxiety. Maybe you or the one you're caring for used to have a pet. Engaging with animals can spark up joyful memories of old companions.

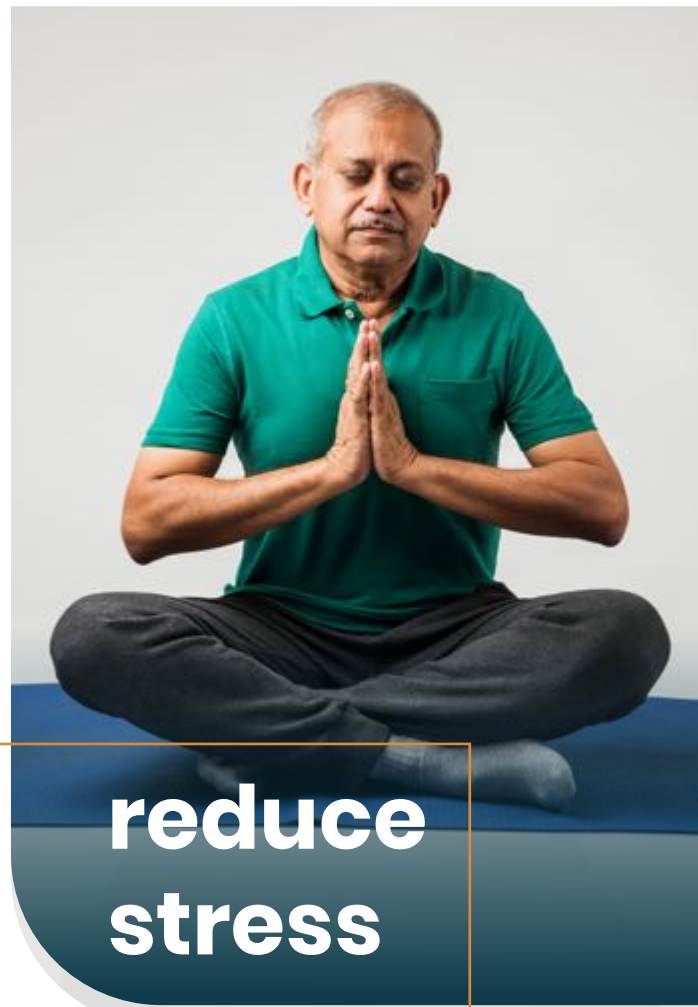
# Meditation/Prayer/ Mindfulness/Acts of Kindness



Meditation can help reduce stress, anxiety, and depression. It increases self-awareness, creativity, and patience.

Kirtan Kriya meditation has been shown to improve sleep, decrease depression, down-regulate inflammatory genes, upregulate immune system genes, reduce anxiety, and improve insulin and glucose regulatory genes.

This meditation only takes 12 minutes. If meditating every day isn't your thing, consider formalizing or increasing a practice of prayer, bible study, mindfulness, or even random acts of kindness. These can all increase serotonin and dopamine which will bring about feelings of satisfaction and pleasure. Acts of kindness like calling a friend, gift giving, or writing a letter create a sense of connection simultaneously.



**reduce stress**

# Housekeeping



Maintaining a home routine such as opening the mail, cooking, laundry, cleaning, and gardening can be stimulating for the brain. Completing these tasks provides a sense of accomplishment. If you or your loved one used to dust the house, fold laundry, or pick weeds in the yard, doing similar activities can bring feelings of calm and familiarity. When dementia progresses it can be important to have a clean up crew come to reinforce the person struggling cognitively.



# Red light therapy



Red light therapy can reach past the skull and shine on brain cells, increasing mitochondrial respiration and cell energy production. This results in protecting the nervous system, increasing blood flow to the brain, and reducing inflammation. Patients notice actively by thinking more clearly, better attention, improved memory, and faster reaction times.

There are many red light therapies available. Two great resources are the Vielight Neuro Duo and the Joovv light tower.



# Activities to Avoid

We want to keep your brain active and avoid stagnation. Stagnation speeds memory loss and reduces motor skills.

## Watching too much TV

This requires little thinking, engagement, and physical activity.

## Over stimulation

If too many things are happening all at once we won't have time to process thoughts and emotions that arise. Overstimulation can lead to overwhelm and confusion causing us to give up. Too much exercise too fast can also cause injury. Increase activity at a sustainable pace and with individualized support.

## Under stimulation

Being under-stimulated can create boredom, irritability, and impatience. Neurons in the brain will begin to shrink as time goes on due to a reduction in stimuli. Have hearing and vision checked regularly.



*Dr. Heather Sandison*

**Activities for Brain Health** Guide

All rights reserved 2023