The new IPS (Intermittent Photic Stimulator) system available online

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The Mallett Intermittent Photic Stimulator available for many years, had many practitioners and their patients as keen enthusiastic users.

Not now produced for several years, there has been a call from practitioners for a replacement. Field, an optometrist and computer programmer saw that the general features of the original unit could be incorporated in a software program, and by making the program interactive, the usefulness could also be improved. It was found that control of the 4 Hz square wave employed in the original unit could also be improved.

The background to the unit was developed by Mallett from early work by Gibson in 1955, using what they described as the "heightened response" to a visual stimulus when an active exposure to light of one second was alternated with a dark period of thirty seconds. Mallett, in 1969 initially employing a synoptophore, devised a more successful approach to provide alternate stimulation of the amblyopic eye with equal dark and light intervals, the frequency of four light flashes per second (4Hz) being chosen after much clinical experimentation. The targets consisted of slides containing much detail of varying type and angular dimension, and were viewed against a red flickering background.

The new program consists of four main types of interactive task, with varying degrees of size and crowding to the stimuli. The pattern generator is used for the deeper degrees of amblyopia, with the patients playing a ball and paddle game whilst the patterns are routinely varied to stimulate vision. The ball bounces around the screen and the patient returns it using the rectangular paddle shown in the figure. A score and hangman have been introduced to keep up patient interest.

The finer tasks for improving acuity, comprise of a screen of randomly placed letters from which the patient searches and clicks on letters to play a word and hangman game. To further reduce amblyopia the letters can be produced in 2 series of varying degrees of crowding, see the two figures below.
It has been the design concept to both improve patient compliance by improving the interest of the task, and wherever possible to also improve on the background clinical approach.

The new system so closely follows the original unit’s design, that the comparative efficacy of the software version has not been questioned by the authors.

In use, each participating practitioner has a unique practitioner code which the patient uses on their home computer. This gives the patient access to the therapy. Although simple to use, practitioners do need to carefully instruct their patients on its proper use.

A simple welcome screen asks the patients to confirm he/she is in fact a patient of the practice.

Practitioners can register to use the new system online, and can start using the therapy immediately. Demonstration versions of the system are available to any who visit the website. Just enter any random six figure letters or numbers, and the system will produce a full version of the program, except that the flashing will be at a non clinically usable frequency of 1 Hz.

The program uses both Java and Javascript technology, and there being such variations in home computers that it cannot be totally guaranteed that the system will work on all computers. It has been beta tested on several different types and has worked well. Should the patient have an older unsuitable computer, practitioners should have some means for the treatment to be carried out in their practice.

Practitioners can go to the website at www.ips2000.info
A second website at www.ips2000.co.uk is for patient’s use as it does not have the explanatory background and the how to use for the system.

References