Understanding The Senses

Visual System: Our Sight

The visual system helps us see, understand and respond to the world around us. Working alongside the vestibular and proprioceptive systems, it supports coordination, balance, movement and hand-eye skills.

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OVERVIEW

The Visual System

Our visual system enables us to process the visual world around us. It includes eyesight and visual processing. The visual system allows us to:

- Detect and locate objects, people and movement in our environment
- Interpret what we see, making sense of shapes, letters, symbols and spatial relationships
- Coordinate what we see with how we move, hand-eye coordination, balance and navigation

The visual system works constantly in partnership with the vestibular and proprioceptive systems. Together these systems allow us to move through space with accuracy, stability and confidence. Vision works with the proprioceptive and vestibular system to supports coordination, especially hand eye coordination.

How We Process Visual Information

The brain processes visual information in several ways, each supporting different aspects of daily life. The different types of visual processing include:

- Visual discrimination: differentiate between objects, symbols, shapes etc, based on differences in colour, form, size, texture, orientation, or shape eg ‘b’ or ‘d’
- Visual figure ground discrimination: notice a shape distinct from a busy background eg Where’s Wally
- Visual sequencing: identify the order of objects, symbols or words
- Visual-motor processing: using feedback from their eyes to coordinate movement of their body eg copying a word from board into workbook, writing within lines
- Visual memory: short term or long term. Ability to recognise objects and recall letters, numbers, symbols etc
- Visual spatial relationships: Being able to tell where objects are in space eg how close / far from self an object is, close /far to something else, orientation, reading map
- Visual closure: ability to visualise and identify a whole image/symbol/object when given incomplete information/partial picture eg word recognition
- Visual Tracking: Track moving objects while standing/seated and maintain stable visual image whilst head moves.

If your child has difficulties with reading, writing, ball skills or busy environments, speak with an Occupational Therapist or Behavioural Optometrist about visual perception, and/or an Optometrist about vision.

WHAT TO LOOK FOR

Common Signs of Differences with Visual Processing

- How the nervous system regulates visual input, and / or
- How the brain makes sense of what the eyes are seeing or both.

Difficulty modulating what they are seeing, such as:

- Distressed by bright sun / lights, flickering screens or busy visual environments
- Covers or closes one eye frequently
- Squints or tilts head when looking at objects or text
- Avoids visually busy spaces, crowded rooms, busy playgrounds
- Alternatively, looks intently at objects

Difficulty discriminating or making sense of visual detail, such as:

- Difficulty or avoiding simple jigsaw puzzles, matching games
- Difficulty or avoiding sorting objects by colour, size, shape
- Difficulty finding a specific toy or object in a box / pile, tends to find by touch not visually
- Finds hand-eye coordination tricky, catching, cutting, tracing
- Difficulty judging distances, bumping into objects, misjudges depth objects.

PRACTICAL TIPS

Ways to Support the Visual System

Supporting visual modulation:

- Reduce visual clutter on walls and tables, particularly in learning and eating spaces
- Use natural lighting where possible, avoid fluorescent flickering
- Allow sunglasses outdoors if your child is sensitive to bright light
- Give visual breaks, time away from screens and visually busy environments like shopping centres and childcare centres

Supporting visual discrimination and hand eye coordination:

- Puzzles, matching games, sorting by colour, shape and size
- Drawing, colouring, tracing and copying activities
- Catching and throwing games, bubbles, scarves, balloons,
- Threading, beading and construction activities, Duplo, Lego, stacking
- Reading activities with clear, uncluttered text and good font size

PRACTICAL TIPS

Ways to Support the Visual System

Optimise Lighting:

- Ensure well-balanced and diffused lighting to reduce glare and shadows
- Use natural light whenever possible and consider adjustable blinds or curtains to control light levels

Clear Room Layout:

- Try to keep your child's learning space, bedroom and ideally the house / classroom as organised and uncluttered as possible to minimise distractions
- Pack away or covers toys / games as your child finishes each game, aiming to reduce the amount of visual information on the floor table
- Use clear labels and signage to help children locate materials, areas, and resources

Visual Schedules:

- Display visual schedules or routines using images and words to provide predictability and structure
- Incorporate colour-coding to distinguish different activities or to see when items are 'finished'.