Dispensing for VPD's: Neuro-Visual Challenges and Optical Solutions

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Reference Material

Pure Optics

by

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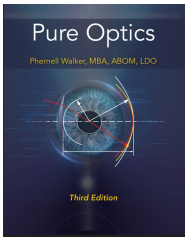

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What We Will Cover Today
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Understanding Visual Processing Disorders (VPD)
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VPD Types
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Diagnosis, Documentation & Next Steps
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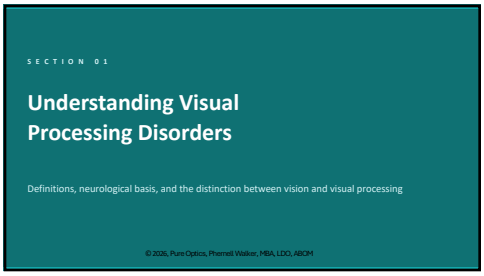
SECTION 01
Understanding Visual Processing Disorders
Definitions, neurological basis, and the distinction between vision and visual processing
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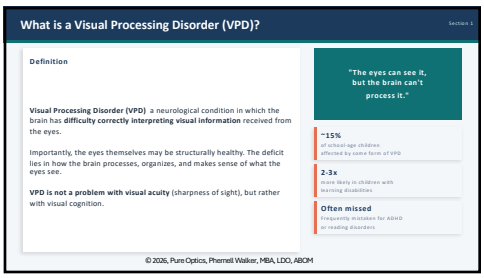
What is a Visual Processing Disorder (VPD)?
Section 1
Definition
Visual Processing Disorder (VPD) a neurological condition in which the brain has difficulty correctly interpreting visual information received from the eyes.
Importantly, the eyes themselves may be structurally healthy. The deficit lies in how the brain processes, organizes, and makes sense of what the eyes see.
VPD is not a problem with visual acuity (sharpness of sight), but rather with visual cognition.
"The eyes can see it, but the brain can't process it."
~15%
of school-age children affected by some form of VPD
2-3x
more likely in children with learning disabilities
Often missed
frequently mistaken for ADHD or reading disorders
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Vision vs. Visual Processing: Key Distinction

Section 1

VISUAL ACUITY (Eyes)	VISUAL PROCESSING (Brain)
• Clarity/sharpness of sight • Detected via Snellen eye chart • Corrected with glasses or contacts • Managed by ophthalmologist or optometrist • **Normal acuity ≠ normal processing** • The '**hardware**' of the visual system	• How the brain interprets visual input • Requires specialized perceptual testing • **Cannot be** corrected with **only glasses** • Managed by OT, **vision therapy**, neuropsychology • Possible even with 20/20 vision • The '**software**' of the visual system

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Vision vs. Visual Processing: Key Distinction

Section 1

VISUAL ACUITY (Eyes)	VISUAL PROCESSING (Brain)
	

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Neurological Basis of VPD

Section 1

Visual processing involves two primary cortical pathways V1 & V2:

The Dorsal Stream ("Where" Pathway)

Projects from V1 to the parietal lobe. Responsible for spatial processing, motion detection, and visual-spatial relationships. Disruption leads to difficulty with spatial orientation, navigation, and judging distances.

The Ventral Stream ("What" Pathway)

Projects from V1 to the temporal lobe. Responsible for object recognition, form discrimination, and color processing. Disruption leads to difficulty recognizing letters, shapes, faces, and symbols.

Additional involvement: Frontal lobe (attention & executive function), Cerebellum (visual-motor integration), and Corpus callosum (interhemispheric transfer) all play roles in VPD.

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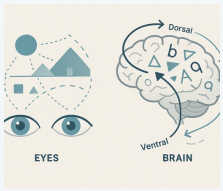
Neurological Basis of VPD

Section 1



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Who Is at Risk? Common Populations

Section 1

Premature Infants
Periventricular leukomalacia affects visual pathways

Traumatic Brain Injury
Closed or open head trauma disrupts processing pathways

Stroke Survivors
Occipital or parietal lobe strokes commonly cause VPD

Dyslexia
Magnocellular pathway dysfunction overlaps with reading disorders

ADHD
Attentional aspects of visual processing are frequently impaired

Autism Spectrum
Atypical visual-perceptual patterns are well documented

Cerebral Palsy
CVI (Cortical Visual Impairment) is common in CP

Learning Disabilities
Visual processing deficits underlie many LD presentations

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Neurological Basis of VPD – Traumatic Brain Injury (TBI)

Section 1

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Neurological – Traumatic Brain Injury

Section 1

Oscillopsia – lack of visual stabilization. Illusion that the environment is moving or bouncing when it is stable.

Possible causes

- Vestibular-Ocular Reflex (VOR) pathway
- Brainstem or cerebellar structures

Affects

Distance vision: worse when walking, driving, crowds or large visual scenes.
Near vision: text may shimmer, shift or appear to move line-to-line

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Neurological – Symptom Management with Binasal Occlusion (BNO)

Section 1

Diagnosis	Reduces
Binocular Vision Dysfunction	Conflict in overlapping fields
Traumatic Brain Injury	Overload stabling vision
Stroke visual issues	Swimming vision improves balance
Convergence Insufficiency	Strain during near tasks
Diplopia	Binocular conflict without full occlusion
Strabismus	Central rivalry
Amblyopia	Binocular competition
Hemianopsia (field loss)	Confusion and helps with orientation

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Neurological – Symptom Management

Section 1

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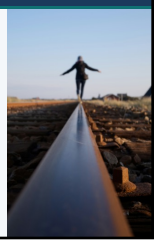
Neurological – Vestibular Rehabilitation

Section 1

- Balance relies on **three systems working together**:
- **Inner ears (vestibular system)** - head movement and position
- **Eyes (visual system)** - orientation and motion reference
- **Body sensors (proprioception)** - feedback from muscles and joints

Disruption to the **brain's ability to integrate signals**:

- Dizziness
- Visual instability
- Imbalance
- Oscillopsia



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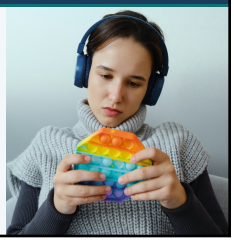
Autism Spectrum

Section 1

Autism Spectrum - neurodevelopmental condition that affects how a person:

- Communicates
- Interacts socially
- Learns
- Behaves



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Autism Spectrum – Key Neuro-Visual Indicators

Section 1

- Photophobia and sensory overload
- Limited eye contact
- Reduced visual attention
- Motion sensitivity
- Reduced working memory
- Atypical visual scanning
- Difficulty separating visual details
- Detail-focused vision over big picture

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Autism Spectrum – Symptom Management

Section 1

- Sensory regulation with tints and coatings
- Near and spatial support with lenses and prism
- Simplified optics to reduce distortion
- Screen filters to reduce visual stress

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SECTION 02

Types & Subtypes of Visual Processing Disorders

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The 7 Core Types of Visual Processing Disorders

Section 2

Visual processing can be impaired across multiple domains — each with distinct functional impacts:

1. **Visual Discrimination** — Difficulty distinguishing similar shapes, letters, or objects
2. **Visual Figure-Ground** — Cannot isolate a figure from a busy background
3. **Visual Closure** — Struggles to identify incomplete images or words
4. **Visual Memory** — Poor recall of visual information
5. **Visual Sequential Memory** — Cannot remember sequences of visual items
6. **Visual Spatial Relations** — Difficulty with directionality, reversals, orientation
7. **Visual Motor Integration** — Poor coordination between what is seen and motor output

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Visual Processing Types — In Depth

Section 2

1. Visual Discrimination — **Impact:** Reading, spelling, math

Definition: The ability to differentiate between similar shapes, letters, numbers, objects, or patterns based on subtle visual features.

Examples: Confusing 'b' with 'd', 'p' with 'q'; cannot tell circle from oval; mistakes 'cat' for 'car'.

2. Visual Figure-Ground — **Impact:** Academics, daily tasks

Definition: The ability to locate and identify a specific figure or object within a busy or complex visual background.

Examples: Cannot find the answer on a cluttered worksheet; difficulty reading dense text; loses place on a page.

3. Visual Closure — **Impact:** Reading fluency, puzzles

Definition: The ability to recognize and identify an object, shape, or word even when part of it is obscured, missing, or incomplete.

Examples: Cannot read partial words; struggles with dot-to-dot; difficulty with reading when text is partially visible.

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Visual Processing Types — In Depth

Section 2

4. Visual Memory — **Impact:** Writing, copying, recall

Definition: The ability to accurately recall visual information — both immediately after viewing and over longer periods — without the information present.

Examples: Cannot copy from the board; forgetting sight words; difficulty visualizing spelling patterns.

5. Visual Sequential Memory — **Impact:** Math, writing, directions

Definition: The ability to remember and reproduce a series of visual stimuli in the correct sequence and order.

Examples: Difficulty with multi-step math problems; cannot follow diagrams; scrambles letter order in words.

6. Visual Spatial Relations — **Impact:** Math, navigation, writing

Definition: The ability to perceive and understand the position of objects in space in relation to other objects and to oneself.

Examples: Reverses letters and numbers beyond age 7; difficulty with maps, geometry, lining up columns in math.

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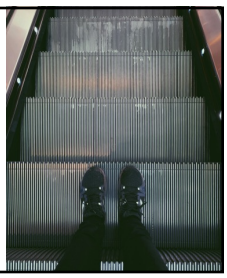
6. Visual Spatial Relations



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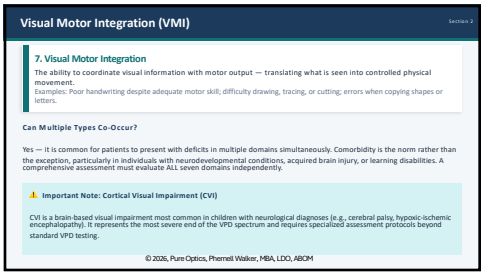
Visual Motor Integration (VMI)
Section 2
7. Visual Motor Integration
The ability to coordinate visual information with motor output — translating what is seen into controlled physical movement.
Examples: Poor handwriting despite adequate motor skill; difficulty drawing, tracing, or cutting; errors when copying shapes or letters.
Can Multiple Types Co-Occur?
Yes — it is common for patients to present with deficits in multiple domains simultaneously. Comorbidity is the norm rather than the exception, particularly in individuals with neurodevelopmental conditions, acquired brain injury, or learning disabilities. A comprehensive assessment must evaluate ALL seven domains independently.
⚠ Important Note: Cortical Visual Impairment (CVI)
CVI is a brain-based visual impairment most common in children with neurological diagnoses (e.g., cerebral palsy, hypoxic-ischemic encephalopathy). It represents the most severe end of the VPD spectrum and requires specialized assessment protocols beyond standard VPD testing.
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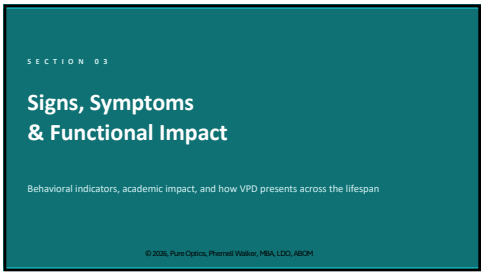
SECTION 03
Signs, Symptoms & Functional Impact
Behavioral indicators, academic impact, and how VPD presents across the lifespan
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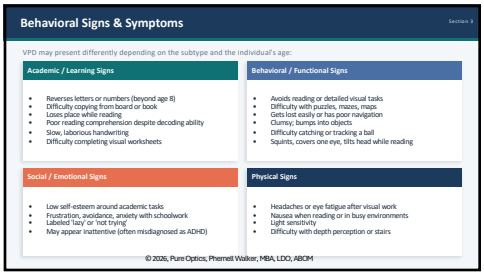
Behavioral Signs & Symptoms
Section 3
VPD may present differently depending on the subtype and the individual's age:
Academic / Learning Signs
Reverses letters or numbers (beyond age 8)
Difficulty copying from board or book
Loses place while reading
Poor reading comprehension despite decoding ability
Slow, laborious handwriting
Difficulty completing visual worksheets
Behavioral / Functional Signs
Avoids reading or detailed visual tasks
Difficulty with puzzles, mazes, maps
Gets lost easily or has poor navigation
Clumsy; bumps into objects
Difficulty catching or tracking a ball
Squints, covers one eye, tilts head while reading
Social / Emotional Signs
Low self-esteem around academic tasks
Frustration, avoidance, anxiety with schoolwork
Labeled 'lazy' or 'not trying'
May appear inattentive (often misdiagnosed as ADHD)
Physical Signs
Headaches or eye fatigue after visual work
Nausea when reading or in busy environments
Light sensitivity
Difficulty with depth perception or stairs
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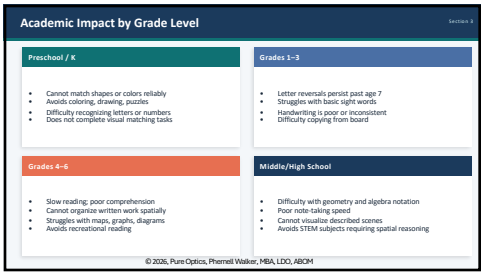
Academic Impact by Grade Level
Section 3
Preschool / K
Cannot match shapes or colors reliably
Avoids coloring, drawing, puzzles
Difficulty recognizing letters or numbers
Does not complete visual matching tasks
Grades 1–3
Letter reversals persist past age 7
Struggles with basic sight words
Handwriting is poor or inconsistent
Difficulty copying from board
Grades 4–6
Slow reading; poor comprehension
Cannot organize written work spatially
Struggles with maps, graphs, diagrams
Avoids recreational reading
Middle/High School
Difficulty with geometry and algebra notation
Poor note-taking speed
Cannot visualize described scenes
Avoids STEM subjects requiring spatial reasoning
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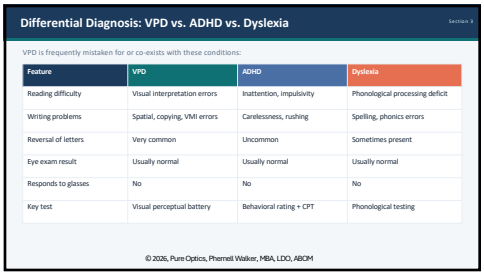
Differential Diagnosis: VPD vs. ADHD vs. Dyslexia
Section 3
VPD is frequently mistaken for or co-exists with these conditions:
Feature | VPD | ADHD | Dyslexia
Reading difficulty | Visual interpretation errors | Inattention, impulsivity | Phonological processing deficit
Writing problems | Spatial, copying, VMI errors | Carelessness, rushing | Spelling, phonics errors
Reversal of letters | Very common | Uncommon | Sometimes present
Eye exam result | Usually normal | Usually normal | Usually normal
Responds to glasses | No | No | No
Key test | Visual perceptual battery | Behavioral rating + CPT | Phonological testing
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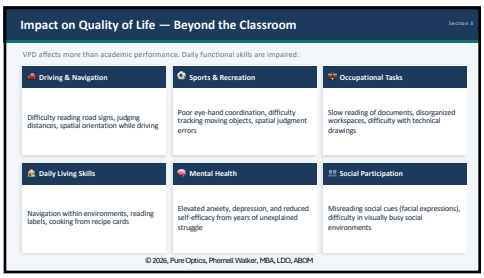
Impact on Quality of Life — Beyond the Classroom
Section 3
VPD affects more than academic performance. Daily functional skills are impaired:
Driving & Navigation
Difficulty reading road signs, judging distances, spatial orientation while driving
Sports & Recreation
Poor eye-hand coordination, difficulty tracking moving objects, spatial judgment errors
Occupational Tasks
Slow reading of documents, disorganized workspaces, difficulty with technical drawings
Daily Living Skills
Navigation within environments, reading labels, cooking from recipe cards
Mental Health
Elevated anxiety, depression, and reduced self-efficacy from years of unexplained struggle
Social Participation
Misreading social cues (facial expressions), difficulty in visually busy social environments
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SECTION 04

Patient Questionnaire & Screening Tools

A validated, clinically-informed screening questionnaire to identify patients at risk for VPD

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Screening Questionnaire — Purpose & Administration

Section 4

Rating Scale

0 = Never
1 = Rarely (1–2x/month)
2 = Sometimes (1–2x/week)
3 = Often (most days)
4 = Always (daily)

Scoring Guide

0–15	Minimal risk
16–30	Mild risk — monitor
31–50	Moderate risk — refer
51+	High risk — urgent eval

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Patient Screening Questionnaire — Part 1

Section 4 — Questionnaire

Domain: Visual Discrimination & Figure-Ground

#	Question	Score (0–4)
1	I (or my child) confuse letters that look similar (e.g., b/d, p/q, m/n).	(__)
2	I have difficulty distinguishing similar numbers (e.g., 6 and 9, 3 and 8).	(__)
3	I struggle to find an object in a drawer, backpack, or busy scene.	(__)
4	Reading a crowded page of text feels overwhelming or causes eye strain.	(__)
5	I lose my place when reading because the words seem to blur together.	(__)
6	I have difficulty finding specific items on a shelf or menu.	(__)
7	Busy visual environments (stores, classrooms) feel overwhelming.	(__)

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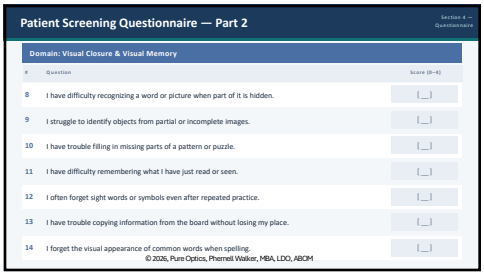

Patient Screening Questionnaire — Part 2

Section 4 — Questionnaire

Domain: Visual Closure & Visual Memory

#	Question	Score (0–4)
8	I have difficulty recognizing a word or picture when part of it is hidden.	[__]
9	I struggle to identify objects from partial or incomplete images.	[__]
10	I have trouble filling in missing parts of a pattern or puzzle.	[__]
11	I have difficulty remembering what I have just read or seen.	[__]
12	I often forget sight words or symbols even after repeated practice.	[__]
13	I have trouble copying information from the board without losing my place.	[__]
14	I forget the visual appearance of common words when spelling.	[__]

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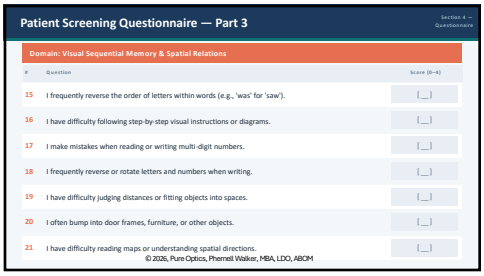

Patient Screening Questionnaire — Part 3

Section 4 — Questionnaire

Domain: Visual Sequential Memory & Spatial Relations

#	Question	Score (0–4)
15	I frequently reverse the order of letters within words (e.g., 'was' for 'saw').	[__]
16	I have difficulty following step-by-step visual instructions or diagrams.	[__]
17	I make mistakes when reading or writing multi-digit numbers.	[__]
18	I frequently reverse or rotate letters and numbers when writing.	[__]
19	I have difficulty judging distances or fitting objects into spaces.	[__]
20	I often bump into door frames, furniture, or other objects.	[__]
21	I have difficulty reading maps or understanding spatial directions.	[__]

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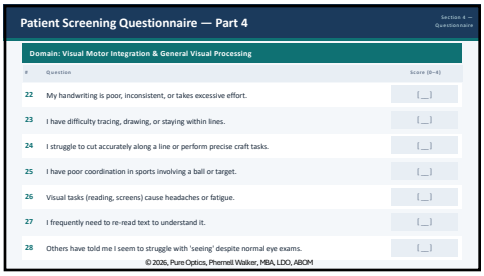

Patient Screening Questionnaire — Part 4

Section 4 — Questionnaire

Domain: Visual Motor Integration & General Visual Processing

#	Question	Score (0–4)
22	My handwriting is poor, inconsistent, or takes excessive effort.	[__]
23	I have difficulty tracing, drawing, or staying within lines.	[__]
24	I struggle to cut accurately along a line or perform precise craft tasks.	[__]
25	I have poor coordination in sports involving a ball or target.	[__]
26	Visual tasks (reading, screens) cause headaches or fatigue.	[__]
27	I frequently need to re-read text to understand it.	[__]
28	Others have told me I seem to struggle with 'seeing' despite normal eye exams.	[__]

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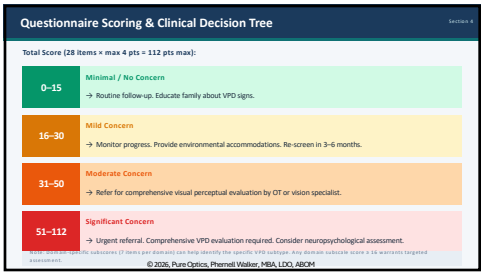
Questionnaire Scoring & Clinical Decision Tree
Section 4
Total Score (28 items × max 4 pts = 112 pts max):
0–15
Minimal / No Concern
→ Routine follow-up. Educate family about VPD signs.
16–30
Mild Concern
→ Monitor progress. Provide environmental accommodations. Re-screen in 3–6 months.
31–50
Moderate Concern
→ Refer for comprehensive visual perceptual evaluation by OT or vision specialist.
51–112
Significant Concern
→ Urgent referral. Comprehensive VPD evaluation required. Consider neuropsychological assessment.
Note: domain-specific subscores (7 items per domain) can help identify the specific VPD subtype. Any domain subscale score ≥ 16 warrants targeted assessment.
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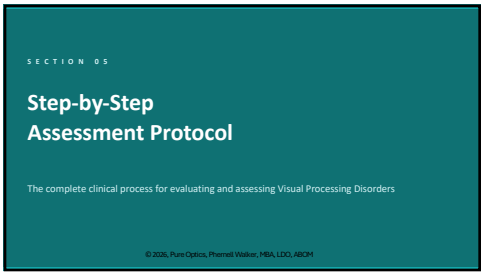
SECTION 05
Step-by-Step
Assessment Protocol
The complete clinical process for evaluating and assessing Visual Processing Disorders
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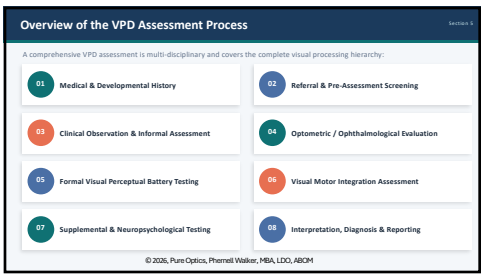
Overview of the VPD Assessment Process
Section 5
A comprehensive VPD assessment is multi-disciplinary and covers the complete visual processing hierarchy:
01
Medical & Developmental History
02
Referral & Pre-Assessment Screening
03
Clinical Observation & Informal Assessment
04
Optometric / Ophthalmological Evaluation
05
Formal Visual Perceptual Battery Testing
06
Visual Motor Integration Assessment
07
Supplemental & Neuropsychological Testing
08
Interpretation, Diagnosis & Reporting
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Step 1: Medical & Developmental History
Section 5 — Step 1
Gather comprehensive history before any formal testing begins
Birth & Perinatal History
Prematurity, birth complications, hypoxia, jaundice, NICU admission, congenital conditions
Neurological History
Seizures, meningitis, encephalitis, hydrocephalus, cerebral palsy, stroke or TBI
Developmental Milestones
Motor milestone delays (rolling, sitting, walking), language delays, eye contact patterns
Educational History
Grade retention, IEP/504 plans, specific academic struggles (reading, math, writing)
Vision Care History
Prior eye exams, glasses, patching, eye surgery, strabismus/amblyopia diagnosis
Family History
Dyslexia, learning disabilities, ADHD, visual impairment, neurological conditions in family
Prior Evaluations
Neuropsychological, OT, speech-language, or educational assessments and their findings
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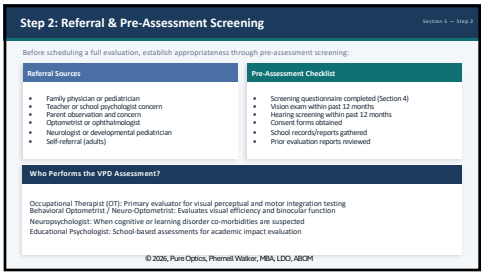
Step 2: Referral & Pre-Assessment Screening
Section 5 — Step 2
Before scheduling a full evaluation, establish appropriateness through pre-assessment screening:
Referral Sources
Family physician or pediatrician
Teacher or school psychologist concern
Parent observation and concern
Optometrist or ophthalmologist
Neurologist or developmental pediatrician
Self-referral (adults)
Pre-Assessment Checklist
Screening questionnaire completed (Section 4)
Vision exam within past 12 months
Hearing screening within past 12 months
Consent forms obtained
School records/reports gathered
Prior evaluation reports reviewed
Who Performs the VPD Assessment?
Occupational Therapist (OT): Primary evaluator for visual perceptual and motor integration testing
Behavioral Optometrist / Neuro-Optometrist: Evaluates visual efficiency and binocular function
Neuropsychologist: When cognitive or learning disorder co-morbidities are suspected
Educational Psychologist: School-based assessments for academic impact evaluation
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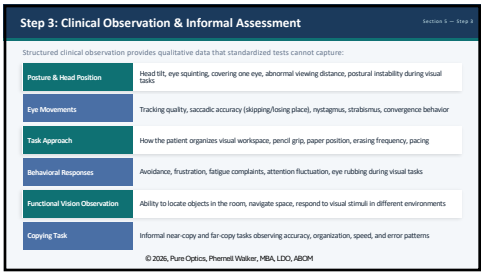
Step 3: Clinical Observation & Informal Assessment
Section 5 — Step 3
Structured clinical observation provides qualitative data that standardized tests cannot capture:
Posture & Head Position
Head tilt, eye squinting, covering one eye, abnormal viewing distance, postural instability during visual tasks
Eye Movements
Tracking quality, saccadic accuracy (skipping/losing place), nystagmus, strabismus, convergence behavior
Task Approach
How the patient organizes visual workspace, pencil grip, paper position, erasing frequency, pacing
Behavioral Responses
Avoidance, frustration, fatigue complaints, attention fluctuation, eye rubbing during visual tasks
Functional Vision Observation
Ability to locate objects in the room, navigate space, respond to visual stimuli in different environments
Copying Task
Informal near-copy and far-copy tasks observing accuracy, organization, speed, and error patterns
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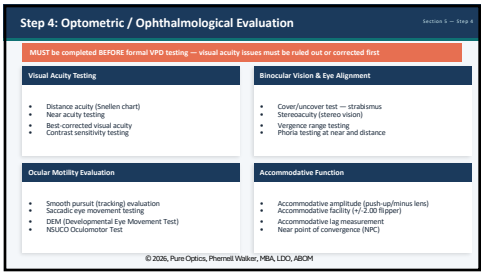
Step 4: Optometric / Ophthalmological Evaluation
Section 5 — Step 4
MUST be completed BEFORE formal VPD testing — visual acuity issues must be ruled out or corrected first
Visual Acuity Testing
Distance acuity (Snellen chart)
Near acuity testing
Best-corrected visual acuity
Contrast sensitivity testing
Binocular Vision & Eye Alignment
Cover/uncover test — strabismus
Stereoacuity (stereo vision)
Vergence range testing
Phoria testing at near and distance
Ocular Motility Evaluation
Smooth pursuit (tracking) evaluation
Saccadic eye movement testing
DEM (Developmental Eye Movement Test)
NSUCO Oculomotor Test
Accommodative Function
Accommodative amplitude (push-up/minus lens)
Accommodative facility (+/-2.00 flipper)
Accommodative lag measurement
Near point of convergence (NPC)
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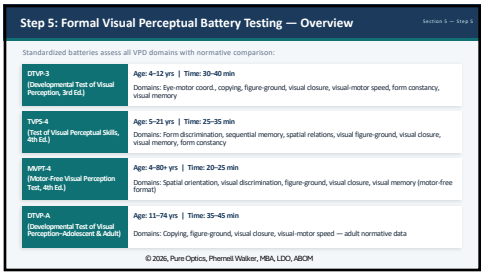
Step 5: Formal Visual Perceptual Battery Testing — Overview
Section 5 — Step 5
Standardized batteries assess all VPD domains with normative comparison:
DTVP-3
(Developmental Test of Visual Perception, 3rd Ed.)
Age: 4–12 yrs | Time: 30–40 min
Domains: Eye-motor coord., copying, figure-ground, visual closure, visual-motor speed, form constancy, visual memory
TVPS-4
(Test of Visual Perceptual Skills, 4th Ed.)
Age: 5–21 yrs | Time: 25–35 min
Domains: Form discrimination, sequential memory, spatial relations, visual figure-ground, visual closure, visual memory, form constancy
MVPT-4
(Motor-Free Visual Perception Test, 4th Ed.)
Age: 4–80+ yrs | Time: 20–25 min
Domains: Spatial orientation, visual discrimination, figure-ground, visual closure, visual memory (motor-free format)
DTVP-A
(Developmental Test of Visual Perception–Adolescent & Adult)
Age: 11–74 yrs | Time: 35–45 min
Domains: Copying, figure-ground, visual closure, visual-motor speed — adult normative data
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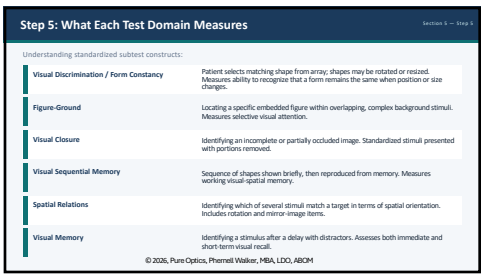
Step 5: What Each Test Domain Measures
Section 5 — Step 5
Understanding standardized subtest constructs:
Visual Discrimination / Form Constancy
Patient selects matching shape from array; shapes may be rotated or resized. Measures ability to recognize that a form remains the same when position or size changes.
Figure-Ground
Locating a specific embedded figure within overlapping, complex background stimuli. Measures selective visual attention.
Visual Closure
Identifying an incomplete or partially occluded image. Standardized stimuli presented with portions removed.
Visual Sequential Memory
Sequence of shapes shown briefly, then reproduced from memory. Measures working visual-spatial memory.
Spatial Relations
Identifying which of several stimuli match a target in terms of spatial orientation. Includes rotation and mirror-image items.
Visual Memory
Identifying a stimulus after a delay with distractors. Assesses both immediate and short-term visual recall.
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Step 6: Visual Motor Integration Assessment

Section 5 — Step 6

VMI tests measure the ability to translate visual perception into accurate motor output:

Beery VMI — 6th Edition — Age: 2–100 yrs | Time: 10–15 min

The most widely used VMI test. Patient copies geometric forms of increasing complexity. Three subtests: VMI (copying), Visual Perception (matching), Motor Coordination (tracing).

BOT-2 — Visual-Motor Integration Subtest — Age: 4–21 yrs | Time: 45–60 min (full)

From the Bruininks-Oseretsky Test. Measures fine motor precision, fine motor integration, and manual dexterity as they relate to visual processing.

Bender Gestalt II — Age: 4–85+ yrs | Time: 10–15 min

Patient copies designs; scoring reflects spatial organization and developmental maturity. Includes a supplemental recall phase to assess visual memory.

Rey-Osterrieth Complex Figure Test (ROCFT) — Age: 6+ yrs | Time: 45 min (with delay)

Patient copies a highly complex figure then reproduces from memory after delays. Assesses perceptual organization, planning, and visual memory.

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Step 7: Supplemental & Neuropsychological Testing

Section 5 — Step 7

Depending on referral question and initial findings, additional assessments may be indicated:

Cognitive / Neuropsychological Tests

- WPPSI-IV / WISC-V / WAIS-IV: Block Design, Matrix Reasoning, Visual Puzzles subtests
- WMS-IV Visual Memory Index
- NEPSY-II: Visuospatial Processing domain
- CMS: Visual Immediate and Delayed subtests

Attention & Executive Function

- CBCL / BASC-3 behavioral rating scales
- Conners Continuous Performance Test (CPT-3)
- BRIEF-2: Visual monitoring subscale
- D-KEFS: Trail Making, Design Fluency

Reading / Academic Tests

- WIAT-4: Spelling, Math Problem Solving
- GORT-5: Reading accuracy with visual errors
- TOWRE-2: Sight word efficiency
- WJ-IV ACH: Academic achievement battery

Specialized Visual Tests

- Cortical Vision Impairment battery (CVI Range)
- Low vision functional assessment (for CVI/severe cases)
- Visual field perimetry
- ERG / VEP (if neurological VPD suspected)

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Step 5-7: Understanding Test Scores

Section 5 — Scoring

Standard scores allow comparison to age-matched normative samples:

Score Range	Percentile	Classification	Clinical Significance
130+	98th+	Very Superior	No VPD concern
115–129	84th–97th	Above Average	No VPD concern
85–114	16th–83rd	Average	No VPD concern
70–84	2nd–15th	Below Average	Mild VPD — monitor / accommodations
55–69	< 2nd	Poor	Moderate VPD — therapy indicated
< 55	< 1st	Very Poor	Severe VPD — intensive intervention

Clinical Rule: A deficit in ANY single domain (SS < 85) is clinically significant and warrants documentation. Clinicians should not average subtest scores — each domain must be evaluated independently.

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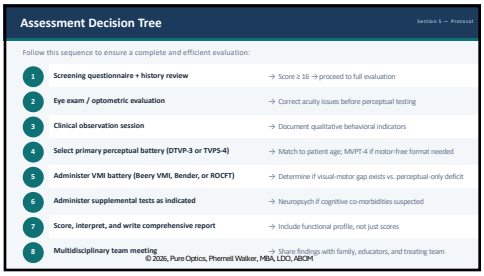
Assessment Decision Tree
Section 5 — Protocol
Follow this sequence to ensure a complete and efficient evaluation:
1 Screening questionnaire + history review → Score ≥ 16 → proceed to full evaluation
2 Eye exam / optometric evaluation → Correct acuity issues before perceptual testing
3 Clinical observation session → Document qualitative behavioral indicators
4 Select primary perceptual battery (DTVP-3 or TVPS-4) → Match to patient age; M/PT-4 if motor-free format needed
5 Administer VMI battery (Beery VMI, Bender, or ROCFT) → Determine if visual-motor gap exists vs. perceptual-only deficit
6 Administer supplemental tests as indicated → Neuropsych if cognitive co-morbidities suspected
7 Score, interpret, and write comprehensive report → Include functional profile, not just scores
8 Multidisciplinary team meeting → Share findings with family, educators, and treating team
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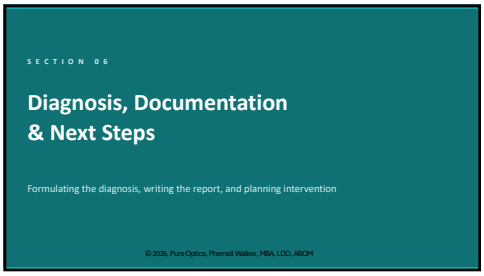
SECTION 06
Diagnosis, Documentation & Next Steps
Formulating the diagnosis, writing the report, and planning intervention
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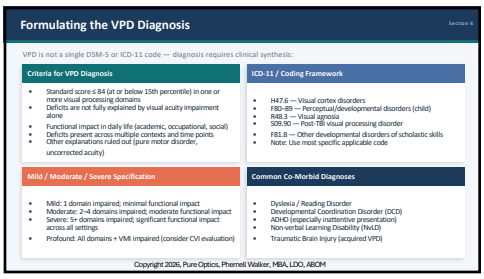
Formulating the VPD Diagnosis
Section 6
VPD is not a single DSM-5 or ICD-11 code — diagnosis requires clinical synthesis:
Criteria for VPD Diagnosis
Standard score ≤ 84 (at or below 15th percentile) in one or more visual processing domains
Deficits are not fully explained by visual acuity impairment alone
Functional impact in daily life (academic, occupational, social)
Deficits present across multiple contexts and time points
Other explanations ruled out (pure motor disorder, uncorrected acuity)
ICD-11 / Coding Framework
H47.6 — Visual cortex disorders
FB0-B5 — Perceptual/developmental disorders (child)
R48.3 — Visual agnosia
S09.90 — Post-TBI visual processing disorder
F81.8 — Other developmental disorders of scholastic skills
Note: Use most specific applicable code
Mild / Moderate / Severe Specification
Mild: 1 domain impaired; minimal functional impact
Moderate: 2–4 domains impaired; moderate functional impact
Severe: 5+ domains impaired; significant functional impact across all settings
Profound: All domains + VMI impaired (consider CVI evaluation)
Common Co-Morbid Diagnoses
Dyslexia / Reading Disorder
Developmental Coordination Disorder (DCD)
ADHD (especially inattentive presentation)
Non-verbal Learning Disability (NVLD)
Traumatic Brain Injury (acquired VPD)
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Step 8: Writing the VPD Evaluation Report

Section 4

A comprehensive VPD report must include:

1	**Identifying Information & Referral Reason**	Patient demographics, referring clinician, reason for evaluation, informants
2	**Background & History Summary**	Relevant medical, developmental, educational, and family history
3	**Behavioral Observations**	Qualitative observations during testing — validity indicators, response style
4	**Test Results Section**	All standard scores, percentile ranks, confidence intervals by domain
5	**Score Interpretation**	Pattern analysis — domain-specific strengths and weaknesses profile
6	**Diagnostic Impressions**	Formal diagnostic statement with severity specification
7	**Functional Impact Summary**	How deficits manifest in real-world settings — academic, home, occupational
8	**Recommendations**	Specific, prioritized, actionable recommendations for intervention and accommodation

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Evidence-Based Recommendations & Interventions

Section 4

Recommendations should be specific, prioritized, and tailored to the patient's profile:

Occupational Therapy Interventions

- Vision therapy programs addressing specific deficit areas
- Sensory-perceptual skill training
- Visual scanning and tracking exercises
- Fine motor and visual-motor integration activities
- Environmental modifications and adaptive strategies

Academic Accommodations (School-Based)

- Preferential seating — reduced visual clutter
- Enlarged print / reduced items per page
- Extended time for reading and writing tasks
- Copies of board notes / eliminating copying tasks
- IEP/504 plan development with specific goals

Behavioral Optometry / Vision Therapy

- Convergence insufficiency treatment
- Saccadic eye movement training
- Binocular vision therapy program
- Prism lenses if indicated by evaluation
- Home vision therapy program

Family & Home Recommendations

- Reduce visual clutter in homework environment
- Use of colored overlays for reading
- Multi-sensory learning strategies
- Audiobook and text-to-speech technology
- Regular breaks during visual tasks (20-20-20 rule)

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Monitoring Progress & Follow-Up Protocol

Section 4

VPD requires ongoing monitoring — improvements can be made with appropriate intervention:

1 Month Post-Diagnosis

- Report distributed to all team members
- IEP/504 accommodations implemented
- OT referral confirmed and initiated
- Parent/family education session completed

3 Months Post-Diagnosis

- OT progress note reviewed
- Academic accommodation effectiveness evaluated
- Teacher feedback obtained
- Adjust recommendations as needed

6 Months Post-Diagnosis

- Re-administration of screening questionnaire
- Behavioral observation update
- Consider abbreviated re-testing of weakest domains
- Update IEP goals if applicable

12 Months Post-Diagnosis

- Full re-evaluation if significant changes
- Transition planning (grade or school change)
- Reevaluate accommodation needs
- Long-term intervention plan update

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The Multidisciplinary VPD Team

Section 4

Effective VPD management requires coordinated care across disciplines:

Occupational Therapist	Primary VPD evaluator; visual perceptual and VMI testing; intervention planning; school-based consultation
Behavioral Optometrist	Visual efficiency evaluation; convergence/binocular testing; vision therapy; optical interventions
Neuropsychologist	Cognitive assessment; rule out co-morbidities; neurological basis evaluation; comprehensive report writing
Educational Psychologist	Academic impact assessment; IEP/504 development; school-based testing; curriculum modifications
Classroom Teacher	Daily observation and reporting; accommodation implementation; progress monitoring; curriculum adaptation
Speech-Language Pathologist	Visual-linguistic connections; reading disorder overlap; AAC support for severe cases

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Clinical Case Example

Section 4

Case Illustration: 8-Year-Old Male with Academic Difficulties

Presenting Concern	Teacher referral for poor handwriting, letter reversals, difficulty copying from board, avoidance of reading activities despite adequate intelligence.
Screening Score	Parent questionnaire: 38/112 (Moderate Concern). Highest subscale: Spatial Relations (12/16) and VMI (11/16).
Vision Exam	Visual acuity 20/20 OU. Convergence insufficiency identified — treated with lenses. Smooth pursuit and saccades within normal limits.
DTVP-3 Results	Overall VP Quotient: 72 (3rd %ile). Subtests: Figure-Ground 62, Visual Closure 78, Spatial Relations 68, Visual Memory 85 (low average).
Beery VMI	VMI composite: 74 (4th %ile). Visual Perception subtest: 88 (21st %ile). Motor Coordination: 70 (2nd %ile).
Diagnosis	VPD — Moderate Severity: Primary deficits in Figure-Ground, Spatial Relations, and VMI. Convergence Insufficiency (co-morbid).
Recommendations	OT 2x/week for visual perceptual skill development; behavioral optometry follow-up; classroom seating adjustment.

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Technology, Tools & Resources for VPD

Section 4

Evidence-based tools and resources for clinicians, educators, and families:

Technology Supports for Patients

- Text-to-speech software (NaturalReader, Kurzweil)
- Screen reading tools (Read&Write, Immersive Reader)
- Colored overlay apps for tablets/screens
- Font adjustments (OpenDyslexic, Arial)
- Smart pen technology for note-taking
- Audiobooks (Learning Ally, Bookshare)

Clinical Resources

- AOTA — Visual Perceptual Practice Guidelines
- American Optometric Association (AOA) — Vision Therapy
- National Eye Institute — patient education materials
- College of Optometrists in Vision Development (COVD)
- CHADD — resources for VPD-ADHD overlap
- Learning Disabilities Association of America (LDA)

Therapy Apps & Programs

- CogniFit Visual Training (digital)
- Lumosity visual attention exercises
- Vision Therapy Games (COVD-recommended)
- Handwriting Without Tears program
- Brain Balance Visual Processing module

Professional Development

- AOTA visual perceptual CEU courses
- COVD fellowship training
- Optometric Extension Program Foundation (OEPF)
- International Association of Educators for Children with Perceptual Motor Difficulties (IAECPMD)

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Key Clinical Takeaways

Summary

Essential points for clinical practice:

1. VPD is a brain-based disorder — normal vision does not rule out VPD. Always distinguish between visual acuity and visual processing.
2. Screen broadly and early. Use the structured questionnaire for any patient presenting with academic, behavioral, or functional visual complaints.
3. Visual acuity and binocular vision must be evaluated before formal VPD testing. Co-morbid visual efficiency problems are common.
4. Use standardized batteries (DTVP-3, TVPS-4, MVPT-4) and always evaluate all seven domains — co-occurring deficits are the norm.
5. Interpret results functionally — scores alone are insufficient. Connect each deficit to real-world impact for the report and recommendations.
6. VPD is treatable. With appropriate OT intervention, vision therapy, and academic accommodations, meaningful improvement is achievable.

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Questions & Discussion

"Understanding how the brain processes vision changes how we see learning."

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References & Recommended Reading

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