

Navy recognizes Irlen Syndrome

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### PERCEPTUAL DYSLEXIA:

#### IT'S EFFECT ON THE MILITARY CADRE AND BENEFITS OF TREATMENT

Susann L. Krouse Naval Education and Training Professional Development and Technology Center Pensacola, FL, USA James H. Irvine Naval Air Warfare Center, Weapons Division China Lake, CA, USA

Perceptual dyslexia-also known as Irlen Syndrome, Scotopic Sensitivity Syndrome, SSS, scotopic is a perceptual disorder that affects learning disabilities or reading problems; 33 percent of those with dyslexia, attention deficit (hyperactivity) disorder, and other behavior problems; and approximately 12 percent of the general population (Irlen, 1999). It is not a dysfunction.

People with perceptual dyslexia can't see or they may wear corrective lenses.

Perceptual dyslexia is a problem and transmits information (Irlen, 1990).

#### SYMPTOMS OF PERCEPTUAL DYSLEXIA

People who are affected with perceptual dyslexia have wave-lengths of light, and each person's threshold

bright light, glossy paper, light, high-contrast can aggravate the disorder.

only see very small bits of a line of text instead of the entire line. The text that

sees might blur, swirl, move, pulsate, vibrate, or even disappear. The white page is too bright;

or it may flicker or flash; or colors may appear

others because they think that

with perceptual dyslexia, and as a result, they may be affected physically, academically, and psychologically (Irlen, 1991).

From a physical standpoint, becoming extremely difficult, or even physically painful

Syndrome exhibit symptoms such as sensitivity to light, headaches, nausea, eyestrain, sleepiness while reading, attention deficit, and distortions of text (Irlen, 1991).

Academically, everything derives from reading, and victims of Irlen Syndrome

it difficult to read. They may skip words or "see" the change letter or

"saw" as "was," for instance. They may have

spatial orientation: they judge how much space to leave between a pair of letters or words.

or work with large numbers (Irlen, 1991). Because t

Psychologically, the victim of perceptual problems with behavior, motivation, and self-esteem. Those with SSS frequently exhibit symptoms of attention deficit disorder, acting out, poorly motivated or, when they almost invariably do, they. But with few successes and many "failures," their attitude became "why bother?" The self-esteem is low because, while everyone around them is reading and learning no matter what they do or how hard they work, they just can't seem to "get it."

## Identification of SSS

Helen Irlen, a literacy instructor at California State University, Long Beach in the early 1980s and chose to work with adults because adults can communicate better accurate "reporters" of what they experience; they are less intimidated children and are less likely to be swayed without motivated to succeed. They have reached importance of learning in general and reading in particular. After three years of in-depth research, Irlen after readers had been actively reading 10 minutes (or more). Those the energy was going into perceiving the words, holding them on the page, or even just for them! As a result, many stopped reading. It was just too difficult for them. Irlen explained in her speech at the dyslexia Higher Education Conference 2, 1994, at Plymouth University, England "WHAT do you see?" Instead of "Do you see it?" the answers from these poor readers were victims of a reading disability inadequately addressed by the professional education: strategies and the value of asking).

## Serendipitous Discovery

One day, one of Irlen's students from previous eye-dominance exercises-on the page she was reading, the sensation of movement that she had always experienced stopped! For the first time, she could read without having the words constantly sway back and forth! (Irlen work for everybody, however. It made no difference to the rest of the class). So, Irlen tried other colors and found that the color red was most helpful. Each person's color was determined by a particular color was determined longer. It appeared that the distortions Irlen didn't know at that time why the overlays worked, just that they did.

## RESEARCHING THE CAUSE

With the advent of magnetic resonance imaging, we've been able to study the brains of all dyslexics-including perceptually different than those of non-dyslexics. (Lewine, et al., in press) Dyslexics have difficulty when they perform visual tasks.

## Receptor Field Theory

In the 1980s, visual physiologists developed a theory that the cones of the retina are arranged in concentric receptor fields. Concentric receptor fields. Color vision is based on three types of cones sensitive to red, green, and blue light wavelengths, we are able to see color. (Irvine, 2001)

Each type of field has a specific receptive field. The output of each field's energy or signal. The output should be that is, neither positive nor negative-as it passes through the optic nerve to enter the brain.

If the receptive fields are the same, the brain's processing center, and each single receptor field is equal to the others (so that none is governing the image formed with the eye). On the other hand, if any of the receptor fields does not sum to unity, the image will be distorted. (Irvine, 2001)

## The Pathways to the Visual Cortex

Over the years since Irlen's discovery, numerous studies of this visual disorder have been conducted, and the general consensus is that scotopia affects the way the visual pathways carry messages from the eye to the brain.

There are two pathways to the visual cortex:

1. the magnocellular, which does fast processing of information for motion, shape, and low contrast; and processes for perceiving still images,
2. the parvocellular, which does slow processing of information for color, detail, and high contrast.

It is theorized that when the receptor fields do not sum to unity, the magnocellular pathway is affected, causing the magnocellular impulses to be distorted. This results in words that blur or seem to jump off the page (Newman, 1998). Individualized colored filters can be used to prevent the perceptual problem.

down or eliminate the perceptual problem by screening out the wavelengths of light troublesome to the individual (Sims, 1999). Studies of both the long- and short-wavelength filters indeed, have shown that they do,

to the individual afflicted with SSS (Whiting, 1990).

Robinson

### THREE STUDIES

Although  
1983, we will look at just three in this paper: Irvine, Lewine, and Wilkins.  
for the Navy

there ha  
Irvine's

The Navy wanted to see if the visual  
dyslexia changed as the energy  
James Irvine conducted  
certain perceptual  
the  
alters radically, so the subject does not see the image properly. (Irvine

performance of  
The Irvine et al. (1983) study  
to them c  
an experiment  
dyslexics  
and clear. When  
& Irvine, 1997

### Lewine's Study

In the late 1990s, Dr. Jeffrey Lewine, a  
Center for Advanced Medical  
spectrum that went  
revert  
percent of the "normal" population to develop dyslexic-type dysfunction  
exposed to "abnormal" light frequency environments. (Lewine, et  
that some ordinarily non-dyslexic personnel can  
performance, and/or become dysfunctional  
lighting conditions such as red  
hazy conditions.

neuroscientist  
to a perce  
to a mor  
when they w  
al., in press)  
develop gross in  
and unable  
battle light

### Wilkins' Studies

Professor Arnold Wilkins, while a research scientist at the  
Psychology Unit of Cambridge University in the  
of vision, reading and color,  
experiments to  
did  
the  
overlays versus placebo overlays. (Wilkins, 2003)

Medical  
United  
sensitive e  
this using four differen  
presenta

### Wilkins' studies

choose  
approximately 15 percent of the population is afflicted with perceptual  
assume from Wilkins' experiments that, in addition to these  
colored overlays or filters, some of those ~~not~~-afflicted can also benefit from color!

determined th  
clear ov  
dyslexia, we  
people being

### TESTING AND TREATMENT

Generally  
them.

speaking, the  
Types of Screening

There are generally three types of screening, two of which are based

1. In the field or at the recruiting site, a simple 15-20 question inquiry of the subject, and trial-and-error determination

Training questions consisting of an in-depth inquiry concerning the subject's symptoms

The third test, the Wilkins Rate of Reading Test, is also easy to administer and consists of four easy one

## Resources Required

There are many ways to improve the situation for people with dyslexia without spending a penny. Such simple and cost-free actions as dimming natural instead of fluorescent lighting, all

caps or visors will help (Irvine, undated; Wilkins, 2003)

But to alleviate the problem requires intervention in the form of screening and selection of appropriate colored overlays or filters. The outl

program would be minimal. Only basic instructional enough training for the

the Wilkins Rate of Reading test and appropriate overlay. Recruit Training Center, it is anticipated that one or

two Education Irlen Method will be required to administer the screening and perform the diagnostic

analysis. sites and Irlen I

Supplies of overlays or transparencies for recruiting less expensive transparencies are avail

be remembered

the purpose of alleviating SSS.) Tinting of lenses (whether corrective or not) adds al \$50 to \$100 per pair at this point in time. Under contract, however, with certainly drop to a more nominal figure (Irvine, 1997). MILITARY APPLI CATION

And what will we get back for this investment? The individual had experience. Becau

of course, with improved reading speed and concentration. Becau

visual fatigue, their attention s that they can do wh

will their attitude to training and the job itself. Just knowing that there is a solution strengthen a

available will often be enough to change an attitude and rewards of th

The military services will also reap the benefits of increasing the qualified pool of applicants for enlistment, the young people affected will be able to train more effectively. Remem

effective and, as anticipated t

there will be fewer behavioral problems-both during and after training due to the change in attitude that has been shown to occur following

All in all, we believe that a highly service member will be delivered to the field or fleet, both academically and attitudinally.

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