

Quality of Life with Flotation Therapy for a Person Diagnosed with Attention Deficit Disorder, Atypical Autism, PTSD, Anxiety and Depression

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ABSTRACT

The aim of this single-subject study was to report experiences from one and a half years of regular floating as described by a person with neuropsychiatric and mental health disorders. Floating, or Flotation Restricted Environmental Stimulation Technique, involves relaxation and sensory deprivation by means of resting in a tank with highly salted and body-tempered water. The subject, a 24-year-old woman diagnosed with attention deficit hyperactivity disorder, atypical autism, post-traumatic stress disorder, anxiety and depression floated regularly for one and a half years. Interviews regarding her experiences were analyzed and the main findings involved a subjective sense of improved quality of life, wellbeing and healthy behavior. There were no negative effects from treatment. Results suggest that floating may have beneficial therapeutic effects on mental health. Further studies that evaluate the efficacy and possible effects of floating with regard to mental health are needed.

Keywords: Flotation; Relaxation; Mental Health; Neuropsychiatric Disorders

1. Introduction

The rapid increment of mental disorders among younger ages calls for new therapeutic approaches to mental health. Current methods of treatment are not always useful, and may inflict unpleasant side effects and be ineffective from a long-time perspective. Conditions of neuropsychiatric and severe mood disorders with additional psychiatric comorbidity are especially challenging to treat with conventional methods and the illness is even likely to escalate from ineffective treatment. For especially children and young adults with neuropsychiatric disorders, non-effective treatments are strong predictors of additional health and mental problems and cumulated, these disorders may become even more difficult to treat effectively [1]. For example, simultaneous and unsuccessfully treated autism and Attention Deficit Hyperactivity Disorder (ADHD) constitute a risk-factor for development of Post-Traumatic Stress Disorder (PTSD),

substance use disorders, depression, anxiety [2-4], stress, overweight, sleep disturbances and poor physical health in general [5-7]. Mental illness and impairment are often treated with single-target therapy aiming to alleviate isolated dysfunctions and complaints. ADHD first-line treatment involves pharmacological central stimulant therapy with documented effects on core symptoms but also negative effects, e.g. headache, nausea and insomnia [8]. Treatment for autistic dysfunctions typically includes behavioral therapy as well as medication for anxious tendencies and careful regulation of environmental demands [9]. A common finding is that single core symptoms may be effectively treated with medications [10] but secondary symptoms of both ADHD, autistic and comorbid disorders also require a more general approach including sometimes non-traditional therapies for symptom-relief, healthy life-changes, quality of life and everyday functioning [8,9]. Alternative treatments are the subject of a growing number of studies. Iron and magnesium supplementation [11], EEG feedback [12] massage,

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relaxation and EMG biofeedback, meditation and vestibular stimulation yield promising pilot study data, essential fatty acids have not yet demonstrated satisfying results in clinical controlled trials but interesting case-control data [13].

In this qualitative single-subject study we investigate experiences from a therapy known as Flotation-Restricted Environmental Stimulation Technique, *i.e.*, Flotation-REST, or floating, which provides sensory isolation and deep relaxation by means of laying in a tank with highly salted and body-tempered water. Floating has shown promising results for *e.g.* fibromyalgia, muscle tension pain, whiplash associated disorders as well as on mental disorders and complaints like stress, burn-out depression, depression, anxiety and ADHD [14-17]. For example, a female subject with neuropsychiatric disorders and burn-out depression experienced symptom-relief, increased well-being, focus, energy, calm and optimism after a series of flotation sessions [18].

The aim of this qualitative single-subject study was to report the experiences from long-term regular flotation tank therapy made by a 24-year-old female subject with psychiatric and neuropsychiatric disorders.

2. Methods

2.1. Case Presentation

The respondent was a 24-year-old woman from Sweden. Her background involved severe social and academic problems that had started and persisted throughout elementary school. In high school, she was recommended for the individual program, *i.e.*, special education methodology, due to bad grades. After two years, she dropped out of high school in order to live with a man in another town. He repeatedly abused her and used violence against her. She managed to leave him and to return to her hometown. She was depressed and anxious, and suffered from social phobia and easily became anxious in social situations. She had a strong fear of talking and was often afraid of saying something wrong and of being clumsy. After two years of sick-leave she was thoroughly assessed and diagnosed with Attention Deficit Hyperactivity Disorder predominantly inattentive subtype (DSM-IV; 314.00) and with atypical autism (DSM-IV; 299.80) by a neuropsychiatric specialist-team according to the criteria of the DSM-IV [19]. When she initiated floating, she suffered from PTSD (due to the earlier episode of assault), high stress load, fatigue, social phobia, anxiety, recurring episodes of depression, muscle tension pain and general stiffness.

Psychopharmacological treatment included central stimulants (Concerta, 54 mg), and anxiolytic medication (Sobril, as needed). She was introduced to pharmacological stimulant treatment fourteen weeks before flota-

tion, starting at 18 mg for five weeks, 36 mg for two weeks and 54 mg for eight weeks. Floating was self-initiated at the end of the 54 mg period as an attempt to ease the headache she felt was a side effect from the medicine. After a few flotation sessions, a self-initiated decrease of stimulants took place through consultation with her physician, starting with 36 mg for the first three days, 18 mg for three more days and then stimulants was completely put out. She terminated all prescribed drugs at close to one month after starting with flotation.

At week one, flotation was performed for 3×45 minutes, at week two and three for 2×45 minutes, at week four to six for 1×45 minutes, and week seven and forward included one or two sessions per month. At the time of the first interview she had performed flotation for one and half year including approximately 50 sessions in total. At the one-year follow-up, she had floated approximately 75 sessions.

2.2. The Interviews

The first interview was conducted at the respondents flotation centre, it prolonged for 74 minutes and was recorded on a mini-disc. The interview was semi-structured with questions like: how come you started floating, how do you experience floating, has your life somehow been affected by floating, has your experience of floating changed over time? A one-year follow-up was performed to understand more about the experiences from long-lasting flotation and handwritten notes were taken. The respondent was informed that all of the material would be treated confidentially, that some of the quotations would be included in the presentation of the study later on, and that she had the right to terminate the interview and participating in the study at any time. The study followed the ethical standards for research involving Human subjects according to the Helsinki declaration [20]. Also, a short follow-up interview was performed again after two additional years.

2.3. The Analysis

The Empirical Psychological Phenomenological (EPP) method according to Karlsson [21] was used to analyse the interviews. The EPP-method includes five steps of processing the material; thoroughly reading the transcribed text in order to get a comprehensive understanding; the text is divided into Meaning Units (MU) based upon the underlying psychological meaning of the text; every meaning unit is transformed from spoken language into abstract language in order to fully recognize the underlying psychological phenomenon of the material; the transformed MUs are arranged into categories; these categories are then arranged into clusters of typological structures (themes). In order to control for reliability of

the analyses, two of the authors independently sorted MUs into typological structures according to Norlander Credibility Test, NCT (e.g. [21]) and the level of matching was found to be very high. Twenty typological structures, based on a total of 264 MUs, were found during the analyses and they have been arranged into five general themes. Below, these themes are described together with highlighting quotations (in italics) from the respondent and discussed with regard to its suggested theoretical and practical implications.

3. Results and Discussion

The first theme involves *The time before floating* (including 52 MU) and contains descriptions of her personal history, setbacks in life (including a case of assault), being on sick-leave and how she was assessed for mental health problems. In social settings, she remained silent most of the time in fear of saying something wrong or behaving clumsy. She described how she used to analyse and reflect upon her thoughts, but could not verbalize what she perceived as frightening. She also described her physical pain including stiffness and tension and how she believed this was the result of the difficult things she had been through. Furthermore, she felt tired and without energy, and everything she did was very slow. She was troubled by frequently recurring depressions and had been prescribed several medicines and had many side effects.

The second theme *Turning point in her life* (including 57 MU) summarizes her first encounter with the flotation-REST technique. At that time, she got a long-term-internship at a company with flotation tanks and since she had heard that it might alleviate headache, which had become a problem since the stimulant therapy, she decided to try flotation. Her first floating sessions were not trouble-free since she had problems with finding a good position and was able to relax in the new environment. Her level of stress before entering the tank affected her experiences of floating but she eventually learned that the tensions disappeared when she became relaxed. After three to four times, she began to notice positive effects. She experienced more energy, positive thoughts, deep relaxation and became less tense "*I became more positive, had more energy and was no longer as tense*". All this became a big turning point in her life and about ten times she experienced even deeper relaxation.

The third theme *Experiences in the flotation tank* (27 MU) involves experiences during the stay in the tank. A total and profound relaxation was induced in the tank and bodily tensions disappeared. This state of relaxation was appreciated, extended into her everyday life and often accompanied with joy. It felt as if something "bad" was lifted away from her body during the profound relaxation and sometimes she became so relaxed that she fell asleep.

She felt completely safe in the tank and had never felt like that before, the feeling of safeness helped her to relax "*I felt so safe, so I could relax*". Relaxation in the tank induced a "here-and-now" state and the normal thoughts were stopped or changed. Instead she needed not to bother about being evaluated or criticized and she was able to analyse her social phobia and to be herself. She had a feeling of "being" and described altered time perception, "*[...]but wow, it has already passed 45 minutes, I want to be here a little longer because it feels so good*".

The fourth theme *Effects due to the flotation tank treatment* (89 MU) comprises the experienced effects of flotation. Her life became better from floating and it made her feel healthy "*I feel good and it does not get worse and it just gets better and better... it is hard to explain... but it has helped me so much*". The relaxation extends into her everyday life and includes psychological relaxation as well as relief from earlier painful muscle tensions. Her quality of sleep is good; she has energy and no longer problems with fatigue. She describes being alive, alert and positive, and she no longer feels depressive or bothered with negative feelings "*I can do more and I am more positive*". The problems with lethargy and dullness are gone and she has the capacity to carry out many things and to be active. Floating has provided feelings of security, self-confidence, and the ability to handle setbacks "*I have a little more confidence and floating is like an energy boost. I feel like more when I feel better*". Her social abilities have increased, and she is not silent or shy anymore. She is no longer afraid of making mistakes and about how her behavior might be evaluated. The respondent no longer needs medications and she is happy to avoid the side effects that she previously experienced.

The last theme *Perspectives on the method of flotation-REST* (39 MU) summarizes what flotation means for the respondent personally and her reflections on the method at large. She was surprised by the effect since she did not believe floating would affect her in any significant way. Her friends and co-workers were also surprised about the positive effects that they saw and they asked her what she had done. She describes floating as a non-demanding process, nothing special is needed in order to float, and it is just a matter of relaxing and let things happen. The effects were gradually reduced and she needed to float regularly for about two times a month, otherwise the lethargy, negative thoughts and social shyness would return. Floating made her feel like "a new person" and she came back to life and felt good. She says there are no side effects and prefer floating in front of the drugs she used to take. She believes floating has positive effects for different problems like pain and depression and therefore hopes it gets more attention as a treatment

method.

At the follow-up interview 2 additional years later, she is still free from all medications. She still uses the flotation-tank about once a month as a stress-reducing technique. As an additional bonus she also had stopped smoking; she had smoked about 15 cigarettes a day for the previous last 9 years, and she attributed the stress reducing effects of the flotation tank as helpful for smoking cessation. Her last sentence during this follow-up interview was: “floating is the best thing I have ever tried, no side effects, and it Works!”

Conclusion

From this qualitative single-subject study we learn that floating was associated with beneficial therapeutic effects in terms of quality of life, subjective wellbeing and healthy behavior. The respondent: “*feel good well like a new person and so it has made a great difference... it really has and I really want to continue with this because I really need it.*”

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REFERENCES

- [1] T. E. Brown, “ADHD Comorbidities—Handbook of ADHD Complications in Children and Adults,” American Psychiatric Publishing, Washington DC, 2009.
- [2] R. Famularo, T. Fenton, R. Kinscherff and M. Augustyn, “Psychiatric Comorbidity in Childhood Post-Traumatic Stress Disorder,” *Child Abuse and Neglect*, Vol. 20, No. 10, 1996, pp. 953-961. [doi:10.1016/0145-2134\(96\)00084-1](https://doi.org/10.1016/0145-2134(96)00084-1)
- [3] R. C. Kessler, L. Adler, R. Barkley, J. Biederman, K. C. Conners, O. Demler, S. V. Faraone, L. L. Greenhill, M. J. Howes, K. Secnik, T. Spencer, T. B. Ustun, E. E. Walters and A. M. Zaslavsky, “The Prevalence and Correlates of Adult ADHD in the United States: Results from the National Comorbidity Survey Replication,” *American Journal of Psychiatry*, Vol. 163, No. 4, 2006, pp. 716-723. [doi:10.1176/appi.ajp.163.4.716](https://doi.org/10.1176/appi.ajp.163.4.716)
- [4] T. Wilens, “Attention Deficit Hyperactivity Disorder and Substance Abuse Disorder—The Nature of the Relationship, Subtypes at Risk and Treatment Issues. The Nature of the Relationship, Subtypes at Risk and Treatment Issues,” *Psychiatric Clinics of North America*, Vol. 27, No. 2, 2004, pp. 283-301. [doi:10.1016/S0193-953X\(03\)00113-8](https://doi.org/10.1016/S0193-953X(03)00113-8)
- [5] R. B. Barkley, “ADHD and Life Expectancy,” *ADHD Report*, Vol. 4, 1996, pp. 1-4.
- [6] O. Pomerleau, K. Downey, F. Stelson and C. Pomerleau, “Cigarette Smoking in Adult Patients Diagnosed with Attention Deficit Hyperactivity Disorder,” *Journal of Substance Abuse*, Vol. 7, No. 3, 1995, pp. 373-378. [doi:10.1016/0899-3289\(95\)90030-6](https://doi.org/10.1016/0899-3289(95)90030-6)
- [7] T. E. Wilens, J. Biederman and E. Mick, “Does ADHD Affect the Course of Substance Abuse? Findings from a Sample of Adults with and without ADHD,” *American Journal of Addict*, Vol. 7, No. 2, 1998, pp. 156-163.
- [8] D. J. Nutt, K. Fone, P. Asherson, D. Bramble, P. Hill, K. Matthews, K. A. Morris, P. Santosh, E. Sounga-Barke, E. Taylor, M. Weiss and S. Young, “Evidence-Based Guidelines for Management of Attention-Deficit/Hyperactivity Disorder in Adolescents in Transition to Adult Services and in Adults: Recommendations from the British Association for Psychopharmacology,” *Journal of Psychopharmacology*, Vol. 21, No. 1, 2007, pp. 10-41. [doi:10.1177/0269881106073219](https://doi.org/10.1177/0269881106073219)
- [9] S. J. Rogers and L. A. Vismara, “Evidence-Based Comprehensive Treatments for Early Autism,” *Journal of Clinical Child and Adolescent Psychology*, Vol. 37, No. 1, 2008, pp. 8-38. [doi:10.1080/15374410701817808](https://doi.org/10.1080/15374410701817808)
- [10] T. Spencer, J. Biederman, T. Wilens, R. Doyle, C. Surman, J. Prince, E. Mick, M. Aleardi, K. Herzig and S. Faraone, “A Large, Double-Blind, Randomized Clinical Trial of Methylphenidate in the Treatment of Adults with Attention Deficit/Hyperactivity Disorder,” *Biological Psychiatry*, Vol. 57, No. 5, 2005, pp. 456-463. [doi:10.1016/j.biopsych.2004.11.043](https://doi.org/10.1016/j.biopsych.2004.11.043)
- [11] J. B. Adams and C. Holloway, “Pilot Study of a Moderate Dose Multivitamin/Mineral Supplement for Children with Autistic Spectrum Disorder,” *Journal of Alternative and Complementary Medicine*, Vol. 10, No. 6, 2004, pp. 1033-1039. [doi:10.1089/acm.2004.10.1033](https://doi.org/10.1089/acm.2004.10.1033)
- [12] M. M. Lansbergen, M. van Dongen-Boomsa, J. K. Buitelaar and D. Slaats-Willemsse, “ADHD and EEG-Neurofeedback: A Double-Blind Randomized Placebo-Controlled Feasibility Study,” *Journal of Neural Transmission*, Vol. 118, 2011, pp. 275-284. [doi:10.1007/s00702-010-0524-2](https://doi.org/10.1007/s00702-010-0524-2)
- [13] L. E. Arnold, “Alternative Treatments for Adults with Attention Deficit Hyperactivity Disorder (ADHD),” *Annals of New York Academy of Sciences*, Vol. 931, 2001, pp. 310-341. [doi:10.1111/j.1749-6632.2001.tb05788.x](https://doi.org/10.1111/j.1749-6632.2001.tb05788.x)
- [14] S. A. Bood, “Bending and Mending the Neurosignature—Frameworks of Influence by Flotation-REST (Restricted Environmental Stimulation Technique) upon Well-Being in Patients with Stress Related Ailments,” Ph.D. Thesis, Karlstad University, Karlstad, 2007.
- [15] S. A. Bood, U. Sundequist, A. Kjellgren, T. Norlander, L. Nordstrom, K. Nordenstrom and G. Nordstrom, “Eliciting the Relaxation Response with the Help of Flotation-Rest (Restricted Environmental Stimulation Technique) in Patients with Stress-Related Ailments,” *International Journal of Stress Management*, Vol. 13, No. 2, 2006, pp. 154-175. [doi:10.1037/1072-5245.13.2.154](https://doi.org/10.1037/1072-5245.13.2.154)
- [16] H. Edebol, S. A. Bood and T. Norlander, “Chronic Whiplash-Associated Disorders and Their Treatment Using Flotation-REST (Restricted Environmental Stimulation Technique),” *Qualitative Health Research*, Vol. 18, No. 4, 2008, pp. 480-488. [doi:10.1177/1049732308315109](https://doi.org/10.1177/1049732308315109)
- [17] A. Kjellgren, “The Experience of Flotation-REST (Re-

- stricted Environmental Stimulation Technique): Consciousness, Creativity, Subjective Stress and Pain,” Ph.D. Thesis, Gothenburg University, Gothenburg, 2003.
- [18] H. Edebol, A. Kjellgren, S. A. Bood and T. Norlander, “Enhanced Independence and Quality of Life with Flotation-Restricted Environmental Stimulation Technique of a Patient with Both Attention Deficit Hyperactivity Disorder and Aspergers Syndrome: A Case Report,” *Cases Journal*, Vol. 2, 2009, pp. 69-79.
[doi:10.4076/1757-1626-2-6979](https://doi.org/10.4076/1757-1626-2-6979)
- [19] American Psychiatric Association, “Diagnostic and Statistical Manual of Mental Disorders,” 4th Edition, American Psychiatric Association, Arlington, 2000.
- [20] World Medical Association Declaration of Helsinki, 2008.
<http://www.wma.net/en/30publications/10policies/b3/17c.pdf>
- [21] G. Karlsson, “Psychological Qualitative Research from a Phenomenological Perspective,” Almquist & Wiksell International, Stockholm, 1995.
- [22] M. Niklasson, I. Niklasson and T. Norlander, “Sensorimotor Therapy: Physical and Psychological Regressions Contributes to an Improved Kinesthetic and Vestibular Capacity in Children and Youth with Motor Difficulties and Problems of Concentration,” *Social Behavior and Personality*, Vol. 38, No. 3, 2010, pp. 327-346.
[doi:10.2224/sbp.2010.38.3.327](https://doi.org/10.2224/sbp.2010.38.3.327)