NEUROVision CLINIC

a child who sees like this has 20/20 vision

– Dr. Coralee Mueller

What is Vision Therapy?

Why

"When I was in grade 3, I started having trouble reading. The words would swim on the page, I'd lose my place and skip lines. My eyes and head would ache and I felt nauseous. I figured that this was normal and how reading was for everyone, I didn't know why I was so much slower than everyone else and why it was so hard for me to understand what I read. I did everything possible to avoid reading. I also started having trouble paying attention in class and focusing. I had little to no awareness of what was going on with my school courses. Coping strategies became my only way of getting through. It wasn't until I was in university that it became apparent to me that this was a vision problem, as my reading became increasingly more affected by double and blurring vision even though I had 20/20 "vision".

Through the College of Optometrists in Vision Development, I discovered Optometric Vision Therapy and learned that a better way is possible. I know how it feels to not feel smart because you struggle with reading. I know how it feels to be the last one picked for the gym class baseball team because you're uncoordinated and miss the ball. I know that greater opportunity is attainable. And that is why I do this."

– Dr. Coralee Mueller, Optometrist in Vision Development

We are not born knowing how to see and how to use our visual system. This is a process that develops throughout infancy and childhood.

Because vision is a learned process that develops, we can re-create this at anytime. Because the brain is completely neuroplastic it can change at any age. Vision therapy works through neuroplasticity, because you see with your brain, not your eyes. Your brain allows you to see through your eyes.

Some people do not naturally develop the foundational skills needed for an efficient visual process, which hinders their abilities.

Functional vision dysfunction does not correct itself. One does not outgrow the problem on their own. This is because in daily life you use your vision the same way everyday, so the brain will continue to use the same inefficient path. Someone may find new and inventive ways of compensating which will not serve them long term or give them the efficiency they could be capable of.

People with very poor visual skill can be high achievers when they are extremely motivated, but at an untold cost in wasted energy and unnecessary effort and stress. For those who are less motivated, even one or two deficient visual abilities can produce enough stress and frustration to create a non-achiever.

Enhancing Visual Performance

Vision therapy with exercises and/or lenses is intended to alleviate the symptoms and eliminate the underlying causes, which are inadequate visual skills and visual stress. The American Optometric Association has asserted: of all the sensory information relayed to the brain, 80% is visual in origin.

Studies show that success in vision therapy depends on an appropriate program prescribed by the Optometrist and on an individual person's cooperation, participation and motivation. Optometrists in Vision Development spend years in continued post-graduate education to further assess the visual process and master the complex visual programs prescribed to enhance visual skill and performance.

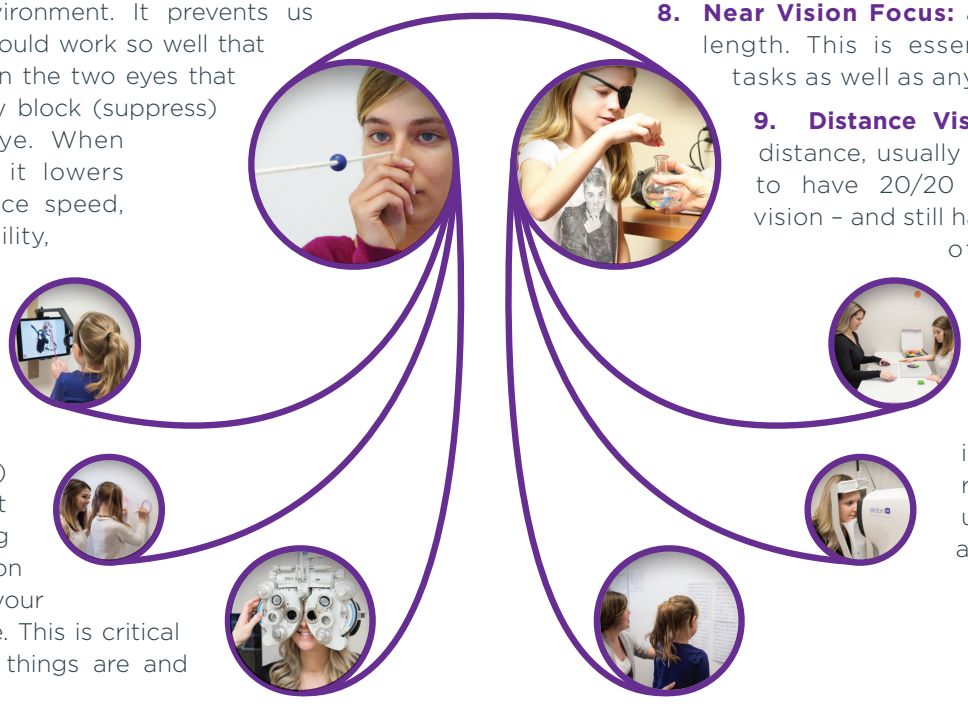
Vision therapy has also proven to be an effective tool in helping people with Learning Related Vision Problems. Many problems with reading and writing are made worse by poorly developed visual skill. Studies show when visual skill is enhanced through vision therapy, learning is easier, reading levels rise and, in some cases, IQ scores can increase. Building visual skill also involves improving the ability to visualize, conceptualize, and create. According to Dr. Johan Petalozzi, "conceptual thinking is built on visual understanding".

Vision Therapy is: changing the brain through vision development.

1. The opportunity to reach higher potential
2. Neuroadaptive learning
3. Perceptual learning
4. Neurological vision development and rehabilitation
5. A treatment plan used to correct or improve specific dysfunction of the vision system including strabismus, amblyopia, accommodation, oculomotor dysfunction & visual-perceptual-motor abilities.

Vision Therapy Develops Visual Skill

1. **Tracking:** ability to move the eyes smoothly to follow an object while at the same time think, talk, read, or listen without losing alignment of the eyes. This ability is used to do things like: follow a ball or person, guide a pencil while writing, read symbols on moving objects.
2. **Fixation:** ability to keep both eyes locked on target together and to efficiently shift gaze to different objects. This is a skill used to do things like: read words from left to right, add columns of numbers, read maps.
3. **Focus Change:** ability to make vision clear instantly from far to close and easily look between different distances while at the same time look for meaning and obtain understanding from the symbols or objects seen. This ability is used to do things like: copy from the board at school, watch the road ahead while driving, scan around a room.
4. **Binocularity:** ability to coordinate the two eyes together as a cohesive team. This skill allows for accurate depth perception and interpretation of our environment. It prevents us from having double vision. It should work so well that there is no interference between the two eyes that can result in having to mentally block (suppress) the information from one eye. When binocularity is compromised it lowers understanding and performance speed, increases fatigue and distractibility, and shortens attention span. Proper teaming permits vision to emerge and learning to occur.
5. **Peripheral Vision (side vision):** ability to see over a large area around you (in the periphery) while pointing the eyes straight ahead. This is used for monitoring and interpreting what's going on around you while you are using your center vision for something else. This is critical for things like: locating where things are and directing attention and focus, for moving around in the environment, self-confidence, and efficient reading by knowing easily where they are on a page while reading and to take in large amount of words with each look.
6. **Depth Perception:** ability to accurately see three-dimensional space and judge relative distances of objects, allowing the ability to see in depth. This skill is important to reach and grab things to pick up, to play sports, to walk around without bumping into things, to drive and park a car.
7. **Controlled Attention:** ability to sustain and shift visual attention appropriately with ease and flexibility, without interfering with the performance of other skills. This is important to reduce distractibility and maintain visual focus. It's also important to maintain visual awareness of surroundings without becoming hyper-focused on a specific activity.
8. **Near Vision Focus:** ability to see clearly within arms length. This is essential for all reading and writing tasks as well as any kind of close up work or activity.
9. **Distance Vision:** ability to see clearly in the distance, usually measured at 20 feet. It is possible to have 20/20 eyesight-meaning clear distance vision – and still have problems with visual skill in any of the other areas of the visual process causing significant functional impairment.
10. **Visualization:** ability to form mental images in your mind, either from a memory or a newly created idea, or from words on a page when reading. This is your "mind's eye", used to assist understanding and assists in reading comprehension.



Symptoms that can arise from visual stress can be alleviated with vision therapy.

1. **Headache:** when the eyes are straining to focus there can be pain around the brow as the well as front or back parts of the head.
2. **Double vision:** two objects are seen when only one physically exists. This can be present all the time, or it can happen off and on.
3. **Blurred vision:** can be all the time or can happen off and on. This is related to an inability to focus the eyes.
4. **Reduced performance:** losing your place when reading, reading slowly, or having difficulty interpreting or remembering what you read.
5. **Discomfort and fatigue:** can be felt around the eyes and head, or in the whole body.
6. **Dizziness and nausea:** can be induced when walking or reading, or anytime you have to move your eyes around to look from place to place.
7. **Suppression:** when the brain doesn't know how to coordinate the information coming from both eyes, the information from one eye is shut off in the brain so that the brain only has to use the information from one eye.
8. **Amblyopia:** reduced visual clarity in an eye that cannot be improved with glasses.
9. **Strabismus:** when the brain turns the eye to a position that is not aligned with the other eye. Usually the turn is in or out, but can also be up or down.
10. **Poor vision-body coordination:** clumsiness, awkwardness, inefficient eye-hand coordination.

Vision Therapy Activities: Since vision develops in your brain at infancy along with your primitive reflexes and sensory-motor systems, our vision therapy program involves this necessary motor and reflex work to build the foundations for visual skill to emerge. Therapy procedures can involve whole body physical exercises, eye-hand activities, visual perception and awareness, peripheral vision and eye muscle control activities. Therapy works by arranging visual conditions and activities such that the task is novel but related to a visual skill used in daily life. We make changes in the brain through the visual process and the visual process then improves. As the visual process improves, we see changes in the affected behavior accordingly.

Glasses Used Therapeutically: Therapeutic lenses are prescribed when it is necessary to relieve the eye strain that is preventing balance in the focusing systems.

Vision Therapy Programs: Glasses are used therapeutically to enable near vision focus and promote focus change between far and close working distances. Programs are prescribed by the doctor and individualized for each person's unique needs using a standard curriculum as a framework. The length of time it takes to develop an efficient visual system will vary from person to person depending on the degree of the dysfunction, the degree of flexibility to accept change in the system and the person's level of commitment to the program. Some people will reach the desired results in 6 months, while others can take years, especially if there is a head injury involved.

Our vision therapy sessions are done in the office for one hour, once a week, one-on-one with a therapist. There can be 10 to 20 minutes of daily home exercises to complete during the week to support the office based program.

Progress checks are scheduled with the doctor every 8 to 12 weeks of therapy. After our first progress check we can make better predictions for the individual as to how long their therapy would be expected to last. This is once we see how quickly they are progressing compared with their entry level. The doctor will only continue to prescribe therapy as long as the individual and the doctor both agree that the goals are being met in therapy.

Dr. Coralee Mueller

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Dr. Coralee Mueller is an Optometrist in Vision Development. She is the founder of NeuroVision Therapy Clinic and practices through Behavioural and Neuro-Optometric assessment. She is a Fellow with the College of Optometrists in Vision Development, Board Certified in Rehabilitative Optometric Vision Therapy and a Certified NR Practitioner. She is a Clinical Associate with the Optometric Extension Program Foundation, the Neuro-Optometric Rehabilitation Association, and a member of Canadian Optometrists in Vision Therapy and Rehabilitation.

Dr. Mueller completed her Doctor of Optometry with Honours from the University of Waterloo in 2001. In 1997, she graduated from the University of Western Ontario with an Honours Bachelor of Science double major in Physiology and Psychology, with Distinction. Throughout her university career she was involved in vision research and received numerous awards for academic achievement and research.

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