

Jenny Tillotson PhD RCA FRSA

science *smell* fashion

**biofeedback
scent interventions
to complement orthodox
treatments for chronic mental illness**

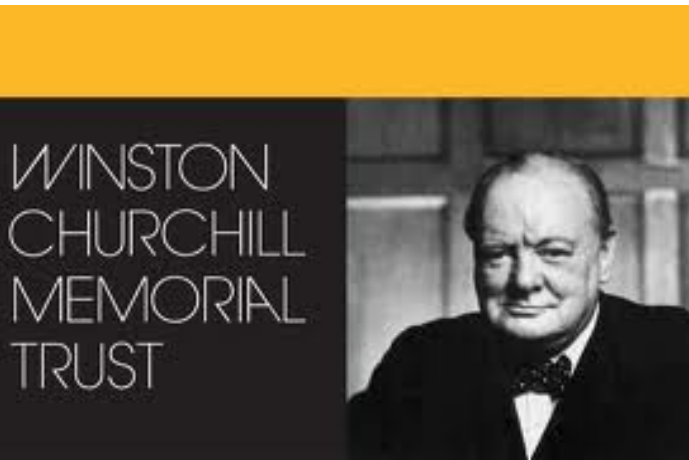


Winston Churchill Travel Fellowship

Establish a new project in **smell communication and olfactory tracking** (e-nose)

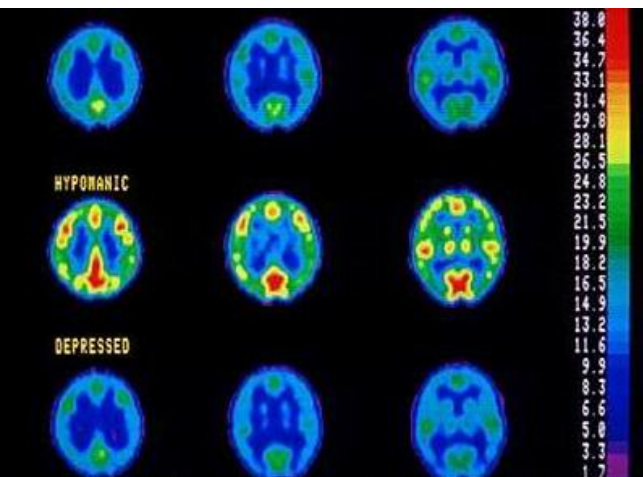
Personal CRUSADE: design **behaviour change** to benefit me:

1. Academic
2. Designer
3. Mother
4. Wife
5. Entrepreneur - *exploiting wearable technology and smell*



Informed by

- living with and managing long-term mental health condition (bipolar 20+ years)
- At times MUTE and unable to communicate
(Ironic? Fashion is a form of expression and communication)
- Ashamed to have an illness – **STIGMA** around ‘being sick’ = social isolation



What Drives Me?



Bipolar I



Bipolar II

Motivation to
PREVENT Triggers

Invent a simple but effective way to manage a better life
– reduce stress / improve sleep / increase confidence

Is it 25-50-75% ?

(both parents with the
bipolar gene)



[Personal quest]

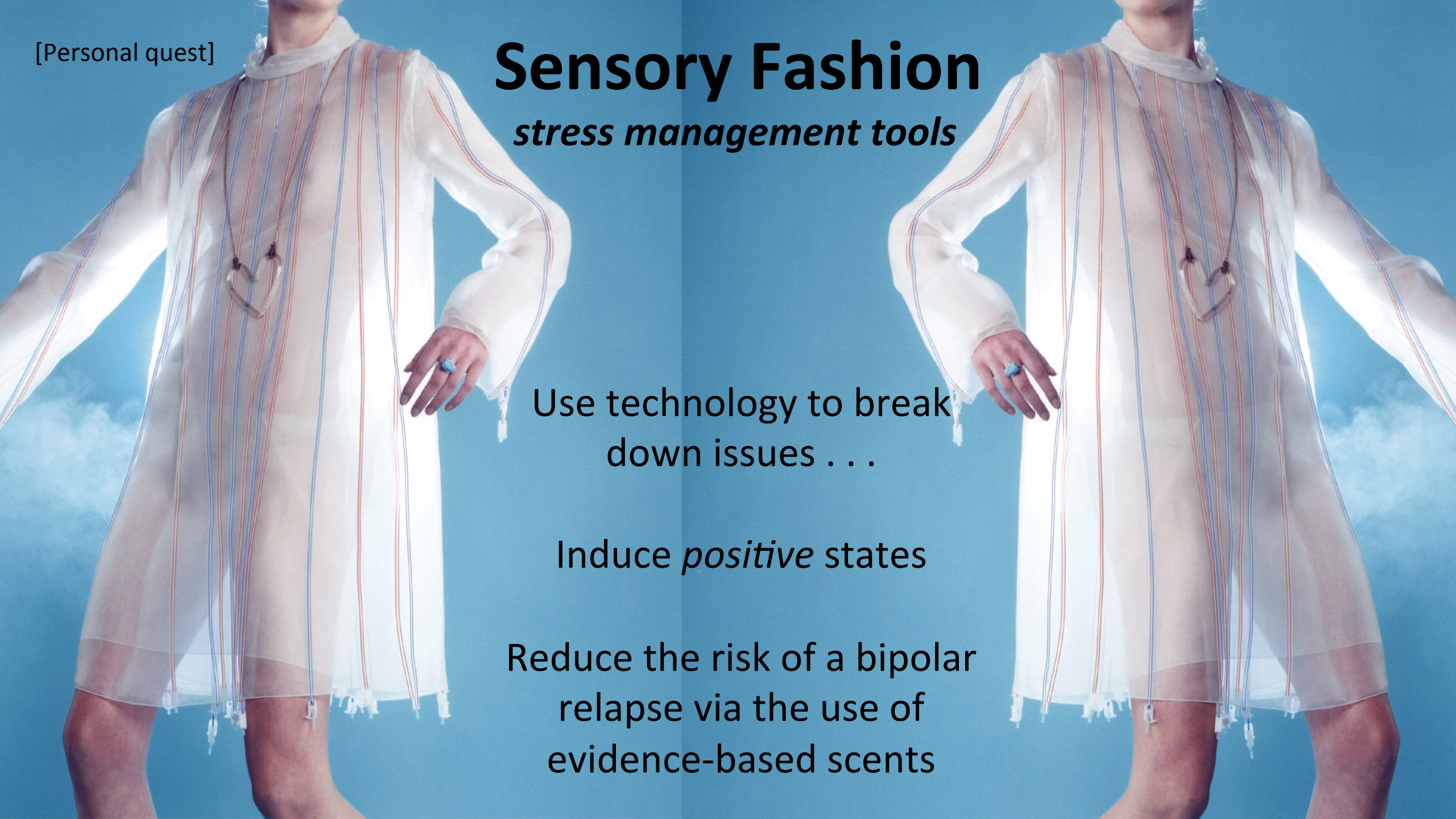
Sensory Fashion

stress management tools

Use technology to break
down issues . . .

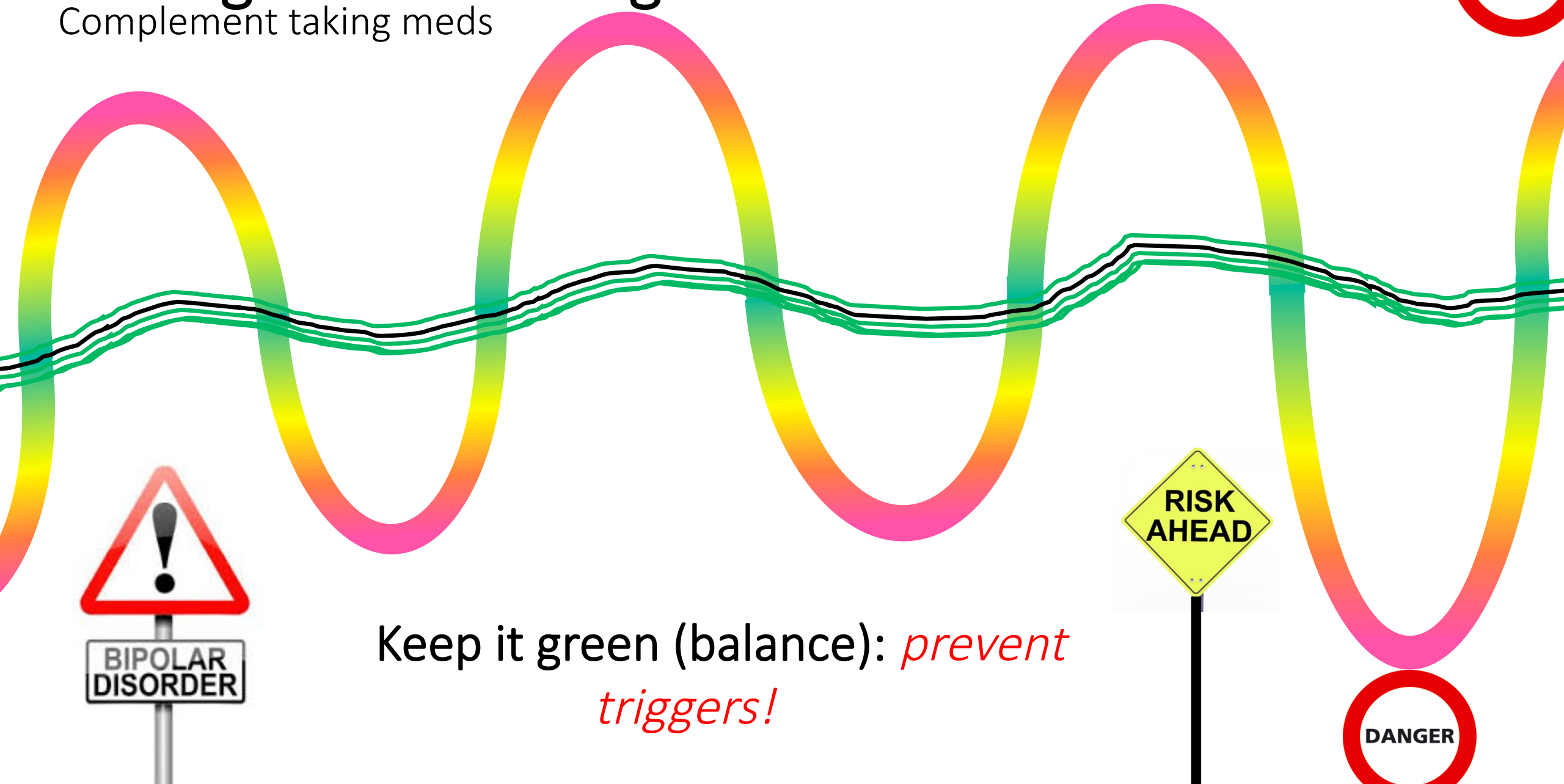
Induce *positive* states

Reduce the risk of a bipolar
relapse via the use of
evidence-based scents

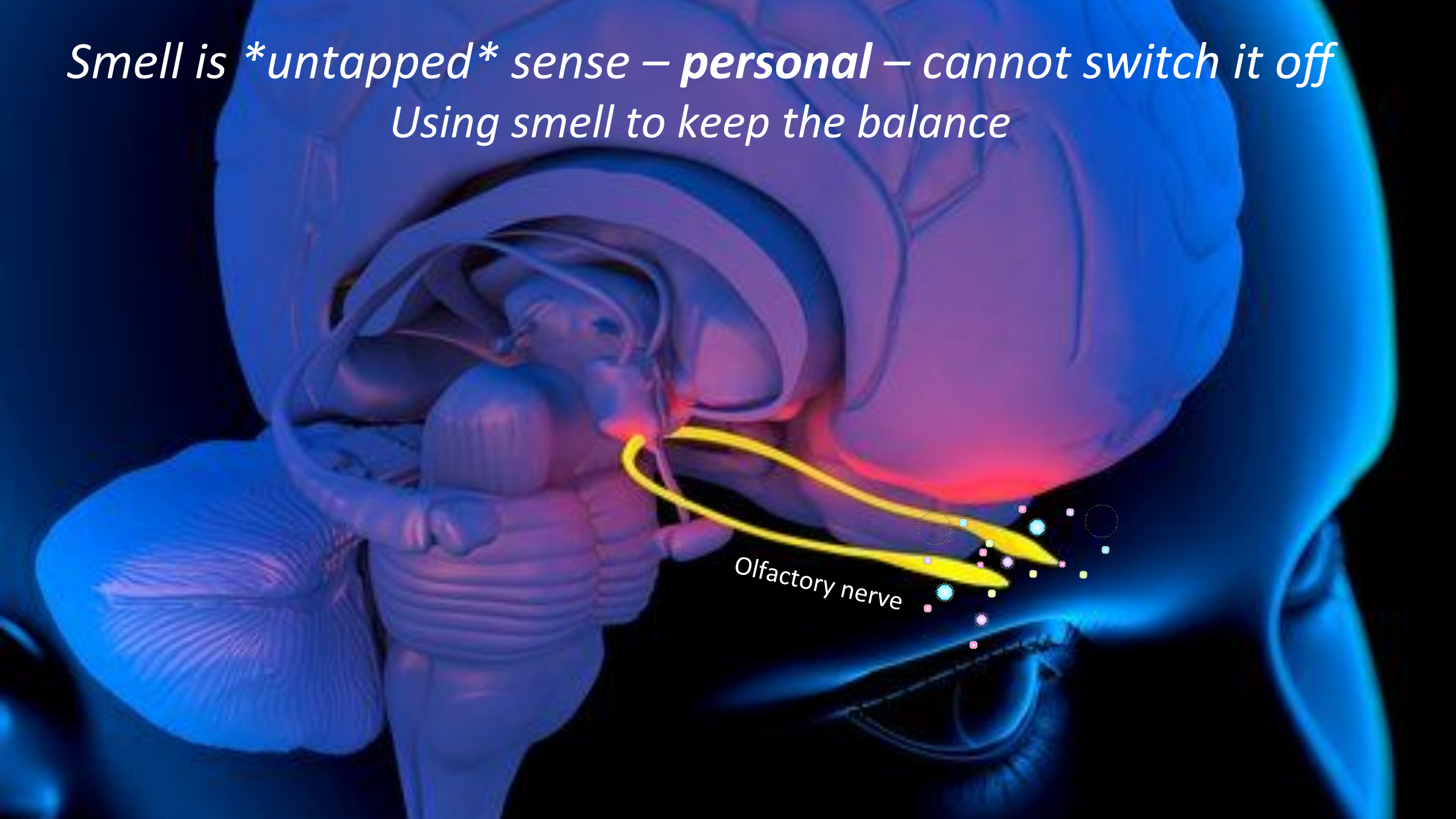


Manage Mood Swing

Complement taking meds

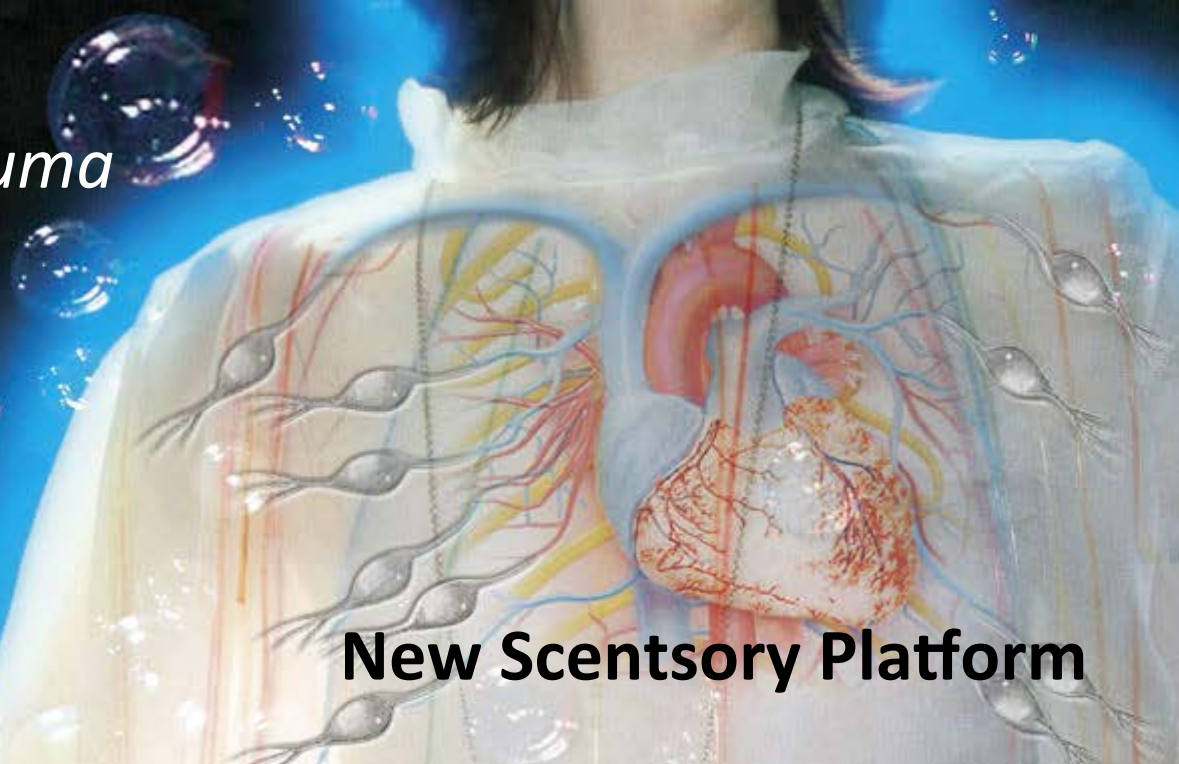


*Smell is ***untapped*** sense – **personal** – cannot switch it off*
Using smell to keep the balance



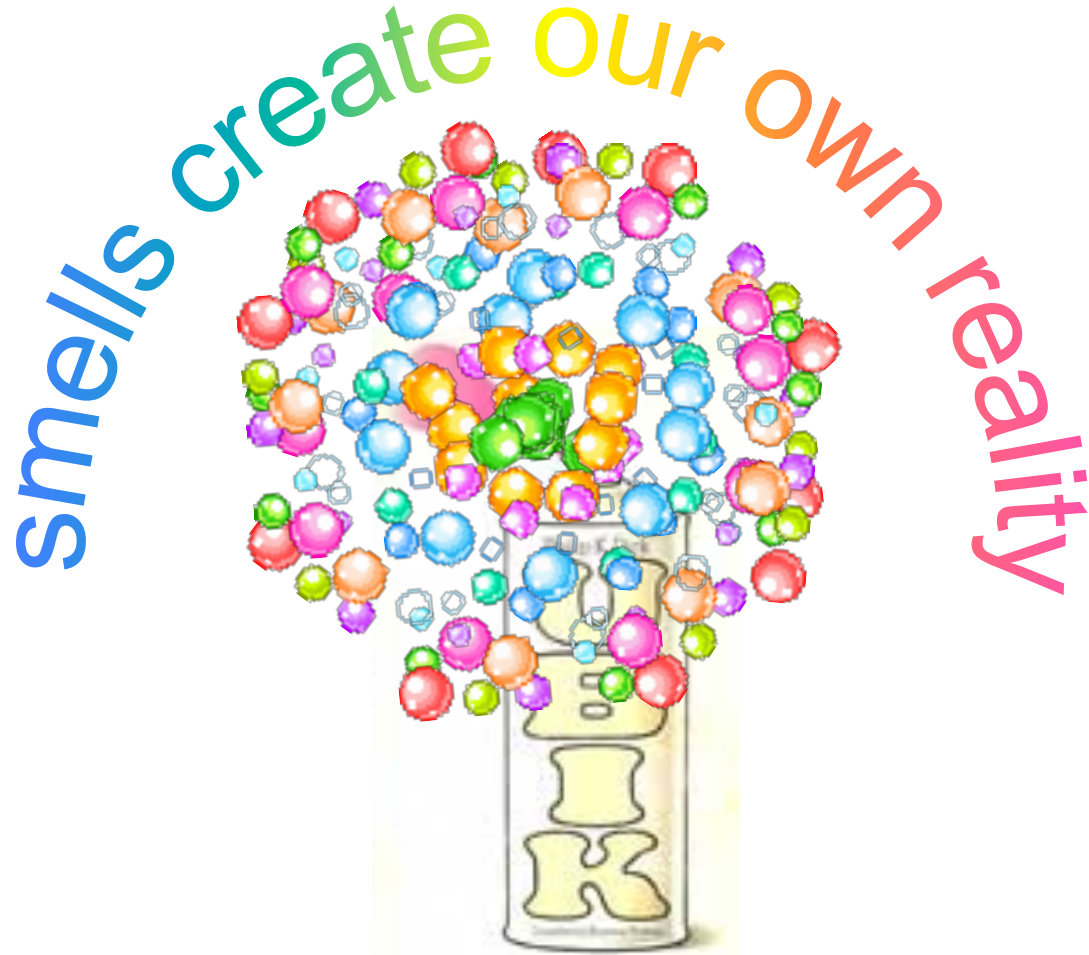
Immediate Goal

- Build a customised 'scent bubble'
NEAR THE NOSE!
- Find a calming method to reduce:
 - Stress (*cortisol*) = *chaos, havoc, trauma*
 - Performance anxiety
 - torrent of SWEAT
 - Insomnia
 - Loss of memory
 - Nausea etc...

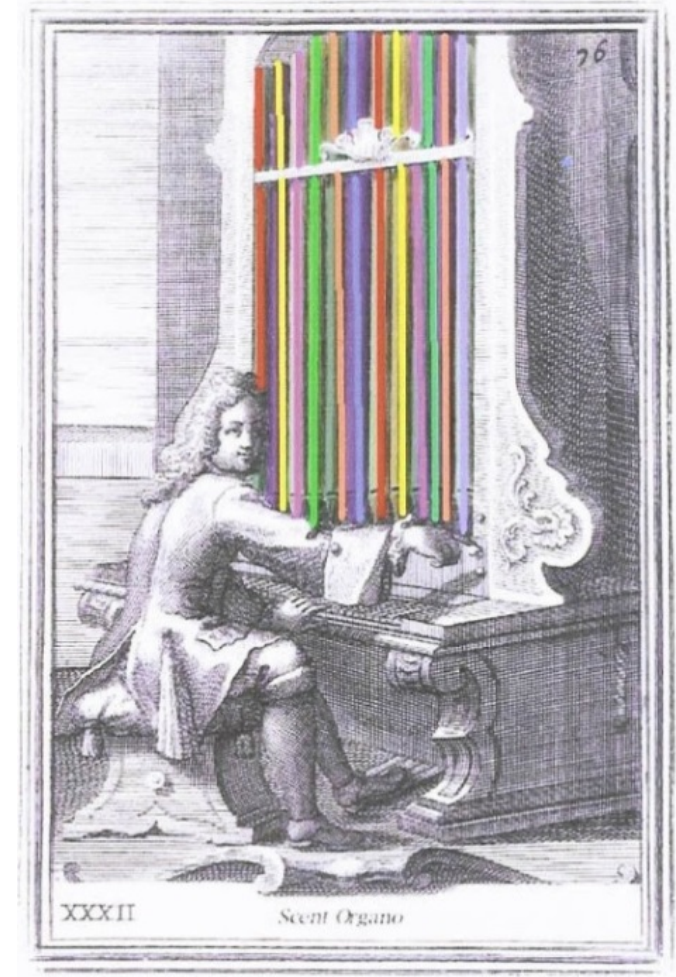


New Scentsory Platform

Inspiration . . . Sci-fi - 'bubbles of reality'



UBIK (Philip K.Dick) mystical bubble projection sprayed to stabilise a nightmare – *reality-in-a-can*



Brave New World 'scent organ'

Inspiration . . . Sci-fi fashion

“Fashion will change dramatically in the coming years

*It will be more human - closer to the
needs of the people in terms of their
wellbeing not “well showing”*

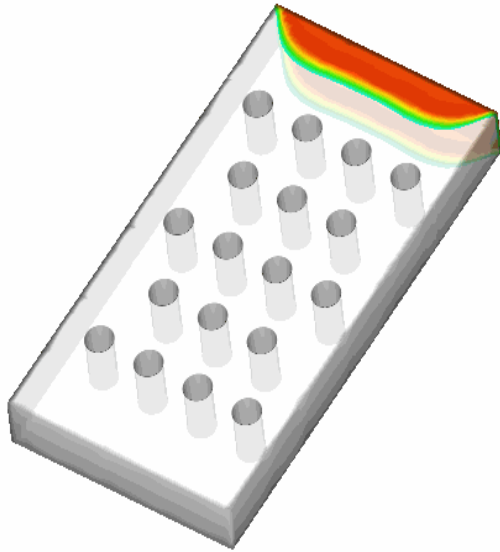


Thierry Mugler

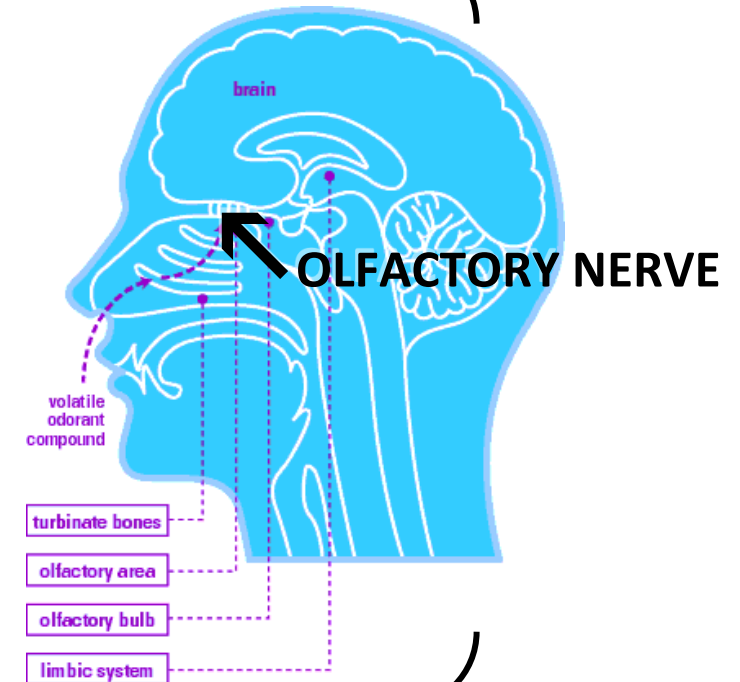
1980

Build tools:

Creative Convergence of **Ancient Art of Perfumery + Emerging Technologies**

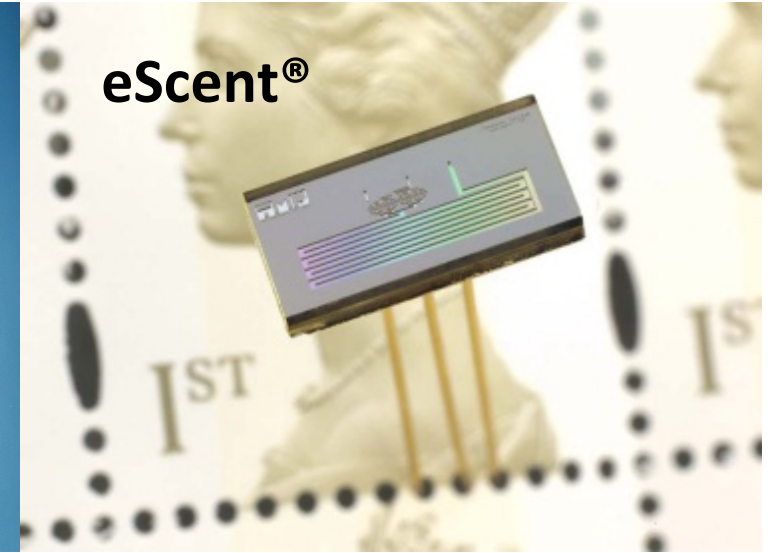


1. **wearable technology** + *fashion* = *jewellery, smart clothing*
2. 'miniaturisation', MEMS, lab-on-a-chip biometric sensors, nanotechnology
3. **smell communication**, how this affects the brain, mood, feelings and senses



eScent® platform technology

Perfumed Past to the Fragrant Future



3000 BC:

Ancient Egypt:
'fragrant wax cones'

Messy / Sticky

17th century:

French:
alcohol-based

Dry skin

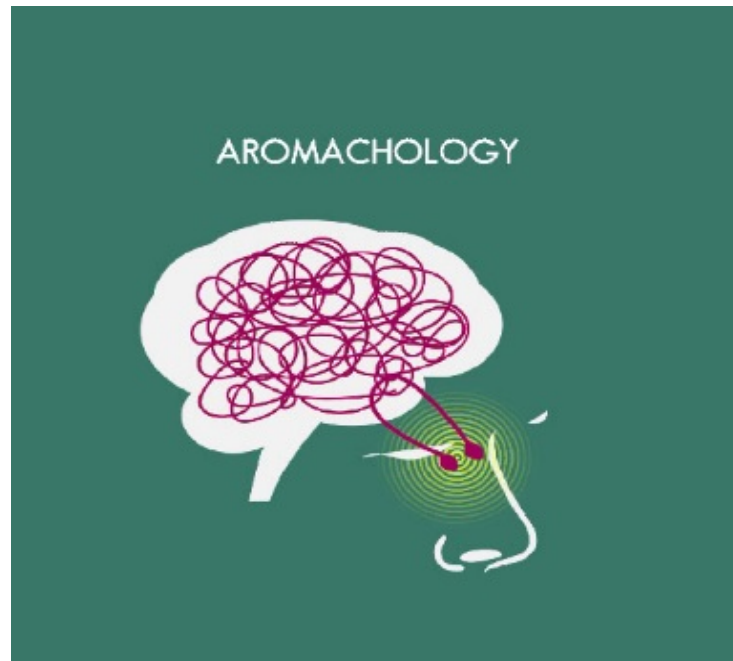
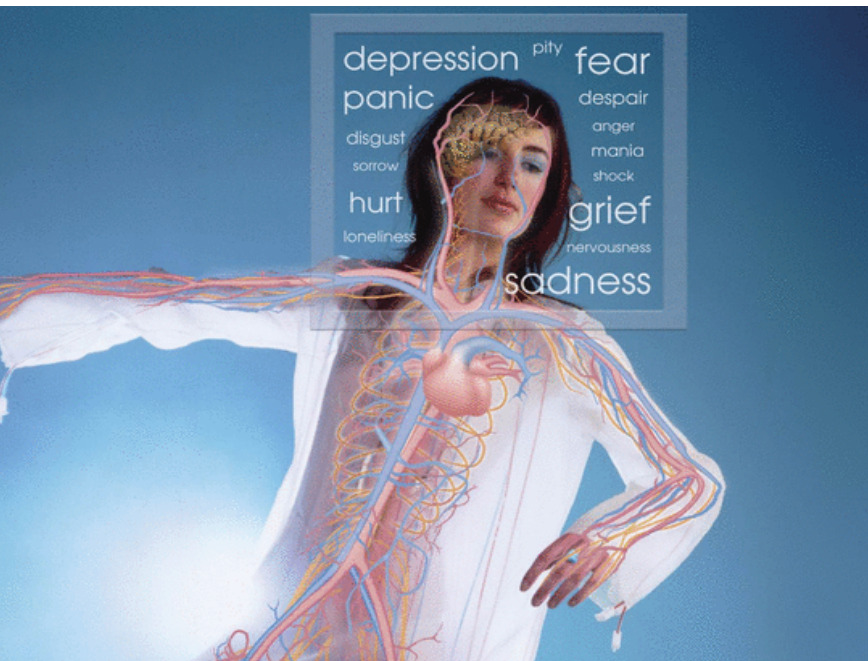
21st century

eScent[®]

Computer-controlled scent output

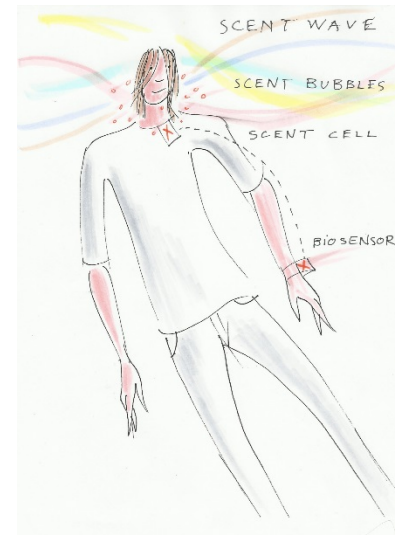
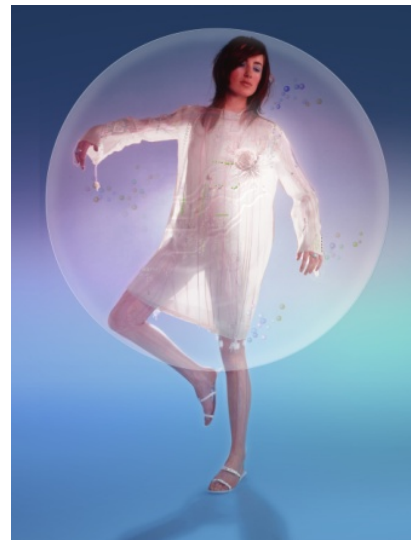
Aromachology

the study of aroma and effects this fragrance have on human psychology and behaviour



Fashion: Smart Second Skin

Exhibitions - Science | Art Festivals - Catwalk Shows - Conferences - Debates - Installations – prototypes



eScent[®]: wearable wireless device

Dispenser where frequency & type of scent delivery ("scent bubble") is flexible & determined by the user



Real-time Biofeedback Scent Interventions

Offers social and therapeutic value in a desirable fashion context



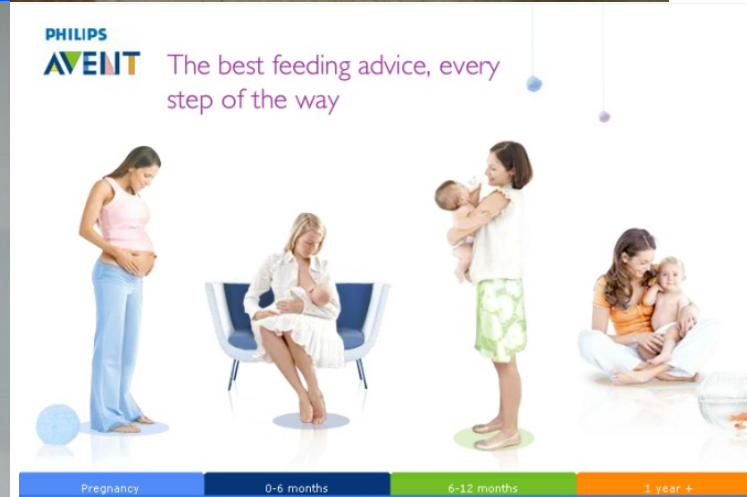
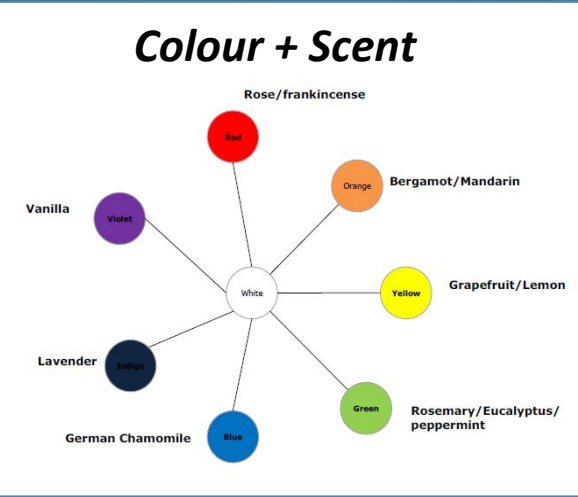
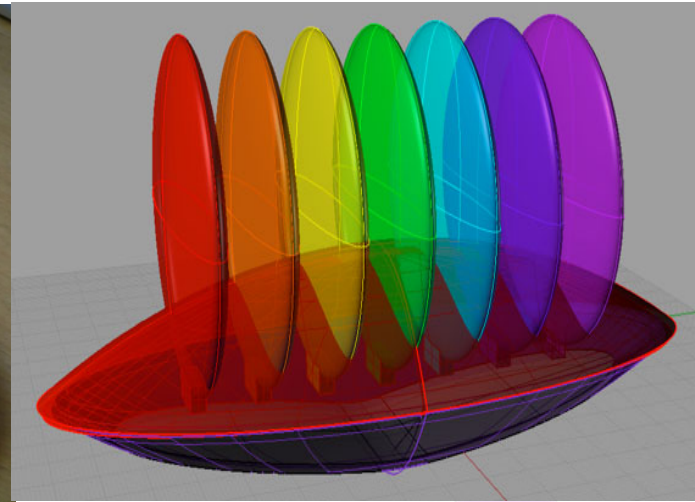
1. Track Mood + Sleep
2. eScent releases *counteractive scents to relieve tension* when stress levels exceed threshold
3. Select which aroma for me??
4. How does this make a difference?
5. **EMPOWER!**



eScent: Sensing Smell tool

Smell The Colour Of The Rainbow

Collaboration with Philips Stress & Sleep businesses on “Meaningful” innovations - demonstrated the benefits of scent on demand in ‘emotional products’



Sleep 1 – good sleep hygiene

Clinical evidence on the properties of lavender critically reviewed – a sense of relaxation (caused by a release of serotonin)



Sleep 2 – wake-up rise + shine

Clinical evidence on the properties of citrus to reduce anxiety



Citrus – stimulating, energising
Jasmine – sense of wellbeing
Peppermint – invigorating

What did I learn . . .

- Using the fellowship as a vehicle to raise mental health awareness . . .
- Teaching me to **re-communicate** and regain confidence – *empowerment!*
- Start new Fashion Communication projects and commercialise
- Using own personal experiences to guide the research and new projects
In return, learning early warning body signals

Personal experience to prevent relapse / stay focused

reduce stress levels:

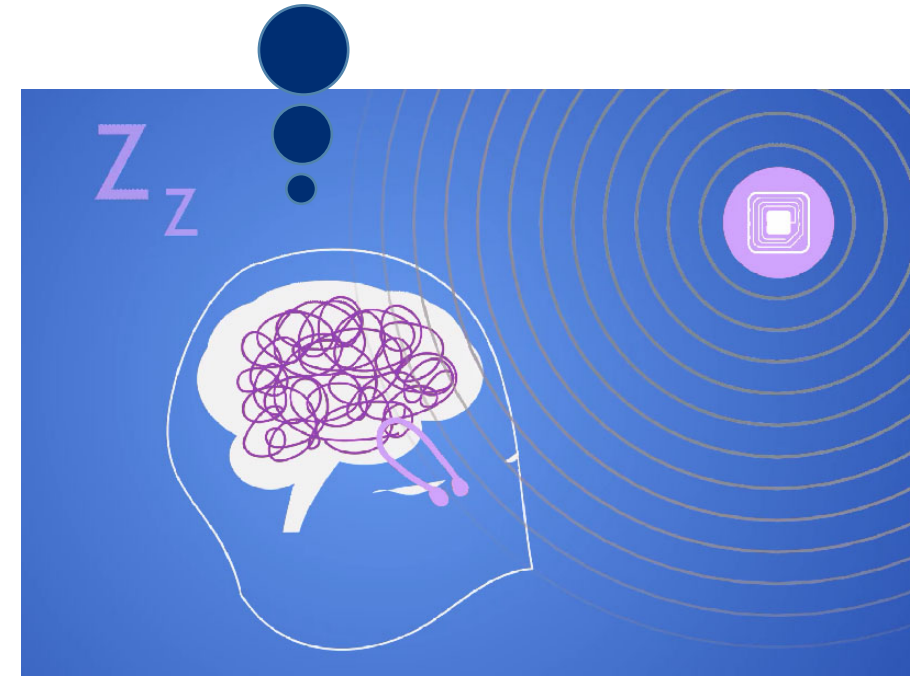
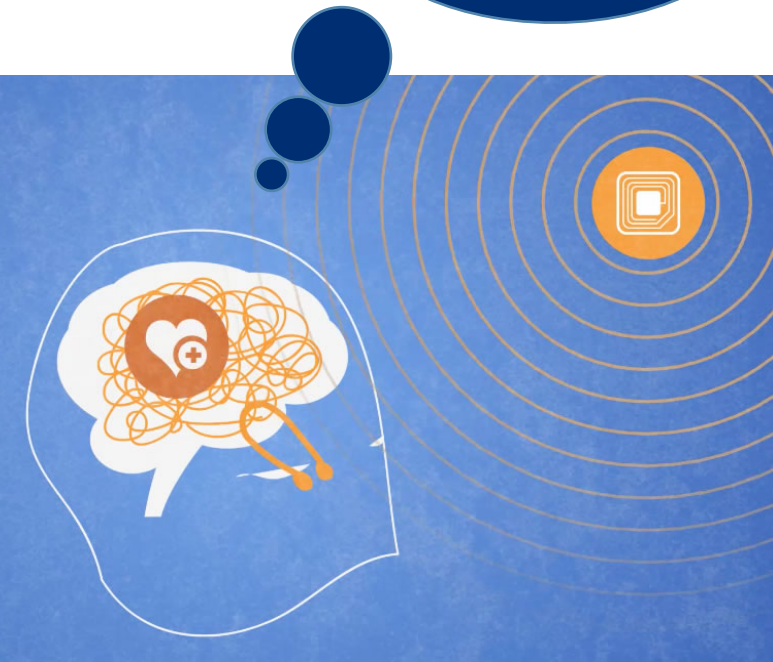
neroli, citrus

increase alertness /energy

peppermint

More relaxation, yoga,
improve quality of sleep:

lavender



Endorsement from USA Psychiatric Community

Community



Icahn
School of
Medicine at
Mount
Sinai



JOHNS HOPKINS
MEDICINE



Monitor *little*
cognitive shifts
before *bigger*
shifts appear

– **PRODROME** intervention:
– *learn signs*
– *send feedback*

*Fashion element +
“De-stigmatising”*



UCSD
Center for
Mindfulness

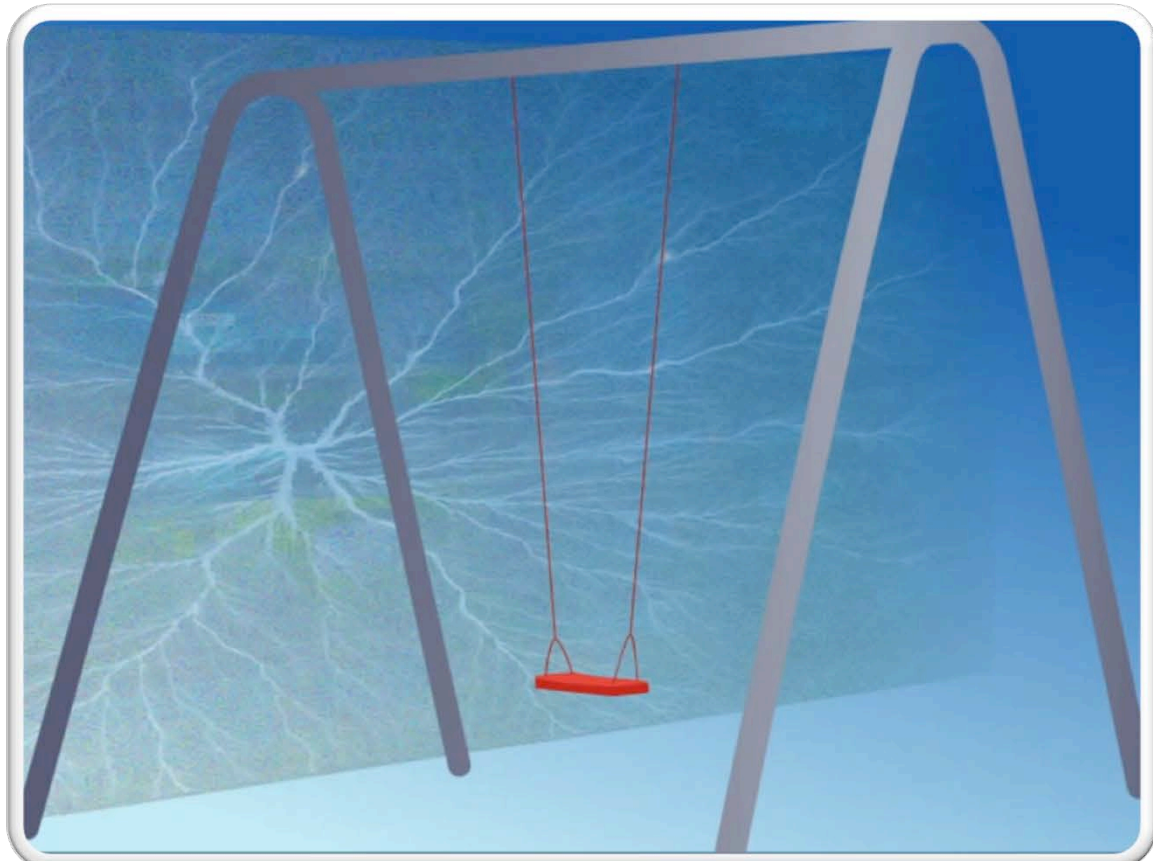
UCSF

University of California
San Francisco

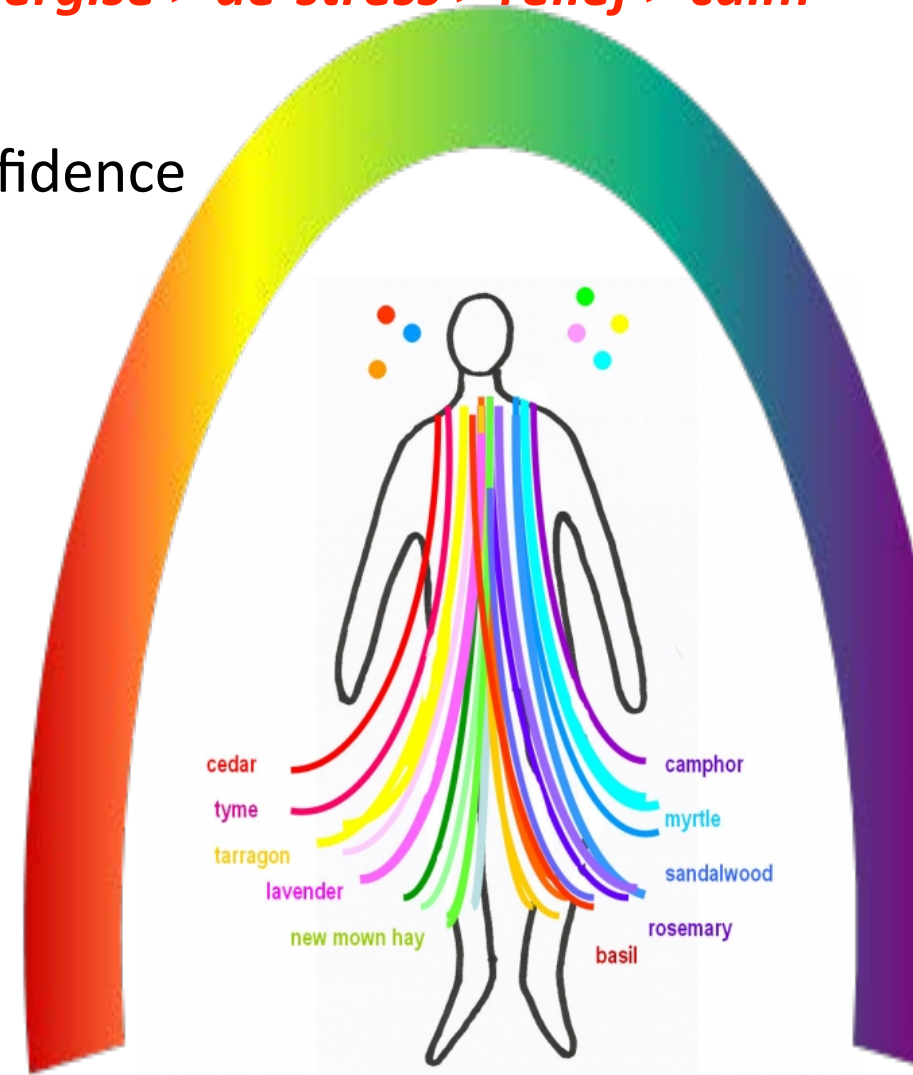


PRODROME “warning” Scent Interventions

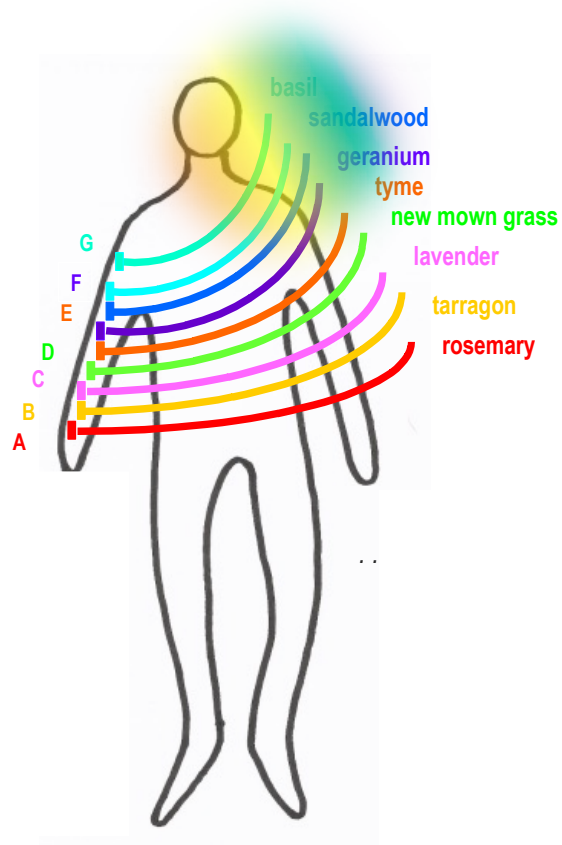
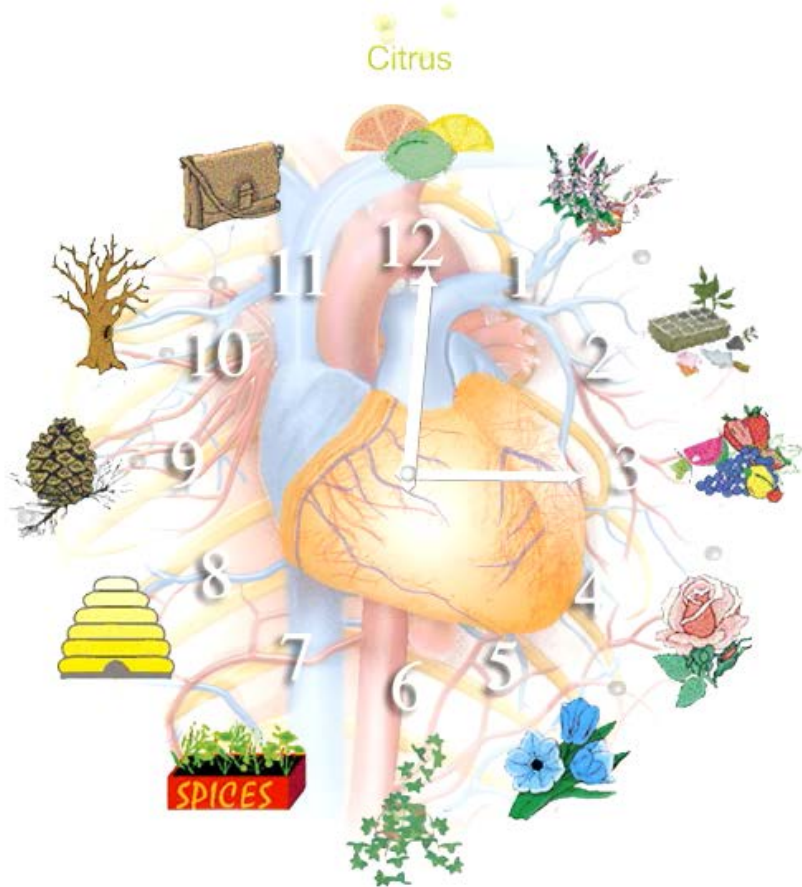
Build your own therapeutic rainbow: *peaceful > relax > energise > de-stress > relief > calm*



- Loss of confidence
- Irritable
- Insomniac
- Angry
- Anxious
- Drowsy
- Worried
- Tearful

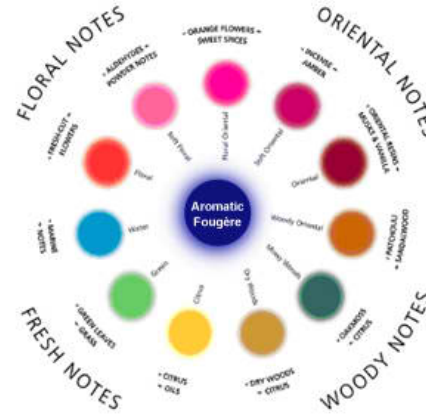
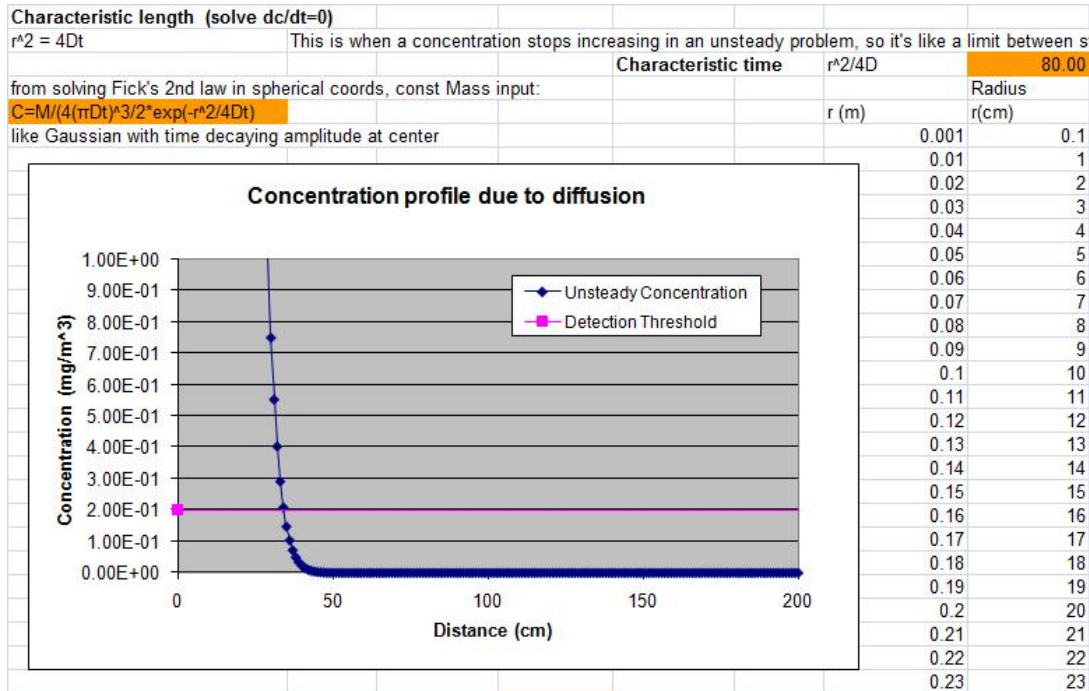


'Smart Second Skin' *Tailored To Fit Mood & Physiology*



In tune with your body - become accustomed to your **OWN** programmable palette of scents (rainbow) - changing over time . . Automatic access to wide range of scents

'Scent Bubble' – the science works!



Non invasive, localised 'scent bubble'

– rate of scent diffusion and detection threshold calculated from composition of perfume 'notes'

Long-term Goal

Stress-related body odour detection

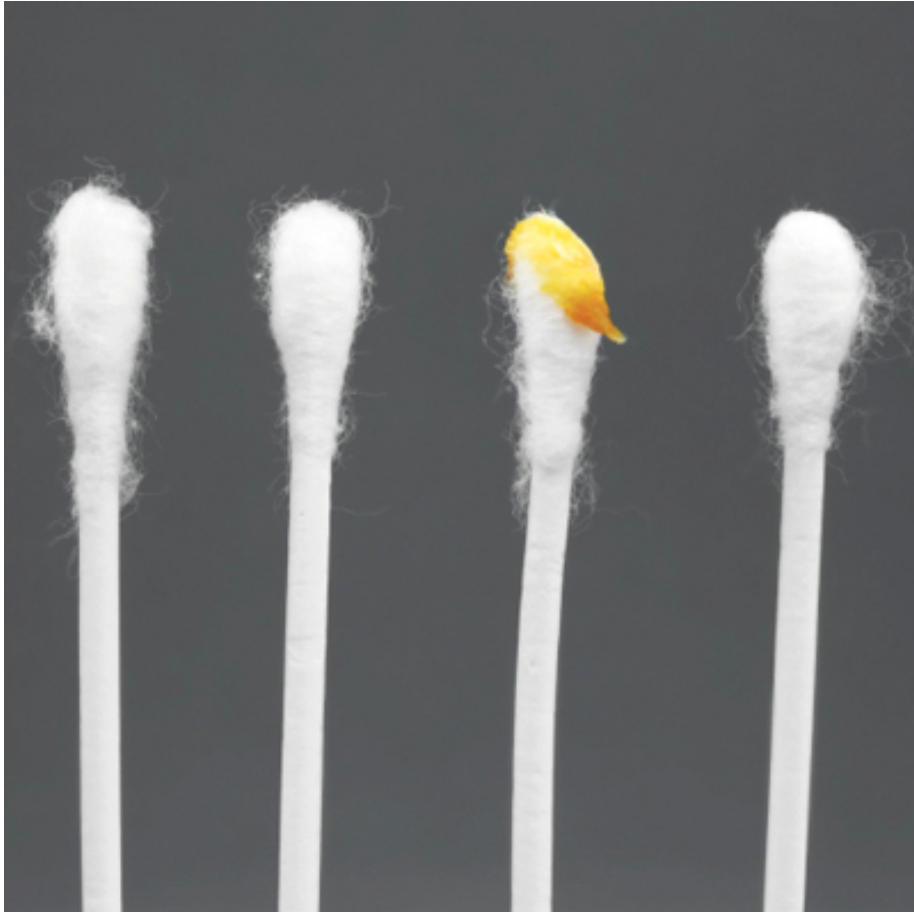
- Electronic nose tracks propanoic acid (smelliest sweat)
- inspired by biological olfactory systems - mimic human senses and apocrine gland
- Integrate sensors into clothing
- Creates fast immediate 'scent bubble'



e-Nose

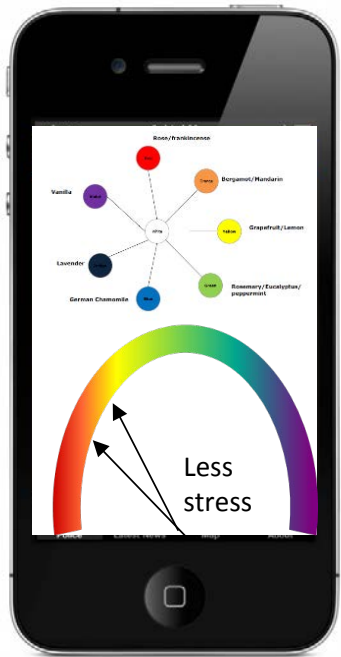


Measure stress-related body odour in ear wax

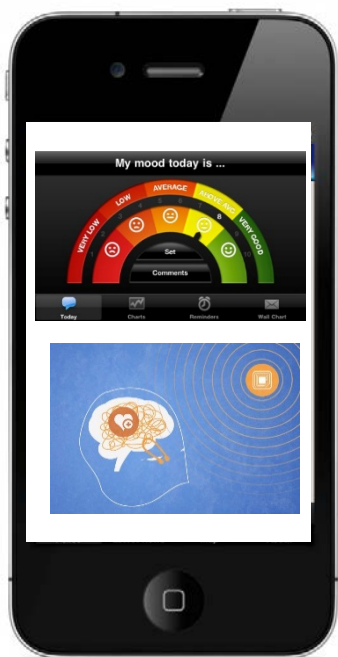


Body odour in ear canal
stress hormone cortisol appeared in the waxy plug of blue whale

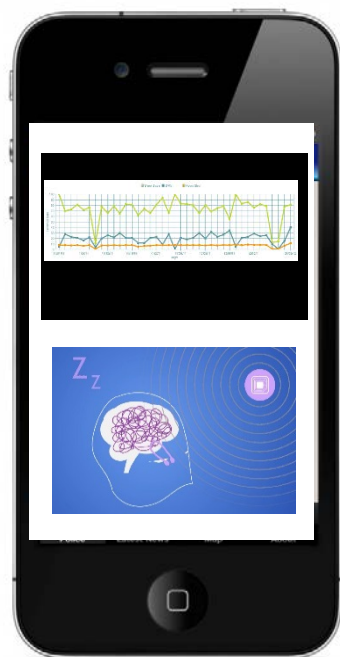
Develop eScent® App for wearable 'scent bubble' →



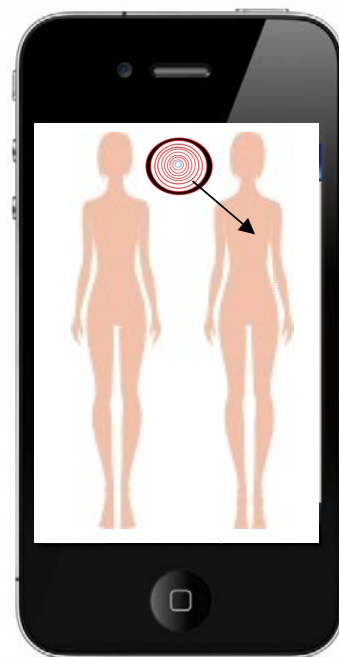
SET GOALS



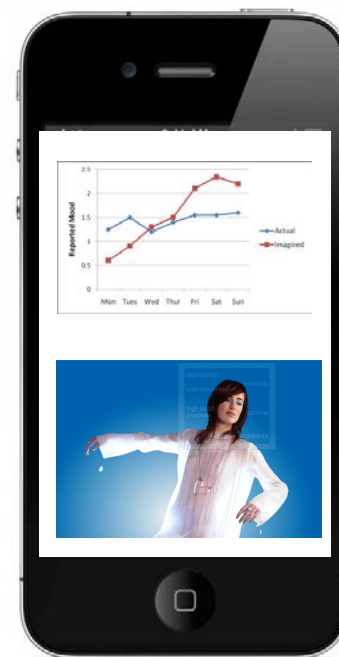
TRACK MOOD



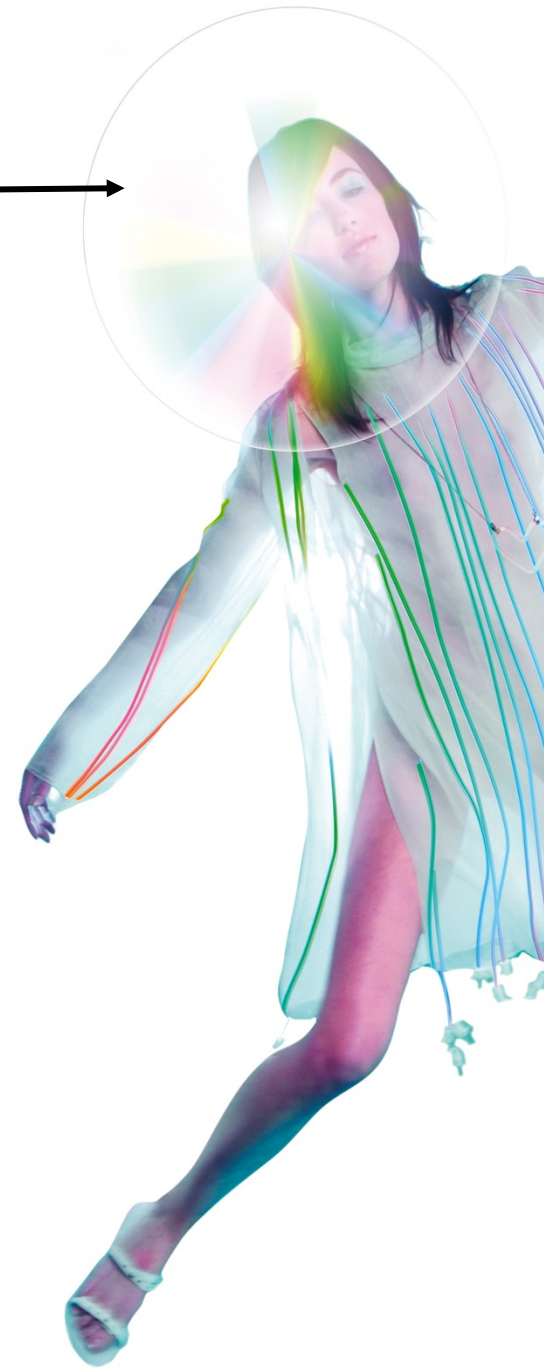
TRACK SLEEP



TRACK SMELL
e-Nose



WATCH SELF
IMPROVE



Many other different applications, tools . . .

Memory recall - dementia

CBT Cyber tool – impact *behavioural change*

Curb / enhance appetite . . .

Learning, entertainment, etc

Diagnosing disease . . .

**DON'T
PANIC!**

eScent®
BENEFITS



Thank you!

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@scentsory

