

STRESS REPORT



FLOATATION THERAPY

as a tool to prevent and reduce the effects
of work-related stress

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Float




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SUMMARY

The purpose of this report is:

1. to provide a summary of the latest floating research related to stress and stress-related symptoms (e.g. burnout, depression, muscular pain) and;
2. to contextualise this research in relation to stress-related problems experienced by the Danish workforce.

A review of existing meta-studies shows that floating has:

- proven benefits for people suffering from a number of conditions related to stress (e.g. muscular pain, depression, anxiety and sleep disorders)
- positive physiological effects (e.g. muscle relaxation, lowered blood pressure, reduced cortisol levels) as well as influences on well-being (e.g. serenity, happiness, optimism) and performance.

Individual studies show that:

- 1 hour of floating significantly reduces anxiety, muscle tension and stress
- floating can provide long-term effects on experienced stress (reduced by 31%), anxiety (reduced by 27%) and depression (lowered by 24%)
- floating can be used as a preventive health intervention to significantly increase sleep quality and optimism while simultaneously decreasing stress, pain, anxiety and depression considerably
- burnout prevention is possible through a combination of floating and therapy



STRESS IN THE CONTEXT OF DANISH WORKPLACES

A 2021 report from *Sundhedsstyrelsen* found that 23.2% of the working population in Denmark are experiencing high stress levels.¹

How big a problem is this?

According to the Danish Department for Public Health, work-related psychological stress results in:²

1. Production losses estimated at 1.8 - 14 billion DKK per year
2. 30,000 hospital admissions per year
3. 1,400 deaths per year

At the company level, the costs for one employee on long-term sick leave are estimated at 1 - 4 million DKK.³

Although these statistics sound alarming, they cover the fact that not all stress is bad.

Mild levels of stress increase our productivity, make us more creative and help us focus.

Higher stress levels, on the other hand, reduce our cognitive function and make learning more difficult.

When experienced for extended periods of time, high stress levels can result in exhaustion and eventually burnout.

Knowing that stress is a costly and widespread problem...

- How can you minimise the effects of stress on colleagues?
- How can you prevent co-workers from burning out?
- How can you help employees recover quicker if they are suffering from burnout?

This report is going to look at the role that Restricted Environmental Stimulation Therapy, also known as *floating*, has to play in answering each of these questions.

¹ Sundhedsstyrelsen 2022

² Statens Institut for Folkesundhed 2006

³ This claim was made by Stressforeningen, a Danish stress association that no longer exists. E-mail correspondence with a previous member of Stressforeningen confirmed that their reports are no longer available. Therefore this statistic was retrieved from Jæger Moos and Jeritslev 2022.



WHAT IS FLOATING?

The concept of floating was invented back in 1954 when American neuroscientist Dr John C. Lilly pondered the question of what would happen to us if we could experience an environment with no external stimuli.

Since then, floating facilities have evolved considerably but the basic principle is still the same: allow someone to experience a comfortable, safe environment where they are exposed to a minimum of sensory stimulation.

Today, a floating tank may look like this:



Here, 500 kg of Epsom salt are dissolved in the water and this enables effortless floating, which in turn minimises the effects of gravity.

The temperature of the water and the air are the same as your body, you can switch off the lights at will and the tank is placed in a soundproof room.

Everything combined makes for a weightless experience with a minimum of sensory input.

WHAT HAPPENS WHEN YOU FLOAT?

Often, the first thing that strikes people when they try floating is the novelty of the feeling of weightlessness. Combined with the minimal sensory input, these conditions activate the parasympathetic nervous system and they trigger the body's *relaxation response*. This is the physiological counterpart to the body's stress response and it has the following effects:⁴

1. Lower blood pressure
2. Muscle relaxation
3. Reduced heart rate
4. Reduced cortisol levels (the body's main stress hormone)

Notably, these results are the exact opposites of common physiological responses to stress.

Floating is not the only experience that will have these effects but a recent study showed that 75% of participants found that they experienced more relaxation from floating than from other techniques that they had tried, some of which included medication, meditation, massage and yoga (see figure 1).

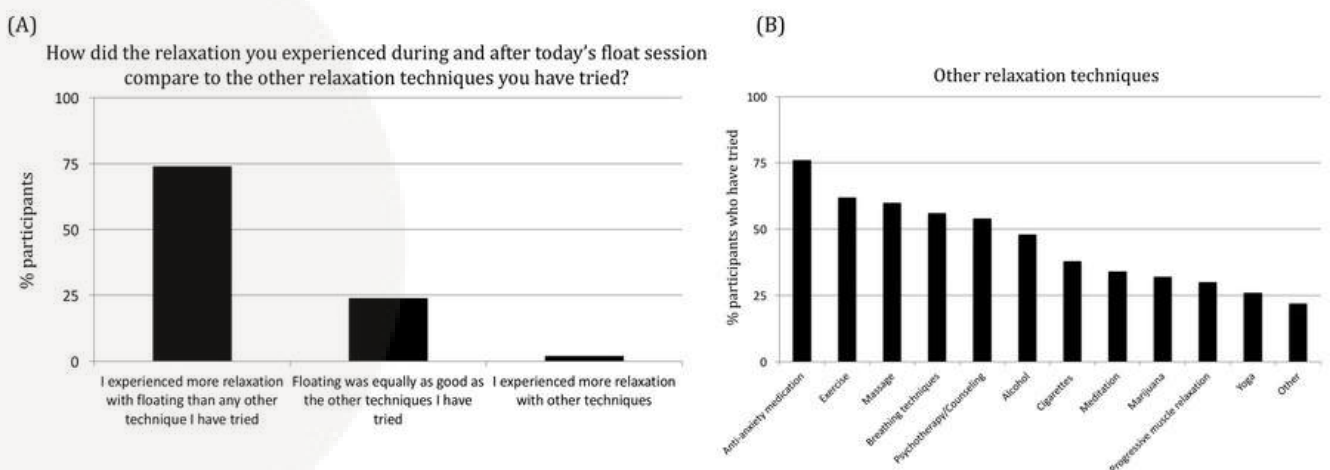


Figure 1: Experienced relaxation from floating compared with other relaxation techniques.⁵

⁴ van Dierendonck and Te Nijenhuis 2005

⁵ Feinstein et al. 2018

WHO BENEFITS FROM FLOATING?

One literature review of existing float studies found that floating has beneficial effects for people suffering from muscular pain, stress, anxiety, depression and sleep disorders.⁶

Another meta-analysis that looked at floating specifically as a stress-management tool found that it had positive effects on physiology (e.g. muscle relaxation and reduced cortisol levels), well-being and performance.⁷

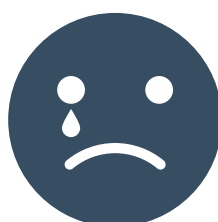
In our review of the existing float literature related to stress, we found that there are four broad groups that have been studied in various experiments:



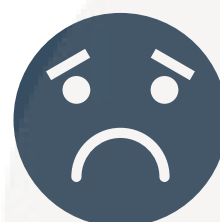
Healthy individuals



Experiencing stress symptoms



Near-burnout



Burnout/depressed

The rest of this report looks at one study for each of these groups and discusses the methods and the results of the studies.

6 Witte et al. 2021

7 van Dierendonck and Te Nijenhuis 2005

FLOATING AS PREVENTIVE STRESS TREATMENT

One preventive health-care intervention from 2014 looked at 65 healthy participants who took part in a voluntary health project initiated by their respective companies.

“Healthy” in this case, was defined as not being on sick leave. Half of the participants underwent a 7-week float programme with twelve 45-min float sessions and the other half (the control group) was put on a waitlist and received no treatment.

Compared to the control group, the floatation group experienced “significant decreased experienced stress, worst pain, anxiety, and depression - as well as significant increased sleep quality and optimism.”⁸

Some participants had experienced physical pain for several years prior to the study and many of them said that the floating programme had relieved them of their pain, stress and tension in ways that they had not experienced with other treatments such as medicines, massage and yoga.

LONG-TERM EFFECTS OF FLOATING

A 2006 study looked at 70 patients who had all been diagnosed with stress-related pain, 26 of whom also had burnout-depression. One group underwent a 7-week floatation programme with twelve 45-min float sessions and the control group had the same number of sessions but instead of floating, they sat in an armchair for 45 mins and were allowed to read magazines.

A key finding in this study was that there were long-term effects of the float intervention. Four months after the study had finished, the subjects maintained the benefits of the treatment that they received.

⁸ Kjellgren and Westman 2014

Compared to the control group, the following results were observed in the floatation group (and maintained 4 months later):⁹

- Pain areas decreased by 48%
- Sleep quality increased by 23%
- Dispositional optimism increased by 8%
- Experienced stress decreased by 31%
- Anxiety decreased by 27%
- Depression lowered by 24%

BURNOUT PREVENTION

An interesting pilot study was done in 2011¹⁰ where six people on the verge of burnout underwent a 10-week treatment programme where they floated twice a week for 45 minutes and had one hour of therapy after one of the float sessions. The participants worked as normal during the study but were allowed to leave their workplace for 4 hours per week to float and have therapy.

At the end of the programme, everyone was able to continue working and no one had to go away on sick leave. In addition to this, the subjects also reported a significant decrease in depression and anxiety and they experienced a more positive outlook on life after the study.

Clearly, the small sample size of this study and the lack of a control group limit the generality of these results. Nevertheless, it is a very promising possibility that a 10-week treatment can prevent the lengthy recovery times that are typically associated with burnout.

⁹ Bood et al. 2006

¹⁰ Kjellgren et al 2011

ONE HOUR OF FLOATING REDUCES STATE ANXIETY

What happens if you just spend one hour in a floating tank and evaluate the effects? One of the leading float researchers, Dr Justin Feinstein, did a study where 50 participants with various stress- and anxiety-related conditions floated for one hour and then the results were measured immediately.

One of the key measurements in this study was the level of anxiety before and after the float. The results from the “anxious” group were then compared to a group of 30 individuals with no psychiatric illnesses who had undergone a similar float experience.

The results are shown in figure 2 and there you can observe a number of interesting findings:

- Anxiety levels dropped considerably for the anxious group and they approached pre-float levels for the non-anxious group.
- The largest difference in state anxiety was observed in the individuals with the highest level of anxiety.
- The non-anxious group also saw a drop in their state anxiety level, although not as large as the anxious group.

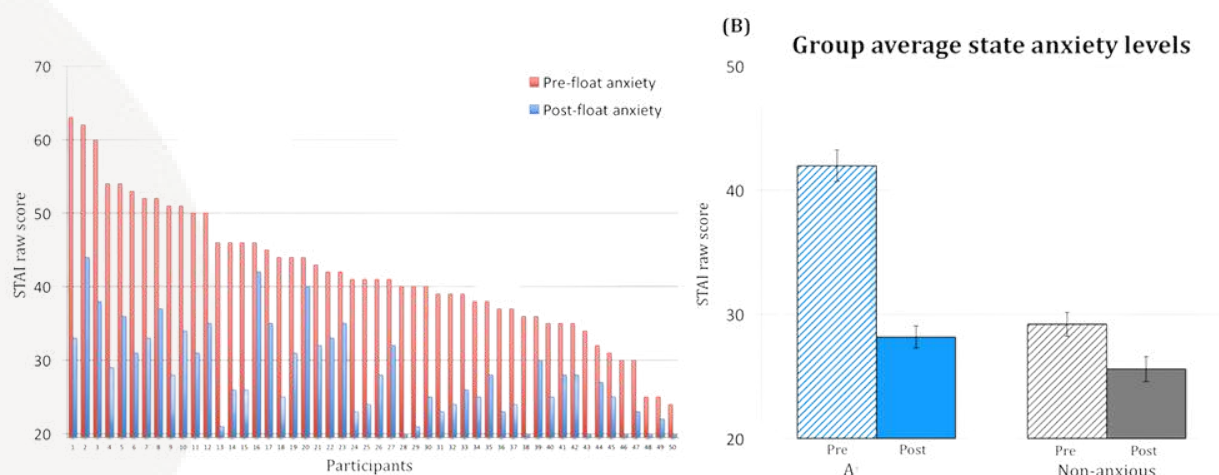


Figure 2: Impact of Floatation-REST on state anxiety.¹¹

¹¹ Feinstein et al. 2018

In Figure 3, you can see the other results from this single 60-min float session. Notably, there is a significant decrease in a number of unwanted aspects (e.g. stress, muscle tension, fatigue) as well as a corresponding increase in favourable aspects (e.g. relaxation, happiness, energy).

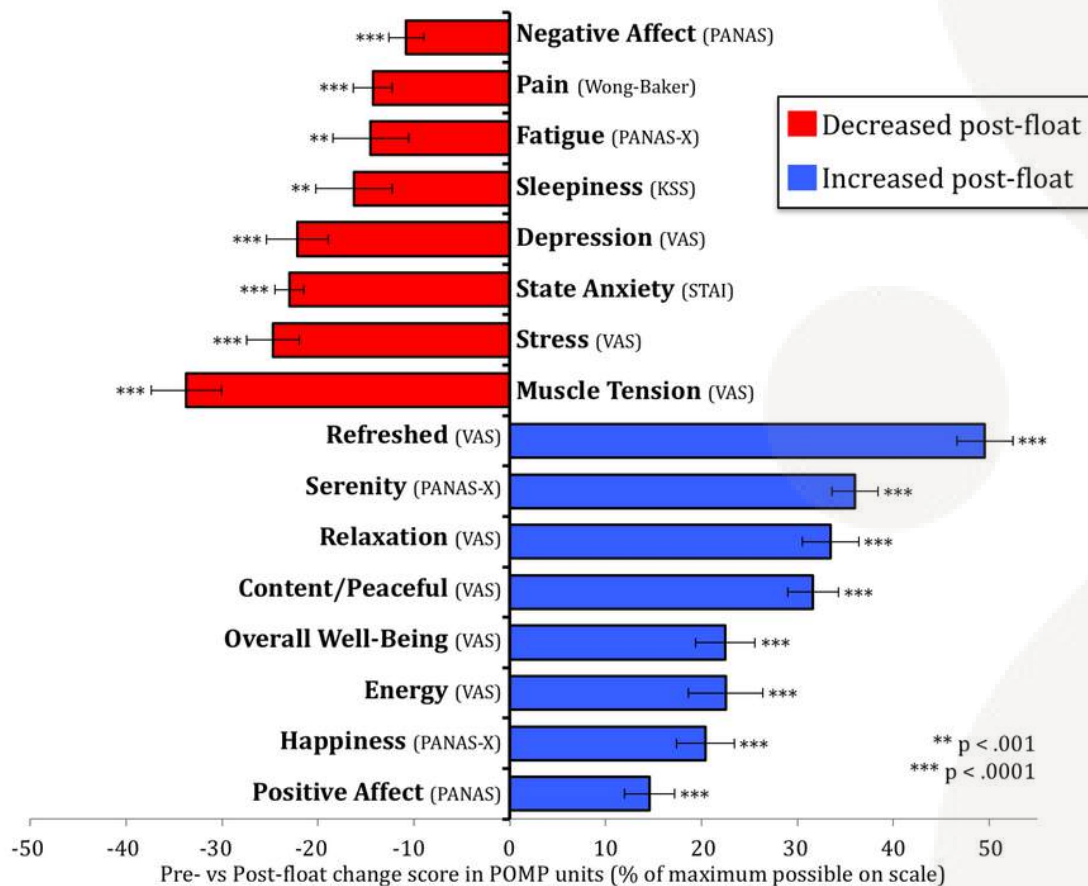


Figure 3: impact of one 60-min float session on a number of measures.¹²

¹² Feinstein et al. 2018

DISCUSSION

Looking at existing meta-analyses of float studies, it is clear that floating has a role to play in the ecosystem of possible treatments against stress and stress related illnesses.

General benefits are reported for people with stress related muscular pain, anxiety, depression and sleep disorders and there are positive effects on well-being and performance.

The four studies highlighted in this report illustrate specific results arising from a single float session or a multi-week float programme.

One 60-min float session was found to reduce state anxiety considerably while also reducing for example muscle tension and increasing a number of aspects related to wellbeing.

Two float programmes studied were 7 weeks long and they were found to reduce stress, anxiety and depression, among other things.

One of these float programmes included a follow-up after four months and there it was found that the benefits were maintained four months after the treatment had stopped.

One pilot study with a limited scope employed a 10-week float programme combined with therapy and all six participants were able to avoid burnout and continue working.

If these results could be replicated – with or without therapy – it would constitute a time- and cost-effective treatment that could be applied preventively.

Even if someone has already reached a state of burnout-depression, there is some evidence that floating can improve the recovery process by increasing optimism and decreasing the level of depression.





DISCUSSION

Questions that remain unanswered when looking at the existing body of floating literature are for example:

- How does the level of stress symptoms affect the optimal float frequency?
- What effects can you expect from a shorter floating intervention, say four times over one month? Similarly, what can you expect from an intervention that lasts an even longer time, say 6 months or a year?
- For a company that wishes to maximise the impact of its health-promoting, preventive interventions, what is the best way to set up an anti-stress programme that includes floating?

Future research will hopefully answer these questions and many more. With the advent of portable EEG devices, it is now possible to see what is happening in the brain during a float session.

Hopefully, this can shed new light on the effects of floating and help people gain an even better understanding of how floating can help them reduce and prevent stress.

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FURTHER RESOURCES

- Here is a small selection of additional material for the interested reader who wishes to learn more about floating on their own.
- <https://www.clinicalfloat.org/floatresearchcollective> - a non-profit organisation in the US dedicated to the medical use of clinical floatation therapy
- [TEDx-talk](#) by Dr Justin Feinstein where he talks about the first study to look at the effects of floating on clinically anxious patients.
- Dr Ricardo Gil-da-Costa talks about [measuring brain activity](#) before, during and after a float session.
- This [Time](#) magazine article covers one soldier suffering from PTSD and how he has used floating to deal with PTSD symptoms.