



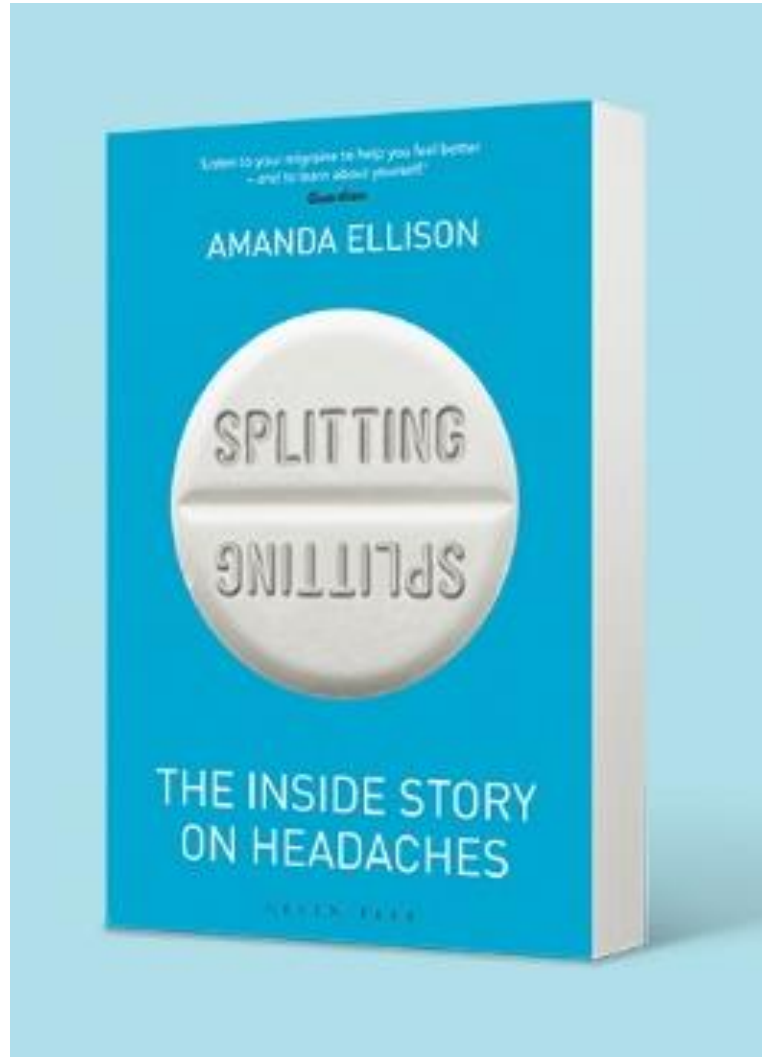
# **What your headache says about you.**

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Why write a book about headaches? Does talking about headache have to be painful?

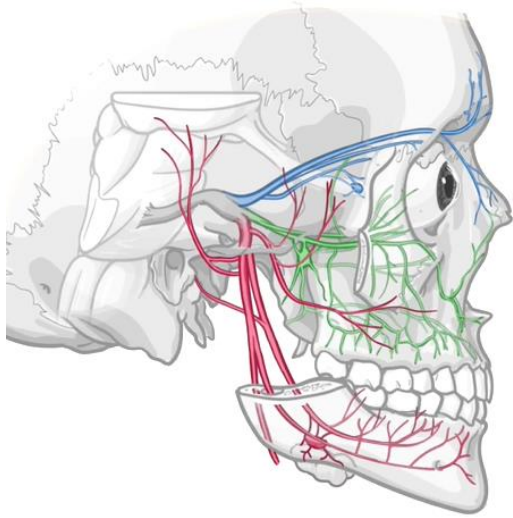
Not all headaches are the same.

Headaches are life events, they don't just live in your head.



## Types of headache

### Brain Freeze! Cold Stimulus headache



OPHTHALMIC ( $V_1$ )

MAXILLARY ( $V_2$ )

MANDIBULAR ( $V_3$ )

- Occurs in over 1/3<sup>rd</sup> of the population  
- some studies place it at 75%!
- stabbing, aching pain lasts for 30-60 seconds.
- Located in the temple or forehead



No definite link between migraine and ice-cream headache sufferers, but migraines are occasionally triggered by cold stimuli.

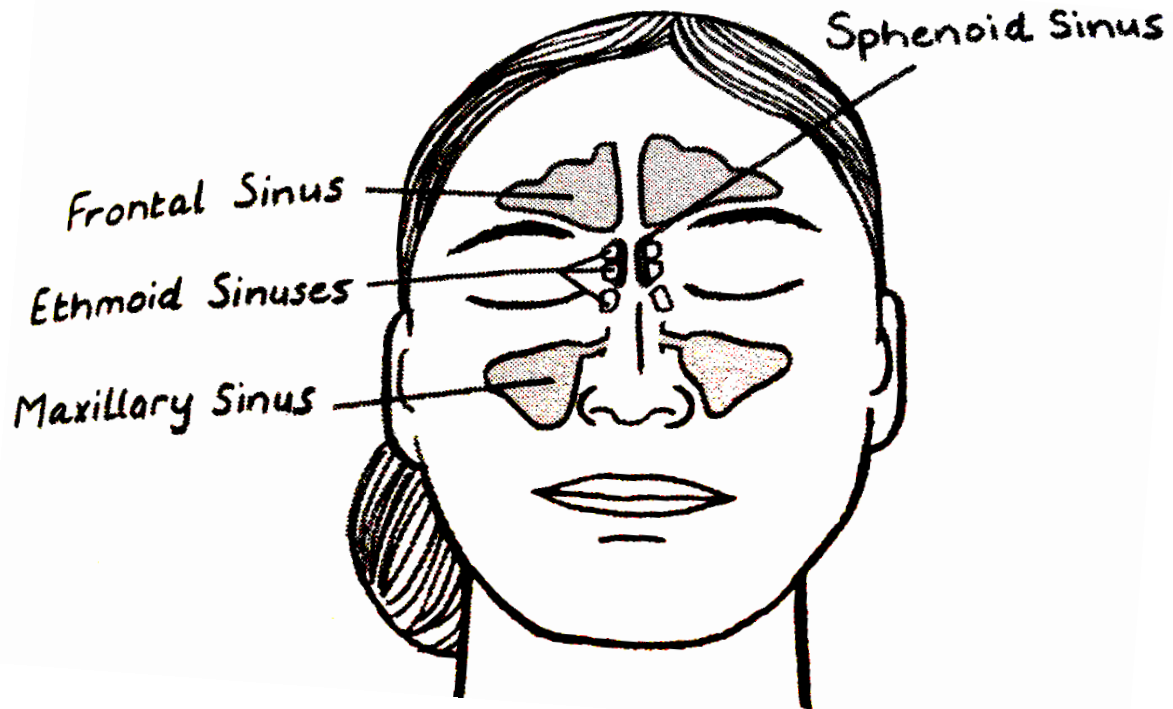
Mediated by referred pain from the palate, and only in hot weather!  
*Bird et al., 1992.*

"Gobbling" ice-cream increases prevalence by 50%  
*Kaczorowski & Kaczorowski, 2002.*

# Types of headache

## Sinus

Pain is behind browbone  
and/or cheekbones



Sinuses are air filled cavities in forehead bone, the cheek bone on each side, and behind the bridge of your nose.

Sinuses are filled with air, and their secretions must be able to drain freely into the nose. Allergic reactions or infection leads to inflammation causing blockage and so, pain.

Treatment include decongestants and/or anti-histamines.

In severe cases drainage surgery is required to stop infection affecting the brain

I.D.: \_\_\_\_\_

SINO-NASAL OUTCOME TEST (SNOT-22)

DATE: \_\_\_\_\_

Below you will find a list of symptoms and social/emotional consequences of your rhinosinusitis. We would like to know more about these problems and would appreciate your answering the following questions to the best of your ability. There are no right or wrong answers, and only you can provide us with this information. Please rate your problems as they have been over the past two weeks. Thank you for your participation. Do not hesitate to ask for assistance if necessary.

1. Considering how severe the problem is when you experience it and how often it happens, please rate each item below on how "bad" it is by circling the number that corresponds with how you feel using this scale: →	No Problem	Very Mild Problem	Mild or slight Problem	Moderate Problem	Severe Problem	Problem as bad as it can be	5 Most Important Items
1. Need to blow nose	0	1	2	3	4	5	<input type="radio"/>
2. Nasal Blockage	0	1	2	3	4	5	<input type="radio"/>
3. Sneezing	0	1	2	3	4	5	<input type="radio"/>
4. Runny nose	0	1	2	3	4	5	<input type="radio"/>
5. Cough	0	1	2	3	4	5	<input type="radio"/>
6. Post-nasal discharge	0	1	2	3	4	5	<input type="radio"/>
7. Thick nasal discharge	0	1	2	3	4	5	<input type="radio"/>
8. Ear fullness	0	1	2	3	4	5	<input type="radio"/>
9. Dizziness	0	1	2	3	4	5	<input type="radio"/>
10. Ear pain	0	1	2	3	4	5	<input type="radio"/>
11. Facial pain/pressure	0	1	2	3	4	5	<input type="radio"/>
12. Decreased Sense of Smell/Taste	0	1	2	3	4	5	<input type="radio"/>
13. Difficulty falling asleep	0	1	2	3	4	5	<input type="radio"/>
14. Wake up at night	0	1	2	3	4	5	<input type="radio"/>
15. Lack of a good night's sleep	0	1	2	3	4	5	<input type="radio"/>
16. Wake up tired	0	1	2	3	4	5	<input type="radio"/>
17. Fatigue	0	1	2	3	4	5	<input type="radio"/>
18. Reduced productivity	0	1	2	3	4	5	<input type="radio"/>

## SNOT-22

<https://www.canvasc.ca/pdf/SNOT22.pdf>

Mild: 8-20

Moderate: 20 – 50

Severe: > 50

# Types of headache

## Tension

Pain is like a band  
squeezing the head  
(and/or weight sitting on  
top)



## Physical Causes

Poor posture, close work under poor lighting  
conditions, or cramps from assuming an  
unnatural head or neck position for long  
periods of time

Arthritis, particularly cervical arthritis  
Abnormalities in neck muscles, bones or discs

Eye strain caused when one eye is  
compensating for another eye's weakness

Misalignment of teeth or jaws

Noise or lighting

## Emotional causes

can potentiate physical effects

Treated with anti-inflammatories  
(helped by caffeine as a vasoconstrictor),  
muscle relaxants or nitric oxide synthase  
inhibitors.

Emotional causes can be treated separately.

## Types of headache

Derived from the Greek word  
"hemikrania"

Migraine  
Pain, nausea and  
visual changes



Migraine is characterised by changes  
in vascular and neurological activity

The migraine episode starts days in  
advance of the pain phase:

Yawning  
Dull feeling  
Sugar craving  
Chocolate craving  
Emotionally low



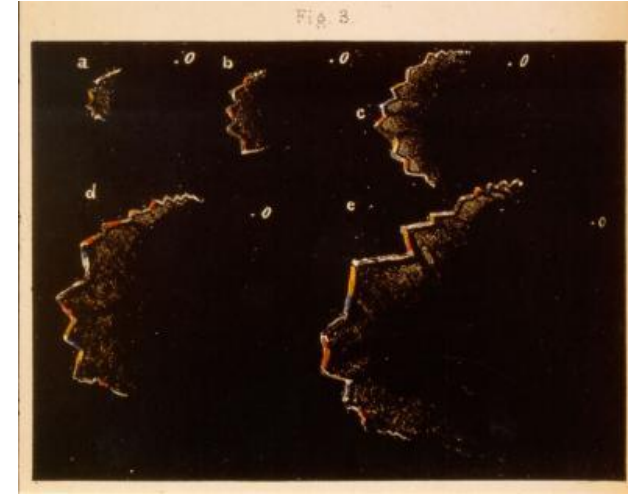
# Symptoms of Migraine headache

## 4 phases

### 1. Prodrome phase:

Can precede attack from 3 hours to two days.

- Sensitivity to light or sound.
- Changes in appetite.
- Fatigue.
- Malaise.
- Mood changes.



### 2. Pre-headache sensory disturbance: Aura:

Can occur in 20% of migraine attacks and lasts from 15 to 45 minutes.

With aura: classic migraine

• Without aura: common migraine

• Visual disturbances: zigzag lines, stars, simmering areas, blind spots, tunnel vision.

• Speech disturbances

• Tingling or numbness

• Muscle weakness

• Perceptual disturbances.

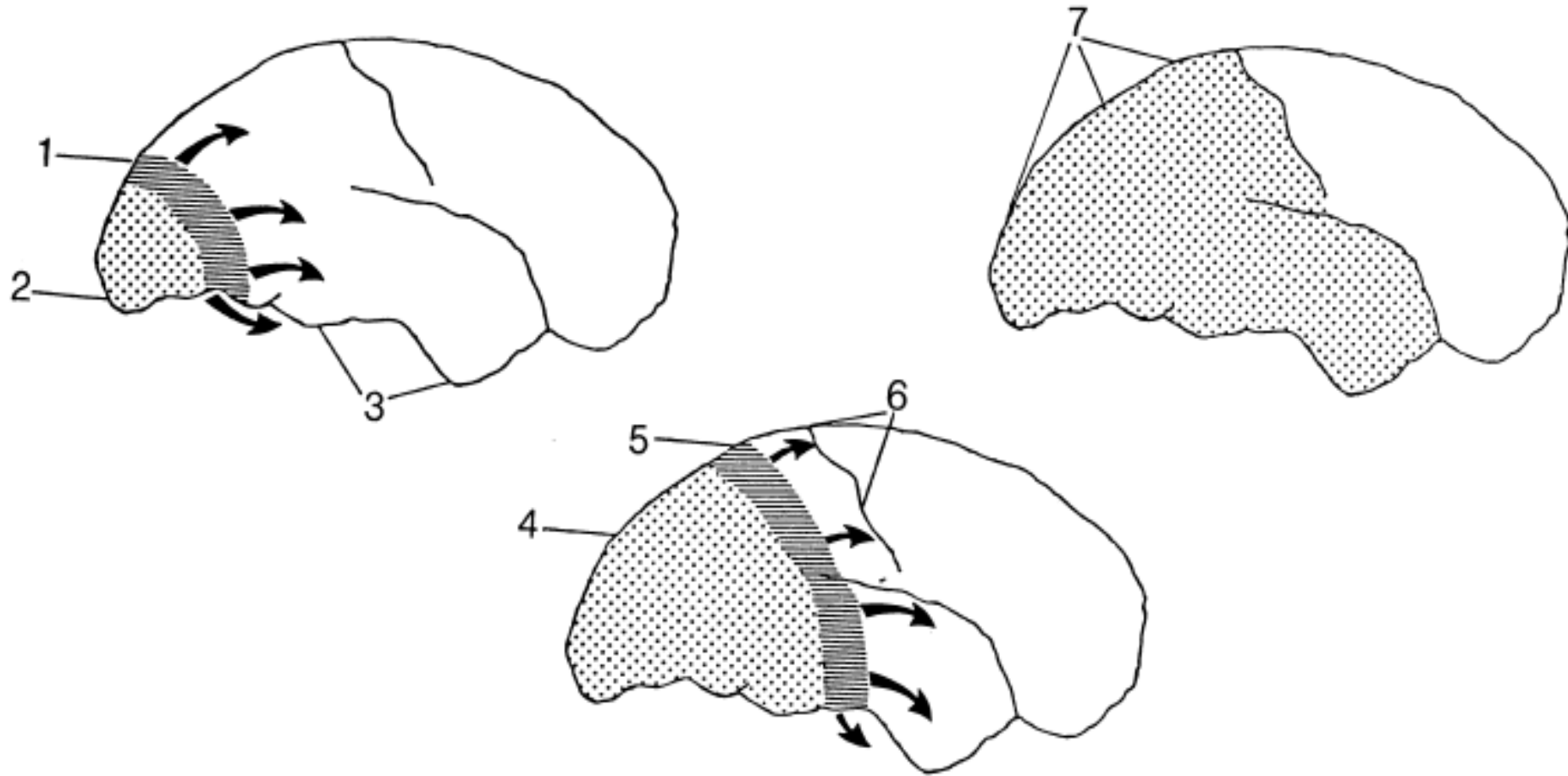
• Ocular migraine just has this phase





# Neural activity during Migraine - how this interfaces with vascular changes.

Wave of excitability followed by cortical spreading depression.



# Symptoms of Migraine headache

## 4 phases

Migraine  
Pain, nausea and  
visual changes



### 3. Pain phase:

Throbbing pain on one side of the head  
Accompanied by nausea, sometimes  
vomiting.

Facial tingling and numbness.

Pain spreads to affect the entire head and  
is worsened by physical activity,

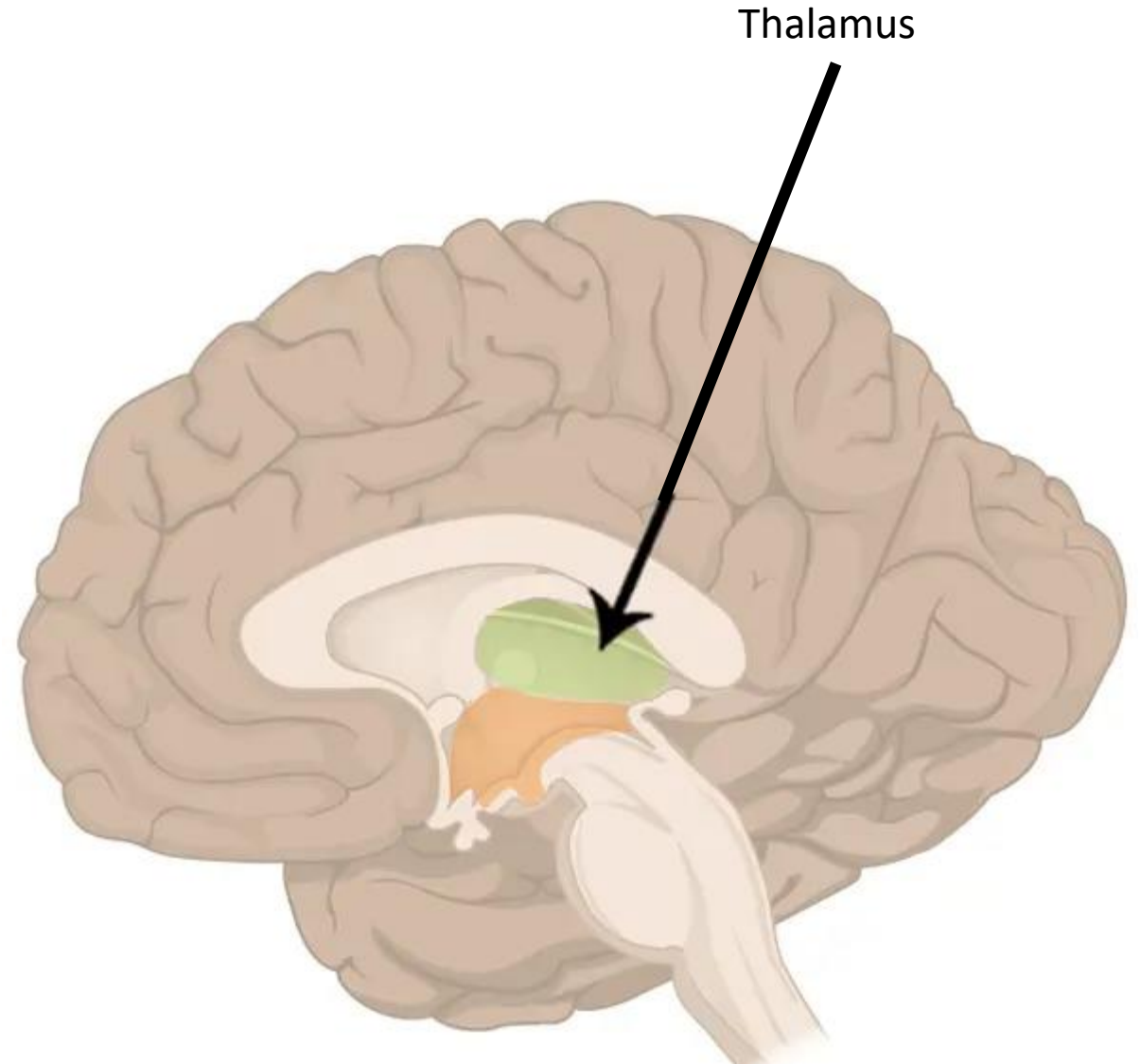
Extreme sensitivity to light and noise.

Cold sensation and paleness.

## Migraine is a whole body event



4. **Postdrome phase:**  
Exhaustion and mentally foggy.



## Causes of MIGRAINE

### Menstrual Migraine

Otherwise known as Hormone headache.

Migraine  
Pain, nausea and  
visual changes



Women suffer migraines three times more frequently than men do; and, menstrual migraines affect 70% of these women.

Menstrual migraines are primarily caused by oestrogen, the female sex hormone that specifically regulates the menstrual cycle fluctuations throughout the cycle. When the levels of oestrogen and progesterone change, women will be more vulnerable to headaches.

Migraine with aura : high oestrogen

Migraine without aura : low oestrogen

Because oral contraceptives influence oestrogen levels, women on birth control pills may experience more menstrual migraines. But this may diminish over time.

## Causes of migraine

Migraine  
Pain, nausea and  
visual changes

### Enhanced brain excitability

proposed as the basis for triggering  
migraine aura

Occipital cortex neurons may be hyperexcitable in  
90% of migraineurs (Wilkins *et al.*, 1984)

Greater sensitivity for low level visual processing  
between attacks: functional impairment of  
inhibitory neurons.





# Migraine

## Pain, nausea and visual changes



## Causes of MIGRAINE

### Diet induced Migraine

Some chemicals causes vasodilation and if prone to migraine, sets up an attack.

Suspects:

nitrites (preservatives in processed foods)?

Chinese food?

tyramine (found in ripened cheese such as Brie and cheddar)?

Wine?

There is no link to chocolate causing headache. It's a myth probably based on the sweet cravings during the menstrual cycle and the incidence of menstrual migraine.

Withdrawal of caffeine (a vasoconstrictor) can have the same effect.





## Drug Treatment for migraine



The efficacy of drugs that act on neural transmission lends support to the neural basis of migraine.

Triptans (selective serotonin and histamine receptor agonists) increase the level of serotonin in the brain for a short period of time.

other drugs that block other chemicals found in high concentrations in the migraineur (e.g. CGRP)

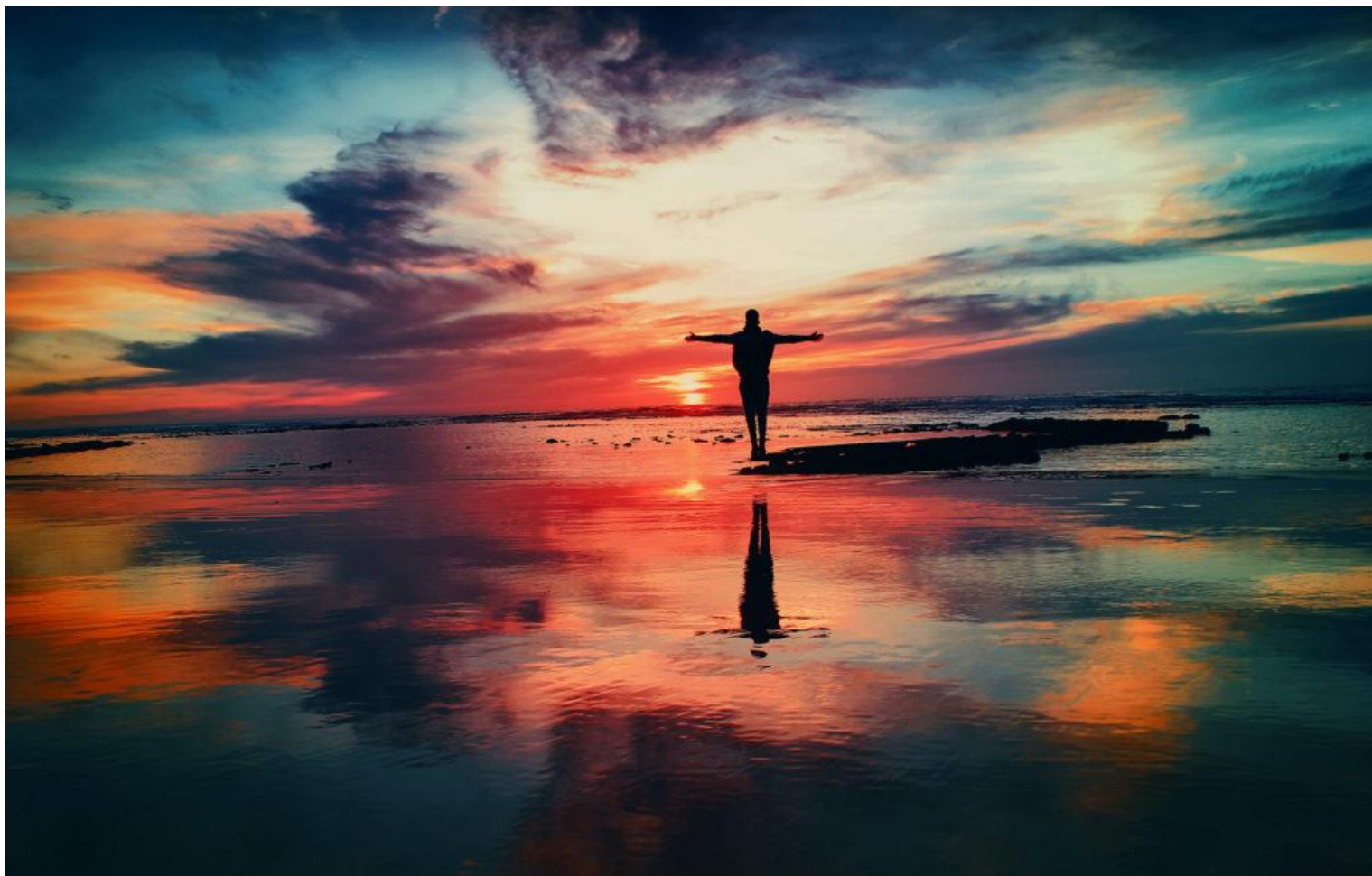
Preventative measures:

Anti-depressants such as SSRIs may stabilise serotonin levels over time.

Antiepileptics: but they can cause drowsiness.

NSAIDs reduce vascular inflammation and the release of prostaglandins.

Beta-blockers, may improve blood flow.



Thanks for being here



@ellison\_brain

