



Support for brain health, cognitive aging, and acquired brain injury

Exercises to support brain health and recovery after brain insult (see next page for guidelines for completing brain exercises and additional information)

Site	Notes	Does it require payment?
www.lumosity.com	Developed by brain scientists games that train specific areas such as memory	Yes: monthly, yearly, or lifetime
www.happyneuron.com	Same as above	Yes: monthly, yearly, or lifetime; and available in different languages
www.brainhq.com	Same as above	Yes: pay monthly for access
https://www.cognifit.com/whats-cognifit also cognifit App available	This site also provides easy access to information on brain health and associated topics- just scroll down to lower part of page	Yes: pay for games that train specific areas such as memory
www.fitbrains.com		Yes
http://eyecanlearn.com/perception/memory/	Kid's site: Use memory games to train yourself in utilizing internal memory strategies	Free site
http://www.visionnorthwest.org/	click on left side link 'tangram puzzles' or 'sudoku puzzles'	Free site
http://www.gamesforthebrain.com/	For cog activity, use NumberHunt and/or Rotate ²	Free site
http://brainworkshop.sourceforge.net/	Working Memory task for download on Windows or Mac	Free
https://www.proprofs.com/games/		Free games
www.krazydad.com	Contains lots of different paper/pencil games for print out such as mazes, sudokus etc	Free site (by <i>voluntary</i> donations)
http://caps.ucsd.edu/selfhelp.html Google: "Self-Help Library - CAPS - UC San Diego"	Extensive list of Apps and Podcasts on various mental health topics>	Some free, some at cost
https://yourbrainmatters.org.au/a-little-help/brainyapp	Website by Australian government> includes free App- for iPhone and android/ smart phone	Free- includes info on reducing risk of dementia
"Peak"- App Google: "Peak application brain games" or www.peak.net	App-Available for both iphones and smart phones; it allows you to compare your performance of your age group and your profession	Free version provides training for 4 cog functions, but one can upgrade for payment
http://thegreatbrainexperiment.com/	App- available for iPhone and android/ smart phone	Likely free
"Elevate" – App Google: "brain app elevate"	As above	free
Math Drill	As above	free
Knowledge Trainer	As above	free



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When completing cognitive exercises on your own, keep the following in mind:

There are a number of principles to follow to gain the most benefit from doing cognitive/ brain exercises:

- need to be **challenging** (see below, what challenging” means in this context)
- done **frequently** (doing brain exercises more regularly throughout the week for a few to 30 minutes at a time will likely be more beneficial than, for example, once a week for hours)
- do a **variety** of exercises, not always the same
- have **fun** with them (don't do exercises, you don't like)

If doing cognitive exercises to support brain/ cognitive health (as opposed to doing them for leisure), it is important that exercises/ games are challenging for you (i.e., not too easy and not too difficult). “*Challenging*” means that you really need to concentrate on the task/need to think about what you are doing, and/ or develop strategies, *while still being able to accomplish the task successfully*.

If you get frustrated with the task: that usually means either it's too difficult, or lack of mental energy, or both. Either way, it suggests that an adjustment in difficulty degree is needed (and a break is advised if feeling fatigued). In other words, the difficulty degree of your tasks will have to be adjusted (see below).

If the activity/ cog exercise feels too easy (i.e. “I can do this in my sleep/ don't need to pay conscious attention to the task”), then difficulty degree needs to be increased in a step-wise progression such that the task at hand is still achievable for you!

If the activity/ cognitive exercise feels too difficult (i.e. you cannot figure it out or get frustrated with it), then difficulty degree has to be decreased to the level that you can do the task while still remaining challenged by it (see above)!

Adjustment of difficulty degree can be done a number ways. You can adjust difficulty degree of a task/ activity, or exercise on a continuum of the following three:

- 1) Complexity (very easy to highly challenging)
- 2) Time Limit (from no time limit to attempting to complete task in short period of time)
- 3) Distractions (from low-volume instrumental music to sitting in a noisy/ busy area)

Thus, adjustment of difficulty degree of a task is done on a continuum from really easy to highly difficult (i.e. using step-wise progression of increasing difficulty degree!!!)

- 1) adjusting complexity of a task - from simple (= less information to deal with) to highly complex (= a lot of information to deal with per unit time),
- 2) adjusting time limit to complete a task, i.e. from taking as much time as one wants to complete exercise (= setting **no** time limit) to increasing the time pressure under which you complete the task (= observing yourself as to how long you need to complete a specific activity/ cog exercise and then attempting to complete it, or its equivalent, within less time); or



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- 3) adjusting the amount of distraction in your environment; i.e. completing your activity/ cog exercise in a quiet environment (= no distractions) to completing the exercise in a highly distractible a environment.

However, when increasing difficulty, only use one of three possibility, i.e. either complexity, or time limit, or, distractions- not all at once!!!!

While completing cognitively challenging exercises, my hope is that you also learn from doing and reflecting on your exercises. In other words, observe yourself via asking yourself questions such as ‘what does it feel like doing a more complex versus a less complex exercise/ task?’; ‘which strategies do I use to accomplish the task successfully?’; ‘when do I need a break?’- so, in general, ‘what are the conditions under which I can complete an exercise or task successfully?’

As you become more aware of your cognitive being and how it is related to your physical and emotional well-being, be mindful that all strategies and exercises (for cognitive, emotional, and physical health) that you utilize for cognitive exercise and the information about your own cognitive functioning that you learn doing so, can be generalized to all areas of your life, i.e. beyond the current exercise context. To do so, you might ask yourself other questions like: ‘where in my everyday life could I use this strategy- in which context and for which task would it be helpful?’ When you experience improvements/ feeling better, continue using exercises and learned strategies to become more functional / successful completing life’s tasks, and through this improving your emotional well-being.

Disclaimer: There are many reasons as to why a person’s emotional well-being is compromised. This specific hand out provides information for people who feel that their cognitive functioning is compromised and their emotional well-being suffers as a consequence of it. This often happens after an acquired brain injury.

Brain health requires attention to these five areas:

1. Mental stimulation
 - i) Brain games/ cognitive exercises
 - a) games that require player to reason, remember information, and/ or develop strategies (puzzles, scrabble, chess, labyrinth, jenga, codebreaker, monopoly),
 - b) computer games (see list above),
 - c) paper pencil exercises: e.g., soduko on paper, crossword puzzles are not appropriate as brain exercise!!!),
 - d) exercises to be done without any materials: e.g., counting backwards from any number like ‘523’ – count backwards by 2, 3s, 6s, or 7s; coming up with as many words in 1 minute as you can in a chosen category such as ‘grocery items’ or ‘furniture’
 - ii) Similarly to a- d above, mental stimulating everyday activities will the trick: learning a new language, learning to dance, play an instrument, or knitting; organizing your pictures in a digital photo book; taking a class on a topic you like-just like for the cognitive exercises, ***the key is that these everyday activities will be cognitively effortful and fun*** for you for this requirement of mental stimulation to be fulfilled. In other



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words, as long as the new everyday activity will place demands on the brain (effortful cognitive processing) and thereby stimulate the brain, such activities will work as well- and possibilities are endless)

2. Social stimulation (e.g., keeping up social contacts; doing/ discussing things/ topics with friends)
3. Physical exercises (e.g., walking, swimming, cycling, gym)
4. Healthy diet
5. Stress reduction (e.g., relaxation/ tension reduction techniques, meditation, any other mindfulness techniques, and sleep hygiene!!!!)