IRLEN SYNDROME

Perceptual Dyslexia
What is Irlen Syndrome?
What is Irlen Syndrome?

• A form of perceptual dyslexia
What is Irlen Syndrome?

• A form of perceptual dyslexia
• Sensitivity to certain frequencies of spectral light
What is Irlen Syndrome?

- A form of perceptual dyslexia
- Sensitivity to certain frequencies of spectral light
- A timing imbalance in the processing of the visual message
What is Irlen Syndrome?

- A form of perceptual dyslexia
- Sensitivity to certain frequencies of spectral light
- A timing imbalance in the processing of the visual message
- A genetic mid-brain dysfunction
Lateral Geniculate Nucleus

- Two types of cells
- Smaller cells- Parvo cells
- Larger cells- Magno cells
Parvocellular system
Parvocellular system

- Smaller cells
Parvocellular system

- Smaller cells
- Carry out slower processes
Parvocellular system

- Smaller cells
- Carry out slower processes
- Colour
Parvocellular system

- Smaller cells
- Carry out slower processes
- Colour
- Fine detail
Parvocellular system

- Smaller cells
- Carry out slower processes
- Colour
- Fine detail
- High contrast
Parvocellular system

- Smaller cells
- Carry out slower processes
- Colour
- Fine detail
- High contrast
- Stationary objects
Magnocellular System
Magnocellular System

- Large cells
Magnocellular System

- Large cells
- Fast movement
Magnocellular System

• Large cells
• Fast movement
• Low contrast
Magnocellular System

- Large cells
- Fast movement
- Low contrast
- Depth perception and judgement
Magnocellular System

- Large cells
- Fast movement
- Low contrast
- Depth perception and judgement
- Locating objects in space
Magnocellular System

- Large cells
- Fast movement
- Low contrast
- Depth perception and judgement
- Locating objects in space
- Peripheral vision
Perceptual Dyslexia

• Occurs when there is a timing imbalance between the two systems
Perceptual Dyslexia

- Occurs when there is a timing imbalance between the two systems
- Can occur with other forms of dyslexia
Perceptual Dyslexia

- Occurs when there is a timing imbalance between the two systems
- Can occur with other forms of dyslexia
- Difficulty processing visual information and translating it into written text
Perceptual Dyslexia

• Occurs when there is a timing imbalance between the two systems
• Can occur with other forms of dyslexia
• Difficulty processing visual information and translating it into written text
• Average to well above average intelligence.
Perceptual Dyslexia

- Occurs when there is a timing imbalance between the two systems
- Can occur with other forms of dyslexia
- Difficulty processing visual information and translating it into written text
- Average to well above average intelligence.
- Good verbal skills
Prevalence
Prevalence

• More than 12% of the population and as many as 20% may have Irlen Syndrome
Prevalence

• More than 12% of the population and as many as 20% may have Irlen Syndrome
• 50% - 60% of all people with reading difficulties have Irlen Syndrome
Prevalence

- More than 12% of the population and as many as 20% may have Irlen Syndrome
- 50% - 60% of all people with reading difficulties have Irlen Syndrome
- 60% of these people will respond to the lenses and not need further treatment
Prevalence

- More than 12% of the population and as many as 20% may have Irlen Syndrome.
- 50% - 60% of all people with reading difficulties have Irlen Syndrome.
- 60% of these people will respond to the lenses and not need further treatment.
- 40% will need lenses and remediation programs.
Prevalence

- More than 12% of the population and as many as 20% may have Irlen Syndrome
- 50% - 60% of all people with reading difficulties have Irlen Syndrome
- 60% of these people will respond to the lenses and not need further treatment
- 40% will need lenses and remediation programs
- 50% - 70% of jail inmates have Irlen
Problems Occur When:
Problems Occur When:

• The contrast is too great
Problems Occur When:

- The contrast is too great
- White background overpowers the black print
WASHOUT

OBSERVATIONS:

Arthur is a friendly, talkative boy who speaks in a rather loud voice. He impressed the examiner as a nervous, high strung youngster. He was restless, frequently tapping his fingers on the table and often out of his seat, yet he continued to work steadily on the tasks. Arthur seemed to be making good progress on all the test items, but he worked rapidly and had difficulty maintaining his attention for any length of time. Some inattention and impulsivity were noted. Arthur appeared to resist academic tasks, resorting to repetitive behavior which included diverting conversation, making noises, and watching the examiner, which produced falsely favorable conditions. Arthur expended considerable energy avoiding a job rather than accepting the responsibility for one. He was quite anxious concerning his performance, and he frequently requested reassurance as to the accuracy of his responses. It was important to him to do well, and he became increasingly tense and nervous when he was threatened with failure. Arthur did not give up when challenged, but he sometimes needed to be encouraged or reminded that task avoidance behaviors would not be effective in this situation.

CONCLUSIONS AND RECOMMENDATIONS:

The current psychiatric data suggests that Arthur is functioning in the high average to very superior range of intelligence. Considerable scatter was noted on the subtest scores of the WISC. Arthur had the greatest difficulty with those tasks requiring concentration and immediate auditory rote memory and arithmetic reasoning ability. His strengths were concentrated in the non-verbal skills. He demonstrated a remarkable ability in the analysis and formation of abstract designs and in the awareness of order and effect and time sequence; Arthur reached the scaled score ceiling in both of these areas. The examiner feels that the results of the verbal section of the WISC may represent a limited evaluation of Arthur’s potential in these skills. The weaknesses of his performance seem to reflect, in part, his irregular school attendance and slow academic progress, anxiety, and some perceptual immaturities. Borderline deficiencies on the auditory association and auditory sequential memory subtests of the WISC were noted, and these weaknesses were also indicated by Arthur’s performance on the WPPSI. He has difficulty maintaining his attention, and he seems to have a disability involving the auditory perceptual ability, the extent of this auditory problem is obscured due to the degree of anxiety present and the limited exposure to the development of listening skills required in the regular classroom setting. Evidence of a delayed visual-spatial perceptual development was also noted and the primary difficulty appeared to be one of poor fine motor control. Arthur has trouble with handwriting and seems to mix manuscript and cursive forms, suggesting some confusion and a need for individualized instruction in th
Halo effect

HALO

We all see things the same way. We see words in groups or phrases. The print is more dominant than the background. The print shows no movement. The print letters are evenly black. Black print on white paper gives the best contrast for everyone. White background looks white.

We all see things the same way. We see words in groups or phrases. The print is more dominant than the background. The print shows no movement. The print letters are evenly black. Black print on white paper gives the best contrast for everyone. White background looks white.

We all see things the same way. We see words in groups or phrases.
However, bytheend oftheday hehad decidedthatthis schoolwas better than the last one, even though he didn’t like it. Nobody had offered to publish his head off, rhipiscoat orthrow his shoes overthemoa.

on theotherhand, nobody had spoken to him either. By Thursday afternoon, nothing had changed. Bill was notentirely surprised noonespoke to him because no one knew what to do everyday was witanother group. Neonly saw his class together aterstraition after that they were splitupforall their lessons.

Maths with English with computers with a yale lesson which was mysteriously called GSWthiz. At the end of that period she was aware about the theme had been att the beginning. It seemed that the class was on page 135 of book 2 while the teacher was on page 135 of book 3. Both books had identical covers. The lesson was over before even one noticed Bill had no book anyway being advised to share with anybody in apink shirt whose physical body firmly between Bill and the book. When the bell rang Bill grabbed the boy in the pink shirt before he could leave.

However, by the end of the day he had decided that this school was better than the last one, even though he didn’t like it. Nobody had offered to publish his head off, rhipiscoat orthrow his shoes overthemoa. On the otherhand, nobody had spoken to him either. By Thursday afternoon, nothing had changed. Bill was notentirely surprised noonespoke to him because no one knew what to do everyday was witanother group. Neonly saw his class together aterstraition after that they were splitupforall their lessons.

Maths with English with computers with a yale lesson which was mysteriously called GSWthiz. At the end of that period she was aware about the theme had been att the beginning. It seemed that the class was on page 135 of book 2 while the teacher was on page 135 of book 3. Both books had identical covers. The lesson was over before even one noticed Bill had no book anyway being advised to share with anybody in apink shirt whose physical body firmly between Bill and the book. When the bell rang Bill grabbed the boy in the pink shirt before he could leave.

However, by the end of the day he had decided that this school was better than the last one, even though he didn’t like it. Nobody had offered to publish his head off, rhipiscoat orthrow his shoes overthemoa. On the otherhand, nobody had spoken to him either. By Thursday afternoon, nothing had changed. Bill was notentirely surprised noonespoke to him because no one knew what to do everyday was witanother group. Neonly saw his class together aterstraition after that they were splitupforall their lessons.

Maths with English with computers with a yale lesson which was mysteriously called GSWthiz. At the end of that period she was aware about the theme had been att the beginning. It seemed that the class was on page 135 of book 2 while the teacher was on page 135 of book 3. Both books had identical covers. The lesson was over before even one noticed Bill had no book anyway being advised to share with anybody in apink shirt whose physical body firmly between Bill and the book. When the bell rang Bill grabbed the boy in the pink shirt before he could leave.

However, by the end of the day he had decided that this school was better than the last one, even though he didn’t like it. Nobody had offered to publish his head off, rhipiscoat orthrow his shoes overthemoa. On the otherhand, nobody had spoken to him either. By Thursday afternoon, nothing had changed. Bill was notentirely surprised noonespoke to him because no one knew what to do everyday was witanother group. Neonly saw his class together aterstraition after that they were splitupforall their lessons.

Maths with English with computers with a yale lesson which was mysteriously called GSWthiz. At the end of that period she was aware about the theme had been att the beginning. It seemed that the class was on page 135 of book 2 while the teacher was on page 135 of book 3. Both books had identical covers. The lesson was over before even one noticed Bill had no book anyway being advised to share with anybody in apink shirt whose physical body firmly between Bill and the book. When the bell rang Bill grabbed the boy in the pink shirt before he could leave.

©1987 Perceptual Development Corp.
Swirl Effect

SWIRL

©1987 Perceptual Development Corp.

Friday, 23 August 13
Shaky Effect
Imagine what this would look like at normal print size
Blurry Effect

BY ANDREW L. SOSTER
AND RICHARD P. WHITNEY

A view parent, grandparent, or

even sibling knows, some babies

come so easy, pleased, and regular in

their habits, while others are dif-
ficult and unpredictable. Differences

in temperament show up from the

first day of life: some infants sleep

very little, others sleep a lot; some

infants are highly sensitive and cranky,

others are quiet and unresponsive.

Some newborns have and have been

exposed to the world for long, envi-

ronmental factors beyond the womb

can hardly account for such differ-

ences in temperament. Rather, the

differences must be largely a result of
genetic influences. Yet these have been

few, if any, attempts to relate differ-

ten biological environments at birth
to newborn behavior.

We have found in research at the

National Institute of Mental Health
(NIMH) that behavioral differences in

infants are associated with an en-

zyme that catalyzes the breakdown

of MAO (monoamine oxidase). By

measuring the amounts of MAO in

the blood of newborns with their

performance on behavioral tests, we

have been able to show that

infants with lower levels of MAO

behaved in a more exploratory and

unpredictable manner than those with

higher MAO levels.

The lower MAO newborns also

overreacted and performed better on

tests relating to motor functioning.

In the brain, monoamines believed

that MAO influences behavior by

breaking down the chemical com-

pounds that carry messages be-

tween neurons. By preventing

communicactions from happening

MAO stops the transmitters that

would otherwise be activated. Low

levels of MAO allow more chemical

transmission in the brain.

We found that years of our re-

search have shown that the levels of

MAO and activity level can be associ-

ated between levels of MAO and

activity level. Higher levels of

MAO were also similar to higher

levels of activity level. The

higher levels of activity level were

related to more exploratory be-

havior, less motoric activity, and

lower levels of MAO.

These findings have shown that

the levels of MAO shared in the

same family generally have quite

similar amounts. Thus, we assume

that the MAO levels found in the

blood at birth are biologically fixed.

To measure behavioral differences

among our sample, we gave the

Neonatal Behavior Assessment Scale

(NEAS) to the 29 infants on their

second day of life. The NEAS assesses

infants' reactions to a range of stimuli

and provides an evaluation of their

motoric functioning and emotional

states. In one group of items, for

example, the examiner rings a bell,

shakes a rattle, and shows a flash-

light at sleeping newborns to assess

their ability to screen out stimuli. In

the other group of items, the

examiner presented objects to the

infants and assessed their behavior.

The NEAS scores were also

related to the newborns' behavior.

The newborns with lower levels of

MAO were more active and easily

aroused, more often smiled, and

smiled at the examiner, while the

newborns with higher MAO levels

were more often quiet and calm:
The newborns with lower levels of

MAO also had higher activity levels.

The NEAS scores were also

related to the newborns' behavior.

The newborns with lower levels of

MAO were more active and easily

aroused, more often smiled, and

smiled at the examiner, while the

newborns with higher MAO levels

were more often quiet and calm.

The newborns with lower levels of

MAO also had higher activity levels.

The NEAS scores were also

related to the newborns' behavior.
Seesaw Effect

SEESAWS

Do you remember a story of the three little pigs? The new world was full of danger, and the three little pigs had to be careful. One day, a big bad wolf came to their house. He said, "Who let the wolf in?"

The three little pigs were very scared. They ran away. The big bad wolf followed them. The three little pigs built houses. The big bad wolf blew down the house of the straw pig. The big bad wolf blew down the house of the stick pig. The big bad wolf blew down the house of the brick pig.

The three little pigs were very happy. They built a big strong house. The big bad wolf could not blow it down. The three little pigs were safe.

©1987 Perceptual Development Corp.
Symptoms
Symptoms

• Rapid fatigue when reading
Symptoms

• Rapid fatigue when reading
• Slow down after a few lines
Symptoms

- Rapid fatigue when reading
- Slow down after a few lines
- Lose place
Symptoms

• Rapid fatigue when reading
• Slow down after a few lines
• Lose place
• Skip words and lines
Symptoms

- Rapid fatigue when reading
- Slow down after a few lines
- Lose place
- Skip words and lines
- Re-read the same line
Symptoms

• Rapid fatigue when reading
• Slow down after a few lines
• Lose place
• Skip words and lines
• Re-read the same line
• Print distortions
Symptoms

- Rapid fatigue when reading
- Slow down after a few lines
- Lose place
- Skip words and lines
- Re-read the same line
- Print distortions
- Narrow visual span
Symptoms

- Rapid fatigue when reading
- Slow down after a few lines
- Lose place
- Skip words and lines
- Re-read the same line
- Print distortions
- Narrow visual span
- Reverse or transpose letters or words
Cameron H
Age 8 years

Would 00000lb
Would

Could Conib
Could

I love
I love
Mummy
Mummy

0000000y

love
love
mummy
mummy
Symptoms cont’d
Symptoms cont’d

• Confuse little words eg. was/saw, on/no
• Headaches / nausea
  • Reading
  • Computer screens
  • Outside glare
• Poor depth perception
  • Judgement
  • Clumsiness
  • Poor Ball Skills
Symptoms cont’d

- Confuse little words eg. was/saw, on/no
- Headaches / nausea
  - Reading
  - Computer screens
  - Outside glare
- Poor depth perception
  - Judgement
  - clumsiness
  - Poor Ball Skills
Research

- SPECT 3D scan of the brain of a person reading, who does not have Irlens Syndrome.
• This is the SPECT Scan of the brain of a person with Irlen Syndrome under bright lighting conditions or while reading.

• Note the red areas of activity.
• This is the SPECT Scan of the brain of a person with Irlen Syndrome, under bright lighting conditions or reading with the correct Irlen lenses.
Impact of Irlen Syndrome
Impact of Irlen Syndrome

• Student feels that they are not intelligent
Impact of Irlen Syndrome

- Student feels that they are not intelligent
- Lack of success
Impact of Irlen Syndrome

- Student feels that they are not intelligent
- Lack of success
- Loss of confidence
Impact of Irlen Syndrome

- Student feels that they are not intelligent
- Lack of success
- Loss of confidence
- Loss of self esteem
Impact of Irlen Syndrome

- Student feels that they are not intelligent
- Lack of success
- Loss of confidence
- Loss of self esteem
- Inappropriate behaviour
Impact of Irlen Syndrome

- Student feels that they are not intelligent
- Lack of success
- Loss of confidence
- Loss of self esteem
- Inappropriate behaviour
- Could lead to substance misuse/ crime
Impact of Irlen Syndrome

- Student feels that they are not intelligent
- Lack of success
- Loss of confidence
- Loss of self esteem
- Inappropriate behaviour
- Could lead to substance misuse/ crime
- Later in life could lead to reduced employment options
How to Help
How to Help

- Note the students exhibiting symptoms
How to Help

- Note the students exhibiting symptoms
- Arrange for an Irlen screening
How to Help

- Note the students exhibiting symptoms
- Arrange for an Irlen screening
- Dim areas of the class room
How to Help

- Note the students exhibiting symptoms
- Arrange for an Irlen screening
- Dim areas of the class room
- Use Smart Boards
How to Help

- Note the students exhibiting symptoms
- Arrange for an Irlen screening
- Dim areas of the class room
- Use Smart Boards
- Use a coloured overlay on overhead projector to modify white board or screen
How to Help

• Note the students exhibiting symptoms
• Arrange for an Irlen screening
• Dim areas of the class room
• Use Smart Boards
• Use a coloured overlay on overhead projector to modify white board or screen
• Allow students to present work on light coloured paper
How to Help

• Note the students exhibiting symptoms
• Arrange for an Irlen screening
• Dim areas of the class room
• Use Smart Boards
• Use a coloured overlay on overhead projector to modify white board or screen
• Allow students to present work on light coloured paper
• Supply handouts on coloured paper
How to Help continued
How to Help continued

• Allow caps/visors in class
How to Help continued

- Allow caps/visors in class
- Encourage water bottle on desks
How to Help continued

• Allow caps/visors in class
• Encourage water bottle on desks
• Utilise latest computer software
• Acknowledge small successes
How to Help continued

• Allow caps/visors in class
• Encourage water bottle on desks
• Utilise latest computer software
• Acknowledge small successes
• Look for strengths to improve self image
How to Help continued

• Allow caps/visors in class
• Encourage water bottle on desks
• Utilise latest computer software
• Acknowledge small successes
• Look for strengths to improve self image
• Allow extra time for reading and writing
How to Help continued

• Allow caps/visors in class
• Encourage water bottle on desks
• Utilise latest computer software
• Acknowledge small successes
• Look for strengths to improve self image
• Allow extra time for reading and writing
• Do not ask students to read aloud in class
How to Help continued

• Allow caps/visors in class
• Encourage water bottle on desks
• Utilise latest computer software
• Acknowledge small successes
• Look for strengths to improve self image
• Allow extra time for reading and writing
• Do not ask students to read aloud in class
• Provide alternative activities
Alternative Activities

Allow assignments to be presented on audio tape or power point
Use videos and audio tapes where possible
Allow mind mapping for presenting information
Provide copy of blackboard work
Provide alternative for silent reading time
Remember

Irlen Syndrome is not an intellectual disability.

It is a ‘hidden learning difficulty’

These kids can learn well if taught the correct way and in the correct environment.

They respond to patience, persistence and understanding.