teora MIND

Cognitive Training in Virtual Reality

Close to everyday life. Playful. Scientific.

What is teora® mind?

teora® mind is a therapy software used to treat cognitive deficits. With the help of virtual reality (VR), patients can practice activities relevant to everyday life (ADL) in a safe and controlled manner. This allows users to practice activities that are difficult to repeat in a playful and tangible way.

Different scenarios can be used to practice, e.g. making coffee, organizing the refrigerator or gardening. The focus on everyday life eases the transfer of learning. The level of difficulty can be adjusted for all exercises to prevent overexertion.

The accompanying documents for teora® mind can be viewed online at: https://teora-xr.de/eifu/

Medical device Certification

teora® mind is a CE-certified class 2a medical device. The certification was carried out in accordance with the new medical device regulation MDR and is valid throughout Europe. This means that the product was developed according to strict quality standards and follows current scientific standards.

Activating games

- Warming up doesn't need to be boring! Get to know the VR environment in small games.
- Make sure to catch only the ice cream scoops and not the fish or throw pizzas into boxes like frisbees
- With our activation exercises you start directly into the training in a familiar environment with small games

The virtual kitchen

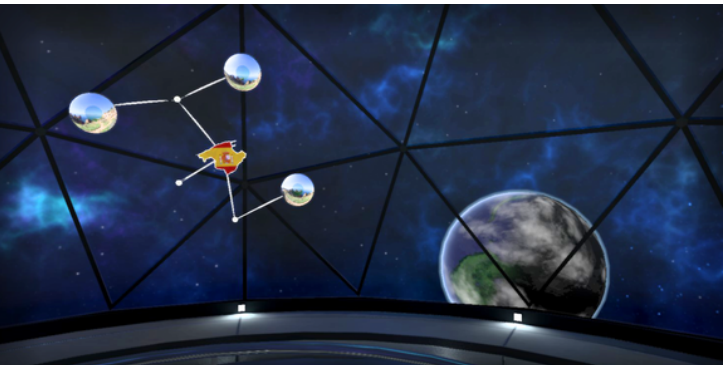
- Practice making coffee, putting away groceries, making fruit salad or sorting the refrigerator
- Set individual levels of difficulty and personalise your trainings
- Set the difficulty level so that the tasks do not overwhelm you and increase it as you progress

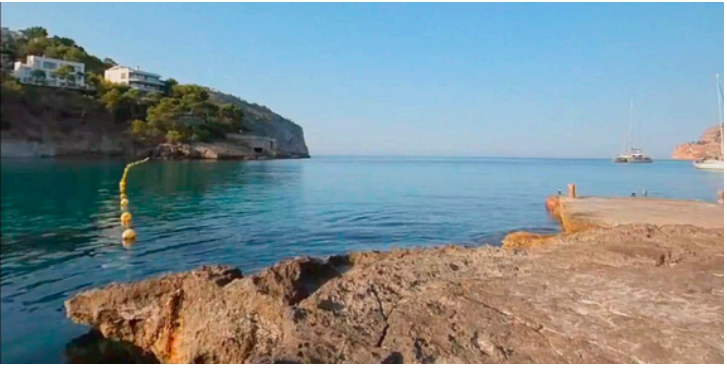
The virtual garden

- Train your action planning skills by determining which steps are necessary from sowing to harvesting
- Set individual difficulty levels to increase the number of steps required
- Implement your plan: Sow plants, nurture them and finally harvest the fruits

The virtual beach shack

- In the beach shack you prepare milkshakes, sell iced cola or decorate ice cream sundaes with sprinkles.
- You will practice cash handling and mental arithmetic
- Increase the level of difficulty when you feel that you have improved and can do more.





Relaxation room

- Through the relaxation room you can go to other places and have the feeling of being by the sea, for example
- Calm down after a hard day and breathe deeply
- Travel in virtual reality to foreign places you always wanted to see

The best part: You are always live!

- You can accompany your patients in the virtual world via the supplied tablet
- Guide and support them during the exercises
- Let your patients repeat specific exercises while you watch them

Indications

teora® mind is used for people who are **significantly impaired** in their independence, self-determination or **everyday competence** due to cognitive deficits.

These cognitive impairments are associated with **diseases that affect the nervous system**. These could be **strokes, Parkinson's disease, mild cognitive impairment** or **traumatic brain injury**, for example.

Contraindications

teora® mind is **not suitable** for people with the following symptoms:

- Acute migraine
- Problems with balance
- Epileptic seizures caused by visual stimuli

During the first applications, so-called motion sickness (dizziness, headache, nausea) may occur. In this case, the application should be interrupted and resumed only after the symptoms have subsided. If the symptoms persist, a doctor should be consulted.

Virtual Reality in medicine

Virtual reality offers numerous advantages for cognitive training. First and foremost, VR creates an immersive therapy environment. Users of teora® mind are immersed in a realistic virtual world in which they can practice everyday scenarios such as sorting groceries. The action steps must not only be remembered theoretically, but also actively executed. This form of training enables a higher transfer of learning into everyday life. Numerous studies have already proven the potential of immersive VR applications[1], especially with regard to brain performance training for predementia symptoms[2], Mild Cognitive Impairment[3] [4] or after strokes[5]. With teora® mind, an innovative, sophisticated VR therapy system is now available to those affected and those treating them.

VR and elderly people don't match?

Cognitive impairments often affect older people who are not very tech-savvy. For this reason, we conducted a user experience study. We investigated how patients with stroke react to teora® mind and how they cope with the technology. The study showed that treatment with teora® mind is well accepted by older adults without cognitive impairments from the control group as well as stroke patients, regardless of previous contact with VR[6]. The oldest teora® mind user to date was 96 years old.

[1-6] The resolution of the footnotes can be found on the last pages

Evidence

teora® mind has already been tested for efficacy in a clinical trial. In the randomized controlled trial (RCT), 21 stroke patients were treated with teora® mind, while 21 others received the standard therapy. The standard therapy consists of abstract exercises performed on a computer. In these exercises, for example, fish carrying a pearl are identified and clicked on, or the steps for building a snowman are put in the correct order.

Over several weeks, both groups received an average of 18.7 treatment sessions of 30-45 minutes each. The group of stroke patients treated with teora® mind achieved better results than the control group. The most significant improvements were seen in the areas of planning and problem solving[7].

The results indicate that therapy with teora® mind is a safe and effective treatment.

"teora® mind gives us a completely new tool in neurorehabilitation. Our patients are always active and motivated, even and especially during complex treatments [...]"

Stephanie Spohn
Neuropsychologist, RKU (RKU - University and Rehabilitation Clinics Ulm).

"Patients who work with us with teora® mind describe the training as an enrichment, challenge or adventure, but also as relaxation and feel-good space. "

Susanne Bednarz
Neuropsychologist, Cardiovascular Center Rotenburg

Your advantages

- Application of evidence-based therapy
- Training of everyday problems that are difficult to repeat, potentially dangerous, overwhelming or difficult to control under real-life conditions
- Increased willingness for therapy and more motivated patients due to the playful character
- More efficient use of your staff due to the possibility of treating several patients at the same time

Benefits for your patients

- Targeted training of activities of daily living (ADLs) eases learning transfer
- Gamified therapy for increased motivation
- Higher therapy frequencies
- Flexible supervision and support

Frequently Asked Questions

What is Virtual Reality?
Virtual reality (VR) is a computer-generated reality that can be experienced through images and often also sound.

What are the minimum cognitive requirements for the user?
To use teora® mind, users need to be able to read and have an intact understanding of speech. Furthermore, the application is recommended for users with a score >20 in the Mini Mental Status Test or >12 in MoCA.

What are the minimum physical requirements for the user?
At least one arm and one hand must be mobile for use.
For the current exercises, this includes the ability to voluntarily flex and extend the index and middle or ring fingers. Turning the head approximately 60° to the right and left is necessary. Use with a visual aid is possible without problems; however, visual and perceptual ability in both eyes is elementary. In addition, an intact understanding of speech as well as reading ability is required.

What technical equipment is required?
You do not need any additional technical equipment. Only a stable and password-protected WI-FI network is necessary.

Literatur

1 He et al. (2022). Virtual Reality Technology in Cognitive Rehabilitation Application: Bibliometric Analysis. JMIR Serious Games 2022;10 (4):e38315. DOI: 10.2196/38315.

2 Kang et al.(2021). Effect of Cognitive Training in Fully Immersive Virtual Reality on Visuospatial Function and Frontal-Occipital Functional Connectivity in Predementia: Randomized Controlled Trial. J Med Internet Res 2021;23 (5):e24526. DOI: 10.2196/24526.

3 Liao et al. (2020). Using virtual reailty-based training to improve cognitive function, instrumental activities of daily living and neural efficiency in older adults with mild cognitive impairment. Eur J Phys Rehabil Med. 2020; 56(1):47-57. DOI:10.23736/S1973-9087.19.05899-4.

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6 Specht et al. (2021). Acceptance of immersive head-mounted display virtual reality in stroke patients. Computers in Human Behavior Reports 2021; 4, DOI:100141.

7 Specht et al. (2023). Cognitive Training With Head-Mounted Display Virtual Reality in Neurorehabilitation: Pilot Randomized Controlled Trial. JMIR Serious Games 2023;11:e45816, DOI: 10.2196/45816.

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Would you like to find out more?

hello@livingbrain.de

www.teora-xr.de

linkedin.com/company/teora-xr

instagram.com/teoraxr

facebook.com/teora.xr

living brain GmbH
Friedrich-Ebert-Anlage 27
69117 Heidelberg