



Visual perception training

User Guide

10. February 2017

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1 General

dob is an educational software suited for the promotion of basic visual and visuomotor skills. It was initially designed for the needs of visually impaired persons. The high extent of individualisation further allows its use in various fields of the curative as well as the special education, in physical rehabilitation, and as an assisting and observatory instrument in early education. **dob** offers a broad range of exercises, covering easy stimulations, generally basic tasks as well as the training of cognitive skills.

2 Setting up **dob**

2.1 **dob** online

The online version of **dob** can be used immediately in a modern browser. **dob**'s most efficient use is with Chrome or Firefox where it has been extensively tested. Simply bookmark your interface, create a shortcut on your desktop, or add the respective start icon on your iPad/Android tablet.

After starting **dob**, press F11 (Windows) / $\uparrow\text{⌘}F$ (Mac) to switch to full screen mode. If you are using an iPad or Android tablet start **dob** by tapping the icon on the home screen. Delete the browser history after program updates for new features to be adapted properly.



2.2 **dob** App

Download the app from the App Store on your iPad. Tap on **dob** tile to launch the app.

3 Using **dob**

3.1 Requirements

3.1.1 General

Through the use of different entry options (touchscreen, switching device, mouse or keypad) the program takes into account the special conditions of multiply retarded people. In most of **dob**'s exercises, the user's options are limited to a number of two: *confirm* and *continue*, commanded by the keys SPACE  and ENTER . Those two commands can also be defined on a switching device, allowing a most individual approach within each exercise.

3.1.2 **dob** online

dob online can be used on desktop-computers as well as on laptops and tablets.

Desktop computers and laptops: Control by mouse, computer keyboard and switching devices. Connected with a Touchscreen, **dob** can be controlled by gestures additionally.

Tablets: Control by gestures. External bluetooth keyboards are not supported.

3.1.3 **dob** App

dob App works on iOS tablets.

Control with gestures. Connected with an external bluetooth-keyboard, the App supports all **dob** shortcut keys.

3.2 Home screen

dob is the basic version of **dob pro** for learners. The training contains a set of 10 fixed exercises, covering the most important visual skills. Additionally, an import area is available, providing the import of specifically selected exercises from **dob pro** – the full version for therapists and teachers.

The screenshot shows the 'Exercise Selection' interface. At the top, there is a header with a star icon and the text 'Exercise Selection'. On the right side of the header, there are icons for language selection ('en'), information, settings, and a power button. Below the header, there are ten exercise thumbnails arranged in two rows of five. The first row includes: 'Fixation random' (horse), 'Color recognition' (colored splashes), 'Separation outline' (line drawing of a horse), 'Search and find shape' (various geometric shapes), and 'Where is ...?' (blue background with arrows). The second row includes: 'Face interpretation' (smiley face), 'Collecting goals, track stair' (L-shaped path with goals), 'Follow an object loop' (looping line), 'Catch an object curve' (curved path with an owl), and 'Stimulation interactive' (circle of colored dots). A green vertical bar on the right side of the screen is labeled 'Fixed exercises of the basic version'. Below this bar, a blue vertical bar is labeled 'Import area'. At the bottom right, there is a download icon with the text 'Import exercises from dob pro'. Annotations with orange lines point to the 'en' icon, the information icon, the settings icon, the power button, the 'Where is ...?' thumbnail, and the download icon. The text 'version online' is written in the top right corner.

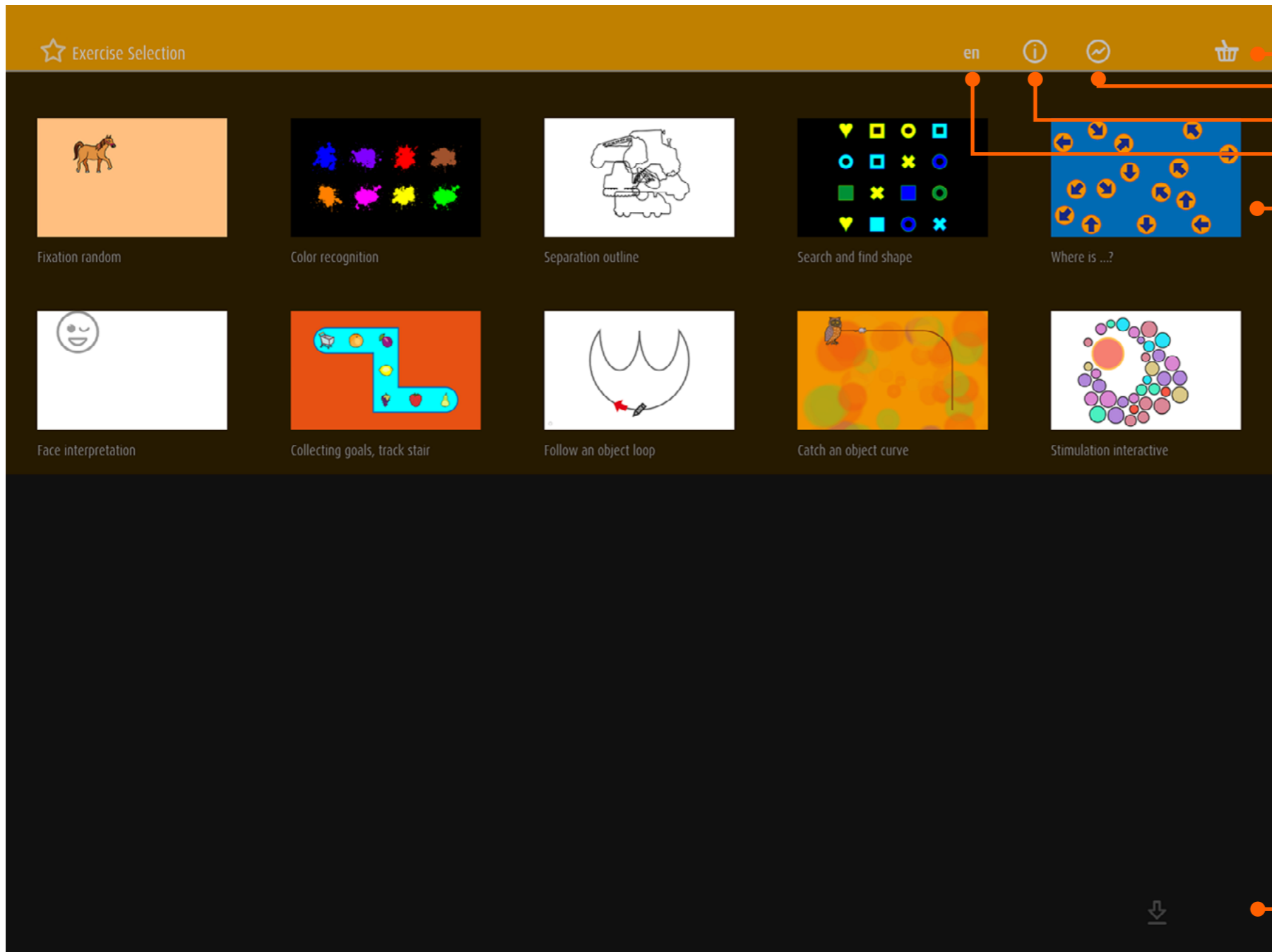
version online

- Close program
- Evaluation settings
- Reveal shortcut keys
- Select language
- Thumbnail Exercise
Click/tab the thumbnail to start the exercise

Fixed exercises of the basic version

Import area

Import exercises from **dob pro**



app

Upgrade to **dob+**

Evaluation exercise

Reveal shortcut keys

Select language

Thumbnail Exercise

Click/tab the thumbnail to start the exercise

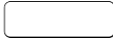





Fixed exercises of the basic version

Import area

Import exercises from **dob pro**

3.3 Program control

On a tablet, the program is controlled by gestures. Using a computer or laptop, program functions are controlled by shortcut keys and/or gestures, if a touchscreen is connected.

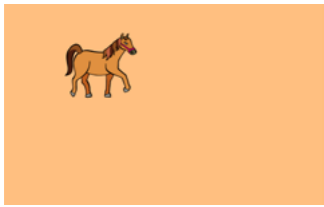











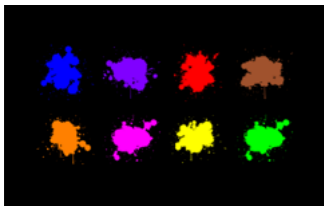











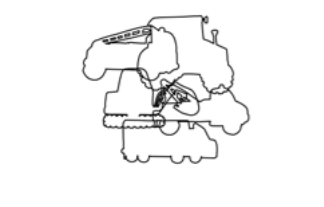











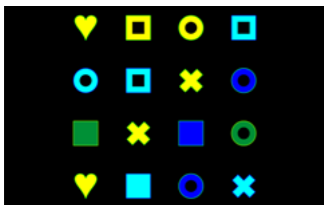












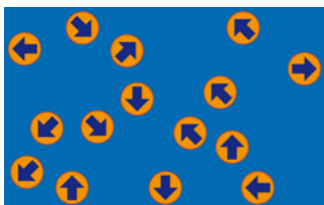












Effect	Shortcut key Online version in a browser	Gesture App or online version on a tablet/touchscreen
Start exercise	Click the exercise	Tap the exercise
Start task / Confirm task		
Quit exercise		
List of shortcut keys and gestures	 + 	—









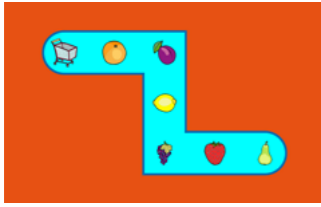


























Within exercises, commands are available to adapt the visual environment in order to individualize to your personal needs. They will be explained in [chapter 3.4](#).

→ [Keyboard shortcuts and touchscreen gestures \(pdf\)](#)

3.4 The 10 exercises of the basic version

The main task is to either find requested objects and colors, to click/tap them or to move objects with your finger/mouse across the screen.

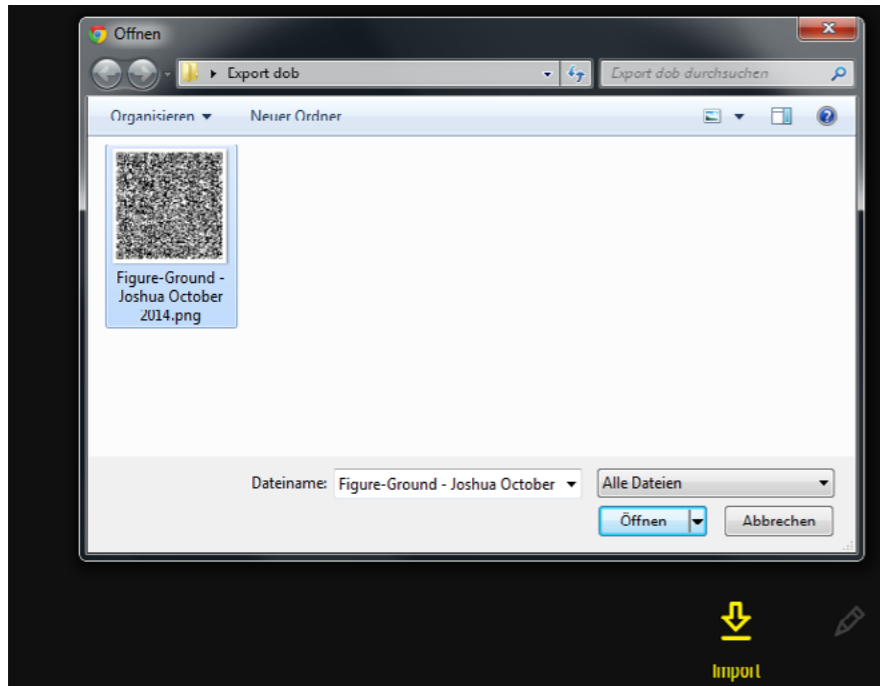
Thumbnail	Title	Skill	Tasks	Difficulty	Individualization				
	Fixation random	<ul style="list-style-type: none">  Motility Fixation  Shifting Attention  Shape Recognition Figure 	12	Constant	Change size Change opacity	 	 	   	
	Color recognition	<ul style="list-style-type: none">  Color Recognition Color  Visual Memory Short-term Memory 	8	Increasing	Change size Change opacity Display the requested color	 	 	    	
	Separation outline	<ul style="list-style-type: none">  Ability to Separate Figure-Ground Perception  Shape Recognition Figure 	6	Constant	Change size Change opacity Display the requested vehicle	 	 	    	
	Search and find Shape	<ul style="list-style-type: none">  Search Strategies  Shape Recognition Figure  Visual Memory Short-term Memory 	10	Increasing	Change size Change opacity Display the requested object	 	 	    	
	Where is ...?	<ul style="list-style-type: none">  Search Strategies  Shape Recognition Spatial Relations  Visual Memory Short-term Memory 	6	Increasing	Change size Change opacity Display the requested object	 	 	    	

Thumbnail	Title	Skill	Tasks	Difficulty	Individualization				
	Face interpretation	 Face Perception Interpretation  Contrast Sensitivity  Sustaining Attention	10	Constant	Zoom fast/slow Change size after zooming Change opacity after zooming	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	 	 
	Collecting goals Trail stair	 Hand and Eye Coordination  Shape Recognition Figure	6	Increasing	Change track width Change track opacity Change type line	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	 	 
	Follow an object Loop	 Hand and Eye Coordination  Sustaining Attention	8	Increasing	Change line width Change line opacity	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	 	 
	Catch an object Curve	 Hand and Eye Coordination  Shifting Attention	10	Increasing	Change line width Change line opacity	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	 	 
	Stimulation Interactive	 Hand and Eye Coordination  Shifting Attention	1	Constant	Surprise Change opacity	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>		
	All exercises				Change background color	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>		

3.5 Import exercises from **dob pro**

To the 10 exercises of the basic version, a maximum of 10 exercises can be added. These exercises are provided and exported by **dob pro** users as a QR-Code. If more than 10 exercises are imported, the oldest will be deleted.

3.5.1 Import exercises **dob** online

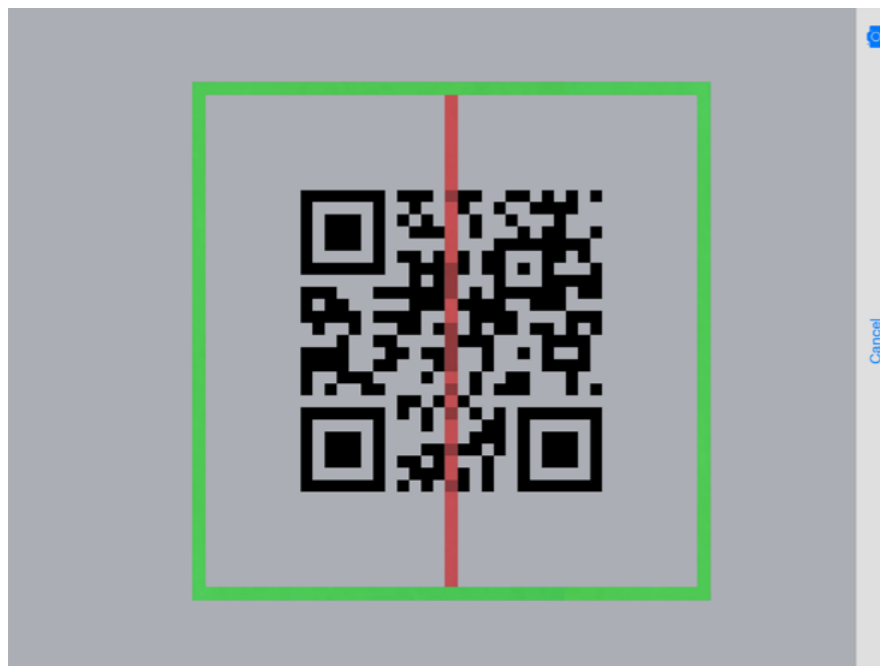


1. Clic/Tap *Import*
2. Clic/Tap *Select file*
3. Choose the QR-code and confirm the selection

Exercises will be extracted and displayed in the import area.

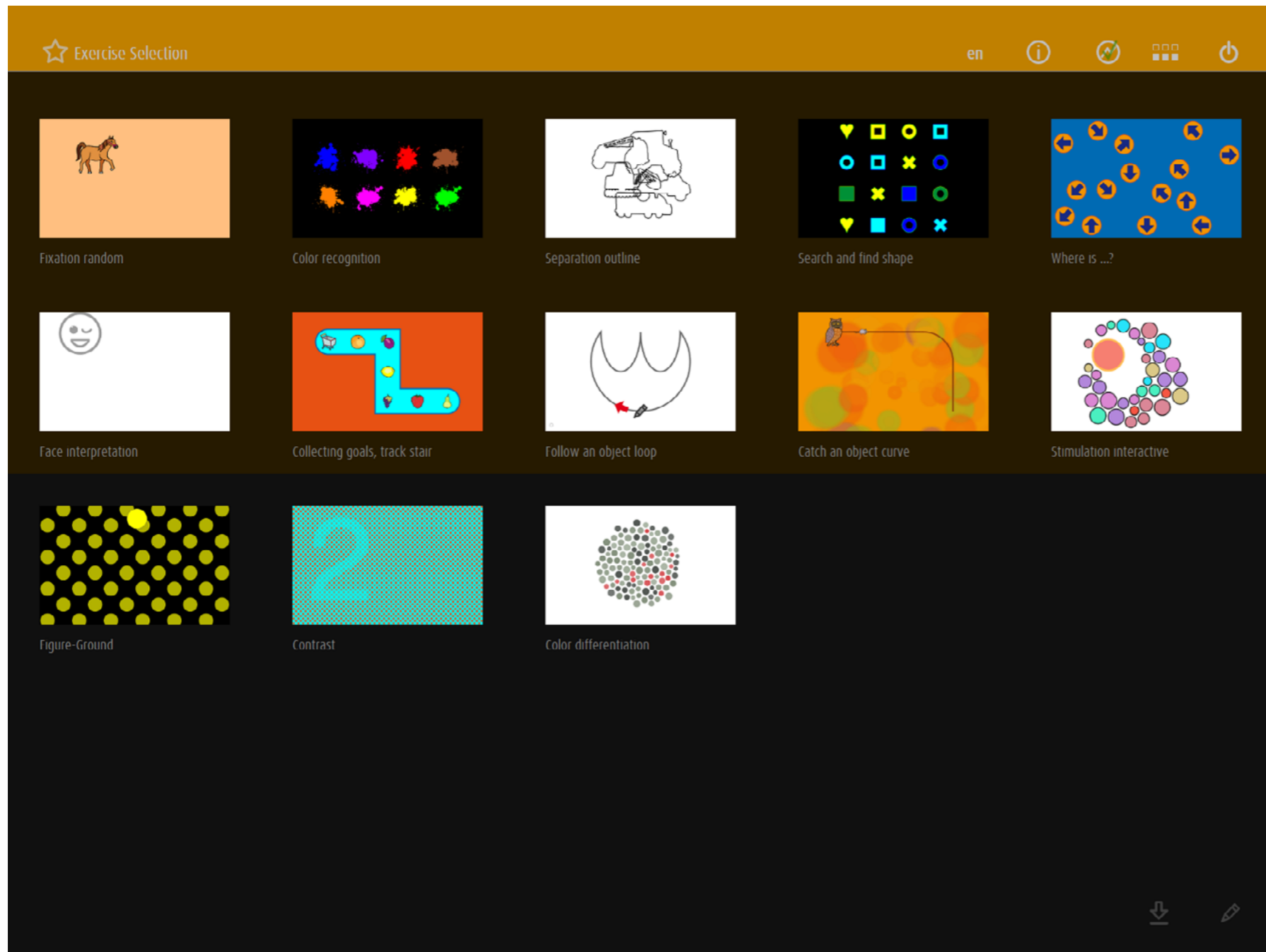
Note: An image of the QR-Code can actually not be taken and imported by tablet camera.

3.5.2 Import exercises **dob** App



- Clic/Tap on *Import* gives access to the code scanner. Move the green frame over the code image. It will automatically be scanned and the exercises will be loaded to in the import area.

3.6 Manage imported files



version online



Display only imported exercises



Display all exercises



Open editing options
Drag the thumbnail with your finger (touchscreen) or mouse to place it wherever you want..




Remove exercise



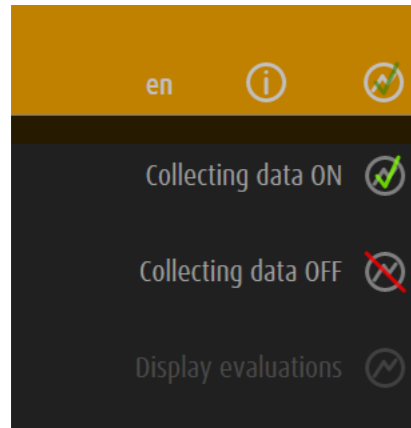
Exit editing mode

4 Evaluation exercise

While you are working, **dob** captures any typing and clicks on your computer screen, whether these are right or wrong and measures the time span between any action on the computer screen. A simple click on the  button in the main menu will open evaluation settings.

Note: Exercises are not evaluated in module *stimula*.

4.1 Evaluation settings



Exercise data are stored.

Data are not stored.

Access to the stored evaluations

dob can only store a limited number of exercises.
The number depends on the complexity of the data.
Take screenshots of important evaluations to store them permanently.

4.2 General options

Navigate through evaluations Delete evaluation Module Exercise name and thumbnail Back to the main menu

⚙️ Evaluation de l'exercice
< > ⊖
spot
Optotypes Lea-Symbols XL_pos_2, colored
🏠

Personal notes

Jacob / identified all shapes

Date and time





Date Time
2016-08-24 07:56

Total Duration: Time per complete exercise

Exercise: Duration Total Duration [sec] Sum Tasks [sec]
40.0 23.7

Sum Tasks: Duration minus the time for confirmations and rewards = pure exercise time

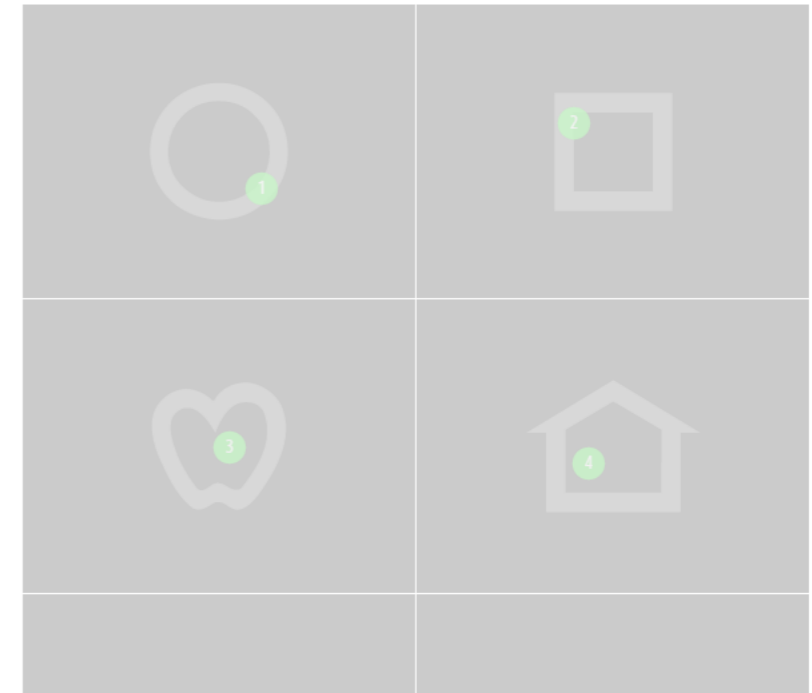
Task list

Task / Opacity	Error after [sec]	Correct after [sec]
1 1.00		4.4 
2 1.00		6.1 
3 1.00		6.0 
4 1.00		7.1 

Average time per task

Task: Duration Average [sec]
5.9

Notes, objects and values



Activities on the screen

4.3 Evaluation examples

Depending on module or exercise category, evaluation shows different values and presents the activities on a single or on several screens.

4.3.1 Evaluation 1: Module spot – Gaze Switching horizontal

Personal notes

Task / Opacity / Time between beginning task and click / Thumbnail object

Click outside any object (error time)

Task 2:

2 Clicks on the left side underneath the object

Task 12:

2 Clicks on the left side above the object

Observations and interpretations

- Needs much more time for objects at the right edge of the screen.
- At the right side many clicks outside the objects.
- Restrictions of the visual field?

Exercise Evaluation
< > ⊖
spot
Gaze Switching horizontal S_neg_1
🏠

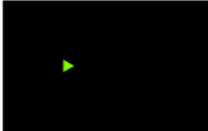
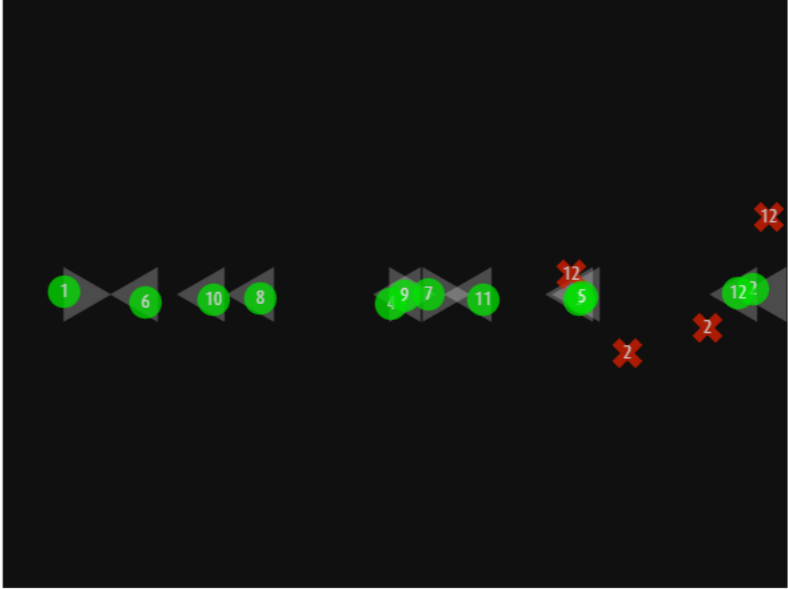
Jacob / Difficulties on the right - animated object in task 12 to support detection

	Date	Time
	2016-08-23	16:07

Exercise: Duration	Total Duration [sec]	Sum Tasks [sec]
	58.0	58.0

Task / Opacity	Error after [sec]	Correct after [sec]
1 1.00		2.3 ▶
2 1.00	4.5 7.5	11.2 ◀
3 1.00		4.8 ▶
4 1.00		1.9 ◀
5 1.00		3.0 ◀
6 1.00		2.2 ▶
7 1.00		3.4 ▶
8 1.00		1.9 ◀
9 1.00		2.3 ▶
10 1.00		2.4 ◀
11 1.00		3.0 ◀
12 1.00	5.7 10.5	19.6 ◀

Task: Duration	Average [sec]
	4.8

The activities on the screen are displayed on one screen for following exercise categories:

- Fixation *spot*
- Gaze Switching *spot*
- Visual Field *spot, spotPlus*

4.3.2 Evaluation 2: Module spotPlus – Search and find shape

Personal notes

Task / Time until click on the correct object / Object

Time until click on the wrong object / Object
Task 3, 5, 8: Click on the wrong object

Time until click outside the object
Task 7: 2 clicks beside object

Skipped task (SPACE)
Task 9 and 10: breaking off

Observations and interpretations

- Confuses shapes (filled square with frame)
- No systematic search
- Overwhelmed with increasing number of objects
- Practice search strategies

Exercise Evaluation spotPlus Search and find shape R_neg_c_1

Jacob / Confuses shapes (filled square with frame)

	Date	Time
	2016-08-24	12:02
Exercise: Duration	Total Duration [sec]	Sum Tasks [sec]
	290.0	212.1

Aufgabe	Klick nach [sec]	
1	3.0	3.9
2	3.0	4.2
3	5.6	9.1 13.6 17.2
4	10.1	13.1 15.9
5	5.5 9.8 12.9 18.6 23.4 28.5	
6	5.4	10.1 14.0 26.1 34.5
7	8.3 13.3 17.5 21.4 25.6 36.0 41.6 47.3	
8	6.8 11.6 26.2 34.9 43.0 48.9 52.7	
9	5.2	
10	2.8	

9 10 SPACE

Activities are displayed on 6 screens. Exercises with more than 6 tasks share clicks of several tasks (e.g. task 1 and 2) on one screen.

4.3.3 Evaluation 3: Module zoom – Contrast

Personal notes

Jacob / Faster detection of objects on the left side

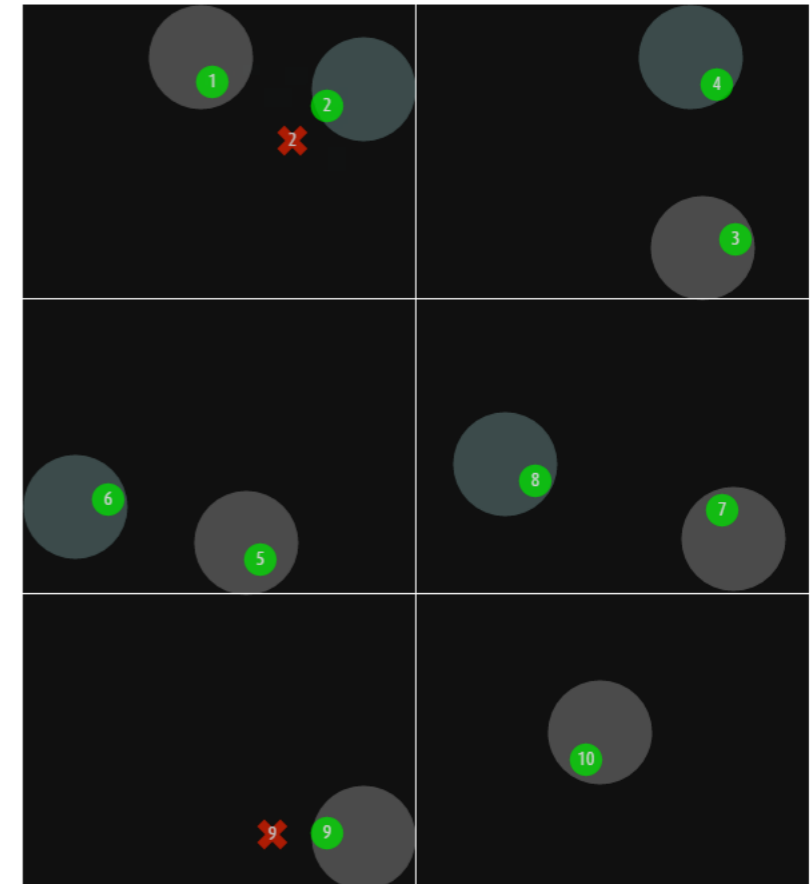
Task /
 Opacity: Change from 0 to 100% /
 Opacity when clicking
 Time until click / Object
 For example task 3:
 Object detected at 70% opacity after 7 seconds

Clicks outside object
 Task 2 and 9: One click outside object

Observations and interpretations

- Enjoys working with emoticons
- Can interpret facial expressions
- Faster detection of objects on the left side
- Restrictions of the visual field?

Exercise: Duration		Total Duration [sec]	Sum Tasks [sec]	
		58.0	57.9	
Task:				
Opacity	from	to	Click at	Duration [sec]
1	0.00	1.00	0.28	2.8 😞
2	0.00	1.00	0.77	7.7 😊
3	0.00	1.00	0.70	7.0 😞
4	0.00	1.00	0.81	8.1 😞
5	0.00	1.00	0.22	2.2 😞
6	0.00	1.00	0.39	3.9 😞
7	0.00	1.00	0.61	6.1 😞
8	0.00	1.00	0.18	1.8 😊
9	0.00	1.00	0.83	8.3 😊
10	0.00	1.00	1.00	10.0 😞
Task: Duration		Average [sec]		
		5.8		



Activities are displayed on 6 screens.
 Exercises with more than 6 tasks share clicks of several tasks (e.g. task 5 and 6) on one screen.

4.3.4 Evaluation 4: Module track – Collecting goals

Personal notes

Jacob / Difficulties with movements away from and towards the body

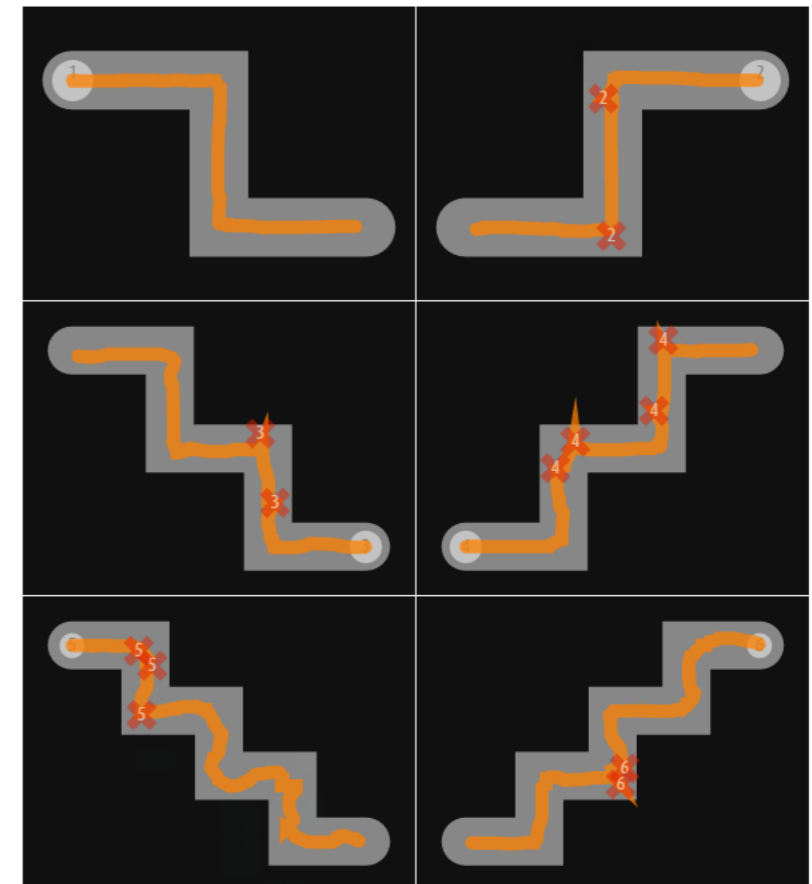
Task /
Time until reaching the target

Task 1: No collision

Time until collision

Task 2: Collided after 5.8 and 9.4 seconds on vertically mounted track. Reached target at 15.3 seconds.

Date	Time
2016-08-24	12:35
Exercise: Duration	
Total Duration [sec]	151.0
Sum Tasks [sec]	112.4
Task / Number of hits	Hit after [sec]
1 -	9.6
2 2	5.8 9.4 15.3
3 2	7.9 10.0 21.6
4 4	7.1 8.4 14.5 17.3 21.2
5 3	4.8 6.5 8.2 24.0
6 2	13.4 14.6 20.6
Task: Duration	Average [sec]
	18.7



Observations and interpretations

- Knows the collected objects
- Increasing muscle spasms
- Difficulties with movements away from and towards the body

The 6 tasks can be displayed on six different screens.

5 Versions

dob is available as iOS application or as an online version.

	App version	Online version
License	Perpetual license	Annual license
Use	Local	Via Internet
Program control	By gestures Supports shortcut keys with external bluetooth keyboard	With shortcut keys If a touchscreen is available: with shortcut keys and gestures
Individualization within the exercises	Limited possibilities Control by gestures	Extended possibilities With shortcut keys (and gestures)

The upgrade to **dob+** version via in-app purchase will enable the use of the entire set of exercises. It covers about 2000 exercises sorted by visual skill or module.

dob pro

Full version for therapists, coaches and teachers, containing more than 2000 exercises for the training and observation of 11 basic visual skills and tools to assist individual support planning. Available as an App/application for iOS devices and also as an online version.

Learn more about **dob** and **dob pro**: www.dob.li

6 Thanks

The development of **dob** was made possible thanks to the generosity of the following institutions:

ERNST GÖHNER STIFTUNG

Blinden-Leuchtturm Zürich
Ella Gattiker-Liechti-Stiftung
Ernst Göhner Stiftung
Hans Konrad Rahn Stiftung
Rahn + Bodmer Co.
Roches-Utiger Stiftung



Schweizerischer Blinden- und Sehbehindertenverband SBV
SZB, Schweizerischer Zentralverein für das Blindenwesen
Staub Kaiser Stiftung
Stiftung Bertly Maikler



Stiftung Denk an mich

Stiftung für blinde und sehbehinderte Kinder und Jugendliche Zollikofen
Stiftung für das behinderte Kind
Stiftung Solidago



visoparents schweiz

7 Note

Photosensitive Warning

A very small percentage of individuals may experience epileptic seizures when exposed to certain light patterns or flashing lights. Exposure to certain patterns or backgrounds on a computer screen may induce an epileptic seizure in these individuals. Certain conditions may induce previously undetected epileptic symptoms even in persons who have no history of prior seizures or epilepsy.

8 Copyright

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