

Recent Advances in Clinical Trials

A Multifrequency Acoustic Device for Memory Enhancement

Awad Mansour^{1*} and Ammar Mansour²¹PharmaTech International, Chicago, USA.²Wake Forest University School of Medicine, Winston-Salem, NC, USA.***Correspondence:**

Awad Mansour, PharmaTech International, Chicago, USA, Tel: (708)691-2551.

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ABSTRACT

The present patent-pending invention relates to a topical low voltage multifrequency acoustic device for fast and long-term memory and learning enhancement. Observed results showed excellent results for all student ages of with no adverse or side effects.

Keywords

Poor memory, Students, Neurogenesis.

Description of the Invention

Millions of students suffer from poor memory worldwide. Students who have deficits in registering information in short-term memory often have difficulty remembering instructions or directions they have just been given, what was just said during conversations and class lectures and discussions, and what they just read.

Common Causes of Forgetfulness

Among causes of poor memory and learning are the following:

- Lack of sleep. Not getting enough sleep is perhaps the greatest unappreciated cause of forgetfulness.
- Medications.
- Poor nutrition
- Anemia
- Poor blood Circulation
- Underactive thyroid (Hypothyroidism)
- Alcohol.
- Smoking.
- Stress and anxiety.
- Depression.
- Image: seenad/Getty Images.

Multifrequency acoustic wave therapy, has been shown to provide cognitive improvements in those with dementia. It works by penetrating the skull and stimulating the neurons and blood flow in the brain. It works in a few different areas of the brain, including:

- **Mitochondria:** This type of therapy is believed to enhance the efficiency of mitochondria in the brain, which act as energy cells. By boosting the mitochondria in the brain, acoustic wave therapy could enhance neural function and cell survival.
- **Increased Blood Flow:** acoustic wave therapy appears to promote vasodilation in capillaries in the brain, which allows for greater blood flow to the brain. This can help with nutrient and oxygen delivery to brain cells.
- **Neurogenesis:** There is emerging evidence that acoustic wave therapy can encourage the growth of new neurons and connections in the brain, which could slow the progression of dementia.

Small Studies and Our Findings

Acoustic wave therapy for dementia has been gaining traction thanks to a number of studies and clinical trials. The work of researchers at Yarmouk University has demonstrated that acoustic wave therapy can help prevent neuron death, create lower levels of amyloid proteins in the brain and preserve synapses. This has pronounced benefits for people with dementia, including improved memory retention and sustained learning.

One of the more important aspects of this research is the safety of using this type of treatment in patients with dementia. There were no reported serious side effects following treatment while also enhancing brain activity. This means that acoustic wave therapy could be a viable treatment to use on its own or paired with other treatments without adding to patient risk.

Acoustic Wave Therapy Mechanisms and Cellular Effects

Although the research is still relatively new, it points to several cellular effects that promote biochemical changes in brain cells. These cellular effects include:

- **Stimulation of Gamma Brain Waves:** The therapy aims to entrain the brain's gamma waves, which operate at frequencies around 40 Hz. These waves are associated with higher cognitive functions, attention, and memory. In patients with dementia, gamma wave activity is often disrupted. The therapy seeks to restore normal gamma wave activity, potentially improving cognitive and non-cognitive functions.
- **Mitochondrial Activation:** Acoustic wave therapy has been shown to penetrate beyond the skin to reach mitochondria. When this happens, the mitochondrial cells begin to produce more energy which can improve cell functionality.
- **Reactive Oxygen Species (ROS) Modulation:** Acoustic wave therapy provides a moderate increase in ROS, which can help switch on signals in cells to promote their growth, maintenance and overall survival.
- **Neuroprotection:** Acoustic wave therapy looks to provide an environment that promotes neuron growth and protection. This is particularly important for dementia, as it progresses with neuron loss and dysfunction.

Many of the studies released around acoustic wave therapy and dementia look to understand how it can help combat symptoms at a cellular level. These potential mechanisms of action include:

- Improved brain metabolism.
- Increased brain blood flow and oxygenation.
- Reduced amyloid plaques.
- Regulated neurotransmitter levels.
- Better stress response modulation.

How Does Acoustic Wave Therapy Session Actually Work?

One of the biggest appeals of acoustic wave therapy is that it's non-invasive and doesn't rely on medication. There are two primary routes to receiving acoustic therapy treatment either in a clinical environment such as participation in a clinical trial or by using at-home devices. At-home devices offer a cost-effective option that can be easily integrated into the lifestyle of someone dealing with dementia. So, to help you learn how to use acoustic therapy for dementia, let's go over what a therapy session consists of: 10-minute head massage with device 3 times per day.

How Does Light Therapy Impact Brain Function in Dementia?

Although the research into acoustic therapy and dementia is relatively new and ongoing, it holds a great deal of promise. So far, studies have outlined that when using acoustic therapy for dementia, patients can enhance several cognitive functions, including:

- **Memory Retention:** Both memory retention and attention span of participants with dementia improved under acoustic therapy treatment.

- **Low Amyloid Plaque:** Amyloid plaques are indicators of dementia progression, so if the brain has lots of amyloid plaque then progression is severe. Acoustic therapy has been shown to potentially reduce the number of amyloid plaques present in the brain, essentially slowing down the progress of dementia.
- **Neuroprotection:** Acoustic therapy has also been shown to potentially help with neuroprotection and neurogenesis, which can help promote neural functionality in dementia patients.
- **Circadian Rhythms:** People with dementia tend to have disrupted circadian rhythms which affect sleep patterns. Acoustic therapy can help regulate circadian rhythms and promote a better quality of sleep.
- **Mood Stabilization:** Another area where dementia patients struggle is mood disturbances, which can be exacerbated by sleep disruption. Acoustic therapy could help improve the mood of those with dementia, lowering the risk of depression and anxiety.

What is the Best Device to Use with Acoustic Therapy for Dementia?

The most important aspect of selecting a device to use with acoustic therapy for dementia is to choose a product with the right acoustic frequency. Most of the research has focused on using the 40-60 Hz frequency to interact with gamma waves in the brain.

Summary of the Invention

The present invention relates to a topical low voltage multifrequency acoustic wave device for treatment of memory loss.

Procedure of Using Smart Acoustic Wave Device

Smart acoustic wave device is applied with finger mild massage on head and head for 10 minutes 3 times daily.

Examples of Pre-Clinical Results

The following results were obtained:

Clinical Observation in Malaysia

300 students in a Quranic school in Klentan District in Malaysia used the Smart formulation for 4 months and their memorizing results increased by 50% which showed excellent achievement.

Clinical Observation in Jordan

More than 100 high school students used the Smart Device for 4 months and their GPA increased 8-10 grades in one term.

Safety and Toxicity Study

No side effects were reported during the use of smart device.

Conclusion

This patented pending device was proven to be effective in enhancing memory.