

THE
FOREST
BATHING INSTITUTE

Research, training and
events organisation in

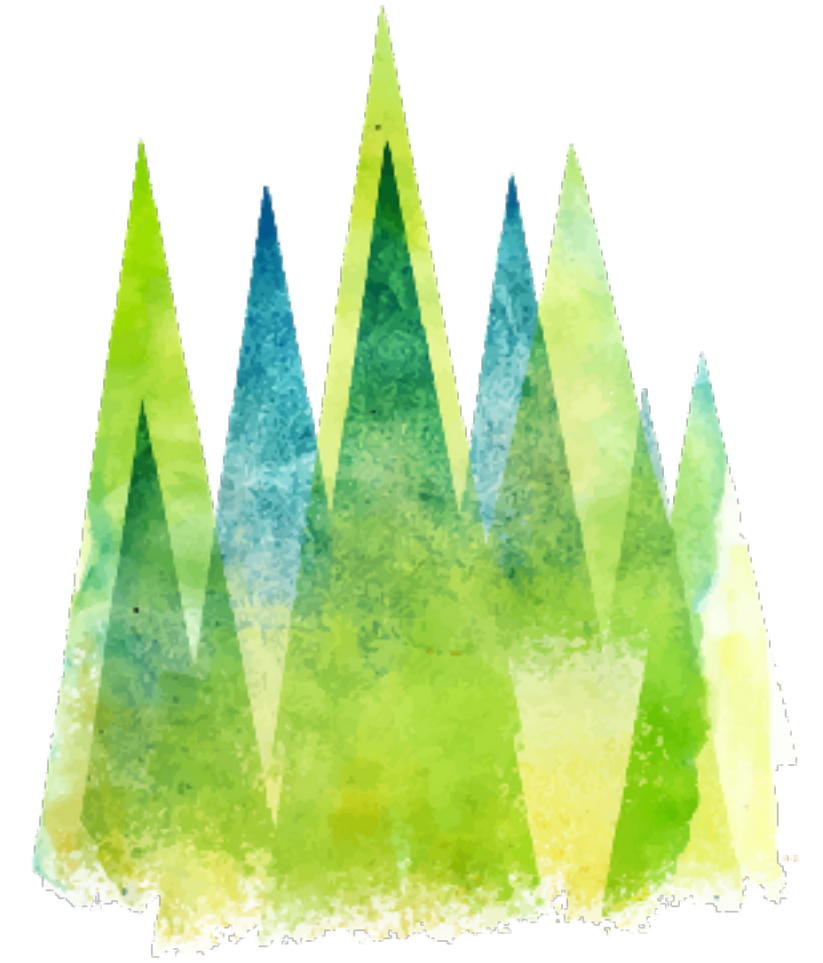
Forest Bathing+

www.tfb.institute

**We are here today to help
save money, improve health
and create green economy jobs**

APPG for Nature

26/10/2021



THE
FOREST
BATHING INSTITUTE

We will cover:

- What is forest bathing?
- Compelling research
- Why is it of global interest?
- What nature based health care looks like.
- The wide reaching benefits.
- What are the next steps?



Gary Evans and The Forest Bathing Institute



Gary Evans TFBI Director

Peer reviewed author and researcher

Conducted circa 200 interviews on the health benefits of nature.

Led over 200 nature immersion walks to a wide range of decision makers, including doctors, professors, government departments and the NHS.

A Qualitative Study Comparing Mindfulness and Shinrin-Yoku (Forest Bathing):

A Pragmatic Controlled Trial of Forest Bathing Compared with Compassionate Mind Training in the UK: Impacts on Self-Reported Wellbeing and Heart Rate Variability

Currently designing a postgraduate course with a leading university, Gary will also act as a lecturer on the course.

What is Forest Bathing?



In 2005 the Japanese government began university research into the health benefits of spending time in nature. Millions of people a year are now using woodland for preventative healthcare and stress release.

"Prescribed forest bathing in Japan has led to a healthier lifestyle for people of all ages."

Japan National Tourism Organization

With the support of government backed up by university research, we anticipate similar numbers can be achieved across the UK.

Slow paced reflective time (bathing in the atmosphere)

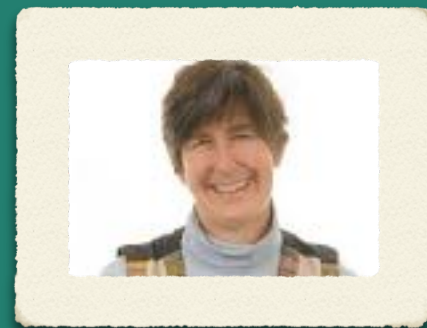


“You have given me a new way to enjoy nature”

The development of Forest Bathing+ 2016 - 2021



Sara L. Warber, M.D. Emeritus Professor
Department of Family Medicine
University of Michigan Medical School



Dr. Katherine Irvine.
James Hutton institute
Behavioural Social Scientist



Dr Nicholas Cooper BSc in
Cognitive Science - 1st class
honours (University of
Westminster)
PhD in Psychology as applied to
Medicine (University of London)



Dr Mark Wheeler.
Mark is a chartered psychologist
and an experienced mental health
therapist with over ten years' of
working in the NHS.



Presentation to
Frimley Park Hospital



NHS Lexden hospital Forest Bathing session

Liz Harrington (Deputy Clinical Lead)

Their knowledge about the forest and the trees was amazing and a bonus, a walk and science lesson in one session. I felt really uplifted and reflected on this on the drive home, I truly could not believe the impact it had on me. If I had not been and experienced it for myself I would not have believed how transforming it was. Thank you.

Formal structured intervention - Forest Bathing+

Developed in the UK with numerous universities



- Educate
- Empower
- Take home tool set (friends & family)

We have demonstrated our work to numerous government departments including,

- NHS mental health experts
- Forestry England
- Natural England
- Sport England
- Defra
- Borough and County Councils

Global Interest

Universities, students, media, Japan



Background and history

World expert



Prof. Qing Li, Author & President,
Japanese Society of Forest Medicine;
Nippon Medical School

International Society of Nature and Forest Medicine: INFOM



TFBI lecture in Japan March 2022



Hyogo College of Medicine
International symposium on Forest Medicine

“The role of forest medicine in post-COVID-19 health management and disease prevention”



Coronavirus

Nature based interventions have the potential to assist with the impact of Coronavirus

We currently have government departments exploring funding for us to run Long-Covid trials.
(We are looking for additional assistance with this topic.)



The science of how nature restores human physical, mental and emotional health

The basic concept^{6,7} behind nature therapy is to increase physiological relaxation and act as a preventative medicine by improving the body's natural resistance to disease, which is suppressed under conditions of stress.

What's more, nature therapy has a physiological adjustment effect,⁸ which means that it has a different effect on different individuals. At first we thought that there were errors in the way the data was collected but we have since found that the different results experienced by different people are in fact real. A good example is blood pressure. We found that forest therapy reduces blood pressure in those individuals who start with high blood pressure, while it increases blood pressure in those individuals who start with low blood pressure. This effect makes the therapy especially valuable as it adjusts to the individual, but we need to do more research to find out how and why this happens.



First step

Measure volunteers in a forest to confirm it positively impacts human health.



Second step

If positive results are obtained, the forest is approved for Forest Bathing



Third step

Install a clinic alongside a FB centre. Patients visit a nurse or doctor at the forest, measurements are taken before and after woodland exposure to confirm **that forest** helps **that patient**. If positive results are obtained, the patient now has a valuable addition to their healthcare regime.

Press release

New sites to test how connecting people with nature can improve mental health

Seven sites will receive a share of over £5.5m pot to research how nature can be used to improve mental health and wellbeing.

From: [Department for Environment, Food & Rural Affairs](#), [Department of Health and Social Care](#), [Natural England](#), and [Rebecca Pow MP](#)

Published 19 December 2020

We are delighted to be involved at national and county level

The future of Green prescriptions

GPs require empirical evidence to underpin Green Social Prescribing and future green prescriptions.

Our university research programme is designed to collect the required data.



TFBI is spearheading the UK's university research

We have launched student projects this semester with

Kings College London
University College London





Kings College

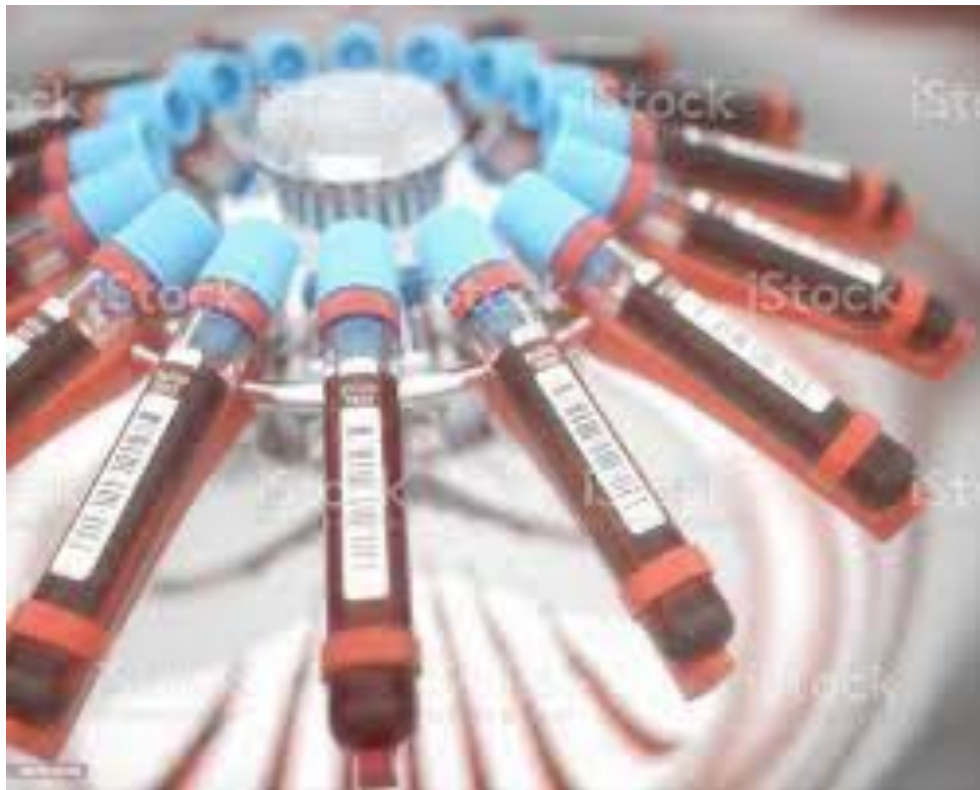
Mapping Nature-Based Climate Change and Health Solutions

UCL, Creative Health MASc

1. Forest Bathing+ Intervention Development
2. Forest Bathing+ stage 2 measurements (physiological measures).
3. Forest bathing physiological measure Rapid Evidence Review

Next stage

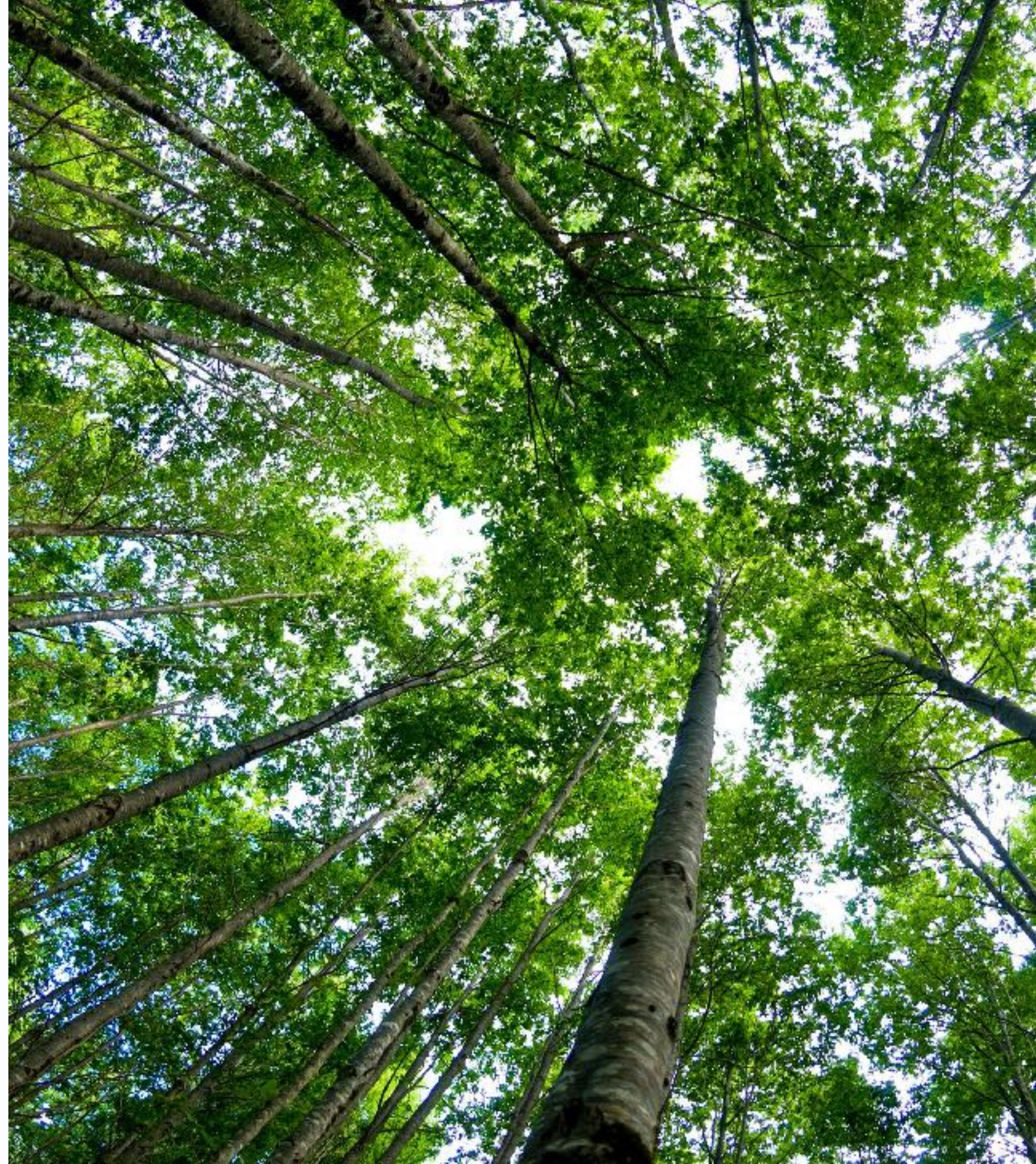
NK cell blood testing research



Flow cytometry

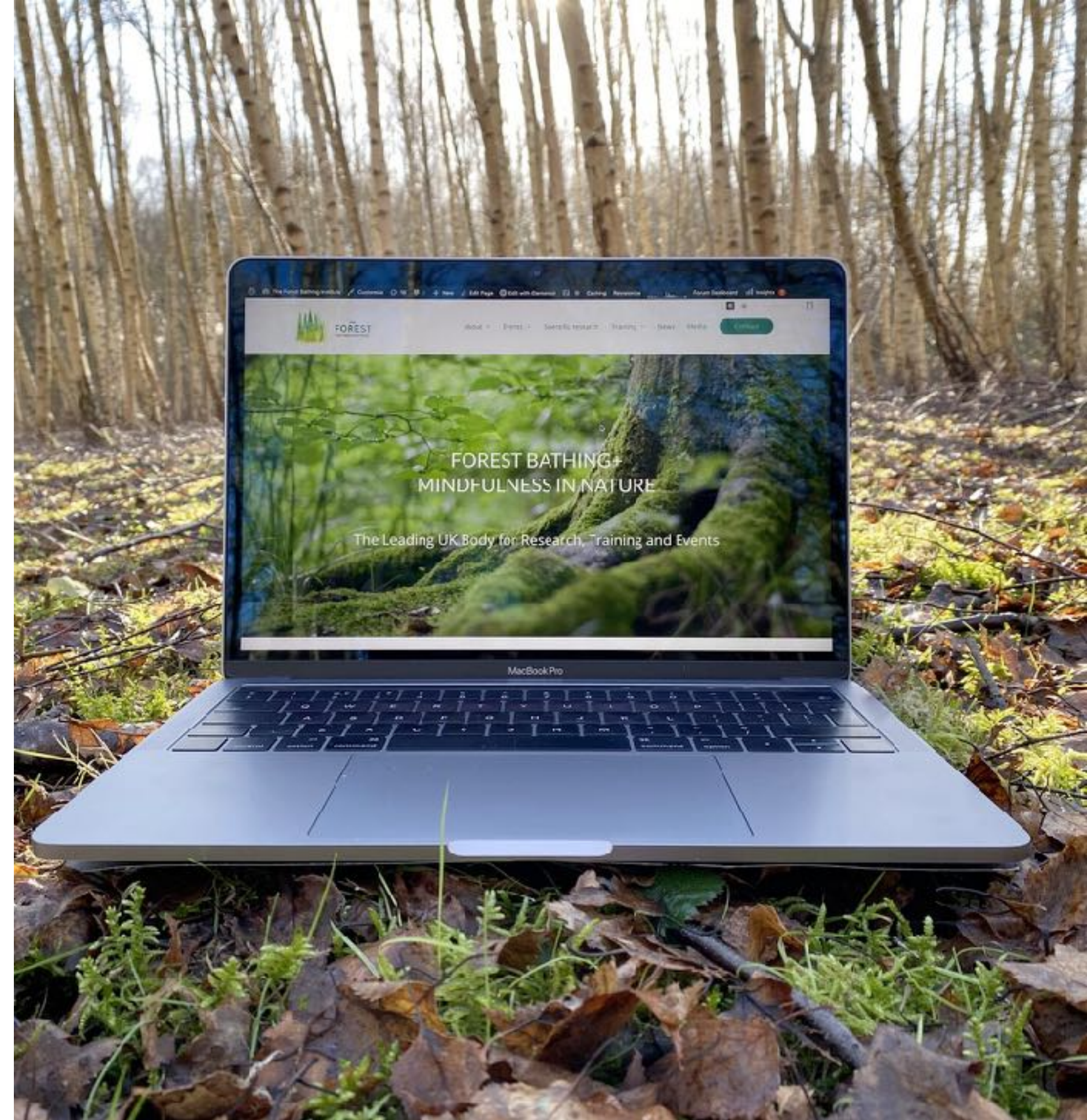
- 12 areas of blood measurement
- Potential Covid link for NK cell research
- Cross disciplinary study with two universities
- Funding required


Data driven nature interventions



Computing and microelectronics

The future of nature based health interventions.





Bodyguard 2






Accurate 24h heart rate variability recording

- Firstbeat Bodyguard heartbeat recording device
- 25 pos Ambu BlueSensor L electrodes

Availability: In stock

€329.00 incl. VAT 24%

0 **Add to Cart**






55

- web-based electronic diary and personal information request tools, support for email communications

Data export and import

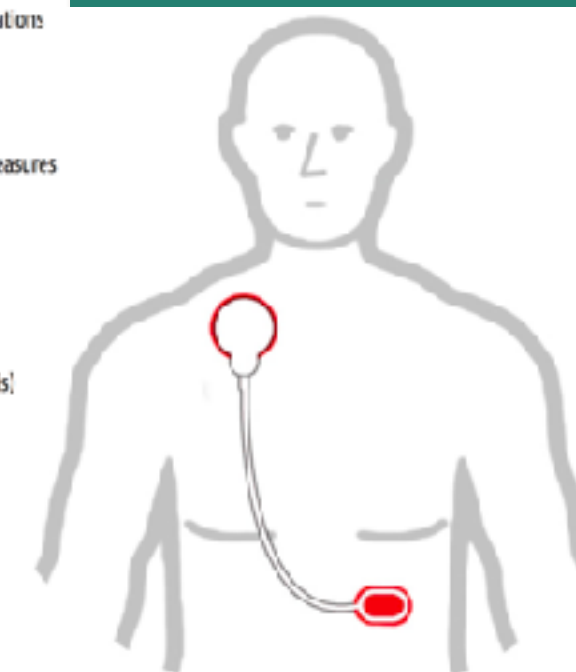
- option to export second-by-second data or summary data for all HR, HRV and physical activity measures
- data export in .csv-files for single and multi measurements
- profile and data exports/imports in FBE-file format

HRV and physiological analysis

- automated correction of measurement errors in beat-by-beat heart rate (required for HRV analysis)
- heart rate, %HRmax, artifact corrected heart rate
- HRV measures: VLF, LF, HF, LF/HF, RMSSD

HRV measures can be used for recovery state classification for 24h data, stress and recovery (sympathetic/parasympathetic balance), fitness (indirect), VO2, %VO2max, EPCC, training effect, fatigue, and heart rate variability rate based on physiological autonomic nervous system (ANS) research

For more information on HRV analysis and research, please visit: <http://www.firstbeat.com/science-and-physiology/>.



FIRSTBEAT BODYGUARD 2

Accurate and reliable heart rate
variability monitoring



TECHNICAL SPECIFICATIONS

Size: 47mm x 63mm x 11mm
Weight: 24g
IP class: IP52 (connected)

Battery: rechargeable Li-Poly battery
(recharges through inbuilt USB);
battery life: 144h

Recording capacity: > 20 days

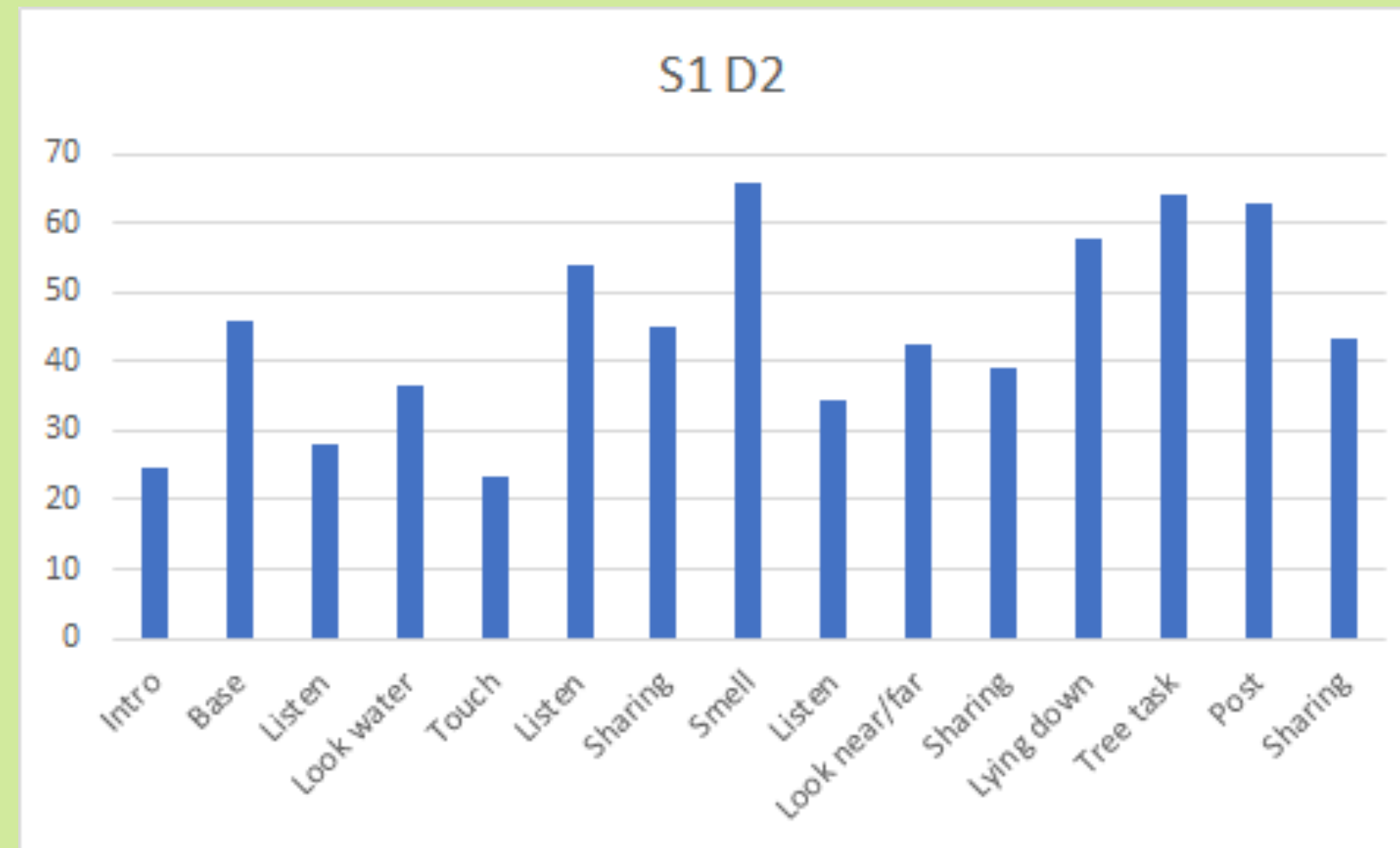
Measurement temperature:
between +5 and +30 degrees Celsius

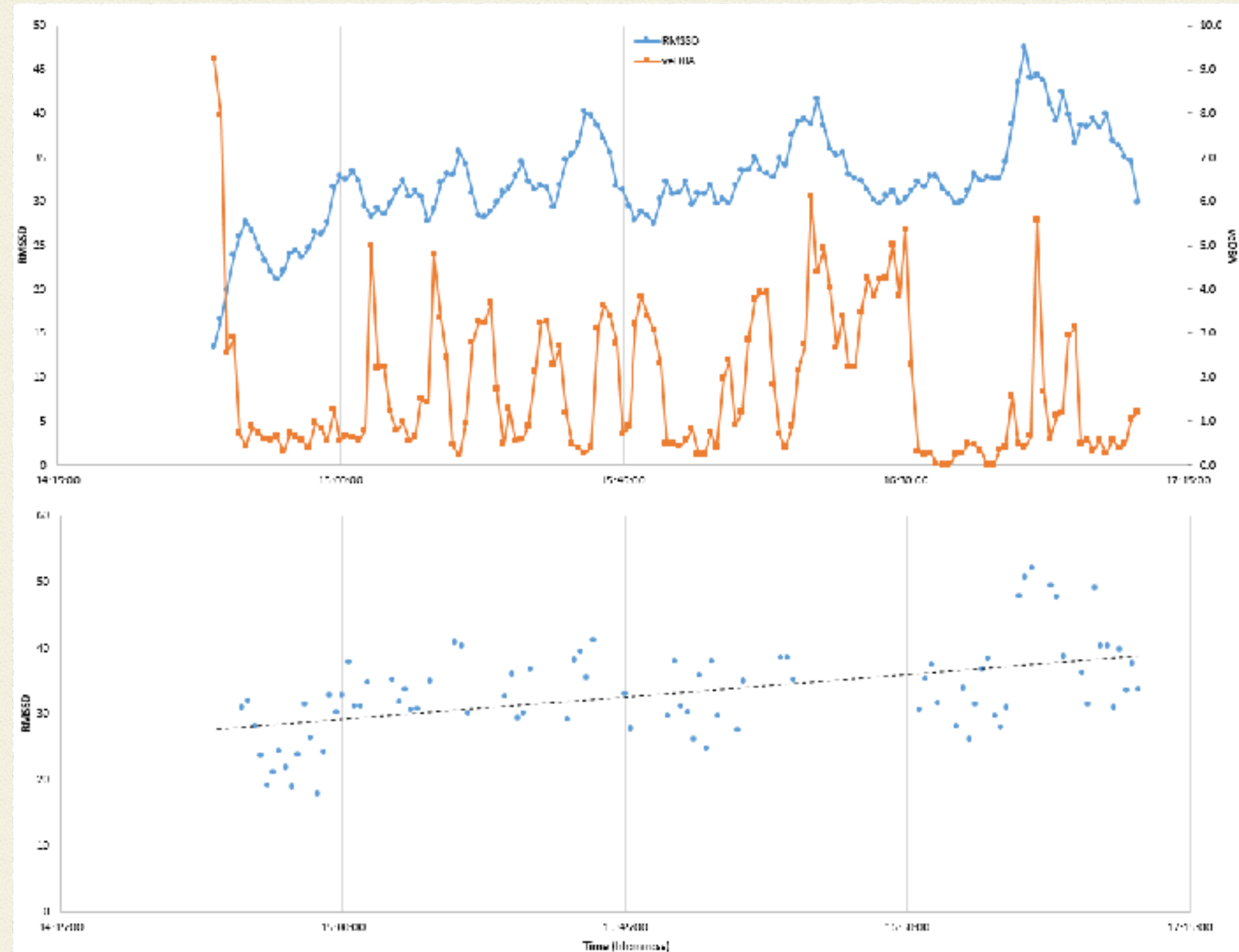
Storage temperature:
between -20 and +60 degrees Celsius

Measurement accuracy:
1ms (sampling rate 1000Hz)

3d accelerometer:
sampling frequency 12.5Hz (max. 40Hz),
resolution 8bit (max. 14bit),
G-scale 4G (configurable to 2G/8G)

2021 UK published research results





“It looks promising”.

Dr Dave Giles
Research Fellow, Health and Social Care Research Centre

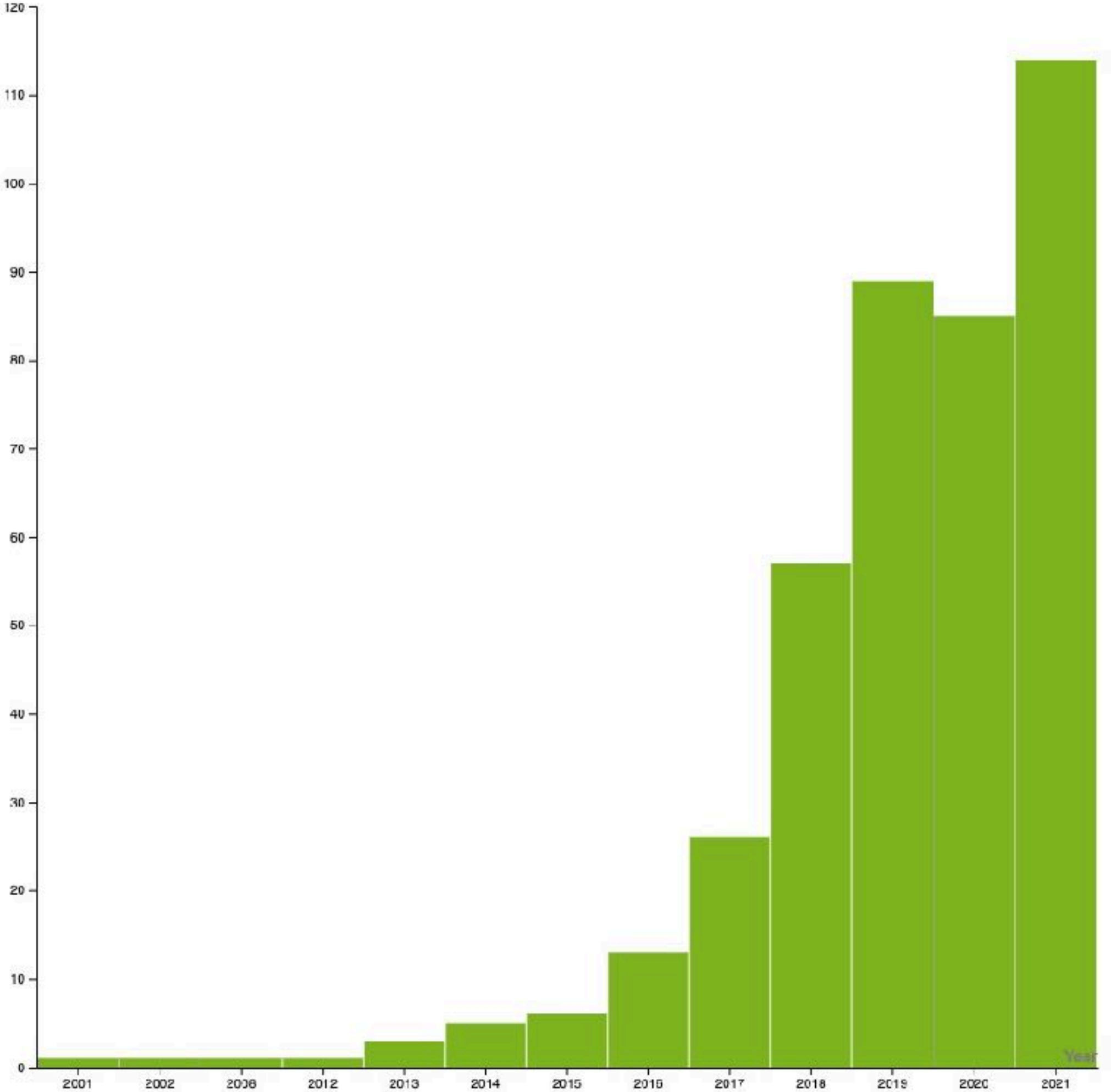
Kirsten McEwan University of Derby ·
Department of Psychology PhD
Senior research fellow

“Following the Forest Bathing session, 88.52% of participants experienced a reduction in anxiety, and on average anxiety scores reduced by 29%. Importantly, physiological data revealed that 57% of participants showed an increase in heart rate variability (HRV).

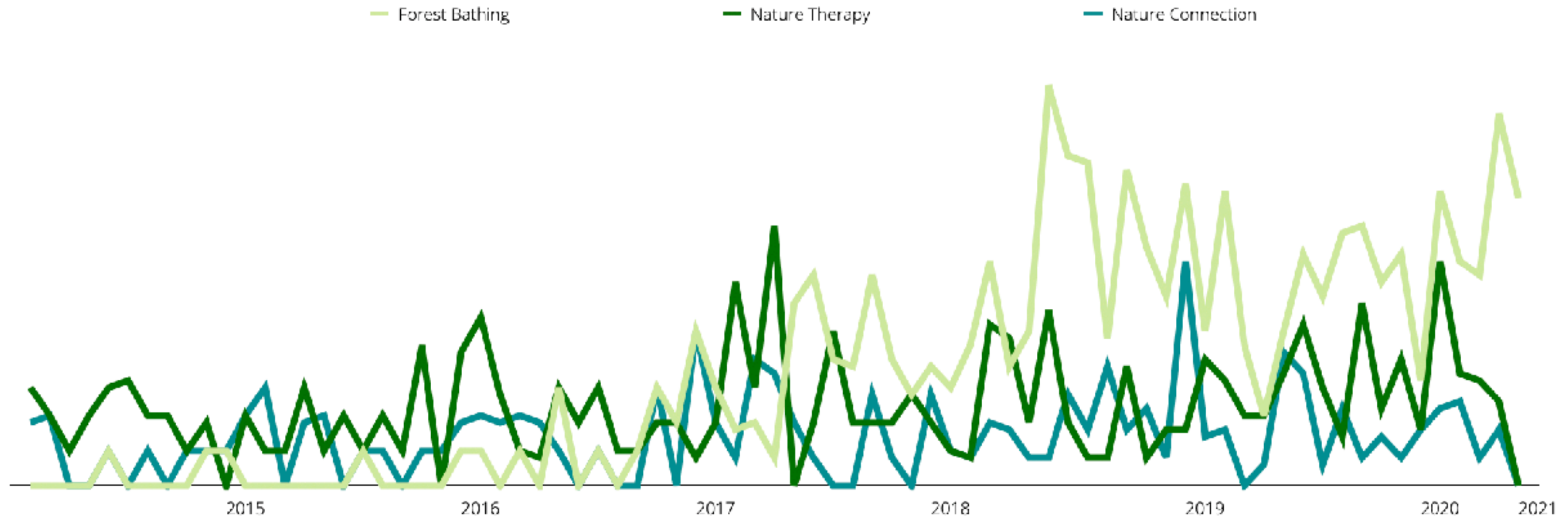
There was a statistically significant difference in participants scores between baseline and post-intervention. Participants scores improved on measures of **safe and relaxed positive affect, compassion for others and from others, rumination on problems, nature connection and pro-environmental attitudes, and mood disturbance-notably depression, anger, tension, confusion and fatigue.**

Kings college Data

Increase of media interest



Google searches - increase of public interest



Road Map



The Green Healthcare Revolution

A plan for clinically proven nature based interventions
to play an integral role in the UK's healthcare system

Richard Louv coined the term Nature Deficit Disorder in his 2005 book, Last Child in the Woods. On reviewing nearly 1,000 studies he found they all point in one direction:

***Nature is not only nice to have, but it's a have-to-have for
physical health and cognitive functioning.***

1. Central Government support and funding for a new branch of science – measuring the physiological health benefits of nature.
2. Health economist to review potential NHS savings.
3. Allocated funding for sufficient physiological research with UK universities.
4. Green economy jobs widened to include nature and health industries.
5. Government backed Public Health campaign informing the public about the benefits of nature and nature based therapy.



Suggested Question

Computing and microelectronics have revolutionised numerous areas of our lives, why haven't we used this capability to revolutionise our understanding of the health benefits of nature?



Next steps

**Natural England funding for Royal Surrey
Hospital patients recovering from cancer**

Creation of a postgraduate course

We currently have a team heading towards 100 people including medical doctors and professional therapists.

Summary

1. About Gary and The Forest Bathing Institute
2. Forest Bathing and nature Therapy health interventions
3. How time in nature aids homeostasis
4. Technology
5. Research results
6. University partners
7. What to expect over the next few years
8. Road Map and suggested question

Gary is available to give presentations on his work with the TFBI.

If you would like further information.

Please contact Gary at gary@tfb.institute

Gary would be delighted to hear from anyone who has synergies with the work conducted by the TFBI. The physiological science of nature's health benefits is a rapidly evolving field with considerable potential to help local communities and raise awareness of the importance of nature to everyone.

