optosense

Use of OptoSense

OptoSense is an app with optokinetic (OPK) stribes/images to activate optokinetic nystagmus (OKN).

To trigger the OKN response, simply place the device with the desired image(s) in front of the user's eyes. If the OKN response does not appear, instruct the user to follow a random image with their eyes as it scrolls onto the screen and all the way off again—repeat this process.

Training with the eyes activates many areas in both the brainstem and cerebral cortex and therefore requires a lot of energy. It is better to do several short training sessions than a few long ones. If challenges or discomfort occur, ensure energy levels are replenished before trying the exercise again. If problems persist, stop the exercise and consult a specialist.

Regardless of whether the user is a child or an adult, it's always recommended to gradually build up tolerance to the app. Some users may benefit after just a few seconds, while others may reach optimal benefit only after a significantly longer time.

This also depends on the image size and speed selected for the image sequence.

The optimal training duration for each user also depends on the cognitive complexity level involved during use of OptoSense, making it impossible to prescribe a one-size-fits-all duration. Instead, watch for early signs of fatigue.

Disclaimer

The developers of OptoSense do not take responsibility for the type of training this app is used for. If you are unsure whether the training may benefit you or your child, it is recommended that you seek guidance from a professional with expertise in functional neurology.

You may search via this link: https://zhealtheducation.com/find-a-trainer/

Stop training at the first sign of fatigue

If OptoSense is being used by a child, be particularly aware of signs of fatigue. Watch for things like squinting, blinking more than usual, looking away from the screen, or stopping following the instructions.

Also take note if the child appears overstimulated after use—in that case, cut the training time in half for the next session. Ideally, users should not experience any negative reactions during or after training; this approach will also yield the best results.

As an adult user, you should also pay attention to these signs of fatigue and adjust the difficulty for future sessions accordingly.

The ideal training time for each user is very individual and may vary from day to day—even within the same day (e.g., morning vs. evening). In functional neurology, this is known as the "sweet spot."

You can read more about the “sweet spot” principle and “minimum effective dose” in the free Z-HEALTH e-book (p. 23), available here:

https://zhealtheducation.com/nf-ebook-downloads/?inf_contact_key=473d768b3fa9ede286370a1fa5a65bf6680f8914173f9191b1c0223e68310bb1

or on Instagram:

https://www.instagram.com/p/DJ2N1OEMG0x/?igsh=a25qNDFydW4xcmFq

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Adjusting the Complexity

Adjust the complexity so that the user experiences success—but also occasionally introduce challenges. It’s okay to make mistakes, but both children and adults thrive best when successful. If it becomes too hard, children typically give up.

If OptoSense feels overwhelming, reduce difficulty by enlarging the images and slowing down the speed. If it's still overwhelming, try lying flat on the back while using OptoSense. Once tolerance builds in this position, progress to sitting, and then to standing.

Over time, training can be combined with physical exercises (e.g., stepping sideways, walking backwards, doing squats) or cognitive tasks, which will increase complexity and training effect.

Ideas for Making OptoSense Training More Cognitive

For children, help them stay focused by discussing the images:

- If the child has verbal language: ask them to describe what they see.
- If not, but they understand verbal instructions: ask them to point to images or details.

Random and Interactive Function

When "Random" is enabled, the OPK images appear in random order.

When "Interactive" is enabled, you can tap on an OPK image, after which it disappears.

"Random" and "Interactive" can help make the exercise more fun, but also more cognitively demanding, thereby increasing the benefit of the exercise.

Suggestions for Discussion or Pointing Tasks (tap on)

- Increase or decrease difficulty to User Level by:

- Changing image speed/size.
- Changing the type of instruction (less or more) that the user should follow.

Balloons:

- What colors are the balloons?
- What decorations do they have (stars, dots, stripes)?
- What colors are the balloons with stars on (dots, stripes)?
- How many loops are on the string of the blue balloon (or other colors)?
- Which balloons have two loops?
- Which balloons have something in common?

Dinosaurs:

- What colors are the dinosaurs?
- Can you name any?
- Which eat meat/plants?
- Which can fly?
- Which have open/closed mouths? Can you see their teeth?
- Which have horns, claws, back shields?

Animals:

- Can you name any of the animals?
- What colors can you see (e.g., on the snake)?
- What eye colour does the lion have and the other animals?
- Which animals have green eyes? Continue with other colors.
- Which animals have visible tails?
- Which animals are standing/sitting?
- Which animals have ears you can see?
- Which animal has small/big eyes?
- Which have open/closed mouths?

Space:

- What do you see in the pictures?
- What are the names of what you see?
- What colors are present?
- Which images contain orange? Continue with other colors.
- Which seem to be in motion?
- Which have glass?

Shapes:

- Which shapes do you know?
- Which are round/pointy?

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More specific examples using the Balloon OPK images

If encouraging **verbal language**:

Nonverbal user, talk a lot about what you see and ask the user to point at that specific balloon.

If the child can speak, ask them to describe what they see **and** point to the matching image.

To encourage **impulse control,** ask the user to:

- Point to all balloons **without** stars.
- Point to all balloons **without** dots.
- Point to all balloons **without** stripes.
- Point to all balloons with more/less than 2 loops.
- Point at all the balloons **without blue and green** colors (or other colors)

To promote **fine motor skills,** instruct to use **specific** fingers:

- With **right index finger**, point to the blue balloon.
- With **right pinky**, point to the green balloon.
- With **right index finger**, point to the blue balloon **and** with **right pinky**, point to the green balloon.

To further increase complexity, use **both** right and left hand:

- With **RIGHT index**, point to balloons with stars.
- With **LEFT pinky**, point to balloons with stripes.

You can adjust instructions and complexity depending on the success the user has with the above.

If the user successfully follows the more complex instructions, an additional one could be as follows:

- Continue pointing at the balloon you were asked to **and** say the colours of the balloons.
- Continue pointing at the balloon you were asked to **and** describe the decorations. E.g. stars, stripes or dots.
- Continue pointing at the balloon you were asked to **and** count the loops on the string.

If or when the child loses interest or it's too easy, switch to a new instruction.

If the child stops following instructions and starts randomly tapping, it's likely a sign of fatigue, and you should stop the training.

More Ideas for Other Image Bundles

Animals or Cars:

- With right index finger, point to animals/cars whose heads/"the front" face right.
- With left index finger, point to animals/cars whose heads/"the front" face left.