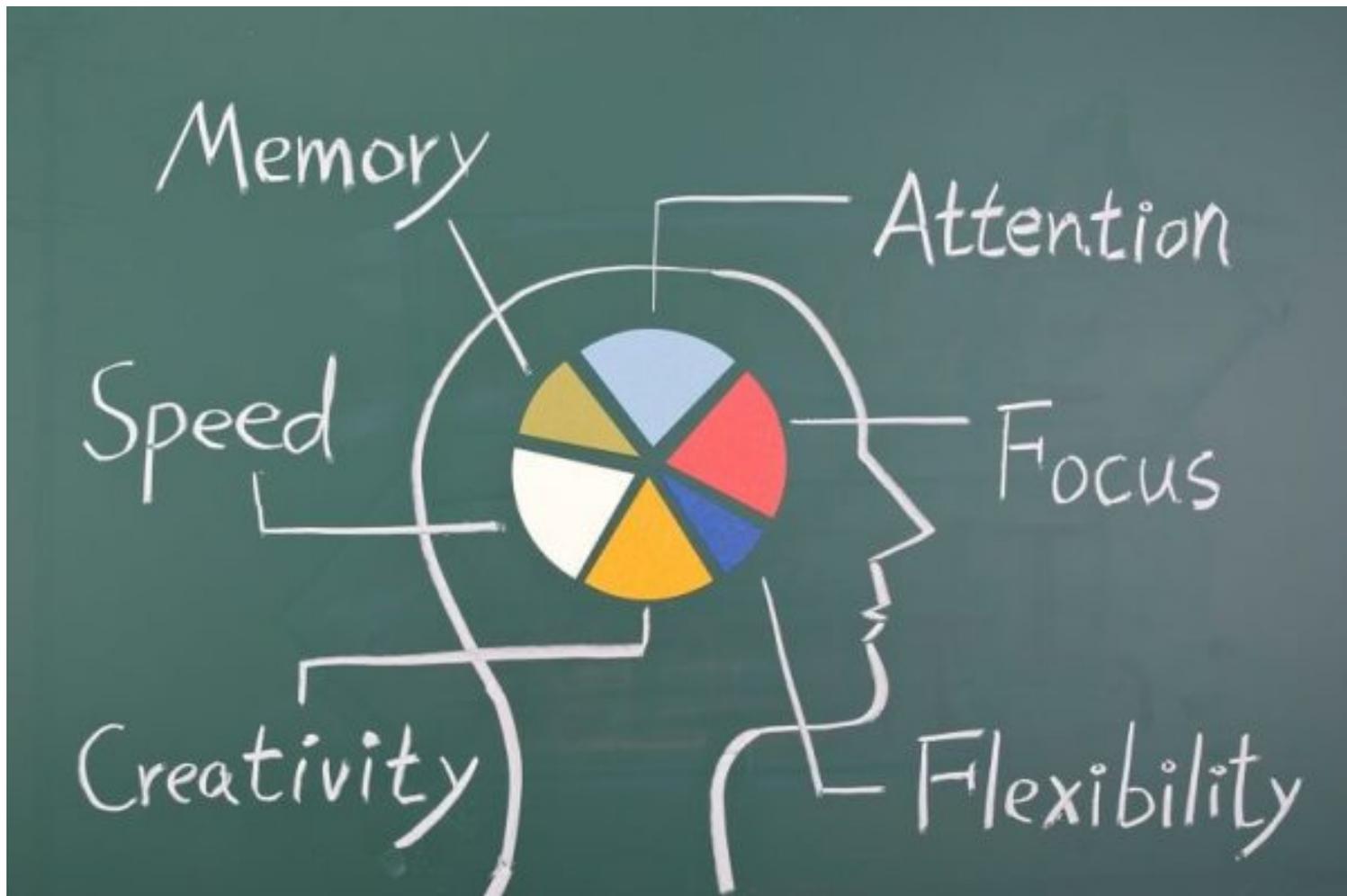


IMPROVE CONCENTRATION AND LEARNING WITH BELLABEE

Posted on May 9, 2020 by Bellabee



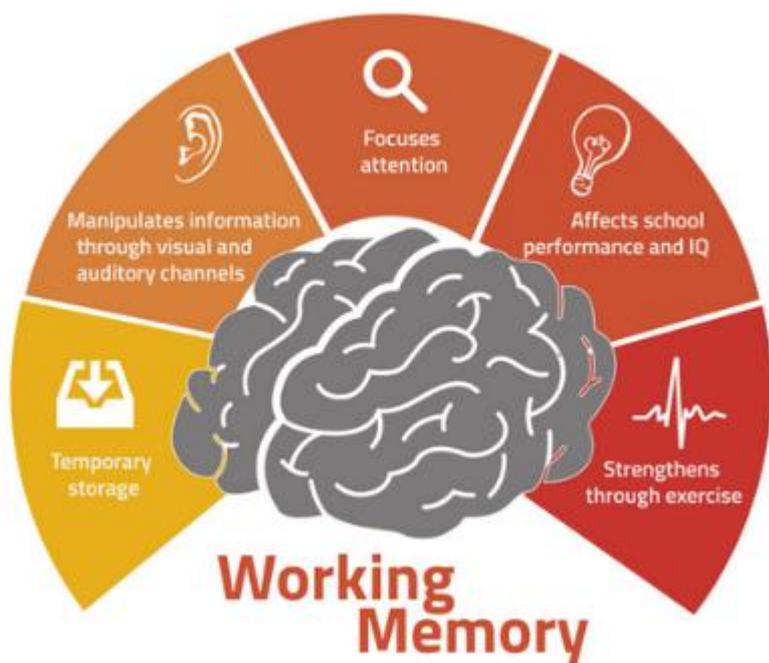
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DID YOU KNOW...

You can improve your concentration, learning ability and working memory using neurofeedback (NFB).

- Improve grades and information retention at school.
- Improve performance at work.
- Reach peak performance in sports.



DESCRIPTIONS

Focus

A state permitting clear perception or understanding of presented information.

Concentration

Directing attention and thought to a single object or activity.

Learning

Knowledge acquired through study, experience, or being taught.

Working Memory

A system for temporarily storing and managing the information which is concerned with immediate conscious perceptual and linguistic processing required to carry out cognitive tasks such as learning, reasoning, and comprehension.



- ✓ It is like a mental sticky note that keeps track of short-term information.
- ✓ It is important for reasoning, decision-making, and behavior.
- ✓ Information can only be stored in long term memory after being processed by working memory.

What is the capacity of working memory?

The average is about 7 items, plus or minus 2, depending on the individual. It is highly volatile.

How long does working memory last?

10-15 seconds. Then the working memory decays, is replaced, or is encoded into long-term memory if actively attended to or rehearsed.

Where is the working memory located?

The hippocampus, located in the brain's temporal lobe, is where episodic memories are formed and indexed for later access.

How does working memory work?

The current hypothesis is that the neurons responsible for working memory communicate with other parts of the brain, including the networks involved in long-term memory. The neurons do this by firing together at specific frequencies, which leaves a temporary "impression" of the information in vast networks of brain cells.

Why is working memory important?

Working memory is important for reasoning, decision-making and behavior. It also plays an important role in (maintaining) concentration and in following instructions. It holds on to information long enough for it to be used, is critical to many learning abilities, and can have a tremendous impact on long-term learning. Weak working memory skills can frustrate learning in many different subject areas, including reading and math.

What is its relation to long term memory?

Information can only be stored in long term memory after first being processed by working memory.

Is working memory capacity fixed?

Working memory does not have a fixed capacity; instead, its capacity is dependent on what is being remembered.

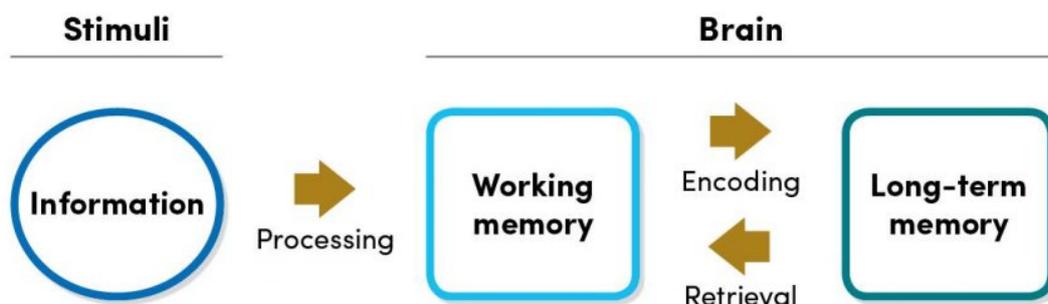
Can working memory be improved?

Yes, you can improve your abilities by training your mind (for example, by using Bellabee). Any related functions will consequently enhance as well.

How can we test working memory?

First, we can test the memory span: the number of items (usually words or numbers) that a person can hold onto and recall. Secondly, we can use computer-based tests that check the person's ability to focus and concentrate (working memory).

If you're struggling with studies, work, or games you can use Bellabee to improve and enhance your performance. Daily training helps retrain and rewire your brain connections so the improvements are long-lasting.



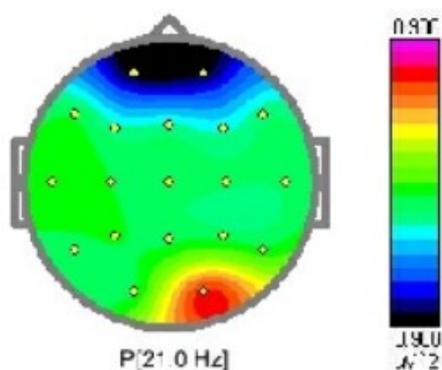
SCIENTIFIC STUDIES:

Working Memory: How You Keep Things “In Mind” Over the Short Term

When you need to remember a phone number, a shopping list or a set of

instructions, you rely on what psychologists and neuroscientists refer to as working memory. It's the ability to hold and manipulate information in mind, over brief intervals. It's for things that are important to you in the present moment, but not 20 years from now.

Researchers believe working memory is central to the functioning of the mind. It correlates with many general abilities and outcomes—things like intelligence and scholastic attainment - and is linked to basic sensory processes.



C) The diagram on the left shows a 12 year old boy with Maths difficulty. The shutdown is at the prefrontals, which are associated with working memory.

QEEG of Working Memory Deficit

Ways Children Use Working Memory to Learn

- 1. Accessing Information**
- 2. Remembering Instruction**
- 3. Paying Attention**
- 4. Learning to Read**
- 5. Learning Math**

In Defense of Working Memory Training

Working memory involves the ability to maintain and manipulate information in one's mind while ignoring irrelevant distractions and intruding thoughts.

Working memory skills are essential for everyday intellectual functioning. Multiple research studies show that the inability to control one's train of thought has important real world consequences, from poor reading comprehension to unhappiness.

How to Boost your Brain Performance and Keep Your Mind Young

One way to live a happier, healthier, longer life, and to optimize brain performance, is to increase your levels of brain-derived neurotropic factor. BDNF is a protein that affects the brain in several positive ways: it is a natural anti-depressant, a catalyst for neurogenesis (the development of new neural connective tissue), and it improves learning speed, memory, and mental states (mood).

Another way to boost performance is Pulsed Electro-Magnetic Fields (PEMF) treatment. PEMF devices produce pulsed magnetic fields that stimulate the electrons inside your cells causing the cells to pulse. It is as if all your cells, not just muscle cells are exercising. This exercise increases oxygenation, improves sodium/potassium pump (increasing ATP and therefore energy), and can stimulate autophagy (the cleansing of damaged cells in order to regenerate healthy cells) (4). One study shows PEMF increased levels of BDNF (5) and in another it even restored abnormal neuronal activity (6).

THERAPY:

Treatment Options

1. Pharmacological

No medicine has been approved for this kind of brain enhancement. Sometimes drugs are used illegally, especially by athletes to improve their performance in sports.

2. Psychotherapy

Certain kinds of therapy help improve your concentration and memory, but they are not very successful.

3. Neurofeedback (NFB)

With NFB, the brain is trained to use optimal brainwave frequencies, which is scientifically proven to improve concentration, learning and working memory. NFB can be used as a stand-alone therapy or in combination with other types of therapy.



ELECTROMAGNETIC THERAPY

Electromagnetic therapy has been used to alleviate mental health conditions for hundreds of years. Interest in electromagnetic therapy has recently increased due to breakthroughs in research and clinical studies. The two most popular techniques are rTMS (repeated Transcranial Magnetic Stimulation) and PEMF (Pulsed Electromagnetic Field) therapy.

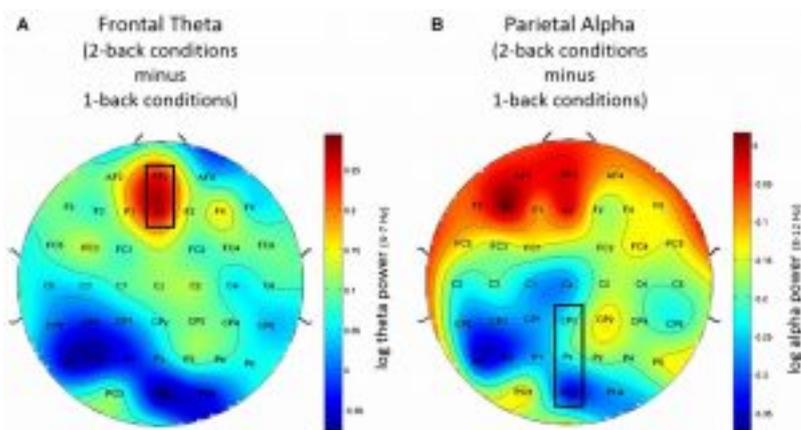
Effects of an Integrated Neurofeedback System with Dry Electrodes: EEG Acquisition and Cognition Assessment

Evaluated the effectiveness of the system in a single-blind control experiment in healthy people, who increased the alpha frequency band power in a neurofeedback protocol. We found that upregulation of the alpha power density improved working memory following short-term training (only five training sessions in a week).

EEG correlates of working memory performance in females

Beta2 power increased with the increasing WM (working memory) load and did not significantly depend on the type of the task. At the level of individual differences, we found that the high performance (HP) group was characterized by higher alpha rhythm power. The HP group demonstrated task-related

increment of theta power in the left anterior area and a gradual increase of theta power at midline area.



PEMF THERAPY

rTMS equipment is costly, requires clinical installation and uses strong currents (1-2 Tesla) compared to PEMF, which costs tremendously less, can be performed anywhere and anytime and uses only 100-200 micro-tesla currents. Increasingly popular for these reasons, PEMF therapy has been used to treat a growing list of conditions including insomnia, anxiety, depression, stress, and PTSD (Post-Traumatic Stress Disorder). PEMF continues to gain popularity because it is easier to use and more versatile than electromagnetic therapy.

Rhythmic control of 'brain waves' can boost memory

Memory performance can be enhanced by rhythmic neural stimulation, using both invasive and non-invasive techniques.

Dynamic links between theta executive functions and alpha storage buffers in auditory and visual working memory

Working memory task?relevant brain regions are coordinated by distant theta synchronization for central executive functions, by local alpha synchronization for the memory storage buffer, and by theta-alpha coupling for inter-functional integration.

Can pulsed electromagnetic fields make your (or your child's) brain grow stronger?

Compared to controls, the brains of treated mice had developed stronger connections between neurons, indicating better function. Brain showed proliferation of stem cells in areas associated with learning, memory, and

moods. Children focused better.

These have been researched for more than 30 years in Europe and the World Health Organization (WHO) has established clear safety standards for such devices.



USING BELLABEE PEMF THERAPY TO IMPROVE CONCENTRATION, LEARNING AND WORKING MEMORY

For stand-alone therapy, use the “**Concentrate**” mode for 60 minutes each day. If working with a specialist, you can follow the suggested guidelines and use “**Create Therapy**” mode to make adjustments according to your brain analysis results and individual response. This software can be used with any Android or ISO device.

Bellabee is:

- **Safe** - energy range is in micro-Tesla.
- **Portable** - just a headband connecting to your mobile device.
- **Wearable** - a band around the head and wired or Bluetooth connection to mobile device.
- **Customizable** - pre-set protocols with additional “Create Therapy” mode to make as many therapies as you want.
- **Validated** - numerous studies to back-up the results.
- **Without Side Effects** - unlike pharmacological agents.
- **Versatile & Non-Invasive** - use alone or as a part of your ongoing therapy.
- **Easy to Use** - Just download the software, plug the headband into microphone jack or use Bluetooth and start the therapy. That’s it.

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