

# THE BRAIN AND THE BEAT

## A Case Study of Rhythmic and Active Music Exercises Designed to Rebuild Neural Pathways



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### BACKGROUND

- Music is cherished by every culture and an integral part of the basic human experience. Everything in life is a rhythm.
- Music has been used successfully as therapy in multiple populations: in patients with Parkinson's Disease to improve gait, cancer patients to decrease fatigue and pediatric surgery patients to decrease anxiety.
- Music Making is a sensorimotor skill and a strong stimulant for neuroplastic changes in the brain, affecting both white and gray matter in the forebrain and hindbrain structure
- A mental health specialist at VBH & professional drummer asked by a parent to assist their 12-year-old son with agenesis of the corpus callosum (ACC) resulting in deficits in coordination, strength and perception, intellectual delay, ADD, OCD and anxiety.
- In patients with ACC all or a portion of the corpus callosum is absent. This white matter transmits signals between the brain's hemispheres. The corpus callosum is important for processing and integrating sensory, motor, and cognitive information.

### AIM

This case study reports improvements in stamina, coordination, strength, and mood in a 12 year old with ACC after 12 months of rhythmic and active music drumming sessions.

### METHODS

- Weekly 30- 45 minute rhythmic and active music making drumming sessions.
- Customized exercises based on function, ability and progress.
- Homework assignments given after every session.
- Rudimental drumming exercises were used to analyze and then measure any changes in equilibrium reactions, postural transfers, and trunk control.
- Left-Right foot/hand pattern exercises to improve coordination and balance.

### TABLES/FIGURES



### RESULTS

- Initial session he was unable to balance on the drum throne (stool) and could not catch nor toss back the egg shaker or drum sticks. He can now toss, cross, catch, and flip rhythmically, as well as balance, climb stairs, and even walk while flipping the drum sticks!
- His parents report noticeable improvements at home beneficial outside the setting of the session.
- His parents also notice improvement with aggression, stress, and anxiety they attribute to therapeutic drumming, as he now uses his "sticks" when facing frustration at home, "drumming it out."

### CONCLUSIONS

- Drumming involves bilateral stimulation (similar to EMDR) with the added benefit of creatively making music, increasing movement, and experiencing play when delivered in a fun, friendly environment.
- This case study demonstrated an improvement in symptoms by making music. Holistic nurses can incorporate this concept through active music listening as an intervention, using active music listening while walking, a Parkinson's patient would naturally walk to the beat of the music. If the tempo increased, so would their pace

### REFERENCES

Available upon request or for more information, email: [druminsync@gmail.com](mailto:druminsync@gmail.com)