



# **Stress and the Brain**

Dr. David Walczyk  
[davidwalczyk.com](http://davidwalczyk.com)

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# Our Goals for Today

**Spark** our interest in the relationship between stress and neurobiology

Become **familiar** with some of the language associated with stress and neurobiology

Become better **equipped** to reflect on our personal relationship with stress

Become better equipped to **relate** to others that are experiencing stress

Become more **interested** in the therapeutic process of transforming stress

# Is stress archetypal?

In the sense that stress may be experienced by all people in all cultures, then **yes** stress is archetypal



**Ananke**  
**Necessitas**





## Is there a difference between stress and anxiety?

Stress is a response associated with worry, frustration, unease and similar feelings

Anxiety is a reaction, most often based in fear or a feeling of helplessness

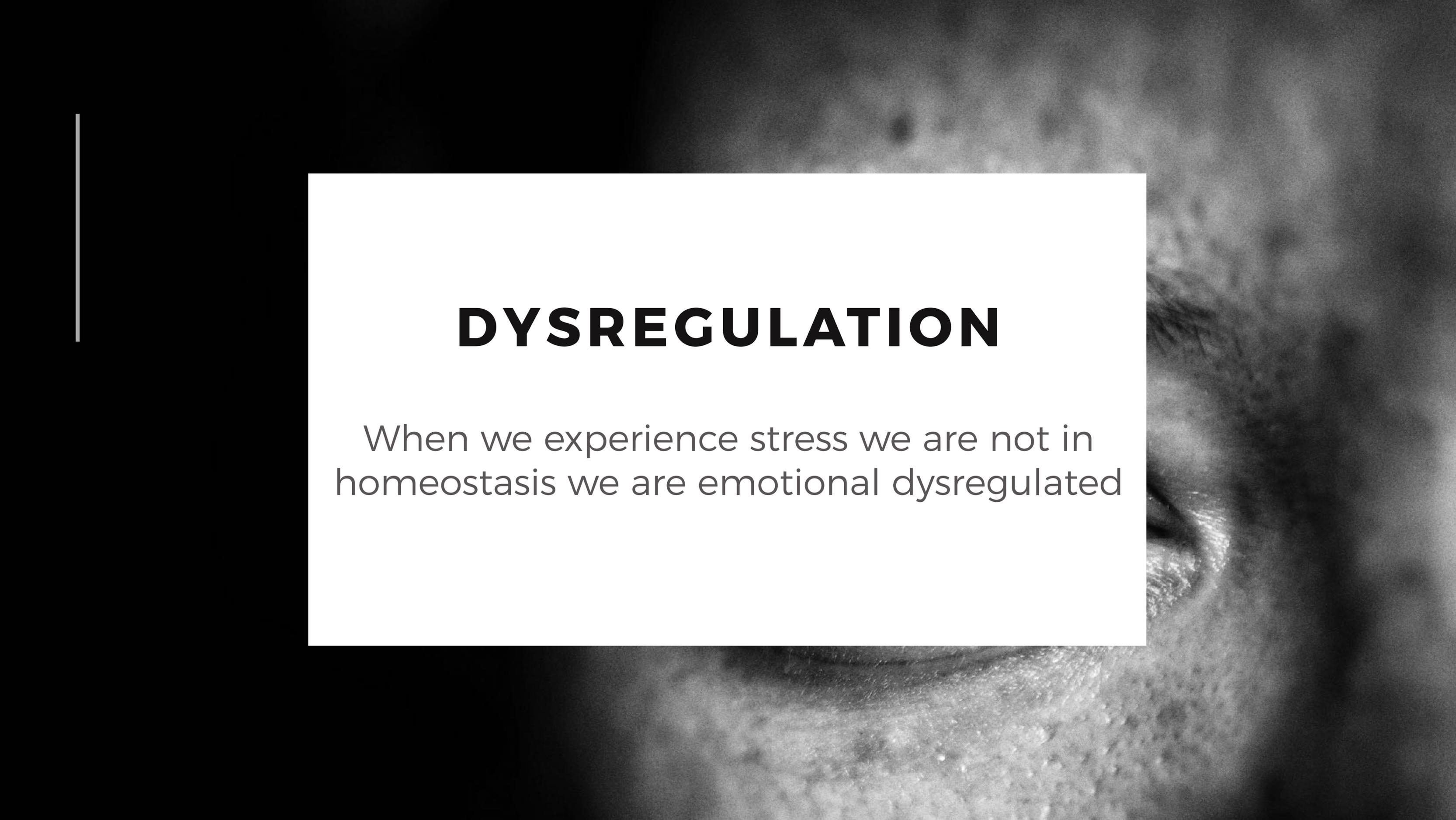
**YES...  
SORT OF**



An anatomical model of a human head, showing the brain and its vascular system. The model is mounted on a stand and features various colored structures: red for arteries, blue for veins, and yellow for nerves. The brain is shown in a sagittal section, revealing internal structures like the cerebrum, cerebellum, and brainstem. The model is set against a blurred background of a laboratory or classroom.

# HOMEOSTASIS

The brain seeks to maintain balance within the body



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# **DYSREGULATION**

When we experience stress we are not in homeostasis we are emotional dysregulated



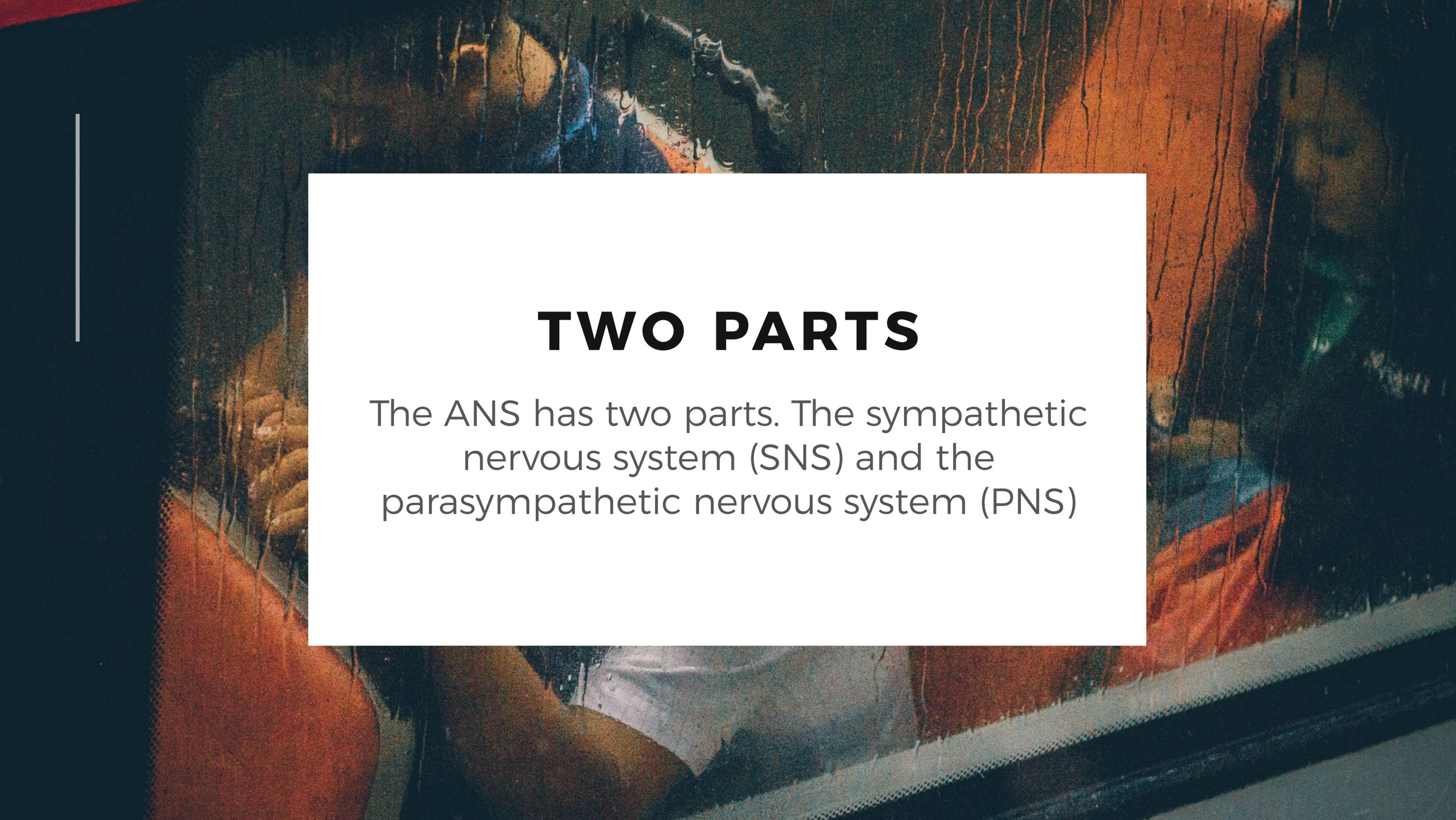
# **STRESS IS...**

When considered as an embodied experience,  
stress is a form of emotional dysregulation



# **ANS**

The brain seeks to maintain emotional regulation, using the autonomic nervous system (ANS)

The background is an abstract, textured composition. It features dark, almost black, areas with vertical, vein-like patterns in shades of brown, orange, and red. There are also some lighter, greyish-blue areas interspersed. The overall effect is that of a rough, layered surface, possibly wood or stone, with a complex, organic feel.

# **TWO PARTS**

The ANS has two parts. The sympathetic nervous system (SNS) and the parasympathetic nervous system (PNS)

# **DURING STRESS**

When we experience stress, the sympathetic nervous system (SNS) is activated



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# **WHEN SNS IS ACTIVATED**

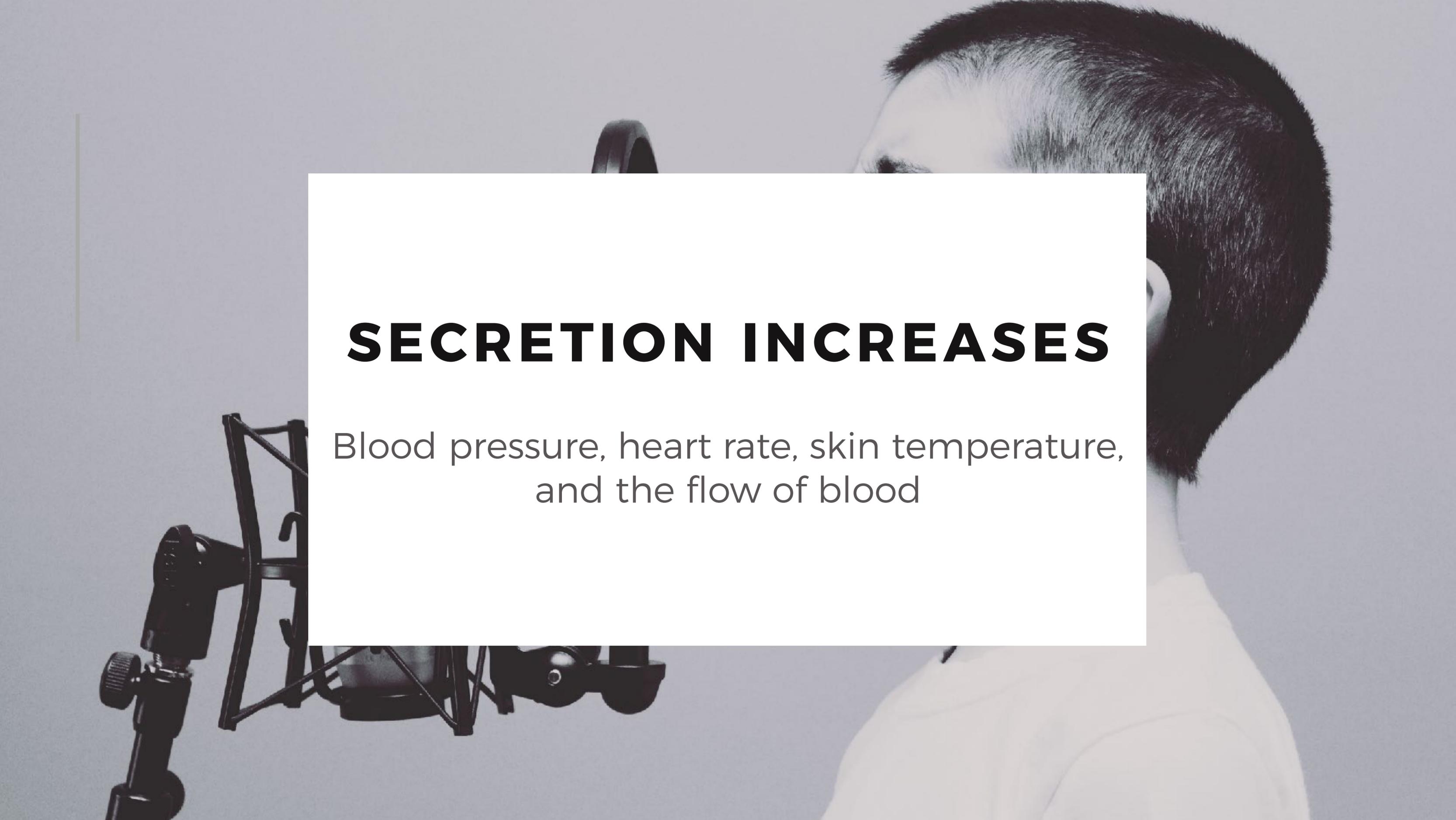
When the SNS is activated, our body is flooded with stress hormones



# **FLOODED WITH...**

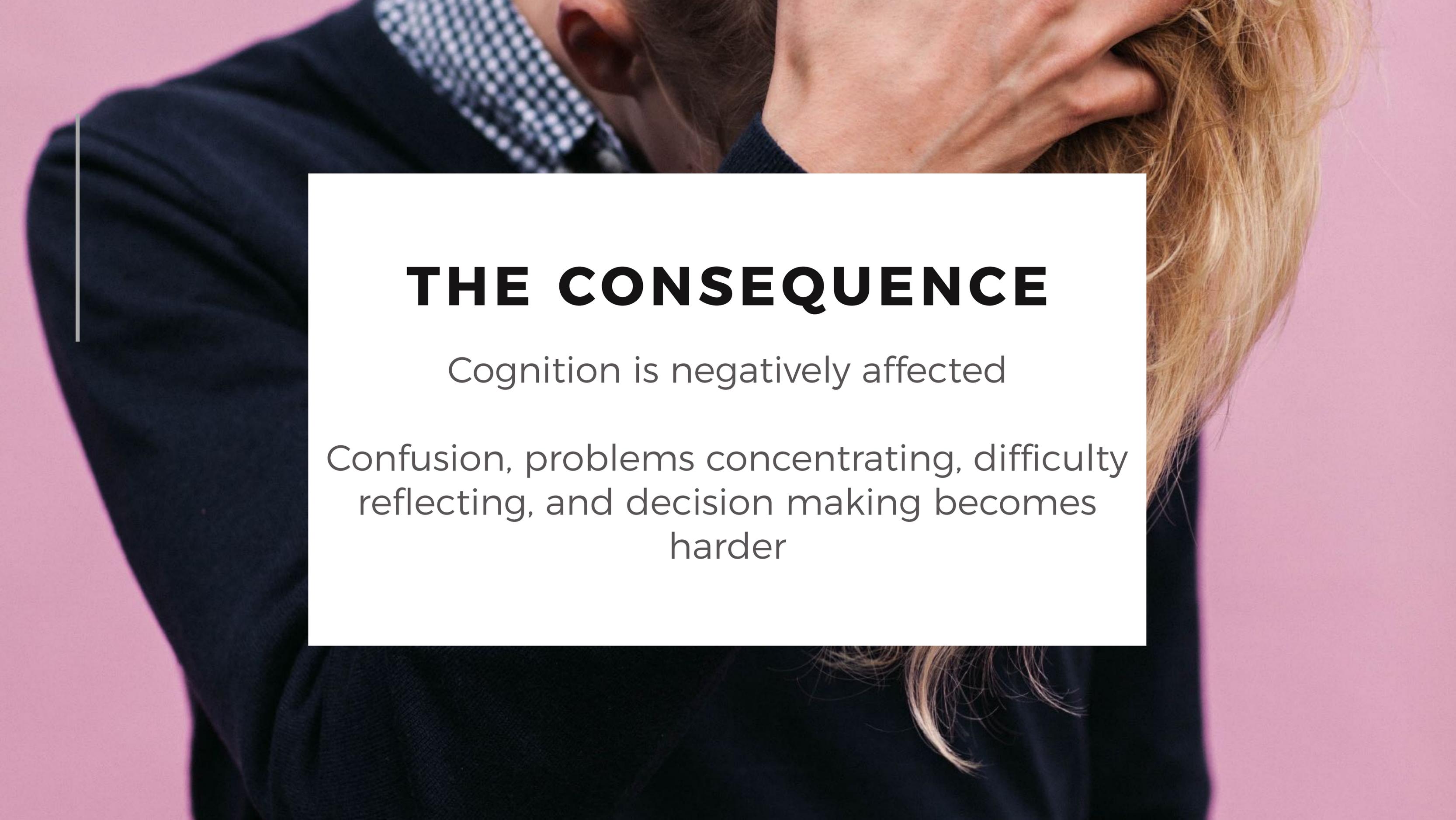
Epinephrine and Cortisol

Because of their secretion, their serum levels  
increase



# **SECRETION INCREASES**

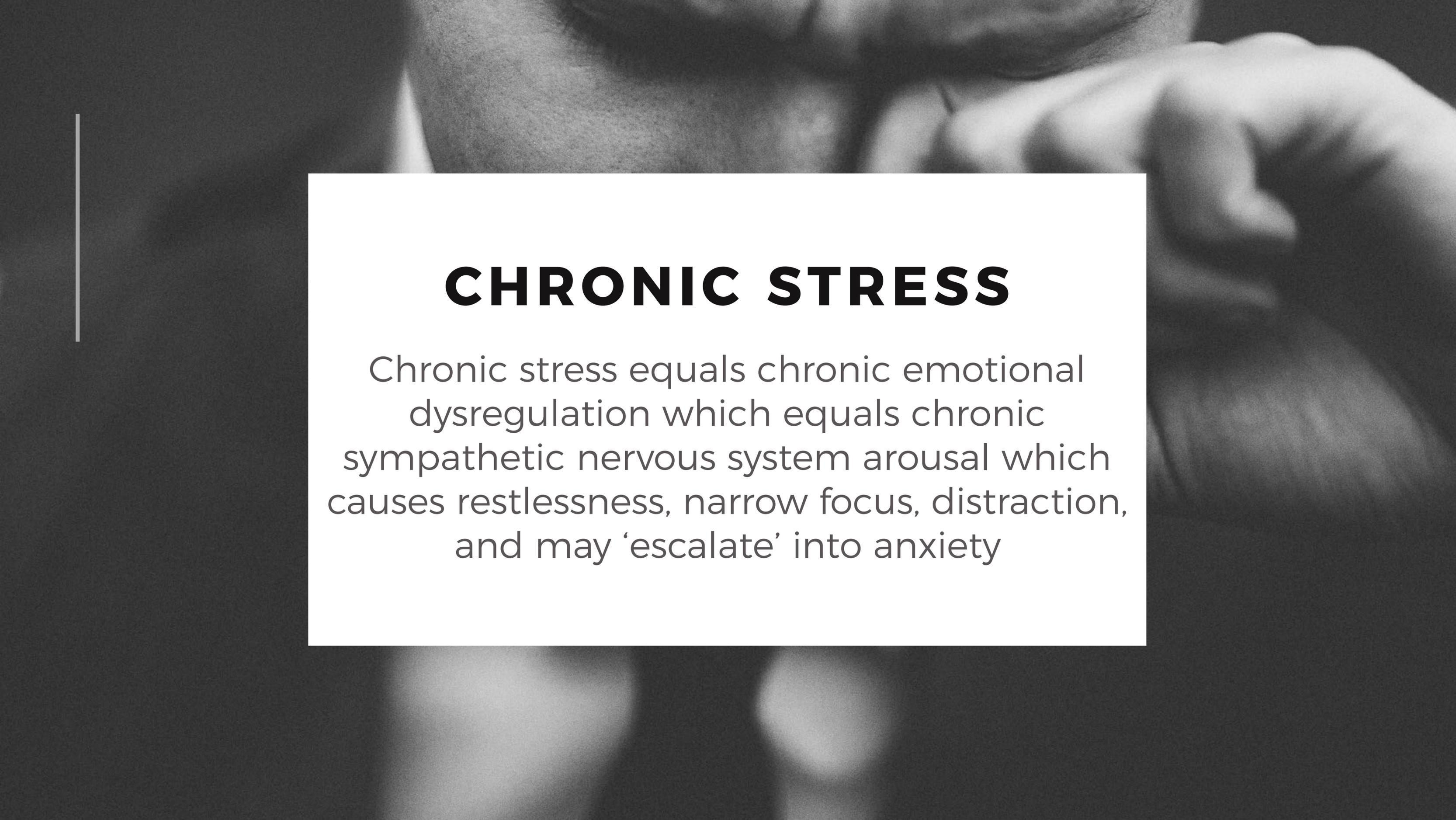
Blood pressure, heart rate, skin temperature,  
and the flow of blood



# **THE CONSEQUENCE**

Cognition is negatively affected

Confusion, problems concentrating, difficulty reflecting, and decision making becomes harder



# **CHRONIC STRESS**

Chronic stress equals chronic emotional dysregulation which equals chronic sympathetic nervous system arousal which causes restlessness, narrow focus, distraction, and may 'escalate' into anxiety

# SLOW DOWN

## **PNS**

The parasympathetic nervous system (PNS) is the opposite of the sympathetic nervous system (SNS)

A stack of smooth, dark stones is balanced on a mossy rock in a forest setting. The stones are stacked vertically, with the largest at the bottom and the smallest at the top. The background is a blurred forest scene with sunlight filtering through the trees. A white rectangular box is overlaid on the right side of the image, containing text.

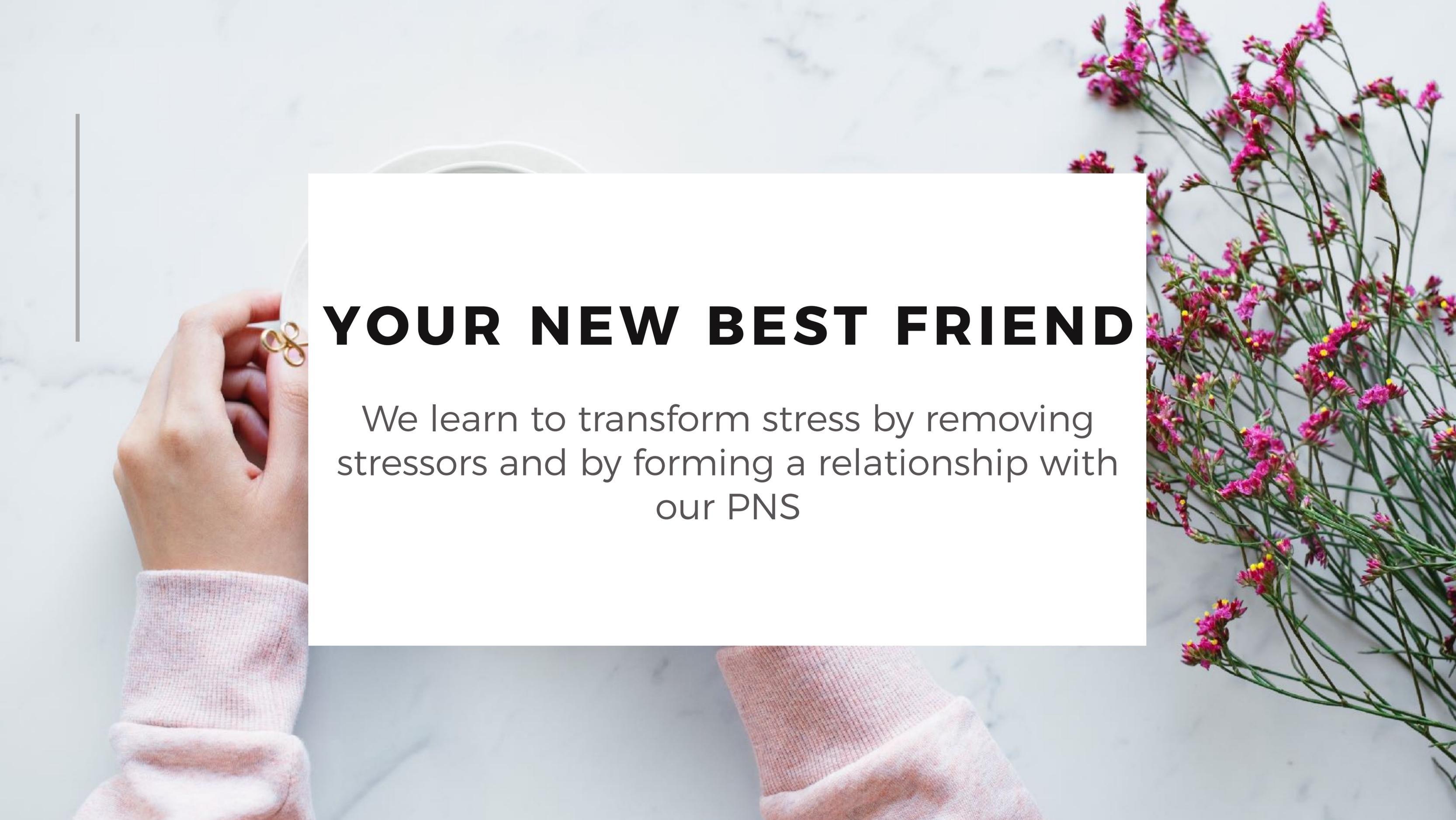
# **REGULATION**

Activating the PNS helps us return to and maintain emotional regulation

# WHEN PNS ACTIVATED

When the PNS is activated blood pressure decreases, pulse rate decreases, skin temperature decreases, heart rate decreases, respiration rate decreases, and we can start reflecting again

Cognition begins to return

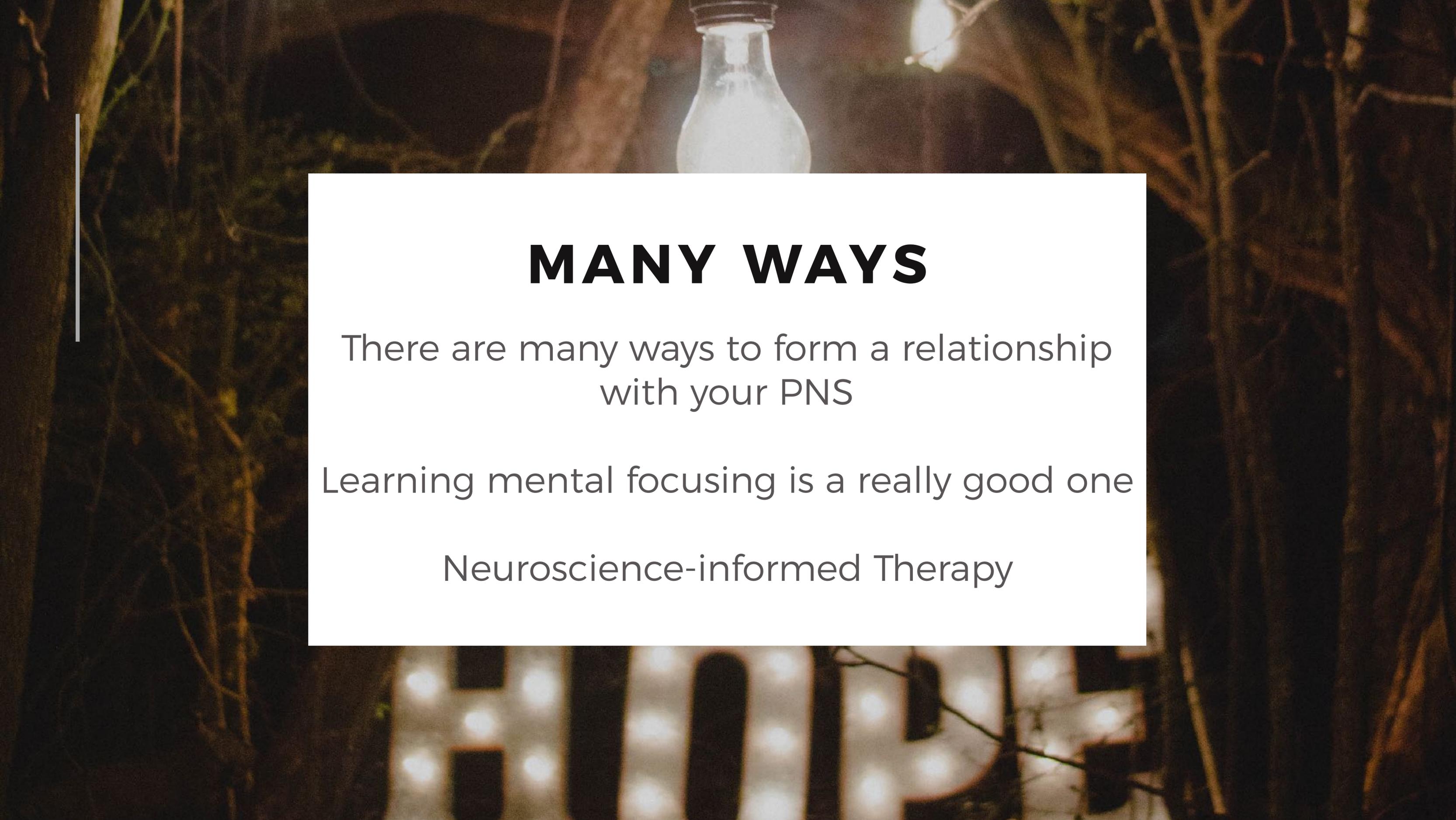
A hand holding a pair of gold scissors, a pink sweater cuff, and a bouquet of pink flowers on a marble background.

# **YOUR NEW BEST FRIEND**

We learn to transform stress by removing stressors and by forming a relationship with our PNS

# GETTING TO KNOW YOU

When we form a relationship with our PNS we begin to experience more calmness, tranquility, awareness, compassion, empathy, and experience more connectedness with others, cortisol and adrenaline production and secretion begins to stabilize and return to 'normal'



# **MANY WAYS**

There are many ways to form a relationship  
with your PNS

Learning mental focusing is a really good one

Neuroscience-informed Therapy



# **THERE'S ALWAYS A BUT**

But, without the willingness and ability to pay attention, the relationship is neurobiologically impossible

# **AND ANOTHER BUT**

Change can happen quickly

But change is lost just as quickly if we stop

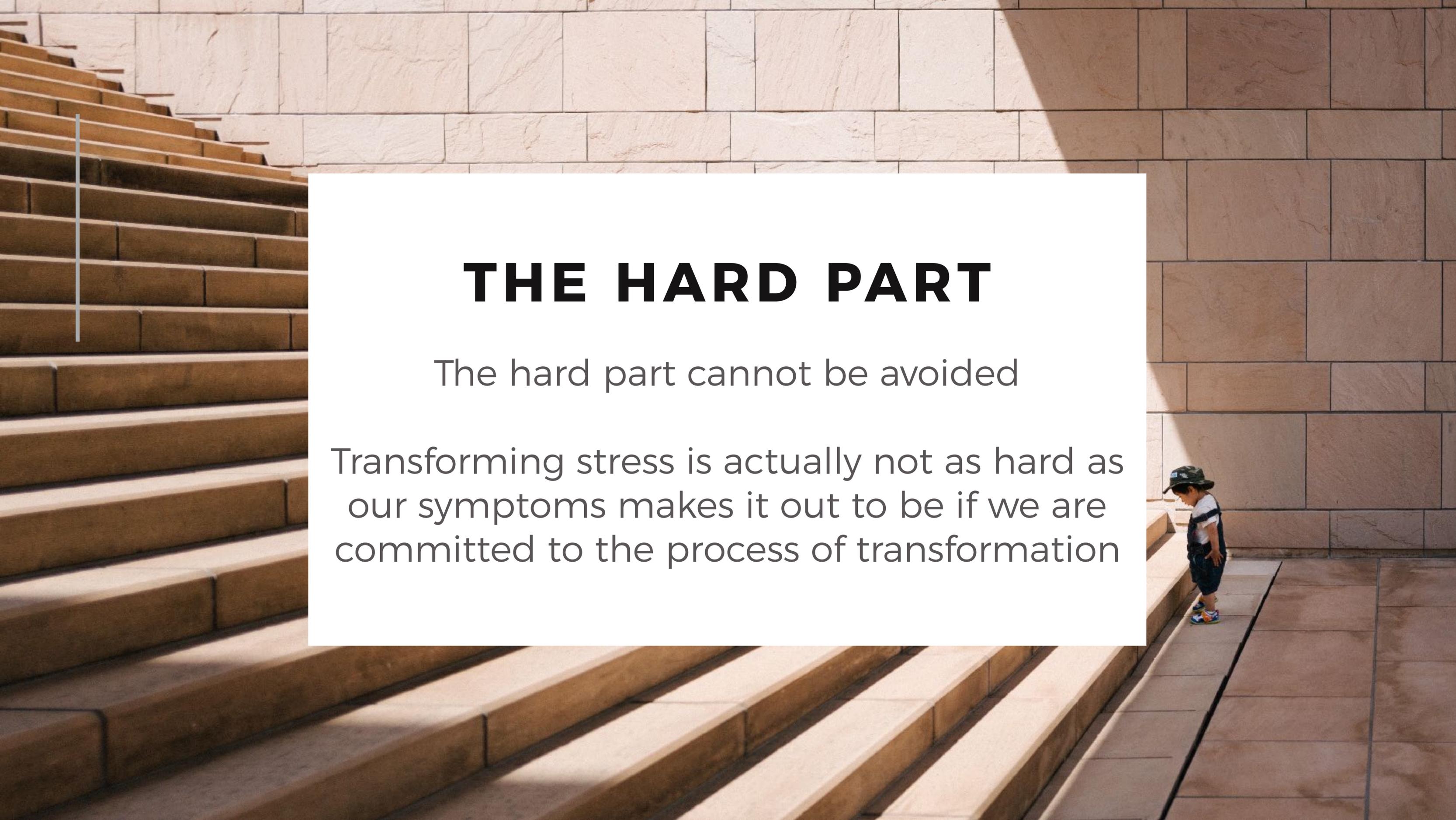
A landscape photograph featuring a gravel path leading through a grassy field towards a line of bare, weeping trees under a grey, overcast sky. A white rectangular box is overlaid on the center of the image, containing the text.

**WHAT WOULD A  
PRESENTATION BE  
WITHOUT SOME ADVICE**



**CHANGE IS HARD SO  
TOUGHEN UP**



A young child wearing a hat and overalls stands on a wide set of stone steps in front of a stone wall. The child is looking down at the steps. The scene is brightly lit, with shadows cast across the steps and wall.

# **THE HARD PART**

The hard part cannot be avoided

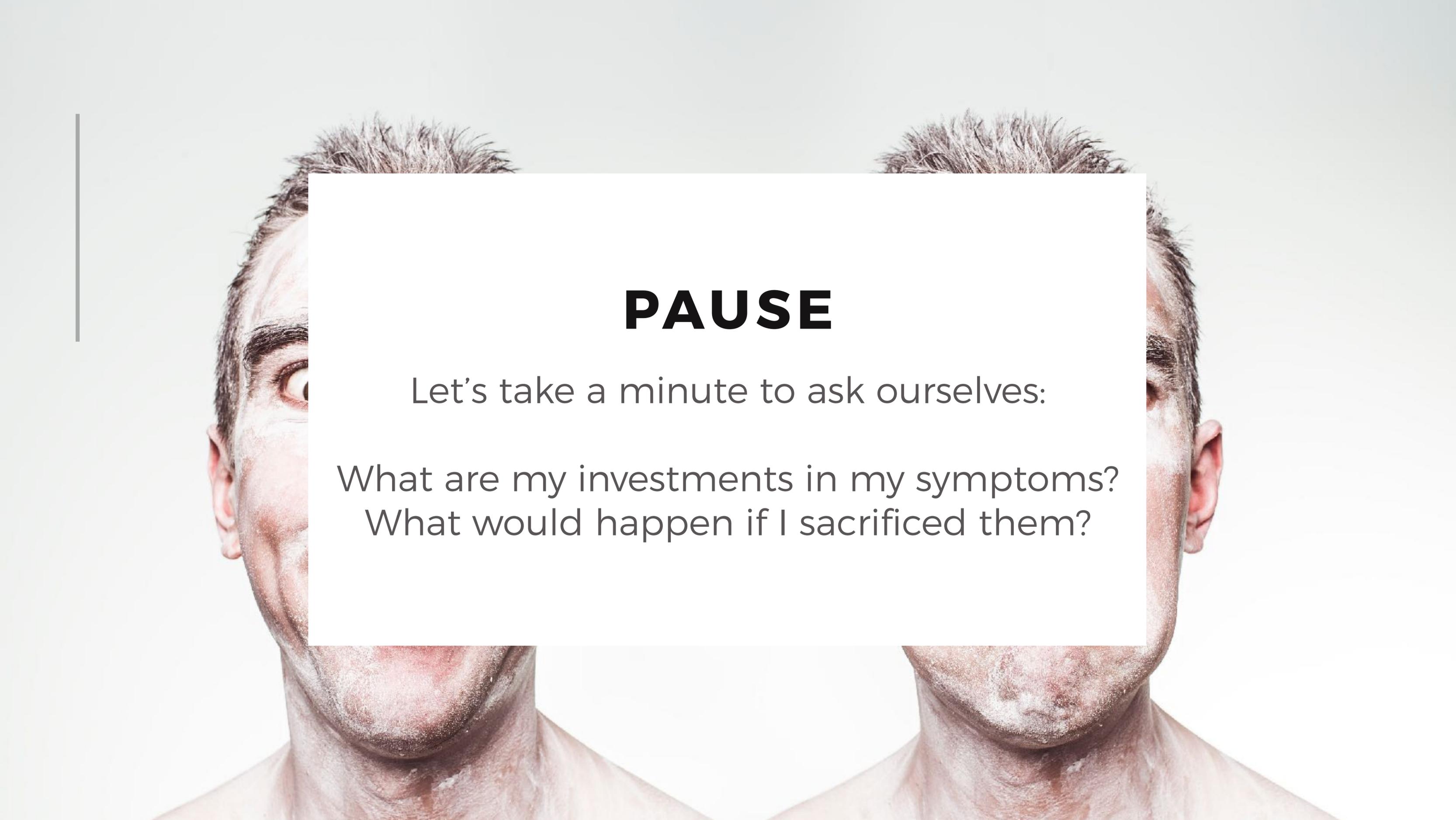
Transforming stress is actually not as hard as our symptoms makes it out to be if we are committed to the process of transformation

# **SAYING GOODBYE**

But we are often too invested in our symptoms to sacrifice them for a better life



**DARE TO BE NAIVE**



# PAUSE

Let's take a minute to ask ourselves:

What are my investments in my symptoms?  
What would happen if I sacrificed them?

PLEASE

## **MY POSSIBILITY**

When you begin the very hard and often scary process of sacrificing the symptoms, the process of transformation becomes possible

Y RELA

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TOUC

FEEL

TALK

MUNIC

CAMERA FLA

**NO SACRIFICE  
NO TRANSFORMATION**





# **MY SACRIFICE**

In my experience, the sacrifice of symptoms is the spiritual component of transforming stress

A blue sky with white clouds and a ladder on the left side.

**RELATING TO YOUR  
STRESS DOESN'T MEAN  
YOU WILL NEVER  
EXPERIENCE IT AGAIN**

**THAT IS IMPOSSIBLE**

A top-down view of a person's feet wearing different styles of shoes on a tiled floor. The floor is made of large, light-colored square tiles. In the center, a white rectangular box contains the text "START SMALL & CELEBRATE EVERY ACHIEVEMENT" in bold, black, uppercase letters. To the left of the box, the word "PASS" is painted in orange on the floor. To the right, the word "HERE" is painted in orange. At the bottom of the frame, the person's feet are visible, wearing a pair of brown leather loafers and a pair of dark blue sneakers with white laces. The lighting is bright, creating soft shadows on the floor.

**START SMALL &  
CELEBRATE EVERY  
ACHIEVEMENT**

PASS

HERE

**That's it  
for now**



**But there's so much more!**  
Limbic system, amygdala, executive functioning, prefrontal  
cortex, default mode network, task specific network,  
parietal lobe, attachment, vagus nerve



# Dr. David Walczyk

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