

The Effect of Tomatis Training on Neuro-Development – a Case study

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We would like to present you a case study from our center, A Total Approach, in Glen Mills, Pennsylvania, USA that has astounded and created in us a need to do more. It has been an amazing discovery process in how to work with the neurological systems of a child who are living with profound disadvantages and very limited resources cognitively and physically to assist her process. Prior to coming to our center, her educational program has plateaued with little to no progress over the last 3 years. Her parents were very concerned about her future and home placement opportunities for when she would be older.

Background

When we started working with E.G. (Emily), she was 9 years old. Emily experienced a difficult birth with multiple complications and many hospital visits in her first year of life. Many different diagnosis such as Mitochondrial Disorder was considered before she was finally diagnosed at 3 years old with Static Encephalopathy and Severe Mental Retardation with multiple physical complications and global developmental delays.

Static Encephalopathy, as defined by Easter Seals: "Permanent or unchanging brain damage. The effects on development depend on the part of the brain involved and on the severity of the damage. Developmental problems may include any of a range of disabilities such as cerebral palsy, learning disabilities, mental retardation, autism, PDD, speech delays, attention deficits, hearing & vision impairments, oral motor problems, etc." Emily also suffers from a cortical visual impairment. Cortical visual impairment (CVI) may be defined as bilaterally diminished visual acuity caused by damage to the occipital lobes and or to the geniculostriate visual pathway. CVI is almost invariably associated with an inefficient, disturbed visual sense because of the widespread brain disturbance. Her depth perception was considered severely impaired and Emily appeared to mostly use her peripheral vision.

Psychological Evaluation 2005

During her early development Emily's milestones were severely delayed, finally walking with a walker and assistance by the age of 3. Emily currently is still being fed via a feeding tube, though is eating more by mouth as we speak and continues to progress. A Psychological Evaluation was completed in December 2005 by Robert. C. Keller, M.A. This report indicated her performance levels as follows:

- Refuse to leave house without force and with kicking, screaming, and biting
- Able to imitate simple adult movements such as clapping hands or waving
- Delays in all areas of development including general knowledge, vision, fine motor skills, gross motor skills, speech and language, social-emotional and self-help

- Limited communication skills compounded by aggressive behaviors
- Frequently excited and over stimulated by social events
- Throwing objects randomly when excited
- Short attention span
- Intolerance of certain textures of food, mouthing and licking inedible objects
- Significant degree of protectiveness of her hair.
- Safety (touching the stove, running away) were primary concerns
- Emily also developed a seizure disorder during this time.

Initial Evaluation at A Total Approach



At the time the family brought her to us for an evaluation, Emily was participating in swimming lessons, horseback lessons, occupational, physical, and speech language therapy and was considered to have an extensive therapeutic program. The family was vigilant with regards to attempting to find all ways possible of reaching their child and brought her in for an evaluation to our center June 2006. Her evaluation was severely impeded by her inability to participate in any standardized testing. The therapist gleaned most information through clinical observation and interview. Much of the above status was confirmed with the addition of the following notes:

- Ability to visually fixate on a person 3 to 5 seconds
- Able to retrieve objects from the floor that she had dropped with minimal assistance
- Strabismus evident in bilateral eyes. Strabismus is a condition in which the eyes are not properly aligned with each other. It typically involves a lack of coordination between the extra-ocular muscles that prevents bringing the gaze of each eye to the same point in space and preventing proper binocular vision, which may adversely affect depth perception. Strabismus can be either a disorder of the brain coordinating the eyes or a disorder of one or more muscles, as in any process that causes a dysfunction of the usual direction and power of the muscle or muscles.
- Enjoyed linear swinging in swings and, according to parents, were the favorite past time of her day.
- Unable to perform lip closure due to a high pallet and her jaw being displaced, struggled with consistent drooling
- Did not enjoy tactile input on her body through brushing, preferred stroking.
- Did not tolerate headphones well. Parent assisted and only managed 10 seconds at most. According to parent Emily did not tolerate hats or ear muffs.
- Emily exhibited her best attention ability while being immersed in a basin of uncooked rice.
- Exhibited significant postural control weakness. Needed Minimal assistance (25%) to go from standing position into a tall kneel, moderate assistance (50%) to come from sitting to standing position, moderate assistance (50%) to come from lying down to sitting position.
- Was able to manipulate familiar objects, such as a chewy tube, in her hands.

It was decided that Emily would be a candidate for Tomatis training, even though this consultant was clear to her parents given her significant history and age, there was no crystal ball to know exactly what we were going to achieve.



Emily participated in 6 intensives of Tomatis Training from the period of July 26, 2006 through April 3, 2008. Four of these intensives were 15 days each and 2 intensives were 10 days in duration. Through all of these intensives, Emily listened 2 hours each day through the Electronic Ear (EE). Her program initially consisted of mostly long precessions and delays with much lower frequency work, though we did add active work in the last two intensives and used more mid and higher frequencies with shorter precessions and delays.

Changes during this time are noted below:

Behavior:

- Decrease in biting episodes from first intensive to single occurrences during 6th intensive. Biting also became more purposeful to convey a message rather than the impulsive action before Tomatis training was initiated.
- Physically attempting herself to stop her seizures from occurring starting in third intensive, sought out her father before seizures occurred by fifth intensive.
- Increased ability to wait, decreased impulsivity starting in third intensive.
- Increased “hitting” of mom to gain her attention from 4th intensive. Hitting not aggressive, but in order to gain attention. Did not indicated need of other people’s attention before.
- Increased willingness to transfer to lesser preferred activities at school, starting in fifth intensive
- Some hyperactivity in second and third intensive with increasing calmness by fifth intensive
- Less difficult to get hair brushed, willingness increased as intensives progressed – no difficulty any longer.

Social Skills:

- Increased interest in watching other children in her home environment from first intensive, progressed to active pursuit by third intensive, to recognizing her school mates with happy anticipation in fourth intensive, to pushing others to play with her by sixth intensive.
- Joined in a rough and tumble play with two older brothers spontaneously with no concerns of previous tactile sensitivities by fourth intensive, then continued to request independently to play by end of sixth intensive.
- Increased exhibition of affect, laughing, giggling, and nervousness etc. by fourth intensive – a wider array of emotions

- Parents commented during fourth intensive “almost has awakened to the world around her”, showed increased listening skills, increase in energy, and impatience decreased
- Parents noted during sixth intensive: “Developing own identity and persona”

Communication / Emotional Skills:

- Initiated back and forth play with ball and therapist for several minutes during second intensive with significant increase in joint attention and engagement.
- No more pointing, obtains what she wants herself by third intensive, also starting to learn to use some elementary signs, increased vocalizations, increased vocalizations, and multiple circles of intentional communication with therapist
- During fourth intensive, had to receive time out for first time because of becoming aggressive to obtain what she wants right now! Parent felt she understood and calmed down!
- Increased persistence in obtaining what she wants in fourth intensive
- During fourth intensive started showing increased neediness of parent
- Increased sounds as if she knows what she wants to say during fourth intensive, definite increase in showing her understanding of receptive language
- More sounds, no words during fifth intensive, vocalizations in no-sense syllables, as if speaking a sentence
- During sixth intensive indicated increased listening as pertinent as well as an ability to be present in the moment, attentive

Gross Motor Skills:

- Hunched over her walker with awkward position initially to walking upright and straight over any unstable / stable surfaces without walker
- Between second and third intensive, grew 3 inches over break and gained weight – parent states: “She looks different”
- During third intensive an objective outsider observed her in her classroom after not seeing her for 6 months and was amazed at her increased independence and increased strength.
- During fourth intensive parent noted that during a recent neighborhood event, the neighbors were noting how well Emily looked, how healthy and how much “straighter”.
- Increased need to move, now hopped, skipped and jumped during fifth intensive

Fine Motor Skills:

- Only held onto some objects for short periods of time prior to starting Tomatis Training
- Placed hand in bag for grapes and pulled the grapes of the stem independently during first intensive

- Increased fine motor work with increase exploration of media such as play-doh, pushing and pulling and holding between thumb and index finger during fourth intensive
- Drew lines on the whiteboard with left arm across the board and up and down during fifth intensive.

Activities of daily living:

- Started eating blue berries and cookies during her first intensive independently without stuffing her mouth, pacing it one at a time – was difficult for her before.
- During second intensive Emily dressed her trousers by herself for the first time.
- Ate healthy and many varieties of food at school during third intensive
- Become increasingly aware of her drooling and started to wipe her face spontaneously during third intensive, only drooled when concentrating during fifth intensive.
- Also sought trash can in the kitchen to throw something away, looking for seatbelt in the car for first time to put it on independently – increased intent and purposefulness in functional activities
- Emily got into habit of retrieving her own snack from the refrigerator during the third intensive, parent used dishtowel to tie the refrigerator door, Emily figured out how to untie the dishtowel!
- Decreased mouthing of inanimate objects during fourth intensive
- Retrieved her Macaroni and cheese lunch from the refrigerator, obtained a spoon out of the drawer and ate her lunch without asking or needing assistance during sixth intensive.

Play / Recreation:

- Search for favorite toys spontaneously during second intensive.
- Turned TV button on and off independently during third intensive
- Played with figure characters in a school bus for the first time during fifth intensive
- During sixth intensive, was playing game cube (Mario game) could turn left, but not right, knew what race track she is on. Would request certain games for her brothers to play while she watched.
- By sixth intensive would knock on windows, doors and walls for fun and enjoyment.

Vision:

- Increased eye teaming bilaterally, right eye more function indicated during third intensive
- Increased depth perception with increased negotiation of stairs up and down, jumping on trampoline and independently playing on a scooter by fourth intensive

Conclusion

- Emily has made significant progress beyond what anybody would have expected her to make even with multiple “traditional” therapies and educational programming. She was involved in a strong weekly traditional therapy program prior to starting Tomatis Training with minimal to no progress. It is strongly felt that the therapy program that accompanied her Tomatis Training was not responsible for her remarkable changes.
- Her progress during her first intensive was so remarkable that the family obtained government funding assistance to fund her future therapies at our center, a situation not so common in the US today without extensive court proceedings.
- What made her progress more amazing was that she was able to show more emotional identity and cognitive skill once the “fog” of developmental neural pathways were removed and allowed her to become more of a “persona” with a sense of humor and purpose, capable of showing different and varying emotions, going through her developmental stages of need with regards to her mother.
- It makes this consultant so excited about what we can do if given opportunities with cases such as these at younger ages.
- Another astounding fact was that Emily was at least affected since birth and her prior rate of progress by age 9 would leave most families thinking that the potential would remain limited.
- We continue to work with Emily and continue to see new changes, though we are adding other programming to assist us at this time. From the first to sixth intensive the only change in Emily’s treatment program was the Tomatis Training.
- Tomatis training did not only affect her listening and capability of understanding language more efficiently, the training effected global changes from motor skills to emotional changes. Emily’s case proves what Dr. Tomatis so greatly believed in: **The power of the ear on the development of the rest of the brain.** She is an inspiration to us all!!

Thank you for listening!