



Sovereign Pediatric Therapy

Is Handwriting Really That Difficult?

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A boy bounces into the room, looking for something of interest...a ball, Legos, race cars, anything but pencils and lined paper. He chooses a basket of items to explore filled with Koosh balls, a centipede-like creature, textured items that feel like velvet slime or balls that make squishing sounds. He appears to be settling into the occupational therapy room with ease. "So, do you know why you came to Sovereign Pediatric Therapy today?" I asked the boy with slumped posture sitting at the table.

"Mom told me that I was coming here so you could help me with my handwriting. She says I hold my pencil funny. My teacher can't read my writing journal. She says I have to put the letters on the line, then she says the letters are too big. I get my b's and d's mixed-up. I forget to "finger space" and then I have to erase my mistakes and start over again. My hand gets tired. Writing is boring. Writing is really hard."

These are profound statements from a 7 year old. I'd like to propose that handwriting is not a simple task, and it involves a myriad of skills. I invite you to look at handwriting from the perspective of a therapist and consider what goes into this task as children are learning to write. Keep in mind that typical children often have difficulty with the basics of writing, let alone children with low muscle tone, decreased sensation, attention deficits, or those with perceptual problems.

This article addresses the important skills necessary for successful writing and then provides some strategies for parents and teachers to implement when working with children to develop writing skills.

Hand strength

The ability to sustain a functional grasp on a pencil is related to how strong one's hand is. The anatomy and muscles of the hand are complex, leading different areas of the hand for specific functions including power and precision. There are two types of muscles within the hand and wrist. The *intrinsic hand muscles* are small muscles contained within the hand, whereas the *extrinsic hand muscles* are larger and originate in the forearm and have tendons that connect to the

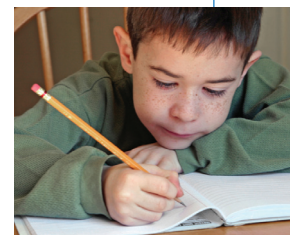


fingers. Both intrinsic and extrinsic muscles of the hand are used when sustaining a pencil grasp.

Often the small intrinsic hand muscles are weak in comparison to the larger extrinsic hand muscles. When the palm of the hand is narrow and flattened, it can indicate lack of development in this area and as a result, the child compensates with inefficient and inconsistent grasp patterns, or by switching hands. When children have both intrinsic and extrinsic muscle development, they are better able to control and grade fine muscle movements necessary for writing.

Posture

Good muscle tone throughout the trunk is necessary to maintain a good sitting posture. Good posture during writing is essential for fluidity and efficiency of the task. When observing a child during handwriting activities, therapists observe how the child postures their head, neck, trunk, shoulders and wrist. Children who have a strong stable trunk and good sitting posture are able to perform intricate fine motor movements at the wrist and shoulders with increased ease. Providing a proper sized chair (usually measured so that hips, knees and ankles are at 90 degrees of flexion) and providing a table surface of the proper height (slightly higher than at the level of the elbows at rest) helps to facilitate improved posture for writing.



Ocular Control

Divergence of gaze is the ability to look at one thing, then switch quickly to look at another. It is required when copying words from the board. This task requires constant focusing and re-focusing from a near point and far point. This is not necessarily an automatic skill for children with difficulty controlling small muscles of the eye or who have organizational difficulties and may have difficulty finding where they last stopped writing. *Visual convergence* is the ability to use both eyes together and is needed during close table work such as reading and writing. *Visual scanning* is the ability to move both eyes together within a visual field to find a particular item such as a word. Reading also involves scanning and using *visual saccadic movements* which are the quick movements made by the eyes from one fixed point to another. When ocular control is poor you may observe children compensate by using one eye for close work, or they may fatigue and rub their eyes due to the excessive amount of effort required to perform this task.

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Focus and Attention

Children who are challenged by handwriting are often highly aware of their difficulties. The mere thought of writing can create anxiety and frustration leading to decreased attention and disinterest. This behavior is typical of most of us as we attempt a task that we view as difficult or overwhelming. Our attention for challenging tasks is often brief and our frustration levels are higher.

If a child is having difficulty attending to a table tasks, occupational therapists often use sensory based strategies to help them focus. Movement based activities prior to participation in effortful table tasks, can often help a child with low energy regulate their attention level. Running, skipping or doing jumping-jacks are examples of such movement activities. Heavy-work activities such as wall push-ups, climbing activities, or pulling a weighted wagon can help children with a high energy level to refocus. The effects that sensory based activities provide can vary between children. When specific activities have been identified that improve a child's ability to focus, they can be incorporated into their daily program as a way to improve attention throughout the day.

Visual Motor Skills

Visual motor skills are the ability to use ones eyes and hands together to complete a task. When writing, a child uses these skills to locate the starting point for a letter, place the pencil on the starting point, make slight movements the index finger and thumb to control the tip of the pencil while creating the curve of the letter. Visual motor skills are necessary for recognizing and paying attention to details including overlapping the starting and end points of a letter, alignment of letters, and keeping letter size consistent.



Perceptual Skills

Visual perception is how the brain processes what one sees. Many visual perceptual skills are used in writing. *Visual discrimination* is the ability to notice the differences between letter forms, and identify letters. For example, can the child tell the difference between "b" and "d"? *Visual spatial relationships* refer to the ability to notice the spatial concepts identified with letter size, spacing between words, and margin use. *Visual memory* and *visual sequential memory* refer to the skills needed to remember the word you are copying rather than having to copy each individual letter.

Tactile perception is how the brain processes what one feels. If children have decreased tactile awareness in their hands, they may have more difficulty feeling the pencil in their hand. As a result they may have an added need to look at

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their hand to know where the pencil is. Some children may be overly sensitive to touch. Sometimes pencil grippers or weighted pencils can help a child compensate for this.

Directionality

Spatial concepts and directional terms are an often overlooked skill required for handwriting. Teaching the concepts of top, bottom, up, down, left, right, on top of, and under is vital for success. If children do not understand these general concepts, teaching them to "start at the *top* line and draw a line *down* to the *bottom* line" will confuse the child and lead to frustration. The development of these language and directionality skills is important as it helps children to learn about their body in relationship to their environment.

Cognition

Does the child understand what letters are and their purpose for reading and writing? Can the child identify 26 uppercase letters and 26 lowercase letters? Does he or she understand the rules for upper and lower case letter use, for example, John vs. JoHn?

How can we help children with handwriting? Should we make our 6 year-olds sit for hours and copy sentences **OR** should we take a different approach and help them to develop the skills needed for handwriting? I suggest that we work on targeting the specific, missing skills such as hand strength, posture, directionality, visual perception or visual motor skills. Targeting the specific, missing skills will not only be more effective in improving handwriting, but be a more pleasant and less frustrating experience for everyone involved.

For assistance on targeting specific areas of handwriting challenge or for more information regarding this topic, you may e-mail Kathy Flentge at Kathy.flentge@sovereignrehab.com or call 630.585.7337.

Want more information on helping your child with handwriting?

Join Kathy as she presents practical suggestions to help improve your child's handwriting skills and make homework less stressful.

Naperville office Thursday, January 28th, 7-8:00 pm

Call 630.585.7337 for reservations

Chicago office Thursday, February 4th, 7-8:00 pm

Call 773.755.7566 for reservations



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