



CASE REPORT

Asperger Syndrome

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MARIAN

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ABOUT MARIAN

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Clinic: The Willows Clinic, Ballincollig, Cork, Rep. of Ireland

Client: Female, 25 years old

Clinical Diagnosis: Asperger Syndrome

SUMMARY

Marian (fictitious name), a 25 year old with Asperger Syndrome, has completed 3 cycles of the inTime Programme between September 2014 and April 2015 and is listening to her 4th Cycle of inTime. In her younger years, while listening to TLP Classic and TLP Level One, Marian started learning a musical instrument and her love of music began to emerge. Goals of improving her sense of pulse and rhythm (both within herself and in her music) becoming more at ease and less anxious, and improving her fluency and quality of her piano playing were established prior to beginning inTime, as Marian's music teacher had identified her needs to move more steadily as she played and to develop her sense of pulse and rhythm. Initially Marian found inTime difficult to listen to and found the world music confusing; but she now loves and prefers listening to this programme. With inTime Marian has made further significant progress in playing the piano and her musical ability and musical expression has continued to expand. She has achieved honours in higher grade levels of the Royal Irish Academy state musical examinations. A screening using the first version of TAVS (Test of auditory and visual processing skills) showed Marian's improvements in the screening subtests of Sound Lateralization, Pitch Discrimination, Beat Competency, Duration and Pitch Pattern and Choice Reaction Time between her 2nd and 3rd cycles of inTime.

Marian become more independent in her decision making and was able to make increased choices with greater ease after the 1st cycle of inTime; this trend has continued. Although changes in routines still

cause Marian stress, on completion of her 2nd cycle of inTime listening and activities she found that she could be more flexible when daily life changes naturally occur.

As Marian's parents were fascinated by the results of their daughter using inTime, Marian's mother decided to use inTime after Marian's 1st cycle and Marian's father began listening after Marian's 2nd cycle to help reduce their stress levels. They both have experienced improvement in their responses to stress, and Marian's mother has felt an improvement in her emotional well-being that she attributes to her inTime listening.

This account exemplifies a family's use of inTime, demonstrating customized programming, benefits relative to individual needs and goals, and enjoyment of the programme.

BACKGROUND

25 year old Marian works as a volunteer in the secretarial department of a special school assisting in clerical duties and also assisting teachers and teachers' classroom assistants in a variety of classroom activities. She has a longstanding history of intervention including music listening therapy with The Listening Programme leading up to her experience with inTime.

Marian was initially referred to me in 2001 as an 11 year old girl with low tone, sensory processing challenges, coordination and balance difficulties, weak auditory attention and auditory processing skills. She was living with her parents in a country rural area in Ireland. Marian was born with a heart anomaly and had heart surgery at 3 years of age. She could not speak until she was 4 years old, was diagnosed with Asperger Syndrome and had mild learning difficulties in school. In 2002 Marian had Physiotherapy using a Sensory Integration approach and home therapy programmes were developed for her every 12 weeks as she lived a long distance away from the therapy centre. Over her childhood and teenage years, Marian used a variety of therapeutic interventions with continuing good results.

In 2003, Marian started listening to TLP Classic. Prior to listening, Marian's performance was -3 and -1 standard deviations below the mean on all the subtests of the SCAN-C. Post-TLP Classic, by 2004, her scores were within low average and 1 standard deviation above the mean, and her love for music had become apparent. She had started to learn the Irish Tin Whistle and could coordinate the finger movements needed to do so. Marian was encouraged to learn to play keyboard/piano.

In 2005, Marian progressed on to TLP Level One with nature sounds. She loved this programme and she continued to make progress in all areas of her life.

In 2007, Marian's family upgraded her system to the Waves™ Multi-Sensory Audio system. This advanced system of Bone conduction with air conduction system gave Marian a greater satisfaction in a total listening experience of Level One.

Marian completed her Irish State school examinations and gained a place in a 3rd level college to do a Secretarial course. Marian's parents have said that TLP helped her develop her coordination and balance skills, her concentration, her communication skills and her auditory processing skills.

PROTOCOL

Equipment

inTime

Cycle 1 (September to November 2014)

Listening Protocol B, Cycle 1

Album progression by week (1,2,3,4,5,6,7,8), Base schedule

Review:

Marian began her first cycle of inTime listening in September 2014, using the Waves system for air conduction/bone conduction listening (Waves has been used Cycles 1-4). In planning for this cycle, she did not want to do any body percussion or drumming as it seemed confusing and difficult and she was averse to tapping parts of her body. She participated in "Adjustment" following listening, and either moved or sat still, noticing how she was within herself. Marian kept a diary of each week of listening.

When Marian returned in November for her review upon completion of her first cycle, she stated that she found the programme to be very different from all the other TLP programmes; she found it difficult to get used to the different sounds. Marian stated that she found the listening very confusing at the beginning, but that she got used to the world music as time went on, and that it eventually connected together for her. On doing the three minutes post listening of either being still or allowing herself to move around very consciously, Marian found some days she "bounced around" and some days she remained "very still." She enjoyed the freedom of doing either. Marian found it took her time to think, process her thoughts and write down her thoughts in her diary about the listening. She found it to be a problem to transfer her thoughts to her pen and paper. *See Appendix 1a for Marian's 8 week notes during these first 8 weeks' listening.*

Marian's mother logged Marian's progression through the 8 week cycle of InTime. Foremost, she commented that Marian demonstrated much more independence in decision-making and increased

sociability. For example, prior to inTime, she had great difficulty in choosing activities and going out with others and feeling comfortable. Marian's mother was delighted that she chose to go to the local horse races with others. She never rang home to check that everything was ok (she always does that as she becomes tense whilst out). She did not come home until late in the evening (a thing she would never do). On her return home, she was very calm about the whole day and evening (she never returned calm after being out socialising). She also remarked that Marian went shopping at the end of week 5 and for the first time in her life she had no struggles with choosing clothes or trying them on. Further, at the end of week 5, her piano teacher identified improvement in finger work, timing and flow (the teacher did not know that Marian is doing the InTime programme). Her mother also stated that Marian's stability and balance in the Table Top Pilates exercise had further improved.

Prior to Cycle 2, a screening of her Auditory Processing Skills using a test similar to the Test of Auditory and Visual Skills (TAVS) was administered. Baseline data was obtained in several areas of auditory processing including Sound Lateralization, Pitch Discrimination, Beat Competency, Duration and Pitch Pattern, Duration Pattern, and Choice Reaction Time. *See appendix 2 for results.*

Cycle 2 (November 2014 to January 2015)

Custom Listening Protocol

Album progression by week (Album 1, Album 5, Album 2, Album 6, album 3, Album 7, Album 4, Album 8), Base schedule; Activity Plan 2 (Adjustment, Steady Beat/Body Percussion – 1 min body percussion along with steady beat of first minute of Percussion listening module, Rhythm/Drumming – 3 min along with first 3 minutes of Percussion listening.

Review:

Marian's second cycle of listening began in November 2014 to January 2015. Although Marian was inhibited to try both body percussion and drumming, she agreed to do it privately in her bedroom for the 8 weeks.

Marian stated that she did not like the body percussion part of the programme and she preferred the drumming section of the programme. Her diary of notes (*see appendix 1b*) indicates her developing enthusiasm for the drumming and her slow, steady acclimating to the body percussion as the weeks proceeded. Marian grew to recognize her tendency to be distracted by the polyrhythms and sounds to the extent that she would find it extremely difficult to get the pulse. In December she made the decision to join the local choir.

Marian's mother and father took note that Marian increasingly enjoyed the drama and singing group run by her piano teacher. Her singing and drama greatly improved. Her parents also noticed that she was

able to reach higher notes when she sang and that her voice was far less monotone in drama and conversationally. They were delighted that she chose to involve herself in the choir. Marian's parents also noticed that she was becoming more flexible in changes with regard to daily life. She was even able to be a little more flexible in dinner menu choices. Despite numerous changes, she continued to become "stressed out" over very minimal things and changes in routine remained difficult.

At the end of Cycle 2, the test similar to TAVS was readministered, with improved speed in sound lateralization, beat competency, choice reaction time, pitch pattern and duration pattern. *See appendix 2 for results.*

Cycle 3 (January to April 2015)

Listening Protocol B, Cycle 3

Album progression by week (1,2,3,4,5,6,7,8), Base schedule; Custom Activity Plan following Listening: after first listening module - Adjustment and 3-5 min Body Percussion with inTime Album 9, after second listening module – Adjustment and Drumming along with first 3 minutes of module (with contemplation of rhythm awareness questions including: What pattern is being followed? Does it fit in time? What else is going on within the time here? Does my rhythm fit in with the other rhythms going on? Can the rhythm be sustained?)

Review:

Cycle 3 ran from January to April 2015. It commenced with body percussion in the clinic to provide Marian with a structured, supportive introduction to the format of the Body Percussion album, (Album 9) during which time improvement was noted in Marian's following movement-related instructions and in her tolerance of tapping her own body.

Marian did not spontaneously keep a diary for these 8 weeks, however she remarked that she loved the drumming part of inTime and found the Body Percussion to be "a bit iffy" (uncomfortable and difficult). Nevertheless she persevered with body percussion through the cycle.

During the span of Cycle 3 Marian was preparing to sing The Rose, Matchmaker (from Fiddler on the Roof) and Walking in the Air for a singing exam as part of her voice class.

Marian sang all three of her pieces at the clinic and the clarity and pitch of her singing left her provider speechless! Marian announced that she was going to sing a solo in her local parish church during the Easter Sunday ceremonies, a huge progression in confidence and ability. Marian's family felt this was due to her continued self development through her inTime programme. She also began grade 6 level piano lessons and has been experiencing greater ease in tackling the first new piece.

In drama class recitation, Marian was observed by her mother to be far less stiff and more relaxed in herself and in her vocal and movement production.

Clinically, Marian's improvements in finding and keeping a steady beat, and finding, sustaining and comparing rhythms that she has heard were also observed. Further, her love of drumming was obvious through her facial expression of delight as she picked up and played some rhythms on the drum along to inTime music played over stereo speakers.

Cycle 4 (April 2015...)

Custom Listening Protocol B, Cycle 3

Album progression by week (1,5,2,6,3,7,4,8), Base schedule; Custom Activity Plan Following Listening: after first module – Adjustment and Body Percussion 2-4 min inTime Album 9 and 1-2 min tapping steady beat with Body Percussion while listening to the beginning of the first listening module, after second module – Adjustment and Drumming along with first 3 minutes of listening module.

Review:

Cycle 4 began in April 2015. Marian also has a daily movement programme made up of Pilates, Yoga and walking.

PARENTS' USE OF INTIME PROGRAMME

MARY

Mary (fictitious name) is a mother, wife, homemaker and minder of several children coming to her house daily. A middle-aged woman, Mary was feeling negative effects of stress due to the changes in the Irish Economical situation. Mary never used The Listening Programme (Classic or Level One) for herself which her daughter has followed over the last number of years. Her daughter's response to inTime and the 9-minute listening modules prompted her own initiation of the program.

Listening Protocol B, Cycle 1; Extended Schedule

Review:

Mary began her first cycle in late November 2014 with listening only, using the Waves headphones. She stated that she thought that her "head would explode" while listening to Albums 1 and 2 (first four weeks, low and mid-high frequencies), but decided to "go with it." However as she listened to albums 3 and 4 (over the next 4 weeks) she grew to like the programme. By week 5 of her extended schedule (on album 3; high frequency), she noted "I feel much more lively and have much more energy."

After the first 8 weeks on the Extended schedule of inTime listening (completion of ½ cycle) Mary stated: "I am much more motivated in life now." "I am much more energized in life." "I am happier and content in myself." "I do not feel as low in myself with life's challenges that are stressful."

As Mary progressed onto the combined programme of percussion and instrumental music on the extended cycle, she reported that she initially felt very irritated while listening (albums 1 and 5) and she tended to have more mood swings. However, as she is ending this part of the programme now, she likes the Combined music more than the Percussion.

Mary joined a gym which is a huge change in her life and she has been enjoying doing a gym programme for the first time in her life. Mary has been delighted with her changes and her ability to cope with life's stresses and with her husband's improvements stress management since starting inTime.

She planned to begin Cycle 2, Listening Protocol B, Cycle 2; Extended Schedule beginning in May 2015.

JOHN

John (fictitious name) is a father, husband and shift worker who suffers with the effects of a lot of stress. He agreed to try inTime since his daughter and his wife had been benefitting from it. The fact that listening would only take little time daily helped him to make a commitment for himself. Like Mary, John had never used the Classic or Level One Listening programmes that Marian had used over the years.

Listening Protocol B, Cycle 1; Extended Schedule

Review:

John began his first cycle in January 2015 with listening only, using the Waves headphones, and was halfway through Cycle 1 upon this review. John initially remarked that did not notice much difference in himself during his first 8 weeks of inTime. Yet, on questioning him in the review of his programme, John did find that he "chills out and that his mind is not actively thinking" during the daily InTime module of listening. He also stated that he is calmer within himself. John has not found any other relaxation, meditation, movement or breathing programmes have had many positive effects in reducing his stress levels. As mentioned, his wife noticed that he is much more relaxed and calm in himself.

He is completing his first cycle.

CONCLUSION

25 year old Marian volunteers as a clerical and classroom assistant at a special needs school and is taking music lessons, is diagnosed as having Asperger Syndrome and lives at home with her parents. With goals of becoming more at ease and less anxious within herself, and improving her sense of pulse and rhythm and steadiness of movement in time, Marian has completed 3 cycles of inTime and is currently in the middle of her 4th cycle; activities have followed listening during all but the first cycle. She intends to continue listening to inTime for a few more cycles.

Marian's reports and those of her parents, along with clinical observations, indicate improvements in her ability to find and keep a steady beat and/or rhythm/pattern, her posture and quality of movement, her auditory processing, voice, decision-making and confidence. These improvements have contributed to positive change in Marian's musicianship, sociability, and daily living.

Marian's mother, Mary, (a homemaker who provides childcare within her home) and her father, John, (a worker who has been doing day and night shifts for many years) both decided to listen to inTime due to their observations of their daughter's gains. Their intention was to improve their responses to stress. inTime is their first experience with music listening therapy for themselves. Mary has completed one cycle of listening. She has identified her own changes in motivation, energy level and her ability to deal with life's daily challenges. John is halfway through his first cycle. He has reported he feels calmer within himself; Mary has noticed his change in relaxation and calmness.

It is hoped that Marian and her parents will continue to experience positive change as they continue their inTime listening.

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April 2015

APPENDIX 1a

Sept 12 th - Nov 10 th 2014	DIARY Week 1	INTIME 1
<p>Post cycle 1 (8 weeks)</p> <p>In Time</p> <p>- Listening only</p> <p>+ 3 minutes of stillness or movement</p>	<p>I enjoyed the first week of the listening tapes. I liked listening to the different percussion instruments like the rainsticks, timpani etc. My favourite module was the 3rd module as it was like going to the Amazon forest in Brazil on an adventure. I also liked the rainstick imitating the water and the drums imitating the person exploring the Amazon. The third module was different as the other 2 modules was taking me to a street festival (module 1+3) I didn't like module 4 as it was too similar to module 3 in using some of the same instrument e.g. rainstick, timpani.</p>	

Week #	Week 2	2
<p>At First I found the second album difficult as it was new and I didn't know what (the) (of) instruments from the percussion family were going to be involved in the second album. After (listening) listening to it I grew to like the album. My favourite modules are 3 and 4. In module 4 the instruments reminds me of going to (the) the zoo to see the animals, like the monkeys, birds, snakes (shakers). In module 3 the bell in the background reminds me of a fog horn that is used to tell sailors that there is fog about and the rainstick reminds me of the sailors that are</p>	<p>sailing in a boat. The bell could also have been a warning for sailors to sail with caution as the boat could hit some rocks and cause the boat to sink.</p>	

<p>Week III <u>WEEK 3</u></p> <p>When I first listened to the third Album I thought thought that it was good. After a few days of listening to it I began to enjoy it a lot more. My favourite module was module 4 as it reminded me of a wedding and it made me feel like dancing on the ceiling. The bell in this module reminded me of a church bell going to the wedding and the bass drum reminded me of a beat to a wedding song called Congratulations by Cliff Richard. The other three modules were a bit little bit similar but had different instruments like rain stick, timpani and shakers</p>	<p>Week IV <u>WEEK 4</u> 3</p> <p>Overall this week's album was a mixture of enjoyment and fun but also a bit of similarity in instruments through the album. I really enjoyed module 4 as it reminded me of a western film. The bass drums represent horses galloping across the desert. The shakers represent snakes in the desert. The one issue that I have with this album is that module 1 and module 2 had nearly the same instruments (like) playing like the timpani ^{and} the shakers but both modules were played in a different (style) ^{order} like in module 2 the instruments for the jungle theme started playing in the second half of the tape whereas in the first module the theme is playing</p>
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<p>Week 4 (continued)</p> <p>throughout the whole tape and I think that it is very interesting for me to listen to.</p>	<p>Week V <u>WEEK 5</u> 4</p> <p>I found this album for this week a bit hard to adjust for a few reasons. I was so used to listening to the percussion instruments on their own. When a different instrument like the guitar or the piano is added to the percussion instruments the modules themselves become very different. I found the new (instrument) instruments a bit overpowering (as) because I thought that the percussion instrument was going to be the main part of the module. After a while I ^{though} am starting to get used to it. My favourite modules was One and three as module 1 reminds me of going to a concert and module three reminds me of going to</p>
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Week 5 (continued)

a safari on a nice sunny afternoon.

Week VI Week 6

This week I am more settled as I am getting used to the percussion instruments ^{being} combined with a different type of instrument. My favourite module ~~was~~ is module four. The piano & the percussion instruments used the dynamic marking for e.g. one minute they are playing ~~softly~~ softly then it gradually becomes loud and then it gets louder and then it gradually became softer. I think that it makes it more interesting to listen to on the Listening Tape. I felt that module one & two are ~~so~~ similar as it has the same instrument which is the ~~guitar~~ banjo and I think that it makes it less interesting to hear on the Listening Tape.

Week VII Week 7

This week I am more at ease about the different type of instrument combination between the percussion instruments & a different type of instrument. My favourite module on the Listening ^{tape} this week was Module 3. (Module 3) I really liked the fact that the ~~album~~ ^{module} has added vocal harmonies. The vocal harmonies is really interesting to listen to as it make it more delightful to hear and it is something different to listen to instead of listening to different types of instruments playing on the Listening Tape.

Week VIII Week 8

This week was my last week doing the Listening Tape Programme. I really enjoyed listening to the last ~~album~~ ^{album}. My favourite module was module 4. The introduction of the flute made a big difference as it has not been introduced in the other albums of the ^{current} Listening Tape Programme. The flute make the module more interesting to listen to along with the percussion instruments which are providing the background music to the Listening Tape Programme.

APPENDIX 1b

Nov 214 - JAN 115		P: 1
<p>Post Cycle 2 Diary</p> <p>Week IX (or week 1)</p> <p>This week was my second cycle of the Listening Programme. This time I have to add body percussion and the drum for rhythm purposes. I am having a problem with the body percussion as this is my first week using it so I am not that familiar with it, but hopefully as the weeks progress I would be (more) able to cope with it. I loved using the drum for the first time this week as I like the fact that I can copy the rhythm of any percussion instruments throughout the first album and I liked module 2 & 4 as I was able to pick up the rhythm on the drum easily on both modules.</p>	<p>Week X (or week 2)</p> <p>I found this week a bit challenging for a few reasons. At times when I am (to) do the rhythm on the drum a bit carried away and sometime don't realise w. my minute is up even tho I use my phone to set it for playing the rhythm on. Secondly I am still a bit uncomfortable about doing body percussion. Other than that I liked all of the mo. on the fifth album as different to listen than to listen to Album two. Album one which is a change of routine for the Listening Tape Programme.</p>	
<p>Week XI or week 3</p> <p>This is my 11th week on this Listening Tape Programme. I am slowly starting to get used to the body percussion although I am not as uncomfortable as I was the last few weeks. I also found the album a bit hard to copy the rhythm for the drum at first but after a few I eventually got the hang of it. It was very interesting as the album gave different rhythms throughout and at times it was very difficult to decide which rhythm from which percussion instrument would I use to copy for the drum.</p>	<p>Week XII or week 4</p> <p>My thoughts for this week were that I am really enjoying copying the rhythms from this album to the drum. I even attempted to copy the band's from module 4 to the drum. Found it difficult at first as the band was playing some notes fast and other notes very slow so I found very challenging but I eventually got the hang of it as the week progressed.</p>	

Week XIII OR WEEK 5

Module 4 one this week's album reminds me of ~~(disco)~~ going to a nightclub. The rhythm of this module feels like a disco that makes me want to boogie all night. The bell reminds me of someone ringing it to start a party and that people couldn't wait for it to begin.

Week XIV OR WEEK 6

P: 3

I (E) am finding it difficult getting used to the body percussion as I get distracted by the different rhythms of the different instruments & the vocal harmonies and I found getting the pulse on the whole album extremely difficult.

Week XV OR WEEK 7

I felt that the jungle theme in Module 1 & 2 were the same and I lost interest in listening to both modules as the instruments were the same and I would prefer that it would be varied in different ways e.g. different instrument, different rhythm etc.

Week XVI OR WEEK 8

P: 4

The Flute in Module 4 is very different as it is a different instrument to listen to apart from the piano, guitar, banjo and I think that it is a very (F) strong woodwind instrument to use for this module as it makes it a lot clearer to listen to on the Listening Tape.

APPENDIX 2

Auditory processing screening with a test similar to Test of Auditory and Visual Skills (TAVS) was completed after Cycles I and II. The results are in table form below.

	Sound lateralization	Pitch discrimination	Beat competency	Choice reaction time	Pitch pattern	Duration pattern	
Date	μs	%*	ms	ms	ms	ms	
12/11/14	280	28*	303	1240	42	55	End of 1 st 8 week cycle of inTime
12/01/15	140	14*	160	674	28	42	End of 2 nd 8 week cycle of inTime

*please note, a lower percentage score does indicate improvement on this subtest.

For more understanding of the tests used see the information on TAVS, the Test of Auditory and Visual Skills

<http://a.advancedbrain.com/tlp/tavs.jsp>