Claims

1. A device (10) for selective application of stimulus light (66) to an optic nerve head (36) of one of a left eye (30) and a right eye (30) of a user, the device (10) comprising:
   at least one light emitting source (60) configured to position emitted stimulus light (66) to impinge onto the optic nerve head (36) based on a determined location of the optic nerve head (36) with respect to the user's gaze (33);
   at least one screen (50) configured to fixate the user's gaze (33) on a target area (52) of the screen (50) by engaging the user with content displayed on the at least one screen (50);
   a processor (80) for selecting the stimulus light (66);
   wherein the emitted stimulus light (66) is configured to stimulate melanopsin and is blue light;
   wherein the at least one screen (50) is the light emitting source (60); and
   wherein the processor (80) comprises and executes software configured for positioning the blue stimulus light (66) on the screen (50) and for providing content displayed on the at least one screen (50), wherein the content is a game, and the game is displayed in the target area (52) of the screen.

2. The device (10) of claim 1, wherein the emitted stimulus light (66):
   - flickers at a frequency in a frequency range between 6 and 20 Hz; and/or
   - has an illuminance of more than 20 melanopic lux, preferably approximately 60 melanopic lux.

3. The device (10) of one of claims 1 to 2, wherein the at least one light emitting source (60) is further configured to position the emitted stimulus light (66) to impinge on one of the left eye (30) and the right eye (30) of the user.

4. The device (10) of one of claims 1 to 3, wherein the at least one light source (60) is further configured to dimension the emitted stimulus light (66) to impinge on a portion of the optic nerve head (36) corresponding in size to 80% of the optic nerve head (36).

5. The device (10) of one of claims 1 to 4, wherein the at least one screen (50) is:

- arranged normal to the user's gaze (33); and/or
- arranged at a constant distance from the left eye (30) and the right eye (30).

6. The device (10) of one of claims 1 to 5, wherein the at least one screen (50) is configured to display the content within at least one target area (52) of the at least one screen (50), the at least one target area (52) corresponding to an area having a diameter of 1.0 to 5.0 degrees in a foveal region (39) of the left eye (30) and the right eye (30) when the gaze (33) is fixated on the at least one target area (52).

7. The device (10) of claim 6, wherein the at least one target area (52) is arranged at the center of the at least one screen (50) and optionally, wherein the at least one target area (52) is configured to fixate one of the left eye (30) and the right eye (30) of the user.

8. The device (10) of one of claims 1 to 7, wherein the device (10) is or comprises a smartphone (50, 60) or is a virtual reality headset, or wherein the device comprises a smartphone and a virtual reality headset, wherein the smartphone (50, 60) is insertable into the virtual reality headset.

9. The device (10) of claim 8, wherein the virtual reality headset comprises at least one lens for forming a two-lens system with at least one of the left eye (30) and the right eye (30) of the user.

10. The device (10) of one of claims 8 or 9, wherein the virtual reality headset comprises one optical path extending between the at least one screen (50) and the left eye (30) and comprises another optical path extending between the at least one screen (50) and the right eye (30).

11. The device (10) of one of claims 1 to 10, wherein the left eye (30) and the right eye (30) of the user are directed straight ahead when the user's gaze (33) is directed at the content with which the user is engaged.

12. The device (10) of one of claims 1 to 11, further comprising a game controller configured for the user to engage with the content displayed on the at least one screen (50).

13. The device (10) of claim 12, wherein the game controller is further configured to adjust a position (60x, 60y) of the stimulus light (66) within the screen (50) during calibration.

14. The device (10) of one of claims 1 to 13, further comprising a memory device configured to store data relating to the location of the optic nerve head (36), the data being obtained from one of user-controlled calibration, input into the device (10) of fundus image data, and population data.

15. The device (10) of one of claims 1 to 14, wherein the light emitting source (60) is configured to:
    a. emit the stimulus light (66) for a stimulus duration of at least 1 minute and up to 20 minutes, preferably for between 8 and 10 minutes; and/or
    b. emit the stimulus light (66) with one or more breaks in emission; preferably wherein the break is at least 15 seconds; and/or
    c. emit the stimulus light (66) for at least 30 to 120 seconds before a break; and/or
    d. emit the stimulus light (66) over a session of use of the device (10), wherein the duration of a session of use is at least 1 minute, and up to 30 minutes, or preferably 12 to 15 minutes, wherein a session of use is the time from turning on of the device to the turning off of the device.

16. A computer program product which when executed by a processor will cause the processor to carry out a method of selectively applying stimulus light (66) on at least one optic nerve head (36) of one or more eyes (30) of a user, the method comprising
positioning (130) at a position (60x, 60y) at least one light emitting source (60);
fixating (150) the user's gaze (33) on a target area (52) of at least one screen (50) by engaging the user with content shown on the screen (50);
emitting (170) with respect to the user's gaze (33) stimulus light (66) by means of the at least one light emitting source (60) such that the stimulus light (66) impinges on the at least one optic nerve head (36);
wherein the emitted stimulus light (66) is configured to stimulate melanopsin and is blue light;

wherein the at least one screen (50) is the light emitting source (60); and
wherein the processor (80) comprises and executes software configured for positioning the blue stimulus light (66) on the screen (50) and for providing content displayed on the at least one screen (50), wherein the content is a game, and the game is displayed in the target area (52) of the screen.