

UNDERSTANDING CVI

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› Learning Objectives:

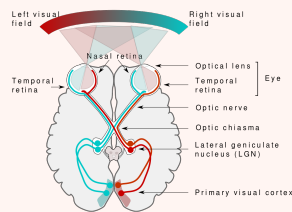
- › Participants will be able to identify students that are at risk for possible CVI
- › Participants will be able to identify the 10 Characteristics of CVI
- › Participants will understand the school's role according to IDEA
- › Participants will be able describe the 10 Characteristics of CVI to their student's IEP team members



VISION

Understanding CVI

- › Eye
- › Optic Nerve
- › Optic Chiasma
- › Optic Tract
- › Lateral Geniculate Nucleus
- › Visual Cortex



WHAT IT IS NOT

Understanding CVI

- > Cortical Blindness
- > Degenerative Condition
- > Vision is changing minute to minute
- > Cerebral Visual Impairment

Are they the same?

CEREBRAL VS CORTICAL

Understanding CVI

Cerebral

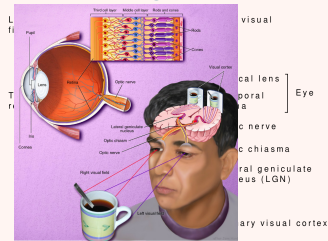
- encompasses all forms of visual processing disorders including those that have been associated with visual perceptual difficulties (Jan, 2011 as cited in Roman, 2018)

Cortical

- brain damage or conditions that affect the part of the brain known as the posterior visual system (Huo, Burden, Hoyt, & Good, 1999 as cited in Roman, 2018)

VISION

Understanding CVI



IDENTIFYING CVI

Understanding CVI

Three Elements:

1. An eye exam that does not explain the individual's functional use of vision



Cortical Visual Impairment
An Approach to Assessment
and Intervention
Second Edition
Christine Roman-Lantzy AFB Press

Three Elements of Identification for CVI from Roman-Lantzy

EYE CONDITIONS MOST COMMONLY ASSOCIATED WITH CVI

Understanding CVI

- > Optic Nerve Atrophy
- > Optic Nerve Hypoplasia
- > Optic Nerve Dysplasia
- > Strabismus

Information from Cortical Visual Impairment: An Approach to Assessment and Intervention by Dr. Christine Roman-Lantzy

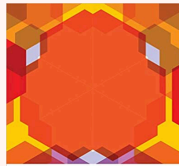
IDENTIFYING CVI

Understanding CVI

Three Elements:

1. An eye exam that does not explain the individual's functional use of vision

2. A history of a brain condition, trauma, or damage associated with CVI



Cortical Visual Impairment
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Three Elements of Identification for CVI from Roman-Lantzy

10 CHARACTERISTICS OF CVI

Understanding CVI

- > **Color preference**
 - > **Need for movement**
 - > **Visual latency**
 - > **Visual field preference**
 - > **Dorsal Stream Vision**
 - > **Ventral Stream Vision**
- Need for light
 - Difficulty with distance viewing
 - Atypical visual reflexes
 - Difficulty with visual novelty
 - Absence of visually guided reach

Visual and Behavioral CVI Characteristics from Roman-Lantzy

10 CHARACTERISTICS OF CVI

Understanding CVI

- > **Difficulty with visual complexity**
 - > **Complexity of Objects**
- Need for light
 - Difficulty with distance viewing
 - Atypical visual reflexes
 - Difficulty with visual novelty
 - Absence of visually guided reach

Visual and Behavioral CVI Characteristics from Roman-Lantzy



10 CHARACTERISTICS OF CVI

Understanding CVI

> Difficulty with visual complexity

> Complexity of Objects

> Complexity of Array

- Need for light
- Difficulty with distance viewing
- Atypical visual reflexes
- Difficulty with visual novelty
- Absence of visually guided reach

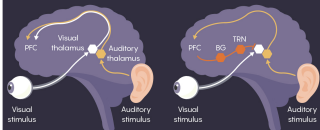
Visual and Behavioral CVI Characteristics from Roman-Lantzy

TEST YOUR AWARENESS



How the Brain Tunes Out Distractions

A massive amount of information constantly floods the senses, and yet we can focus on what's important and tune out the rest. Researchers have pinpointed a circuit in the brain that suppresses distracting and irrelevant inputs.



Overwhelming Stimuli: The prefrontal cortex (PFC) would get overwhelmed with information if the thalamus passed along all sensory inputs.

Filtering and Focusing: When it's more important to pay attention to what's heard than what's seen, the PFC instructs the basal ganglia (BG) to employ the thalamic reticular nucleus (TRN) to inhibit the visual thalamus. This suppresses the flow of visual information and leaves the auditory signal more prominent.

Research from Michael Halassa





10 CHARACTERISTICS OF CVI

Understanding CVI

› **Difficulty with visual complexity**

› **Complexity of Objects**

› **Complexity or Array**

› **Complexity of Faces**

› **Complexity of Sensory Environment**

- Need for light
- Difficulty with distance viewing
- Atypical visual reflexes
- Difficulty with visual novelty
- Absence of visually guided reach

Visual and Behavioral CVI Characteristics from Roman-Lantzy

10 CHARACTERISTICS OF CVI

Understanding CVI

- > **Need for light**
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 - > **Absence of visually guided reach**
- Need for light
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Visual and Behavioral CVI Characteristics from Roman-Lantzy



10 CHARACTERISTICS OF CVI

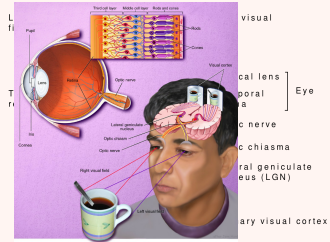
Understanding CVI

- > **Need for light**
 - > **Difficulty with distance Viewing**
 - > **Atypical visual reflexes**
 - > **Difficulty with visual novelty**
 - > **Absence of visually guided reach**
- This is the only characteristic that will not require an accommodation.**

Visual and Behavioral CVI Characteristics from Roman-Lantzy

VISION

Understanding CVI



CVI IS THE LEADING CAUSE OF VISUAL IMPAIRMENT IN YOUNG CHILDREN LIVING IN THE WESTERN HEMISPHERE

(ROMAN, 2018)



<https://pcvis.vision/>

NICOLA MCDOWELL'S FINDINGS

Understanding CVI

- Average age of developing CVI is 3.5 months
- Average age diagnosed is 3.6 years

THE ROLE OF SCHOOLS

Understanding CVI

Eligibility Determinations for Children Suspected of Having a Visual Impairment Including Blindness under the Individuals with Disabilities Education Act

THE ROLE OF SCHOOLS

Understanding CVI

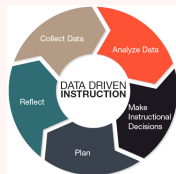
IF: Vision negatively impacts access to the curriculum

THEN: Provide access through accommodations

Provide direct instruction on those accommodation methods

THE ROLE OF SCHOOLS

Understanding CVI



CVI ASSESSMENTS

Understanding CVI

- > **Functional Vision Assessments**
 - > The CVI Range (Dr Roman Lantzy)
- > **Learning Media Assessments**
 - > Sensory Balance (Dr Roman-Lantzy and Matt Tietjen)
- > **Additional Assessments/Inventory tools**
 - > "What's the Complexity?" Framework (Matt Tietjen)
 - > 2-D Image Assessment (Matt Tietjen)

THE CVI RANGE

Understanding CVI

- > **Functional Vision Evaluation**
- > **3 parts**
 - > **Observation**
 - > **Parent Interview**
 - > **Direct assessment**

CVI Range 1-2: Student functions with minimal visual response

O I D R + / -										
0	1	2	3	4	5	6	7	8	9	10
No functional vision	No functional vision						Typical or near-typical visual functions or perhaps			
Prolonged periods of latency in visual tasks						Responds only in strictly controlled environment				
Objects viewed are a single color										

The CVI Range from Roman-Lantzy

THE ROLE OF SCHOOLS

Understanding CVI



THE CVI RANGE

Understanding CVI

- **Phase I (Range 0-3): the goal is to build consistent visual behavior**

- **Phase II (Range 3+-7): the goal is to integrate vision with function**

- **Phase III (Range 7+-10): the goal is to facilitate refinement of the characteristics**

The CVI Range and CVI Phases from Roman-Lantzy

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Understanding CVI

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