

## Preventing Sick-leave for Sufferers of High Stress-load and Burnout Syndrome: A Pilot Study Combining Psychotherapy and the Flotation tank

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### ABSTRACT

The aim of the present pilot study was to get information whether or not a 10-week combined treatment program with relaxation in a flotation tank and subsequent psychotherapeutic sessions, may be beneficial for persons suffering from high stress-load and 'burnout syndrome'. Four women and two men between the ages of 33 and 57 years old took part in the study. They were all diagnosed as on the brink for sick leave and suffering from 'burn-out syndrome' with symptoms of fatigue and problems organizing daily life. All clients participated in the 10-week treatment program consisting of flotation-REST (Restricted Environmental Stimulation Technique) treatments and conversational therapy with a psychologist. During the treatment program they continued their usual work, but were able to leave for 4 hours a week for participating in the treatments. The results revealed a significant decrease in degree of depression and anxiety and an increase in positive outlook on life. There was also a significant decrease in extent of painful areas and a significant decrease in their experienced worst pain-intensity. After the treatment period, they all continued to work, and there was no need for sick-leave. The conclusion is that this combined treatment program is promising and should be further evaluated in a randomized control trial.

*Key words:* Flotation-REST, burnout syndrome, stress reduction.

### RESUMEN

El objetivo de este estudio piloto fue obtener información sobre el beneficio de usar un tratamiento de 10 semanas que combinó un programa de relajación en tanque de flotación [*Flotation-REST (Restricted Environmental Stimulation Technique)*] y sesiones de psicoterapia, con personas que sufrían una elevada carga de estrés y síndrome *burnout*. Participaron cuatro mujeres y dos hombres con edades entre 33-57 años, diagnosticados al límite para la baja laboral y sufriendo "síndrome de *burnout*" con síntomas de fatiga y desorganización de su vida diaria. Durante el programa de tratamiento los participantes continuaron realizando sus actividades laborales, reservando 4 horas a la semana para su participación en el tratamiento. Los resultados indicaron un descenso significativo en las puntuaciones de depresión y ansiedad y un incremento en la valoración positiva de su vida. También se registraron descensos significativos en la extensión de las áreas doloridas y en la intensidad de la peor experiencia de dolor vivida. Tras el tratamiento todos continuaron trabajando y no necesitaron solicitar baja laboral. Se concluye que este programa combinado es prometedor y debería ser evaluado en un estudio controlado.

*Palabras clave:* Flotation-REST, síndrome de *burnout*, reducción del estrés.

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Relaxation can be used for stress reduction and increased wellbeing. There exists a multitude of techniques for relaxation and mindfulness training e.g. meditation, yoga, qigong (e.g., Craske, Turner, Zammit-Maempe, Lee, 2009; Hankey, 2006; Kjellgren, Bood, Axelsson, Norlander, & Saatcioglu, 2007; Kjellgren & Taylor, 2008; Sandlund & Norlander, 2000; Shapiro, Cook, Davydov, Ottaviani, Leuchter, & Abrams, 2007). Persons suffering from high stress load may get beneficial health effects from relaxation training. Participants in this study were all diagnosed as suffering from 'burn-out syndrome' with symptoms of stress, fatigue and problems organizing daily life. They experienced their ailments were not relieved by rest, and they were on the brink of immediate full-time sick leave. The method used for the relaxation in this study is treatment in a flotation tank.

Flotation-REST (Restricted Environmental Stimulation Technique) is a mild form of sensory isolation where a person is immersed in a tank of salt water (magnesium sulphate) heated to skin temperature (normally about 35-36 °C) (Suedfeld & Borrie, 1999). All incoming stimuli are reduced to a minimum, it is dark inside the tank and earplugs are used. The buoyancy of the salt water is high; a person can comfortably float lying on his/her back. A normal treatment period is 45 minutes, whereby a deep relaxation is achieved (Bood, 2007).

The early research during the 1970, 1980, and 1990's indicates (for reviews see Bood, 2007; Kjellgren, 2003) that the method leads to e.g. increased well-being (Mahoney, 1990), mild euphoria (Schulz & Kaspar, 1994), increased originality (Forgays & Forgays, 1992; Suedfeld, Metcalfe, & Bluck, 1987), improved sleep (Ballard, 1993), reduced stress, tension and anxiety (Fine & Turner, 1982; Schulz & Kaspar 1994; Suedfeld, 1983; Suedfeld & Borrie, 1995; Turner & Fine, 1984), and reduced blood pressure (Fine & Turner, 1982). A recent meta-analysis based on the 27 best-documented and conducted studies of the pioneering research with a total of 449 participants (van Dierendonck & Te Nijenhuis, 2005) showed that the floating-REST has positive effects on several physiological measures (eg, lower levels of cortisol and lower blood pressure) and that the method leads to increased prosperity and improved performance. However, in the meta-analysis there were no studies included with combinations of flotation-REST and other treatments.

Treatments with Flotation-REST have also in more recent studies generated a multitude of positive effects like inducing deep relaxation and stress reduction, increased sleep quality, significantly reducing stress-related pain, increasing optimism, and decreasing the degree of depression and anxiety (e.g. Bood, Sundequist, Kjellgren, Nordström, & Norlander, 2005; Bood, Sundequist, Norlander, Nordström, Nordenström, Kjellgren, & Nordström, 2006; Kjellgren, Lydén, & Norlander, 2008; Kjellgren, Sundequist, Norlander, & Archer, 2001). In many of these studies, a series of treatment sessions have been applied twice a week for 6 or more weeks (Bood, Sundequist, Kjellgren, Nordström, & Norlander, 2007). Positive effects typically were maintained four months after treatment (Bood *et al.*, 2006). Considerable improvements also have been documented for persons with 'burn-out syndrome', where anxiety and depression have diminished, sleep quality has improved and also an increased optimism (Bood *et al.*, 2005). It has been supposed that the positive effects are mediated mainly by the deep relaxation and stress reduction that follow the treatment.

In all these earlier studies the relaxation in the flotation tank has been used as the sole treatment, but the idea of combining this treatment with psychotherapy has emerged during the ten years we have been working with flotation tank treatments. We are interested in developing a treatment model where flotation-REST is combined with other treatments, thereby hoping getting even more successful effects. A case study with two patients (Åsenlöf, Olsson, Bood, Norlander, 2007) using psychotherapy combined with flotation-REST described beneficial psychological transformative effects, as well as successful rehabilitation for persons suffering from fibromyalgia and 'burn-out depression'. Despite extensive search in databases we have only found one other study investigating this combination of treatments (Jessen, 1990).

In order to get more knowledge about this combination of treatments the present study was designed. If this seems to be a promising area, our intentions are later performing a randomized controlled trial with a larger sample; but first we would like to make a small scale trial, in order getting information if it is worth proceeding. For each person in this study, there will be a total of three hours in the flotation-laboratory and one hour psychotherapy each week; this multiplied with the scheduled ten weeks treatment time generates a total of 40 hours per included person. Since the intention is not to compare the efficacy of psychotherapy and/or flotation-REST; we are designing this study as a small scale research ( $N= 6$ ) without a control group (despite that, six persons and ten weeks resulting in 240 hours treatment time). Before conducting a larger experimental study we would like getting a general overall picture of participants' experiences of this combined treatment. In order getting a comprehensive view of the outcome, several quantitative measures for assessing general health (e.g. sleep quality, pain, depression, anxiety) were applied as well as qualitative data (interviews).

The aim of the present study was to get information whether or not a 10-week combined treatment program with relaxation in a flotation tank and subsequent psychotherapeutic sessions, may be beneficial for persons suffering from 'burn-out syndrome' with symptoms of stress, fatigue and problems organizing daily life.

## METHOD

### *Participants*

Four women and two men (from Sweden) between the ages of 33 and 57 years old (mean age 42.7 years,  $SD= 9.27$ ) took part in the study. There was no significant difference in age between the males and the females (Mann-Whitney U-test,  $p= 0.80$ ). They were all full-time employed, but had sought help from their physicians at their respective occupational health clinic due to tiredness, depression, high stress load, pain in different parts of their bodies, and sleep problems at night. They were all diagnosed as suffering from 'burn-out syndrome' with symptoms of fatigue, stress and problems organizing daily life. They experienced their ailments were not relieved by rest, and they were on the brink of immediate full-time sick leave. Through the occupational health clinics, the clients were referred to the Stress Clinic at the Human Performance

Laboratory, Karlstad University, Sweden. All clients had previously tried different types of therapies such as acupuncture, relaxation techniques, light physical training regimens, as well as stress management courses, but without any significant improvements. All clients agreed to participate in the 10-week treatment program. During the 10 weeks they continued their usual work, but were able to leave for 4 hours a week for participating in the treatments.

### *Design*

The treatment program included the two following components: (a) flotation-REST twice weekly for 45 minutes during a 10 week period and (b) conversational therapy for 60 minutes once a week immediately following after the floating-REST session, thereby yielding a total of 20 flotation-REST treatments and 10 individual conversational therapeutic treatments. During one occasion weekly, the floating session was directly followed by psychotherapy. During the other weekly floating session, the participant floated without psychotherapy. In order getting a thorough mapping of the health of the participants, several validated scales for assessing general health, depression, anxiety, optimism, sleep quality and pains were administered before and after the treatment program.

The purpose of the psychotherapeutic conversation with the psychologist was to make an inventory or analysis with each participant concerning life circumstances and situations one experienced as troubling. In the subsequent conversations, connections were made to the individual's current life situation and no fixed agenda was followed. Frequently, conversations began by elaborating on the flotation tank experience by the participant's own initiative. Experiences in the tank were not the central theme of the conversation but were often the catalyst for conversation in every session. All participants had the same psychologist for every session. The total treatment time for this study was 240 hours (6 persons x 4 hours per week x 10 weeks).

### *Procedure*

Upon accepting participation in the project, each client signed a written agreement regarding their guarantee of confidentiality and their right to terminate whenever they wanted. Further, the written agreement determined that the collected material could only be used as a basis for publication on the condition that the confidentiality of the client was guaranteed.

Upon arrival at the first session quantitative data were gathered using the questionnaires listed below (see Instruments). Participants were then informed about all practical details regarding the flotation tank (e.g. showering before and after immersion, earplugs, buttons/switches for lights and alarms). All facilities such as toilets, meeting rooms, storage lockers, etc. were shown. Thereafter, they were given the opportunity to undergo their first flotation tank treatment for 45 minutes. The reservation of times for the subsequent weeks took place afterwards. Each following week, participants came in part for a "pure" flotation tank treatment and a session that included both a conversation

with the psychologist and a flotation-REST. During the tenth and final week of treatment the same data as the first time were gathered after their last treatment. Besides this, the participants were also interviewed twice during the treatment period about their experiences (these qualitative data are not presented in this paper).

### *Indicators*

*Flotation tank.* A flotation tank (Bood *et al.*, 2005) measuring 270cm x 150cm x 130cm was used. The flotation tank was insulated to maintain constant air and water temperature and to offer total darkness and silence (earplugs are also used). The water temperature was maintained at 35-36 °C. The depth of liquid (salt water) is between 20 to 30 cm and was saturated with magnesium sulphate (density: 1.3 g/cm<sup>3</sup>). Each relaxation session lasted for 45 minutes, but total time including showering before/after and getting dressed is 1,5 hour.

*The General Health Questionnaire (GHQ-12)* is a self-administered screening instrument, used in primary health care settings, designed for screening minor psychiatric disturbances (Goldberg, 1972). The GHQ-12 is a shortened version (12 items) of the main questionnaire GHQ-60, aimed at detecting breaks in normal functioning and giving a general overview of health status. It consists of 12 items where the respondents giving their assessment of their present state relative their usual or normal state, with response alternatives on a Likert scale. Total points can vary between 0 (most healthy) to 36 points (worst), where 24 or more points indicating a psychiatric diagnosis ("being a case") (McDowell & Newell, 1987). GHQ-12 is considered at consistent and reliable instrument for repeated measuring (Pevalin, 2000).

*Hospital Anxiety Depression Scale (HAD).* The HAD is a rating scale concerning degree of anxiety and depression. It was constructed by Zigmond and Snaith (1983), for use with physically ill people. It has since been revised to be used as a rating scale for anxiety and depression (Herrman, 1997). The instrument consists of fourteen statements with four response alternatives (i.e., 0 to 3), ranging from positive to negative or vice versa. There are seven statements regarding anxiety and seven regarding depression. Life Orientation Test (LOT). The test (Scheier & Carver, 1985) consists of eight items, plus four filler items. The task of each participant is to decide whether or not one is in agreement with each of the items described, on a scale of 0-4, where 0 indicates "strongly disagree" and 4 indicates "strongly agree". The test measures dispositional optimism, defined in terms of generalized outcome expectancies. Parallel Test Reliability is reported to 0.76 and Internal Consistency to 0.76 and Test-Retest reliability to 0.75 (Norlander, Bergman, & Archer, 2002).

*Pain Area Inventory (PAI).* The test (Bood *et al.*, 2005) consists of two anatomical images of a human being, one frontal and one dorsal. The task of the participants was to indicate and color with a color pen their areas of pain. This test was given both before and after the treatment period. For scoring, a transparent, plastic film is then placed over the colored areas on both figures. Each figure is divided into 833 equal-sized squares (total 1666), and the number of colored squares was calculated. The test was validated (Bood *et al.*, 2005) through comparisons with other instruments by examining relationships with total number of pain types reported, number of connected pain areas, most severe pain intensity, normal pain intensity, and pain frequency. The data yielded acceptable values (Standardized item alpha= 0.84,  $R= 0.70$ ). Test-Retest reliability was examined through using a group of pain patients who completed the PAI on two occasions, seven weeks apart ( $r= 0.92$ ).

*Normal Pain and Worst Pain-Visual Analog Scale (VAS).* These scales were used for measuring normal pain and experienced worst pain. They consisted of a 100 mm horizontal line with the anchors “no pain” on the left extreme and “excruciating pain” on the right extreme. VAS is considered the “gold standard” for assessment of clinical pain, and changes in VAS score are regarded as significant evidence of individual response to treatment, placebo, or experimental manipulation (Yarnitski, Sprecher, Zaslansky, & Heimli, 1996). The accuracy and precision have been examined for both clinical and experimental pain, and found adequate (Price, 1988).

*Sleep Quality (SQ).* This instrument (Norlander, Johansson, & Bood, 2005) consists of 11 questions that tap the sleeping habits of the participants, such as “How often do you feel tired on week days?”, “How often do you feel you did not get enough sleep?”, “How do you feel you usually sleep?” Responses to 9 of the questions are given on 0-4 scales, to 1 question on a 0-5 scale, and finally to 1 question on a 0-8 scale. The psychometric properties were examined by comparing healthy and sick people, and using Cronbach’s alpha ( $\alpha = 0.88$ ).

## RESULTS

All analyses were performed with Wilcoxon signed rank test, comparing the results before and after the treatment period.

There was a significant decrease in number of “Pain areas” ( $Z = 1.99$ ,  $p = 0.046$ ) after the treatment period (see Table 1 for means and standard deviations). There was also a significant decrease in experienced “Worst pain intensity” ( $Z = 2.20$ ,  $p = 0.028$ ). For the “Normal pain intensity” there was a small decrease, but the difference was non-significant ( $p = 0.50$ ).

The points on the General Health Questionnaire (GHQ-12) were significant lowered (indicating better general health) after the treatment period, as compared to before ( $Z = 2.20$ ,  $p = 0.028$ ).

After the treatment period there was a significant lowering of the degree of “Anxiety” ( $Z = 2.26$ ,  $p = 0.024$ ) and of “Depression” ( $Z = 2.06$ ,  $p = 0.039$ ), see Table 1.

Table 1. Values for the dependent variables, before and after the treatment.

Dependent Variables	Means (SD)		$p^*$	$r^{**}$
	Before	After		
Pain Areas (PAI)	35.83 (26.60)	11.00 (7.56)	0.046	0.57
Worst Pain (VAS)	46.67 (25.94)	33.58 (19.47)	0.028	0.63
Normal Pain (VAS)	18.91 (19.22)	15.50 (12.68)	0.50	0.19
General Health (GHQ-12)	15.67 (8.48)	8.33 (6.02)	0.028	0.63
Anxiety (HAD)	10.00 (3.69)	5.67 (2.80)	0.024	0.65
Depression (HAD)	6.83 (3.19)	2.17 (1.83)	0.039	0.59
Optimism (LOT)	18.83 (4.49)	21.50 (4.76)	0.026	0.64
Sleep Quality (SQ)	21.00 (10.90)	24.17 (8.56)	0.068	0.53

Notes: \* = significance at 0.05 level; \*\* Effect sizes are presented as Pearson’s  $r$ .

There was also a significant increase in “Optimism” ( $Z= 2.22, p= 0.026$ ). There was a small non-significant increase in experienced “Sleep Quality” ( $p= 0.068$ ).

## DISCUSSION

The aim of the present study was to get information whether or not a 10-week combined treatment program with relaxation in a flotation tank and subsequent psychotherapeutic sessions, may be beneficial for persons suffering from ‘burn-out syndrome’ with symptoms of stress, fatigue and problems organizing daily life.

The six included persons all improved considerably during the ten weeks of treatment and experienced many beneficial effects. When the program started, all of them were on the brink for full time sick-leave, at the end all the participants experienced being full of energy and strength, so neither they themselves nor their doctors assessed that any sick-leave was needed. They all continued working after the treatment period. These beneficial results were also in accordance with the analysis of the qualitative data gathered (Kjellgren, Buhrkall, & Norlander, 2010). This combined treatment program seemed promising, and should be further evaluated in a future randomized control trial (RCT) with a larger sample. The need for a RCT of the flotation-REST technique has previously been suggested by van Dierendonck and Te Nijenhuis (2005).

Another interesting finding with this study is how such a short treatment period as 10 weeks seemed to enable a total and throughout health promotive effect for persons on the brink for long-term sick listing due to fatigue and exhaustion. All the included persons suffered (before the program started) from problems with sleep, pains, lack of energy and felt so overwhelmed by high stress load they had problems organizing their daily lives.

Which part of the treatment which resulted in the greatest health gains can not be judged on the basis of this limited study. Our belief is that the relaxed state in the tank preceding the psychotherapeutic sessions supported and made the psychotherapeutic process and development even more effective. Of course no causality can be established from this small scale study without control group, but despite this it might anyway be a small and valuable contribution to the field. With these limitations in mind, the results from the study are discussed below.

During the course of the treatment program significant improvement in general health occurred (as measured with the GHQ-12). This is a multidimensional scale that assesses several aspects of distress (e.g. Sánchez López & Dresch, 2008). In the present study several other instruments, aimed at assessing symptoms at a more detailed level, were used. The results from these instruments revealed that a significant decrease in degree of depression and anxiety (HAD-scale) occurred during the treatment. Before treatment started, none of the participants scored in the ‘normal’ range for neither depression nor anxiety; after the ten weeks they showed degree of depression and anxiety similar to healthy persons. Also for optimism (LOT-scale) there was a significant increase in positive outlook on life, a finding in line with the lowering of anxiety and depression. All this indicates an increased wellbeing. There was also a non-significant increase in

experienced sleep quality (SQ-test), which also may mirror a general trend of increased wellbeing and stress-reduction.

The six persons experienced pains in different parts of their bodies (neck, shoulders and lower back) as part of their clinical picture. During the treatment period there was a significant decrease in extent of painful areas (PAI-scale), and also a significant decrease in their experienced worst pain-intensity. They also experienced a non-significant decrease of their normal pain-intensity.

Our conclusion is that this treatment program was successful and also very much appreciated by the participants. They all expressed tremendous gratitude for having been able to participate in this project. No participant was on sick leave during the treatment period, all participants were allowed to be absent from their occupations about 4 hours per week for 10 weeks in order to make participating in the program possible. In the meta-analysis of flotation-REST as the sole treatment (van Dierendonck & te Nijenhuis, 2005) it was found that the effects of flotation-REST becomes stronger through repeated exposures, and it was suggested this was due participants learned to profit more from repeated sessions and could better integrate the effects. In the present study 20 flotation-REST sessions (as well as 10 psychotherapeutic sessions) were used, a number which seemed to be sufficient for getting a clinical valuable outcome. Our suggestion is that the combination with psychotherapy further increased the participants' abilities of getting a beneficial effect.

Since this is not a randomized study and a control group is lacking, it is not possible to evaluate which variable (relaxation in the tank, psychotherapeutic sessions, placebo) generated the beneficial treatment effects. This need to be evaluated in future studies. Also, hopefully this promising result can inspire and evoke enthusiasm for the possibilities in a very short period (10 weeks) terminate a refractory state and instead induce a state of wellness and reassurance.

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