

## **Case Report Abstract:**

Levi- Cerebral Palsy ( CP ) athlete with affected movement, balance, and strength limitations on his right CP-affected side

*Richard Mack, MBA, LMT, Certified Trager Practitioner, RSME, RSMT, co-founder of MYB LLC, Trager Foundation board member, CP Soccer advisory board*  
*Madelana Ferrara, MA, Yoga Therapist, Certified Trager Practitioner, RSME, RSMT, founder of MadMat LLC, co-founder of MYB LLC, CP Soccer advisory board*

## **Client History**

Levi's has a burning desire to play soccer at the highest level possible despite his cerebral palsy movement limitations. Levi was born with CP detected at an early age. His parents noticed that he was favoring his left side as he was developing his motor skills. He is fortunate to have parents who are proactive with access to the best medical treatment available. They are open minded to explore supplemental care. At 10 years old Levi was one of the youngest CP children we'd worked thus far. He was referred to us by Ashley, Shea's father, shortly after we completed our first group of sessions with Shea. Ashley is co-founder and head coach of CPSoccer.

Levi and his family are also co-founders of CPSoccer. Levi was the inspiration that started [www.CPSoccer.us](http://www.CPSoccer.us). This non-profit organization has grown throughout the United States and now serves as a farm team organization for the US Para Soccer Teams.  
[https://youtu.be/PQoF\\_f44HRU](https://youtu.be/PQoF_f44HRU)

## **Subjective information**

Levi is a bright and energetic boy. His body is structurally sound but functionally impacted on his right side. He had been working with several physical therapists when we were introduced but was willing to try something different. Levi's parents were proactive. Prior to our working together, he had surgery to his right CP- affected hand and forearm to lengthen the tendons. Both the arm and hand appeared to be structurally sound. His father shared that the operation improved his limited range of motion in that hand and arm.

## **Objective findings**

Levi walked and ran with a limp which is on his right CP- affected side. He did not have the typical tight or palsy "Crane" arm and wrist which is common with CP. But he did have minimal functionality and use of his right hand and arm. It was clear that he had not developed the motor skills in his right, CP-affected side as he had in his left hand and arm. Levi has the capacity to focus and responds to a challenge. It was my belief that using the somatic movement re-education principles of Trager work, a psychophysical movement modality developed by Dr. Milton Trager, would offer his body the chance to change.

Levi and Richard have worked together since 2018. During this time Levi has experienced a positive change in his body awareness, mobility, coordination, and energy level. One of the major, early breakthroughs Levi achieved in his session work with Richard and Madelana was discovering his new ability to catch and throw a ball with his CP- affected right side.

## **Treatment and Patient Response**

Treatment sessions with Levi usually are clustered in groups of 6 sessions on a weekly or bi-weekly schedule. These session groups are followed with a pause of no sessions for several months. This is done to allow Levi to integrate the changes he is experiencing from his adolescent growth and the work we are doing. The treatment and patient response section, which follows, is a description of the work we did in each cluster group.

### **Treatment Group 1**

After our initial intake evaluation, Levi was instructed to perform a variety of simple standing movement exercises like those we developed with Shea, our first CP athlete. Due to the pronounced limp of Levi's walk, we also requested him to simply walk the length of our treatment room. Both the movement exercises and the walks were recorded on video before and after each session. Our focus with Levi in the early part of this group of sessions was to simply help Levi develop a deeper awareness of his body. Levi described the gentle rocking he received from us while he was on the table as being the most relaxed he had ever felt. We also broke down the mechanics of his motor skills by slowing down the process, assisting his movement of arms and legs while he lied relaxed on the table. We focused on his development of isolation and comparison skills between his CP-affected side and his non-affected side. This was a lot to ask of 10-year-old. Levi was up for the challenge and was totally engaged with the process.

### **Treatment Group 2**

The second group of sessions commenced after his summer break. Levi was growing both in size and in self-awareness. He was in good spirits having had a pleasant summer vacation and excited to pick up where we left off. It was important that Levi have something tangible to take away from all the work he was investing in himself to keep him engaged. We decided to concentrate on helping Levi develop the functional use of his right CP-affected arm and hand.

Levi, with the help of his surgery had the structural freedom to use his CP-affected arm and hand but did not have access to the functional control of its use. Richard came up with the concept and challenge of trying to teach Levi how to throw and catch a ball utilizing either his left or right hand. Levi accepted the challenge. We started with having him touch each finger one at a time to his thumb on his left hand. He easily achieved this after a few attempts. We then asked him to try the same exercise with his CP-affected right hand. He could not do it.

We repeated this exercise frequently throughout each session, interspersed between our gentle rocking and exploration with both the arms and hands – routine aspect of our Trager work. Table work and floor exercises which included yoga and Mentastics were the activities conducted in each 60–90-minute session.

Over a few sessions Levi developed a sense of feeling and control of his right CP-affected arm and hand. Richard introduced the use of a Koosh ball into the sessions. A Koosh ball is a soft rubber ball made up of long string-like rubber fibers which makes it soft to the touch and easier to catch and hold. We continued the Trager work on both arms and hands and then instructed Levi to simply drop the Koosh ball from one hand to the other. With time he began to master the skill of letting go and engaging his right CP-affected hand. This exercise graduated to him tossing the Koosh ball from one hand to the other which surprisingly he mastered quickly. The final stage of this series of exercises was for Levi to throw and catch with both his left arm and hand and his CP-affected right arm and hand. We alternated between table time and throwing practice in each of these sessions.

After completing 5 sessions Levi was confident enough to show his dad his newly acquired skill of throwing and catching with his right, CP-affected arm and hand. This is something Levi had never done before. The video in the appendix shares the moment Levi and his dad played their first game of catch.

### **Treatment Group 3**

We had taken a 6 month pause after completing the previous group of sessions. Levi was now 12 years old. We agreed that we would now focus on improving Levi's ability to run in this next group of 6 sessions. Levi was beginning to experience pain in his right hamstring when walking. Running with this pain was next to impossible. The first three sessions were both Trager table work and yoga floor work. In addition to our usual Trager weighing and moving we worked with stretching and compression of the hip joint to help relax the tension in the hamstring Levi was experiencing. Levi was rapidly growing and unfortunately not all his muscles and tendons were keeping up with this growth. The Trager work and yoga therapy which successfully helped Levi gain functional use of his right CP-affected arm and hand was not getting the response we hoped for in the right CP-affected leg.

### **Treatment Group 4**

Levi returned to our MYB clinic after recovering from a hamstring alteration surgery. This type of tendon lengthening surgery proved to be helpful for Levi on his right forearm and hand a few years earlier. We all were hoping to see the same positive results from the hamstring surgery.

We focused on helping Levi reconnect with his right leg through the Trager work sessions we provided. His walk and overall general use of the right leg was different for Levi after the surgery. Shortly after the surgery and rehabilitation Levi started to experience right patella

dislocation which incapacitated his walking. This was occurring on a regular basis. All PT and MYB sessions were suspended.

### **Treatment Group 5**

Levi went back into surgery to correct the issue of stabilizing his right patella. Several months after the knee surgery Levi returned to MYB to continue our work on his legs. Richard brought in Jack Blackburn to assist with this group of sessions. Jack is a senior Trager instructor who studied directly with Dr. Trager. His wisdom and 40 years of experience played a guiding role in how we were to assist Levi. Jack ,who is living and working in Tokyo, Japan, joined Richard each week via Zoom.

Jack introduced several positional release techniques which resonated with Levi and progress was visually evident. Levi and his dad set a goal for Levi to work towards. Levi could no longer hop on this right, CP-affected leg which was something he could do prior to the knee surgery. Levi achieved and exceeded this goal of regaining his ability to hop by the conclusion of this group of sessions. Levi's ability to run has also significantly improved. He is setting new personal best performances in his sprint and field work.

There is an issue with the right, medial arch of Levi's foot which still needs attention. We refer to this in 'Levi's Journey' video which appears in this case report appendix. We will post that work when we complete the next treatment group.

The Zoom sessions of Jack and Richard working together with Levi were recorded. They will soon be available and added to this case report appendix.

### **Discussion**

We believe using the somatic movement re-education principles of Trager work, a psychophysical movement modality developed by Dr. Milton Trager, the body can experience change. In principle, the brain receives guided movement information transmitted through a soft and gentle touch administered by the practitioner. This information is received through the client's muscle, fascia, and impulse-transmitting neurons. This neuron impulse triggered by touch transmits the suggested lighter and freer movement back to the brain.

Neuroplasticity, which is the ability of neural networks in the brain to change through growth and reorganization, rewrites the restricted movement pattern with the new suggested movement pattern. These changes range from individual neurons making new connections, to systematic adjustments like cortical remapping. In the case of Levi, these circuit and network changes resulted in new movement ability. As illustrated in "Levi's Journey" video you can watch as he is experiencing a new series of motor possibilities encouraging him to develop the movement coordination needed to catch and throw with his CP affected right arm.

## **Appendix**

This video captures his father's surprise of Levi's progress.

<https://vimeo.com/299057590>

This video highlights Levi's journey.

<https://vimeo.com/734528128>

Levi is the inspiration that started [www.CPSoccer.us](http://www.CPSoccer.us). This non-profit organization has grown throughout the United States and serves as a farm team organization for the US Para-7-A Soccer Team. [https://youtu.be/PQoF\\_f44HRU](https://youtu.be/PQoF_f44HRU)