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Stepping Away from Sensory Deprivation: An Analysis of Floatation-REST Research

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Floatation-REST (Reduced Environmental Stimulus Technique/Therapy), more commonly known as *sensory deprivation*, is a technique for relaxation and stress reduction that is quickly growing more popular due to the many benefits it seems to provide for its participants. Floatation-REST is a mild form of sensory deprivation/isolation in which the participant floats in a tank of saltwater (magnesium sulfate) which has been heated to skin temperature (35.5-36℃). The buoyant saltwater allows the participant to relax in a supine position, and they experience complete darkness and silence within the tank. Many studies have shown this technique to be beneficial in treating ailments such as anxiety, chronic pain, and other conditions associated with stress and muscle tension. However, Floatation-REST has much stigma surrounding it due to the negative histories associated with the term 'sensory deprivation', and many of those who experience anxieties that could be helped by Floatation-REST are put off by the idea of it and experience anxiety about the idea of the technique itself. It is necessary to de-stigmatize Floatation-REST and for it to be presented as a more accessible, viable option for those with severe anxieties, chronic pain, and other conditions which could benefit from this technique.

Sensory Deprivation: A Brief History

The term 'sensory deprivation tank' is often inaccurately used to describe the practice of Floatation-REST, but 'sensory deprivation' is an outdated term for this practice which stems from a fraught and complicated history. In the 60's and 70's, mostly due to the "political ferment of those years, and because political activists viewed sensory deprivation as analogous to solitary confinement and torture, several researchers came under attack…" (Suedfeld & Coren, 1989, p. 3) because of misconceptions that existed about the work being done due to the results of a select

few famous experiments being exaggerated and highly publicized. “The attacks ranged from hostile publications in the popular media and in professional journals to actual physical violence against researchers. In the arguments leveled against sensory deprivation, the aversive and deleterious effects [such as visual hallucinations, increased persuasibility, reduced cognitive function, and significant stress] reported during the first research period were emphasized and even exaggerated, with no indication of the ameliorative and more reliable data produced during the second decade” (Suedfeld & Coren, 1989, p 3-4). Because of the panic and negative press which now surrounded this field of research, many researchers left or avoided the field, and journal editors and grant reviewers developed unfavorable opinions of research done in the field of sensory deprivation.

Around the early 80’s, the Restricted Environment Stimulus Technique (REST) was developed and called REST to distinguish it from sensory deprivation so that the inaccurate and negative perceptions surrounding sensory deprivation research could be avoided. These negative associations with the research persist today in many people’s minds, even in reputable sources such as introductory psychology textbooks (Suedfeld and Coren, 1989). In fact, in one study (2018) conducted by Justin Feinstein, a clinical neuropsychologist who spends much of his time researching the neuroscience of fear and searching for treatments for anxiety, he observed that:

> [T]here were clear signs of pre-float anticipatory anxiety and avoidance behavior. Fifteen participants failed to show for their scheduled appointment and never rescheduled, and another fifteen participants called to reschedule their appointment, often at the last minute… One potential reason for the anticipatory anxiety of Floatation-REST may stem from its association with ‘sensory deprivation’, a loaded term which engenders many

> historical, and often incorrect, stereotypes related to a loss of control, hallucinations, paranoia and panic… Given the striking discrepancy between the positive effects found in modern day REST research and negative effects found in early sensory deprivation research, the term *sensory deprivation* has largely been replaced by *restricted environmental stimulation therapy* ('REST')... as it helps to avoid confusion and steer clear of historical stereotypes that may heighten the barrier to entry for anxious populations. (p. 17-18)

Due to the stigma and misconceptions which exist around Floatation-REST as a practice associated with early exploratory sensory deprivation research, many of the potential participants in this study avoided, or considered avoiding, the study altogether. This shows why the misconceptions surrounding Floatation-REST are dangerous; because of the misconceptions which exist about the technique, those who might benefit from the treatment are not receiving the help they need. By eliminating negative expectancies and the stigma associated with the term sensory deprivation, and educating the participant about the procedure they're meant to participate in prior to a Floatation-REST session, better results can be achieved and this treatment can reach more people who might benefit from it.

Floatation-REST and Its Effects

Relaxation and Anxiolytic Effects

Though much of the research into Floatation-REST's effects on anxiety disorders is very current and limited, the therapy has been proven across multiple studies to be beneficial in reducing stress and treating anxiety and other stress-related disorders. The treatment of

generalized anxiety disorder (GAD) is difficult because of its high comorbidity with other disorders/wide range of symptoms and often requires a multidisciplinary approach to treat. The same is true of other anxiety and stress-related disorders. (i.e. depression, social anxiety, PTSD, panic disorder, agoraphobia, etc.) Common treatments of these disorders include cognitive behavioral therapy (CBT), psychotherapy, and prescribing SSRI's (selective serotonin reuptake inhibitors) or other anxiolytic (anxiety-reducing) medications. However, due to the nature of Floatation-REST and its holistic approach (holistic meaning the treatment of a person taking into account physical, mental, and social factors) to the treatment of stress-related disorders, some have found it to be a more effective treatment than any of these previously mentioned methods.

In Feinstein's study, they found that, "a single one-hour session of Floatation-REST was capable of inducing a strong reduction in state anxiety and a substantial improvement in mood in a group of 50 anxious and depressed participants spanning a range of different anxiety and stress-related disorders" (p. 16). Feinstein's findings show that the anxiolytic effects of Floatation-REST can be generalized across different anxiety disorders, even among those with the most severe symptoms. In fact, interestingly enough, they found that:

> [T]hose with the most severe anxiety reported the largest effects. This latter finding is notable given the fact that the severely anxious participants reported having the most severe impairments in life functioning, and also tended to be the most resistant to other forms of treatment; approximately two-thirds of the severely anxious participants were currently taking an SSRI or SNRI, and over three quarters had tried psychotherapy. Of potential clinical relevance, nearly 75% of the entire sample, and 82% of the severely anxious subgroup, reported that they had achieved more relaxation with Floatation-REST

than any of the other treatments or techniques they had tried in the past. (p. 16) A possible reason for Floatation-REST being more effective for those with severe anxieties that don't respond well to clinical treatments is that Floatation-REST is a more holistic treatment which takes a full mind-body approach to relaxation and relieving anxieties, where SSRI's and psychotherapy target the mind specifically. These findings could represent a big step towards progress in treatment of anxiety disorders, which are currently the most prevalent mental illnesses in America, with an estimated 40 million adults (19.1% of the population) affected and only 36.9% of those suffering being treated (Anxiety & Depression Association of America, 2022). With anxiety disorders being such a prevalent problem in America, and notoriously difficult to treat, Floatation-REST could be the treatment so many are searching for.

Reduction of Pain and Other Physical Effects

The physical effects of the relaxation induced by Floatation-REST takes many forms, including a reduction of pain. Many participants experience a self-reported reduction of muscle tension, stiffness, and pain, including those who suffer from chronic pain in other aspects of their lives.

In a 2008 study conducted by Edebol, Bood, and Norlander, they found Floatation-REST to be effective in treating chronic whiplash-associated disorders (WAD), a very complex and the most common condition that usually arises from non-catastrophic automobile accidents. Whiplash usually occurs due to the rapid acceleration-deceleration of one's head in a car accident, and chronic WAD occurs when symptoms of the whiplash injury continue for an extended period of time after the car accident. Symptoms are highly varied and widespread, but

common ones include, “stiffness and pain in the neck and back, impaired sensory system and… hypersensitivity, psychological stress, dizziness, [cervicogenic] headache, cognitive and visual [difficulties], weakened muscles, and posttraumatic stress syndrome”. Because of the wide range of symptoms, chronic WAD is very difficult to treat, and requires a multidisciplinary approach “for rehabilitation of chronic WAD patients… us[ing] a biopsychosocial model, as [opposed to] the traditional biomedical model” (p. 481). Edebol et al. found that, as a holistic treatment, Floatation-REST was an appropriate and beneficial treatment for the participants, physiologically and mentally. This represents a significant breakthrough in the treatment of chronic pain for many of those who suffer from complex conditions that often don’t respond to medications, surgeries, or other more biomedically focused treatments.

Floatation-REST can also cause decreased blood pressure, making it an effective treatment for hypertension (high blood pressure). In a 1984 study by Jacobs, Heilbronner, and Stanley, they investigated the physiological effects of Floatation-REST induced relaxation by measuring “frontalis EMG, blood pressure, skin temperature, and galvanic skin response” (p. 101). While their study was done with a normotensive population, they hypothesize that the significant decrease in both systolic (pressure experienced by arteries when the heart is pumping) and diastolic blood pressure (pressure experienced by arteries when the heart is at rest) can be generalized to a hyper-tensive population as well. Hypertension is a condition which affects nearly 1 in 2 American adults, which is approximately 116 million people, and most of these adults (91.7 million) are recommended to take prescription medications along with making changes to their lifestyle to control their hypertension (Hypertension Prevalence in the U.S. | Million Hearts®, 2021). If hypertension can be effectively managed with therapeutic relaxation techniques, then this is an avenue that is definitely worth exploring for the benefit of nearly half

the adults in America.

Hypnagogic States and Altered States of Consciousness (ASC's)

In Floatation-REST, participants will sometimes enter what is known as a hypnagogic state, or the transitional state of wakefulness to sleep. In this state, it it common for people to experience hypnagogic hallucinations, lucid thoughts, and perceptual disturbances. At the 'threshold of consciousness', another term used to refer to this state, some participants experience unusual sensory phenomena.

Some participants describe the Floatation-REST experience as providing them with a sense of safety and immunity from harm. A participant from Jonsson and Kjellgren's 2017 study about the effects of Floatation-REST on participants with GAD described the experience as such: "*Here I can be. This is my space. Nothing disturbs me. Nobody can touch me, affect me, nothing. Like a parenthesis in the midst of life. My little breathing space"* (p. 56). A participant from a different study, this one a 2007 examination of case studies by Åsenlöf et al, wrote a poem describing her experience:

> I am floating with a stream of water as the sun warms my toes
>
> I am little and am picking wild strawberries in my parents' orchard
>
> I am suckling my babies and smell the scent of their skin
>
> I hear music and am dancing
>
> The music makes me soar
>
> I climb into my rose, a velvet bed with a pale pink velvet pillow
>
> I am invulnerable. (pp. 9-10)

This feeling of safety and invulnerability shows the participants' feelings of ease within the tank.

Some even liken it to the feeling of a mother's womb; floating in warm, amniotic fluid:

> The perception of space disappears. I can really get that feeling that I don't know which is my body and which is the thought or the water. I think maybe that's why I get that picture, that the floating in some way touches some very, very deep layer that might be connected with something we have experienced as [a] fetus… One could actually imagine that hopefully it could be rather total relaxation, something very original… it becomes a wish or longing to feel that condition in some way. (Edebol, Bood, and Norlander, 2008, p. 485)

This excerpt comes from a section of the study that describes what they call the 'transcendation' phase of the floatation experience. In this phase of treatment, altered states of consciousness, also known as ASC's, are commonly experienced.

An ASC is any mental state in which the mind is aware but less than awake. Common examples of this include hallucination, trance, and meditation. The mental state entered during Floatation-REST can be likened to a kind of meditation, and similar beneficial effects attributed to meditation have been observed with Floatation-REST. Both offer not only physiological benefits, but cognitive benefits as well, and allow participants to create, "new trains of thought, attitudes, and preferences... [q]uestions regarding what is important, where to put focus, how to move on, what you want, and on a larger scale, what is meaningful" (Edebol, Bood, and Norlander, 2008). The clear cognitive benefits of Floatation-REST should not be dismissed, as many of the participants featured in this paper came out of the experience feeling not only as if they had benefited from Floatation-REST, but that their lives had been fundamentally altered and transformed by the experience.

Avenues for Future Research

Floatation-REST is a very promising and underdeveloped area of research. Because of the setback in research during the 60's-70's, and the misinformation which now exists because of a lack of common knowledge and research into Floatation-REST, not nearly enough research into this technique has been done. In fact, most of the studies that have been done, such as the ones mentioned in this study, all share one problem: small sample size.

Larger sample sizes for further research conducted into Floatation-REST is necessary, but difficult to achieve. For one, not enough of the general population is aware of Floatation-REST, and many of those who are view it more as a novelty experience than an actual therapeutic practice. Further, more floatation tanks/labs must be constructed for research to be furthered. Many commercial float tanks are available across the country; however, scientific study is, for the most part, not conducted in these commercial facilities. If more time, money, and research were invested into this method, Floatation-REST could become much more accessible to those who would benefit from the practice.

With future research, more conditions of varying natures could be investigated as to whether they can be alleviated by Floatation-REST. Floatation-REST has been thoroughly investigated as a treatment of stress-related ailments, but the existing research is largely lacking in studies done about specific populations of affected people with the same ailment. More studies could be done with those who experience one condition in common related to stress or anxiety (ex. fibromyalgia, PTSD, panic disorder, etc.) Other fields of that experience a high comorbidity with the aforementioned conditions could be investigated as well, such as sleep issues or disorders. As Kjellgren et al put it in their 2020 systematic review:

> ...an evaluation of flotation-REST as a transdiagnostic treatment of comorbid problems including insomnia or sleep issues is warranted as flotation-REST has received scientific support as a treatment of stress-related ailments, as well as for pain, mood and anxiety disorders. Development of treatments that can work in a trans-diagnostic manner within both primary care and psychiatry is important in the light of the high degree of existing comorbidities, not the least in regard to insomnia, depression, and anxiety disorders. One possible implication is to use floating as a supplement to other existing therapies. (p. 4)

More studies need to be done using Floatation-REST as a supplement to or in conjunction with other therapies to see what is most effective for different people and their conditions. There is still much work to do in this particular field of research in order to properly implement Floatation-REST as a viable alternative therapy for those who could benefit from it, but the future of this research seems promising.

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