

# Anti-Anxiety VR Games

Kertu Toompea  
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# Why?

- Interest in VR
- I want to make useful things
- I have noticed a need but almost no products
- Curiosity

# What is anxiety?

- A feeling of worry, nervousness, or unease about something with an uncertain outcome. For example "he felt a surge of anxiety". (Google + Oxford)
- An emotion characterized by feelings of tension, worried thoughts and physical changes like increased blood pressure. ([source](#))
- Many individuals are affected by anxiety on a daily basis. Anxiety can express itself in various ways including: physiologically (e.g., tense muscles and headaches), in behaviour (e.g., avoidance of stressful situations), and in cognition (e.g., negative thoughts and rumination). While anxiety can be adaptive by signalling the proximity of danger or preparing the body for action in challenging situations, it can also become maladaptive. Specifically, when high levels of anxiety persist for an extended period of time and cannot be sufficiently regulated, an anxiety disorder can develop, which can severely impair someone's daily functioning (American Psychiatric Association, 2013).
- Generalized anxiety disorder (GAD) is a condition in which the patient experiences persistent, excessive and intrusive worrying to the extent that daily functioning becomes difficult. (American Psychiatric Association, 2013)

# My Questions

VR games:

- what exists
- what makes them anti-anxiety
- are they in coop of medical advice or just experience based
- what are the elements that reduce stress and anxiety in VR games

# Why again?

- To make a game that serves calming purpose
- and is cool
- .. I mean has spaceships and stuff :)

# My Questions

- **what exists**
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# What exists in VR

1. theBlu – €5
2. Nature Treks VR -- €10
3. Real VR Fishing – €20
4. Google Earth VR – Free
5. Tetris Effect – €30
6. Sheaf – Together EP – Free
7. Squingle - €10
8. Puzzling Places - €15
9. Particulate – €10
10. Gadgeteer – €15
11. Cubism – €10
12. Dorfromantic -- €15
13. Vrksop – €20
14. Let's Create! Pottery VR -- €20
15. Color Space – €10
16. Electronauts -- €20
17. Drops: Rhythm Garden – €5
18. Guided Tai Chi – €10
19. Guided Meditation VR -- €10
20. Where Thoughts Go – €10
21. Marvellous Machine – Free
22. Fujii – €15
23. Spheres – €10
24. Deep VR

...

	A game?	Nature Relaxation	Musical Relaxation	Creation & Puzzling	Meditation	Reflection	Mindfulness	Exploration	Breathing	Developer
<a href="#">theBlu</a>	-	●●						●		<a href="#">Wevr</a>
<a href="#">Nature Treks VR</a>	●	●●		●				●		<a href="#">John Carline</a>
<a href="#">Real VR Fishing</a>	●	●	●							<a href="#">Miragesoft</a>
<a href="#">Google Earth VR</a>	-	●						●		<a href="#">Google</a>
<a href="#">Tetris Effect</a>	●		●							<a href="#">Monstars</a> , et al.
<a href="#">Sheaf - Together EP</a>	-		●●							<a href="#">Stryde Games</a>
<a href="#">Squingle</a>	●			●						<a href="#">Ben Outram</a>
<a href="#">Puzzling Places</a>	●			●●						<a href="#">realities.io</a>
<a href="#">Particulate</a>	●		●	●						<a href="#">Mike Turitzin</a>
<a href="#">Gadgeteer</a>	●			●●						<a href="#">Metanaut</a>
<a href="#">Cubism</a>	●		●	●						<a href="#">Thomas Van Bouwel</a>
<a href="#">Dorfromantic</a>	●			●●						<a href="#">Toukana Interactive</a>
<a href="#">Vrkshop</a>	●			●						<a href="#">Scopatgames</a>
<a href="#">Let's Create! Pottery VR</a>	●			●						<a href="#">Infinite Dreams</a>
<a href="#">Color Space</a>	●			●						<a href="#">Lighthaus</a>
<a href="#">Electronauts</a>	●		●	●						<a href="#">Survios</a>

	A game?	Nature Relaxation	Musical Relaxation	Creation & Puzzling	Meditation	Reflection	Mindfulness	Exploration	Breathing	Developer
<a href="#">Drops: Rhythm Garden</a>	●		●	●						<a href="#">Planeta</a>
<a href="#">Guided Tai Chi</a>	-				●					<a href="#">Cubicle Ninjas</a>
<a href="#">Guided Meditation VR</a>	-	●	●		●					<a href="#">Cubicle Ninjas</a>
<a href="#">Where Thoughts Go</a>	-					●				<a href="#">Lucas Rizzotto</a>
<a href="#">Marvellous Machine</a>	-						●			<a href="#">1337 Game Design</a>
<a href="#">Fuji</a>	●	●		●				●		<a href="#">Funktronic Labs</a>
<a href="#">Spheres</a>	-							●		<a href="#">CityLights</a>
<a href="#">Deep VR</a>	-				●				●	<a href="#">researchers</a>
Total summary :	15	6	8	13	3	1	1	5	1	

# Problem

- Most of them are not very.. cool.
- What if I like spaceships, robots, tech and sci-fi worlds..

# My Questions

- what exists
- **what makes them anti-anxiety**
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# What makes them anti-anxiety

- no blood
- no killings
- nature / friendly
- visually engaging environment
- no aggressive animations
- escapism
- creativity
- focusing
- physical activity

# My Questions

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- what makes them anti-anxiety
- **are they in coop of medical advice or just experience based**
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# Are they in coop of medical advice?

- Since 1989 VR in research and psychiatric treatment. ([source](#))
  - Mostly for specific fears.
  - Lack of VR scenarios.
- Today in 2022 I still found only one science backed “game”..
- All others “relaxation” genre (at most).
- Distraction mainly.

# Deep VR

The one science backed VR “game”:

- designed to provide players with a self-explorative and visually engaging environment where they can learn to de-stress.



- <https://assets.pubpub.org/7aswl0jv/41624969649890.mp4>

- <https://tmb.apaopen.org/pub/8vcurp51#nhhlx65x0am>

# My Questions

- what exists
- what makes them anti-anxiety
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- **what are the elements that reduce stress and anxiety in VR games**

# What are the elements that reduce anxiety?

- Colors?
- Sounds?
- Movements?
- Animations?
- Any other specific things that I should / shouldn't use in my game?

# Audience suggestions

## VR games:

- Deep VR was interesting.

## Biofeedback.

- Fruit Ninja. Relaxing.
- Story based games.
- Ghost Giant.
- see in email.

## Do's and don'ts:

- Don't involve complex planning.
- Give time. Don't put time limits.
- Do intuitive things. Like breathing is in Deep VR.
- If you can, don't use controllers, use hand tracking.
- Show controller guide or hands guide visually in VR.

# My takeaways

- Use general good VR game dev considerations.
- Rather normal to slow than fast movements.
- Colors are clearly important but no general science to apply. Allow choice.
- Sounds are like colors, highly individual. Allow choice.
- Allow also short duration.
- Measure biofeedback if you can..
  - hardware requirements

# Biofeedback

Biofeedback is the process of measuring changes in an individual's physiology and feeding information about these changes back to them so that they can learn how to better regulate their physiological activity to improve their wellbeing (Gilbert & Moss, 2003). In biofeedback training, participants are given insight into changes in their physiology such as heart rate, breathing or even brain activity by showing them visualisations (e.g., moving graphs of changes in heart rate) of these changes (Gilbert & Moss, 2003; Schwartz & Andrasik, 2017). It is proposed that these visualisations contribute to participants' awareness of physical signals, also known as interoceptive awareness, which is an important part of effective emotion regulation (Gross, 2002; Kever et al., 2015). ([source](#))

Questions?

# References

1. <https://store.steampowered.com/>
2. <https://www.youtube.com/>
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4. Jessica L. Maples-Keller (PhD), Brian E. Bunnell (PhD), et. al. (2017). The use of virtual reality technology in the treatment of anxiety and other psychiatric disorders. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5421394/pdf/nihms829162.pdf>
5. Joanneke Weerdmeester. (2021). Exploring the Potential of Game-based Biofeedback Interventions for Anxiety Regulation. <https://repository.ubn.ru.nl/bitstream/handle/2066/239933/239933.pdf>
6. <https://courses.cs.ut.ee/2021/gamedev/fall/Main>
7. <https://courses.cs.ut.ee/2022/vr/spring/Main>