

## Brain Games Are Not Enough

- Brain games can improve performance on the cognitive tasks that they challenge, but improvements may not transfer to the things we really care about in real life. (Does getting faster at a computerized memory test also make you faster at remembering someone's name?)
- Some studies have suggested these programs might be helpful, there is currently little evidence that computerized cognitive training can delay or forestall dementia. ('get smart quick' schemes," says Walter Boot, a psychologist at Florida State University.)
- Boot co-wrote a [2016 paper](#) (Simons, et al. 2016) that reviewed the evidence on brain training interventions and concluded that there was (1) "extensive evidence" that they improve performance on the trained tasks. There was (2) less evidence that they improve performance on closely related tasks, and (3) little evidence that they enhance performance on distantly related tasks. (4) The researchers also found scant evidence that such training improves everyday cognitive performance.
- It's probably the lifelong things that you do, such as engaging with the world and being social, that matter.
- This means it's important to find a cognitive challenge that you'll stick to. The problem with computerized brain training exercises is that when they work they feel effortful, and so people tend to stop. (trick is to find something mentally difficult that's also engaging and that allows some room to progress like learning a new language or musical instrument or playing a new game like bocce, which requires advanced spatial thinking.)
- Social connection and activities involving interactions with other people seem particularly helpful.

## Ok, What Should We Do?

- Conceptually, it's simple: Do "moving brain games," (i.e., physical activity with cognitive challenge)
- Yes, We need more research...but we also don't.
  - What are you going to do with someone who comes to you *today* and expresses concern for brain health and maintaining or improving cognitive function? Tell them to wait (decades) until further research determines definitively, the best way to do that?
  - What we do know:
    1. Acrobatic exercise boosts BDNF in rats higher than aerobic exercise does (Greenough, 1978)
    2. Higher levels of BDNF help preserve the size of an animal's brain (Raichlen, et al. 2020)
    3. The same improvements in brain function with aging were reported by increasing BDNF with exercise in humans (Erickson, et al. 2015)
  - **Use current science *and* common sense to...combine physical and cognitive challenges that use the same integrations of physical characteristics (agility, balance, coordination, endurance, strength, power, etc.) with executive functions (memory, attention, problem-solving, spatial awareness, etc.)**
- We don't need research to look at history. What got us the big, fancy brains we have today? (Alexander & Raichlen, 2017, 2020)
  - Bipedalism
  - Hunter-Gatherer Lifestyle
  - Agriculture
- We can reasonably assume that if we mix physical and cognitive challenges, thus mimicking the same conditions which created the brains we have today, we will create a significant positive brain health stimulus greater than pursuing physical or cognitive challenges separately.

## Ok, But You Haven't Told Us – Specifically – What We Should Do

- During physical activity and exercise, incorporate the following:

1. Physical challenges that heighten the brain's engagement and focus: reactivity, coordination, partner interactivity, friendly competition  
(With)
2. Cognitive challenges to memory, processing speed, attention.

**Can You Show Us Some Examples? I thought you'd never ask!**

• **Walking: Never *Just* Walk Again**

1. "Hard Way" Walk / "Long-Cut" Walk – take the path of *increased* resistance: walk while balancing on the curb for a few steps, weave around signs, utility poles, trees or benches.
2. Step on a crack (or don't step on a crack)
3. Coin Flip Directional Movement – flip a coin to determine direction of movement (e.g., tails = right-left axis; heads = front-back axis) flip and move that direction (use any movement: step, lunge, shuffle, jump)
4. Ball Toss – toss a ball to yourself or a partner while walking
  - Bounce every third toss in the air
  - Toss quickly back and forth between hands or between yourself and a partner
  - Toss increasingly higher until you miss a catch
  - Toss over tree branches, off walls, signs, etc.
  - "Snowflake" toss – each toss is unique (behind the back, under the legs, around torso, etc.)
5. Numbered Ball Toss (write numbers on tennis ball with dark permanent marker)
  - Count up – start at zero, toss and catch, adding the number most visible.
  - Count down – start at a predetermined number (e.g., 100) and subtract the number most visible on each catch
6. Object Toss (stick, rubber chicken, reaction ball, etc. variable objects require more attention and focus to catch successfully) – toss to yourself or a partner
  - Stick – regular catch or try to flip it end-over-end then catch. Option to add one more flip with each catch (i.e., flip one revolution, two revolutions, three revolutions...once stick is dropped start over)
  - Reaction ball – hard rubber ball with bumps on it / also version with numbers on it
  - Rubber chicken (or similar fun, random object)
  - Foam Dice – toss/catch & add or subtract the numbers
  - Whiteboard Dice – make up your own stuff and write it on the dice

• **Use the above strategies**

1. During aerobic activity (safely, of course)
2. During rest between sets or during longer breaks between circuit repeats, as a warm-up/cool-down, etc.

**Exercise Integrations:** the tip of a very large iceberg

1. Lunge to Corner
2. Boxing and Squat with Limb Lift
3. Med Ball Slams w/Trigger Word
4. Side Lunge w/Toss & Catch
5. Earthquake Plank
6. Word Spell Relay Race
7. ROX Plank Tap (L-R hand color + switch color)

See the videos for these exercises in this playlist: [www.Funtensity.com/BrainGamesVideos](http://www.Funtensity.com/BrainGamesVideos)

**AVAILABLE NOW:** Alzheimer's Fitness Specialist Course: [www.Funtensity.com/AlzFitCourse](http://www.Funtensity.com/AlzFitCourse). Go deeper on the concepts presented today to find out what you can do to optimize the use of exercise to help prevent and slow

the progression of Alzheimer’s Disease – now the 6<sup>th</sup> leading cause of death in the US. We have bodies that outlive our brains and it’s time we started protecting our brains too.

**The course includes:**

- Over 11 hours of video
- Nearly 100 exercise videos
- 200+ page manual with expanded information
- Interviews from people whose loved ones died from and are living with the disease as well as people who have used strategies from the course to avoid it.

This course is approved to provide continuing education credits from various education organizations (e.g., ACE, canfitpro, ISSA, NASM, AFAA).

**References & Resources**

Get the **gear** you saw during the session here: [Funtensity.com/equipment/](http://Funtensity.com/equipment/)

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Hashtags #Funtensity, #FuntensityChicken

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