

Natureach - Österåsen

Experiences of nature through immersive virtual reality among people with Diabetes Mellitus, Type 2

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Background

- Type 2 Diabetes (T2D):
 - Lifelong disease
- Österåsen - Multimodal lifestyle intervention
 - Good evidence for improvements
 - Behavioral gains tend to attenuate over time
 - Psychological reactions and distress
 - Wellbeing ↓
 - Motivation ↓
- Growing evidence of positive effect of nature
 - Physical, mental health, wellbeing ↑
 - Prevalence T2D, blood sugar ↓



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Could nature intervention using immersive virtual reality (IVR) be a complement to multimodal lifestyle treatment?

Aim and Method

To explore the feasibility and experiences of being exposed to nature via IVR among people with T2D

- 19 participants
 - 43 – 74 years old, mean 60 years
 - T2D
 - Participating in a multimodal lifestyle program at Österåsen
- Semi-structured interviews
- Qualitative content analysis



Intervention

- Österåsen, 3 weeks
 - Three days/week in the forest for 30 min
 - Introduction to IVR and testing
- At home, 6 month
 - Recommended IVR 3 times/week, 30 min



Environments used at Österåsen interventions



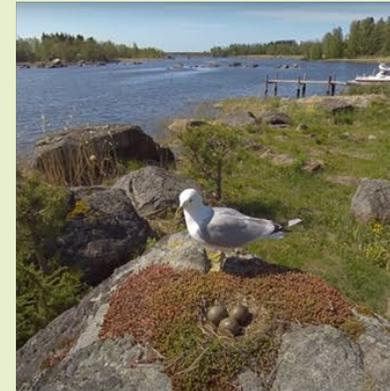
Pine forest in morning fog



Mire



River bank



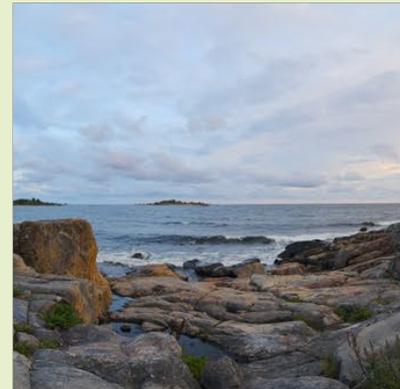
Seagull with eggs



Winter campfire
(some groups)



Meadow in a summer night



Seaside cliffs



Bay



Birch pasture with cows



Seaside in winter sun
(some groups)

Preliminary re

“You are disconnected from the rest of the world. You're sitting in your bubble there”

Subthemes	Themes
Feeling a peaceful retreat from the demands of everyday life	Finding tranquillity and inspiration while transcending time and space
Being connected to the past and the present	
Feeling a lingering presence	
Being inspired in new ways	
Being hampered	
Perceiving nature in IVR as a surrogate for natural nature	Perceiving nature in IVR as a surrogate for natural environments
Perceiving nature in IVR as not a replacement for real nature	

“The meadow was beautiful, the swaying reed gave peace of mind and was perceived as soft, the slightly rustling sound of leaves contributed to the adorable atmosphere in the forest, you unwind”

Preliminary results

"I remembered what it was like, when I was a little girl, once upon a time. When I hurried up and cached up with the cows."

Subthemes	Themes
Feeling a peaceful retreat from the demands of everyday life	Finding tranquility and relaxation while transcending time and space
Being connected to the past and the present	
Feeling a lingering sense of harmony and presence	
Being inspired to new ways	
Being hampered	
Perceiving nature as nature	Finding nature in IVR as a surrogate for natural environments
Perceiving nature in IVR as not a replacement for real nature	

"Those environments that reminded me of nice places I've been, I liked them most"

Preliminary results

Subthemes	Themes
<p>"I've felt more at ease, more comfortable. It sticks with you, yeah it really does. You've broken that stress."</p>	<p>"When I watch the movies in the evening, I feel like it's been easier to fall asleep."</p>
<p>Being comfortable in the present</p>	<p>while</p>
<p>Feeling a lingering sense of harmony and presence</p>	
<p>Being inspired to engage with nature in new ways</p>	
<p>Being hampered to find tranquility</p>	
<p>Perceiving nature in IVR as complementary to real nature</p>	<p>"I watched a movie after a hectic morning, and in the afternoon, I was way more focused on what I was doing." IVR as a surrogate for natural environments</p>
<p>Perceiving nature in IVR as not a replacement for real nature</p>	

Preliminary results

Subthemes	Themes
Feeling a peace from the demands of everyday life Being connected to nature Feeling a lingering presence	Finding tranquillity and inspiration while transcending the everyday "Now I look at nature in a different way when I´m outside. Like I have a little more mindful thinking, I am here and now."
Being inspired to engage with nature in new ways Being hampered to find tranquillity	Finding nature in IVR as a surrogate for natural environments
Perceiving nature in IVR as comparable to real nature Perceiving nature in IVR as not a replacement for real nature	

"I've got a stronger urge now to get out into nature and walk my usual trail."

"Now I look at nature in a different way when I´m outside. Like I have a little more mindful thinking, I am here and now."

Preliminary results

Sub	Themes
<p>Feeling a presence</p> <p>Being inspired to engage with ways</p> <p>Being hampered to find tra</p>	<p>ds of</p> <p>Findin</p> <p>transc</p>
<p>Perceiving nature in IVR as cor</p> <p>nature</p> <p>Perceiving nature in IVR as not a replac</p> <p>for real nature</p>	<p>ment</p> <p>mony and</p> <p>as</p> <p>VR as a substitute for natural</p>

“Now when I've been burnt out or exhausted, I've had a hard time motivating me doing things, including using the VR headset as well.”

"I didn't like the film with the cows; there was no sense of calm or harmony. They just run off, but I never got to know where they were going."

Now I can hardly understand how I could choose the sea, that roaring thing. Maybe I wasn't feeling all that well back then [laughs]. When you think about it now

Preliminary results

Subthemes	Themes
Feeling a peaceful retreat from everyday life	Feeling tranquility and being in nature
Being connected to nature	Being in the middle of it
Feeling a lingering sense of ha presence	
Being inspired to engage with nature in new ways	
Being hampered to find nature	
Perceiving nature in IVR as a surrogate for real nature	Perceiving nature in IVR as a surrogate for natural environments
Perceiving nature in IVR as a surrogate for real nature	

"It felt like I was sitting there. It even felt like I could feel the warmth from the fire."

"Even though you're sitting in the middle of the forest [in VR], it doesn't feel like you're really there. It doesn't feel real; it's still somehow different... In nature, there's a sense of being more surrounded in some way... There's something about it that makes it so—you're more affected, all your senses, you could say."

It will definitely be good for people who can't get outside

Summary

- Nature in IVR
 - Brings positive experiences
 - Calming
 - Comforting
 - Unwinding
 - Tranquillity
 - Increased wellbeing
 - Lingering short-term effects
 - Increased concentration
 - Easier to sleep
- Comparable but not replaceable to real nature
- Especially suitable for people with limited access to nature

Questions?

Feel free to ask now or contact us later.

Thank you!



Contact:

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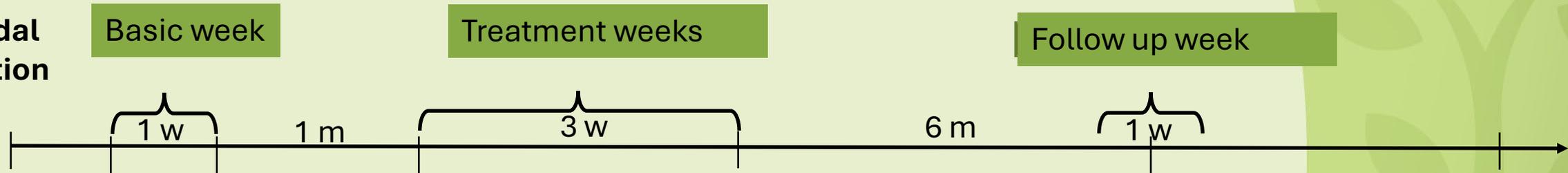
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The multimodal intervention at Österåsen

**Multimodal
intervention**



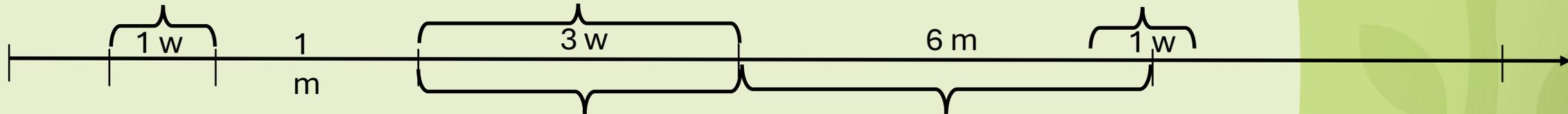
The multimodal intervention with additional IVR intervention

Multimodal intervention

Basic week

Treatment weeks

Follow up week



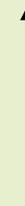
Nature as complement



Intervention in forest
3 days/week



IVR-glasses 6 month
3 days/week



Assessments

w=weeks

m=month

y= years

Baseline

RAND-36
Mental state
Diabetes Empoverment scale
Waist measurement
Wight
Body composition
Perceived Stress Questionnaire
HbA1c
Drug use

Follow up 1

RAND-36
Mental state
Diabetes Empoverment scale
Waist measurement
Wight
Body composition
Perceived Stress Questionnaire
HbA1c
Drug use,
Intensity of treatment
Heart rate variability

Follow up 2

RAND-36
Mental state
Diabetes Empoverment scale
Waist measurement
Wight
Body composition
Perceived Stress Questionnaire
HbA1c
Drug use,
Intensity of treatment

Interviews